

SELF-ASSESSMENT OF THE NATIONAL REGULATORY INFRASTRUCTURE FOR SAFETY

Japan

Generated By

SARIS

**the IAEA Self Assessment of Regulatory Infrastructure
for Safety**

and completed on 11/11/2015

OUTCOMES OF THE SELF-ASSESSMENT FOR CORE QUESTIONS (GSR PART 1 AND GS-R-3)

Module: Government Responsibilities for Safety

Findings

Question 1.1

Has the Government established a national policy and strategy for safety?

Answer

Yes

Finding

The Government has established a national policy and strategy for safety.

Response

The Government has established the following national policy for safety.

The Atomic Energy Basic Act provides that safety in the utilization of nuclear energy shall be ensured by taking into account the established international standards with the purpose of contributing to the protection of the people's lives, health, and property, environmental conservation, and national security (reference: Article 2 of the Atomic Energy Basic Act).

The Act also provides that, to ensure safety in the utilization of nuclear energy, the NRA shall be established as an external organization of the Ministry of Environment as separately prescribed law (reference: Article 3-2 of the Atomic Energy Basic Act).

In addition, the Reactor Regulation Act, the Radiation Hazards Prevention Act, and the Nuclear Emergency Act state safety policies in provisions for their purposes (Article 1 of the

Reactor Regulation Act, Article 1 of the Radiation Hazards Prevention Act, and Article 1 of the Nuclear Emergency Act).

The Government has established the following national strategy for safety.

The Reactor Regulation Act and its cabinet orders and ordinances provide a regulatory framework on refining activities, fabrication and enrichment activities, interim storage activities, reprocessing activities, waste disposal or storage activities, as well as the installation and operation of reactors.

The Nuclear Emergency Act and its cabinet orders and ordinances provide a regulatory framework including

- Obligations of nuclear facility licensees to prevent a nuclear emergency,*
- Procedures and requirements for declaring general emergency at nuclear facilities, and the subsequent establishment of the nuclear emergency response headquarters*
- Implementation of emergency response measures.*

Radiation Hazards Prevention Act and its cabinet order and ordinance provide a regulatory framework on the use, sale, rent, waste management, and other handling of radioisotopes, the use of radiation generators apparatuses, and the handling of material contaminated by radioactive materials.

The NRA decided its medium-term goals, which defines the medium-term policies of the NRA for ensuring safety in accordance with the Nuclear Regulation Authority Management Rules on February 12, 2015.

Subsidiary Question 1.1.1

Describe the fundamental safety objective and safety principles set out in the national safety policy and strategy. Indicate the extent to which the national policy and strategy align with the safety objective and fundamental safety principles established in the IAEA Safety Fundamentals.

Subsidiary Response

Principle 1: Responsibility for safety

The Reactor Regulation Act clearly stipulates the responsibilities of licensees for nuclear safety, covering facilities and activities for refining, fabrication, reprocessing, disposal, as well as installation and operation of nuclear power plants. That act does not allow the delegation of licensees' safety responsibilities to other parties, which means that such manoeuvres are legally prohibited for licensees. In addition, the licenses are required to enhance safety by taking into account the latest findings, through installation of components or equipment, or other measures such as strengthening safety training program.

The Radiation Hazards Prevention Act clearly stipulates the responsibilities of authorized operators, covering all activities in manufacturing, using, storing, transporting, or processing radioisotopes. That act does not allow the delegation of authorized operators' safety responsibilities to other parties.

Principle 2: Role of government

The government has established necessary legal and regulatory framework for nuclear safety in an appropriate manner, including the establishment of the NRA which independently performs duties from a neutral and fair standpoint.

Principle 3: Leadership and management for safety

The national policy and strategy for nuclear safety are provided by the Atomic Energy Basic Act, the NRA Establishment Act, the Reactor Regulation Act, the Radiation Hazards Prevention Act and the Nuclear Emergency Act. The NRA undertakes the responsibilities of nuclear safety regulation in an integrated manner.

The NRA implements its management system for nuclear safety with the leadership, and fosters nuclear safety, based on the NRA's rule for management system and its "Declaration on nuclear safety culture".

With regard to leadership and nuclear safety of licensees, they establish, implement, evaluate and improve their quality assurance programme, as required by the Commercial Reactors Ordinance (Article 69 to 75). In addition, as required by the Commercial Reactors QMS Ordinance, they implement the quality assurance programme specifically for design and construction, with the involvement of their top management.

Principle 4: Justification of facilities and activities

As stated in the IAEA fundamental safety principles (SF-1), in Japan, decisions relating to benefit and risk are taken at the highest level of government.

The Atomic Energy Basic Act states that “the objective of the use of nuclear energy is, through securing energy resources in the future, advances in the science and industrial developments, to contribute to the improvement of welfare of human society and people’s living standards” (Article 1) and that “The use of nuclear energy shall be limited to peaceful use, with secured safety, and conducted with autonomous efforts under democratic control. The results of these activities shall be open and contribute to the international cooperation” (Article 2).

The Reactor Regulation Act and the Radiation Hazards Prevention Act provide necessary regulatory framework based on the Atomic Energy Basic Act, which assumes that the benefit of the regulated facilities and activities outweigh the radiation risks to which they give rise.

In this context, the NRA does not make a regulatory decision based on the evaluation of benefit of individual nuclear facilities.

Principle 5: Optimization of protection

The NRA performs regulatory activities for the safe use of nuclear energy as mandated by the relevant acts such as the Reactor Regulation Act, the Radiation Hazards Prevention Act or the Nuclear Emergency Act. The NRA applies a graded approach in performing such activities.

The NRA makes the regulatory requirements as performance-based, and the licensees may decide the measures to satisfy these requirements with certain flexibilities

The licenses are required to enhance safety by taking into account the latest findings under the Reactor Regulation Act (Article 57-9).

Principle 6: Limitation of risks to individuals

The Reactor Regulation Act and the Radiation Hazards Prevention Act stipulate the dose limit for individuals.

For example, with regard to nuclear power plants, the Commercial Reactors Does Limit Notice provide dose limit in accordance with the IAEA BSS.

The Radiation Council, which is established within the NRA, may provide reports on promoting consistency of related technical standards on radiation protection, based on consultation from other government agencies.

Principle 7: Protection of present and future generation

The Reactor Regulation Act regulates all the stages (installation, construction, operation and decommission) for nuclear power plants, facilities and activities of refining, fabrication, interim storage of spent fuels, radioactive waste disposal and reprocessing of spent fuels, in order to protect both present and future generations.

The Radiation Hazards Prevention Act requires licensees and registrants to comply with the relevant technical standards, and covers all the activities from permission of use to the disposal.

In addition, the funds for decommissioning of commercial nuclear facilities, the management of spent fuel and the disposal of high level radioactive waste are ensured through the relevant acts and other measures.

Principle 8: Prevention and mitigation

The Reactor Regulation Act and its cabinet orders and ordinances provide necessary regulatory framework for permit, approval, inspection, enforcement and other necessary measures, covering facilities and activities for refining, fabrication, reprocessing, disposal, as well as installation and operation of nuclear power plants.

The Radiation Hazards Prevention Act and its cabinet order and ordinance provide necessary regulatory framework for permit, inspection, confirmation, and other necessary measures, covering all activities in manufacturing, using, storing, transporting, or processing radioisotopes, use of radiation generating apparatuses and management of radioactive waste and contaminants.

These acts require licensees to take prevention and mitigation of accidents. For example, the Commercial Reactors Ordinance requires licensees of nuclear power plants to have adequate measures both for design based accidents and beyond design basis accidents.

Principle 9: Emergency Preparedness and Response

The relevant acts require licensees to have preparedness and response to nuclear or radiation emergencies.

The government prepares measures to ensure timely and effective response to nuclear or radiation emergencies.

Principle 10: Protective actions to reduce existing or unregulated radiation risks

The government recognises that the situation in Fukushima prefecture moved to existing exposure situations as defined by the ICRP recommendations. The NRA issued a report

“Practical measures for evacuees to return their homes” in November 2013. The government is now implementing the following comprehensive and multi-layered measures to support the evacuees’ actions, taking into accounts the said NRA report.

- Monitoring and management of individual dose, through the provision of information on the individual dose as monitored by the government, and explanation on such monitoring results*
- Expansion of measures to reduce radiation exposure, through providing radiation dose maps and promoting decontamination*
- Enhancement of measures to reduce concerns on radiation risks, through promoting health care and consultations and medical checks*
- Implementation of risk communication in an easy-to-understand manner to the public*
- Deployment of counsellors who provide daily supports to the returning residents, and the establishment of facilities to promote the counsellors’ activities*

Central and local governments are conducting environmental monitoring, under the support of central government for off-site of nuclear facilities.

Subsidiary Question 1.1.2

List and briefly describe the main state bodies that have contributed to the establishment of the national safety policy and strategy, as well as the state bodies responsible for implementing it.

Subsidiary Response

The Cabinet has adopted the “Basic Policy on the Reform of an Organization in charge of Nuclear Safety Regulation”, setting forth the principles of Japan's new nuclear safety regulation system, such as assuring the separation of the nuclear regulatory organization from the nuclear promotion organization, and integration of all of the nuclear safety regulation activities. Under the new policy, a bill to establish a new organization and reform the existing system was submitted in January 2012. During the deliberation in the Diet, the Environment Committee of the House of Representatives redrafted and approved a package of revised laws for establishing a new regulatory body and reforming nuclear regulatory framework, including bills to amend the Atomic Energy Basic Act, the Reactor Regulation Act, the Radiation Hazards Prevention Act, and the Nuclear Emergency Act. These were

further deliberated on and approved by the House of Councillors, and came into force on September 19, 2012.

The NRA is responsible for ensuring safety in the use of nuclear energy. However, the following activities (including measures that are not regarded as regulation) fall under the responsibility of other ministries to the extent of their assigned duty.

Safety regulation on transportation (land transportation associated with shipment method, air transportation, and marine transportation): Ministry of Land, Infrastructure and Transport

Security of nuclear facilities: National Police Agency and Japan Coast Guard

Actions to address labor exposure, medical exposure, and radioactive material in food and tap water: Ministry of Health, Labour and Welfare

Nuclear emergency preparedness (off-site radiation protection measures): Cabinet Office

Constant monitoring of radioactive material in the atmosphere, public waters, and subsurface water: Ministry of the Environment

<Attachments>

Basic Concept of Structural Reform of Nuclear Safety Regulations (Cabinet decision on August 15, 2011)

Subsidiary Attachments

B03Basic Policy on the Reform of an Organization in charge of Nuclear Safety Regulation(Cabinet Decision)

Subsidiary Question 1.1.3

Describe how the safety policy and its corresponding strategy have been enacted / promulgated.

Subsidiary Response

The Atomic Energy Basic Act, the NRA Establishment Act, the Reactor Regulation Act, the Radiation Hazards Prevention Act, and the Nuclear Emergency Act described in the answer to SQID 1.2 were promulgated on June 27, 2012, in official gazettes and enforced on September 19, 2012.

Subsidiary Question 1.1.4

Describe how the national policy and strategy reflect a long term commitment to safety.

Subsidiary Response

The Atomic Energy Basic Act provides national policies and strategies for nuclear safety regulation in Japan, and its Article 2 states a commitment for ensuring safety.

<Attachments>

Article 2 of the Atomic Energy Basic Act

Subsidiary Attachments

B01The Atomic Energy Basic Act

Subsidiary Question 1.1.5

Describe the mechanisms set out in the strategy for implementing the national policy for safety.

Subsidiary Response

The NRA Establishment Act and its cabinet orders and ordinances provide the establishment of the NRA and its roles and functions. The NRA formulates necessary measures to ensure safety in the utilization of nuclear energy by taking into account established international standards and administers affairs for implementing the measures in an integrated manner. Its chairperson and commissioners independently exercise their authority based on their expertise from a fair and neutral perspective, and a council system is applied for the decision of the NRA.

The Reactor Regulation Act and its cabinet orders and ordinances provide necessary regulatory framework such as permits, approvals, inspections, orders, and other necessary measures covering refining activities, fabrication and enrichment activities, interim storage activities, reprocessing activities, waste disposal or storage activities, installation and operation of reactors.

Radiation Hazards Prevention Act and its cabinet order and ordinance provide for a system of permissions, inspections, confirmations, and other necessary regulations on the use, sale, rent, waste management, and other ways in which radioisotopes are handled, the use of radiation generating apparatus, and radioactive contaminants.

The Nuclear Emergency Act and its cabinet orders and ordinances provide framework such as licensees' obligations to take preventive measures for nuclear emergencies, a procedures of establishing the nuclear emergency response headquarters after declaring a general emergency, and implement ion of emergency response measures.

<Attachments>

NRA Establishment Act

Reactor Regulation Act

Radiation Hazards Prevention Act

Nuclear Emergency Act

Subsidiary Attachments

C02 Nuclear Emergency Act

H02The Act for Establishment of the Nuclear Regulation Authority

H10Act on Securing Etc. of Equal Opportunity and Treatment between Men and Women in Employment

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.1.6

Indicate the extent to which the national policy and strategy take account of binding international legal instruments, such as conventions and other relevant international instruments.

Subsidiary Response

The Convention on Nuclear Safety, the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management and other bilateral agreements have been integrated into the national policy and strategy, and are complied with through domestic laws and its implementations.

Subsidiary Question 1.1.7

Indicate the extent to which national policy and strategy for safety contribute to the specification of the scope of the relevant governmental, legal and regulatory framework.

Subsidiary Response

The national policy and strategy for nuclear safety are defined by the Atomic Energy Basic Act, the NRA Establishment Act, the Reactor Regulation Act, the Nuclear Emergency Act, the

Radiation Hazards Prevention Act, and these subordinate cabinet orders, ordinances, and notifications.

Subsidiary Question 1.1.8

Describe the extent to which national policy and strategy for safety take account of the need for, and make provision for, human and financial resources.

Subsidiary Response

The NRA Establishment Act provides that the government shall implement the following measures for human and financial resources (Article 6 paragraph(1) of the supplementary provisions of the NRA Establishment Act):

(i) To improve treatment of officials including a remuneration system commensurate with their duties and responsibilities that require specialized knowledge and experience, taking into account of the acquired qualifications

(ii) To first ensure a sufficient number of positions available for new recruits, and to positively recruit mid-career experts with specialized knowledge and experience from domestic universities, research institutes, and private business companies.

To positively recruit those with specialized knowledge and experience from universities, research institutes, private business companies in foreign countries as staff or advisory members who present their insights as third-party opinions on the nuclear energy administration of Japan, in light of the importance of referring to the latest foreign knowledge proactively on ensuring safety in the use of nuclear energy

(iii) To provide opportunities for the officials to study abroad, to be dispatched to international organizations or government organs of foreign countries, or to work at diplomatic missions abroad, and to advance personnel exchanges with domestic and foreign universities and research institutes;

(iv) To establish training programs including the facilities for improving the professional competence of officials;

(v) To ensure budgets for expanding human and other resources of the NRA, including means for ensuring recruits of staffs and their capacity building, and to introduce a separate budget accounts.

For human resources, the Human Resource Development Centre was established within the NRA to provide staff with necessary education and training pursuant to Article 8 of the NRA Organization Cabinet Order.

For financial resources, a budget account for nuclear safety regulation was added based on Article 51 of the Order for Enforcement of the Act for Special Account to secure funds for ensuring the safety of nuclear power plants and other nuclear facilities.

<Attachments>

Article 6 of the Supplementary Provisions of the NRA Establishment Act

Article 7 of the Organization Ordinance

Subsidiary Attachments

B08The Cabinet Order for Organization of the Nuclear Regulation Authority

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 1.1.9

Describe the extent to which national policy and strategy for safety take account of the provision and framework for research and development.

Subsidiary Response

Article 4, paragraph (1), item (xii) of the NRA Establishment Act provides that the NRA shall have jurisdiction over surveys and research necessary for conducting its duties for ensuring nuclear safety, under which safety researches are conducted .

Specifically, safety researches are conducted on the following items in accordance with "Safety researches in the NRA" decided by the NRA on April 22, 2015.

(1) Researches for the development of regulatory requirement, acceptance criteria, etc.

Research for the development of regulatory requirement, acceptance criteria in the regulatory review or inspection, review manuals as well as analysis code development and verification.

(2) Acquisition of technical basis necessary for decision making of regulatory actions.

Research for obtaining data to ensure the technical adequacy in regulatory review, inspection, evaluation for integrity of facilities, issuing orders and other regulatory activities.

(3) Establishment and maintenance of technical expertise

Research to maintain technical expertise to fulfill the duties of the NRA continuously.

<Attachments>

Article 4, paragraph (1), item (xii) of the NRA Establishment Act

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 1.1.10

Describe the extent to which national policy and strategy for safety take account of social and economic developments.

Subsidiary Response

Article 38 of the Administrative Procedure Act provides that "After the establishment of Administrative Orders, Organs Establishing Administrative Orders shall endeavour to maintain the correctness of their Administrative Orders by reviewing their contents where necessary, through paying due consideration to their implementation of the Administrative Orders, and the change of the social and economic situation" The Article thus provides that the NRA shall endeavour to maintain the correctness of the regulatory standards and criteria specified through constantly adopting the latest knowledge as appropriate with considering the change of the social and economic situation.

<Attachments>

Article 38 of the Administrative Procedure Act

Subsidiary Attachments

H11Administrative Procedure Act

Subsidiary Question 1.1.11

Describe the extent to which national policy and strategy for safety promote leadership and management for safety, including safety culture.

Subsidiary Response

As described in answer to QID 1 above, the national policy and strategy for safety are provided in the Atomic Energy Basic Act, the NRA Establishment Act, the Reactor Regulation Act, the Nuclear Emergency Act, and the Radiation Hazards Prevention Act. The NRA conducts duties for ensuring safety in the utilization of nuclear energy in an integrated manner.

The NRA implements its management system for nuclear safety with the leadership, and fosters nuclear safety, based on the NRA's rule for management system and its "Declaration on nuclear safety culture".

With regard to leadership for nuclear safety of licensees, they establish, implement, evaluate and improve their quality assurance programme, as required by the Commercial Reactors Ordinance (Article 69 to 75). In addition, as required by the Commercial Reactors QMS Ordinance, they implement the quality assurance programme specifically for design and construction, with the involvement of their top management.

<Attachments>

NRA Management Rules

Articles 69 to 75 of the Commercial Reactor Establishment Permit Ordinance

the Commercial Reactors QMS Ordinance

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 1.1.12

Describe the main ways by which the national safety policy and strategy is communicated to all interested parties.

Subsidiary Response

The Atomic Energy Basic Act, the NRA Establishment Act, the Reactor Regulation Act, the Nuclear Emergency Act, the Radiation Hazards Prevention Act, and other acts providing the national policy and strategy for safety are presented as bills to the Diet, put through open deliberations, and then promulgated in official gazettes. After enactment, they are publicized on a website.

The NRA provides information on the implementation of the NRA policies and strategies. For example, the NRA chairman explained the result of the conformance review based on the new regulatory requirements (enforced in July 2013) in his press conference.

Question 1.2

Are national policy and strategy for safety implemented in accordance with a graded approach, depending on national circumstances, to ensure that radiation risks associated with facilities and activities, including activities in the use of radiation sources, are given appropriate attention by the government or by the regulatory body?

Answer

Yes

Finding

National policy and strategy for safety are implemented in accordance with a graded approach to ensure that radiation risks associated with facilities and activities are given appropriate regulatory attention

Response

Yes.

Subsidiary Question 1.2.1

List and briefly explain the provisions in national policy and strategy which reflect a graded approach commensurate with the radiation risks associated with facilities and activities (existing or planned), including activities for the use of radiation sources.

Subsidiary Response

The NRA conducts regulatory activities commensurate with the radiation risks associated with facilities and activities for ensuring safety in the utilization of nuclear energy pursuant to the NRA Establishment Act, the Reactor Regulation Act, the Nuclear Emergency Act, and other applicable acts.

For example, the following requirements are defined depending on the level of radiation risks.

Article 12 of the Commercial Reactor Establishment Permit Ordinance requires licensees to ensure the safety functions of the safety systems in accordance with the level of that safety importance.

The Commercial Reactors QMS Ordinance requires that the quality control system shall be appropriately established and the resource shall be properly assigned in accordance with the safety importance.

Chapter 2 of the Radiation Hazards Prevention Act and Chapter 2 of the Radiation Hazards Prevention Cabinet Order provide for the following classifications of licensees and registrants, depending on the quantity of radioactive sources and the classification of sealed source/unsealed source/radiation generating apparatus: (1) specified permitted user; (2) permitted user; (3) registered user; (4) registered user of approved devices with certification labels.

The NRA EPR Guide, which is quoted in Article 6-2 of the Nuclear Emergency Act, defines Precautionary Action Zone (within a radius of 5 km from a sites) and Urgent Protective Action Planning Zone (within a radius of 30 km from a site), as Emergency Planning Zone for nuclear power plants, as well as EALs (Emergency Action Levels) and OILs (Operational Intervention Levels) as criteria for initiating protective actions in those zones.

<Attachments>

Article 12 of the Commercial Reactor Establishment Permit Ordinance

the Commercial Reactors QMS Ordinance

Article 6-2 of the Nuclear Emergency Act

EPR Guide

Chapter 2 of the Radiation Hazards Prevention Act

Chapter 2 of the Radiation Hazards Prevention Cabinet Order

Amount of RI Notice

Subsidiary Attachments

C02 Nuclear Emergency Act

C03NRA EPR Guide

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 1.2.2

Describe how the national policy and strategy reflects the national circumstances.

Subsidiary Response

National circumstances are reflected in national policy and strategy through revising the relevant acts.

For example, the following revisions have been made incorporating the lessons learned from the TEPCO Fukushima Dai-ichi accident.

The Atomic Energy Basic Act has been revised to include the statement that safety will be ensured in accordance with the established international standards.

The Reactor Regulation Act has been revised as follows.

(1) Clarification of response measures to severe accidents

(2) Revision of the licensing procedure for reactor establishment

(3) Quality assurance at the design and construction stages

(4) Back fitting system

(5) Introduction of re-assessment of safety for continuous improvement for nuclear power plants

(6) Restriction on period of operation

(7) Stipulation of responsibilities of licensees of nuclear energy activities

(8) Special rules on facilities that have experienced a nuclear emergency

(9) Vender inspections

In addition, assessment for natural hazards such as volcanoes, tornadoes, and exterior forest fires have been clearly stipulated.

Question 1.3

Has the Government established an appropriate governmental, legal and regulatory framework for safety, with clearly allocated responsibilities?

Answer

Yes

Finding

The Government has established an appropriate legal and regulatory framework for safety.

Response

The Atomic Energy Basic Act states as its objectives that the utilization of nuclear energy be limited to peaceful purposes, aim at ensuring safety, and contribute to protecting people's lives, health and property, preserving the environment, and assuring national security.

The Act also clearly defines the responsibilities of each organization of the Government and the framework of legislations and regulations in order to ensure safety in utilization of nuclear energy.

Subsidiary Question 1.3.1

List and where appropriate, append the relevant legislation and statutory instruments providing the framework for the management of safety.

Subsidiary Response

1. Atomic Energy Basic Act
 2. NRA Establishment Act
 3. Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors
 4. Act on Prevention of Radiation Hazards due to Radioisotopes, etc.
 5. Act on Special Measures Concerning Nuclear Emergency Preparedness
 6. Specific Radioactive Waste Final Disposal Act
- etc.

<Attachments>

Structure chart and a list of relevant legislation and regulations

Subsidiary Attachments

E03List concerning laws overseen by the NRA

Subsidiary Question 1.3.2

Describe the extent to which the national (governmental, legal and regulatory) framework for safety sets out principles for protecting people and the environment from radiation risks both at present and in the future.

Subsidiary Response

The Nuclear Energy Basic Act declares Japan's basic policy on the utilization of nuclear energy (nuclear power stations, Facilities using Nuclear Fuel Materials, etc.), stating the following in the declaration.

Article 2

(1) The utilization of nuclear energy shall be limited to peaceful purposes, shall aim at ensuring safety, and shall be performed independently under democratic administration, and the results obtained shall be made public so as to actively contribute to international cooperation.

(2) The ensuring of safety in the preceding paragraph shall be implemented pursuant to the established international standards with the aim of contributing to the protection of the lives, health, and property of the nation, environmental conservation, and Japan's security.

Based on this basic policy,

In the Reactor Regulation Act, licensing for establishing commercial power reactors and facilities for refining, fuel fabrication, and the interim storage, disposal, and reprocessing of spent fuel, and their construction, operation, and disposal stages are all within the scope of its regulation targets.

The Radiation Hazards Prevention Act requires authorized operators to comply with technical standards, and the period from the stage of permission of use to termination of use is within the scope of its regulation targets.

<Attachments>

Articles 2 and 3 of the Atomic Energy Basic Act

Subsidiary Attachments

B01The Atomic Energy Basic Act

Subsidiary Question 1.3.3

Describe the extent to which the national framework for safety specifies the types of facilities and activities within its scope.

Subsidiary Response

All types of utilization of nuclear energy are within the scope of the Nuclear Energy Basic Act, and Article 2 of the Reactor Regulation Basic Act and Article 2 of the Radiation Hazards Prevention Act define concrete target facilities.

<Attachments>

Article 2 of the Reactor Regulation Act

Article 2 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.4

Describe the extent to which the national framework for safety specifies authorization requirements for the operation of facilities and the conduct of activities, in accordance with a graded approach.

Subsidiary Response

Nuclear facilities:

Laws related to the Reactor Regulation Act provide for requirements for authorization, etc. separately for each facility. For example, criteria for commercial power reactor facilities are provided for in the following provisions: (1) Article 43-3-6 on criteria for permission; (2)

Article 43-3-9 on criteria for approval for construction plans; (3) Article 3-3-24 on criteria for operational safety programs. The details of these criteria are provided for in the Commercial Reactors Ordinance, the Commercial Reactor Establishment Permit Ordinance, and the Commercial Reactor Technical Standards Ordinance.

Radiation facilities:

The Radiation Hazards Prevention Act and its Ordinances specify the classification of authorization with respect to the lower bound quantity for each nuclide in accordance with a graded approach. For example, Article 6 of the Act provides that an application for permission for a new facility and activity shall conform to the technical standards for permission, and Chapter 2-3 of the NRA Ordinance for Enforcement of the Act provides for the details of the technical standards for permission.

<Attachments>

Chapter 2 of the Radiation Hazards Prevention Act

Chapter 2 of the Radiation Hazards Prevention Cabinet Order

Chapter 2-3 of the Radiation Hazards Prevention Ordinance

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.5

Describe the extent to which the national framework for safety specifies the rationale for authorization of new facilities and activities and the applicable decision-making process.

Subsidiary Response

Nuclear facilities:

Article 43-3-5 of the Reactor Regulation Act requires permission for establishment of newly built commercial power reactors, and Article 43-3-6 of the Act provides as criteria for the permission that the commercial power reactor establishes shall utilize the reactors for peaceful purposes, have sufficient technical capacity and financial basis, and satisfy standards for prevention, etc. of disasters caused by commercial reactors.

In addition, Article 43-3-9 of the Act requires approval for construction plans and provides as criteria for the approval that the facility concerned shall satisfy the technical standards provided for in Article 43-3-14 of the Act, etc. These criteria for authorization are stated in the Commercial Reactor Establishment Permit Ordinance, the Commercial Reactor Technical Standards Ordinance, etc. in detail.

Radiation facilities:

Article 6 of the Radiation Hazards Prevention Act provides that to obtain authorization for a new facility and activity from the NRA, an application for permission for the facility and activity shall conform to the technical standards for permission, and Chapter 2-3 of the Radiation Hazards Prevention Ordinance provides for the details of the technical standards for permission.

<Attachments>

Nuclear facilities:

Reactor facility:

Reactor Regulation Act

Article 43-3-6

Article 43-3-9

Article 43-3-14

Commercial Reactor Rules

Commercial Reactor Establishment Permit Ordinance

Commercial Reactor Technical Standards Ordinance

Radiation facilities:

Article 6 of the Radiation Hazards Prevention Act

Chapter 2-3 of the Radiation Hazards Prevention Ordinance

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 1.3.6

Describe the extent to which the national framework for safety specifies provisions for the involvement of interested parties and for their input into decision making.

Subsidiary Response

For the formulation of new criteria, Article 39 of the Administrative Procedure Act provides that a public comment shall be held in the process of decision making. Such opportunities allow for a wide variety of input from various interested parties to be adopted. Article 42 of the Act requires sufficient consideration of presented input.

In addition, the Nuclear Regulation Authority actively holds voluntary public comments that are not required by Administrative Procedure Act, particularly on matters presumed to draw attention from the nation, to provide the nation with many opportunities to express their opinions. The Nuclear Regulation Authority has held various voluntary public comments, for example, on the formulation of the essential parts of new regulatory standards and on the

draft of the review report on the first nuclear power station after formulation of the new regulatory standards.

<Attachments>

Articles 39 and 42 of the Administrative Procedure Act

Subsidiary Attachments

H11Administrative Procedure Act

Subsidiary Question 1.3.7

Describe the extent to which the national framework for safety specifies provisions for ensuring continuity of responsibility where activities are carried out by several persons or organizations successively.

Subsidiary Response

Continuity of government organizations

Article 3 of the Supplementary Provisions of the NRA Establishment Act provides that activities implemented by the former organization shall be regarded as those implemented by the new corresponding organization.

Nuclear facilities:

The Nuclear Regulation Authority provides for the continuity of the responsibilities of licensees by requiring approval for the merger or split , or succession of a licensee, and imposing other restrictions.

Radiation facilities:

The Nuclear Regulation Authority provides for the continuity of the responsibilities of authorized operators by requiring approval for the merger, split or inheritance of an operator.

<Attachments>

Article 3 of the Supplementary Provisions of the NRA Establishment Act

Nuclear facilities:

Article 43-3-18 of the Reactor Regulation Act

Article 43-3-19 of the Reactor Regulation Act

Article 61 of the Reactor Regulation Act, etc.

Radiation facilities:

Articles 26-2, 26-3 and 26-4 of the Radiation Hazards Prevention Act

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.8

Does the national framework for safety make provision for the establishment of a regulatory body in accordance with Requirements 3 and 4 of GSR Part 1?

Subsidiary Response

[GSR Part 1, Requirement 3, para. 2.7 and para. 2.8]

In the past, the Nuclear and Industrial Safety Agency was responsible for “Regulation” of nuclear safety under the Ministry of Economy, Trade and Industry (METI) which itself was responsible for nuclear power “Utilization”. Taking into consideration the lessons learned from the TEPCO Fukushima daiichi NPS Accident, Nuclear safety regulation was decoupled from METI and The Nuclear Regulation Authority was established which is allowed to exercise its authority independently, based on its own expertise, from a neutral and fair standpoint. It will be ensured necessary human and financial resources (NRA Establishment Act, Article 1).

[GSR Part 1, para. 2.9]

The NRA is responsible for ensuring safety in the use of nuclear energy and not for promoting the use of nuclear energy.

[GSR Part 1, para. 2.10]

Under the NRA Establishment Act, licensees of nuclear energy related activities and executives or employers of these licensees may not be the NRA Chairman or Commissioners (NRA Establishment Act, Article 7, item (7)).

By establishing an ethics code, the NRA seeks to maintain the ethics of its Chairman and Commissioners. They must "perform duties without bringing about suspicion and distrust among people," "exercise restraint in stock trading," "not receive donations from licensees of nuclear energy related activity," and "disclose at the time of appointment the value of donations that were made to their research or laboratories they belong to in the last three years from any licensees of nuclear energy related activity, as well as the number of students who were taught by them and hired by any licensees of nuclear energy related activity" (The Policy on Ensuring the Operational Transparency of the NRA).

Under the National Public Service Ethics Act, the personnel of the Secretariat of the NRA are prohibited from receiving gifts and entertainment from those who have interests in their duties (National Public Service Ethics Act and National Public Service Ethics Code).

Furthermore, the National Public Service Act provides for reemployment regulation, requiring that an independent body called the Reemployment Surveillance Commission be established and strictly monitor violations (National Public Service Act, Article 106).

[GSR Part 1, para. 2.11]

Nuclear facilities: When other departments of the Government use nuclear facilities, they must submit an application to the NRA for review and approval.

Radiation facilities: When other departments of the Government use radiation sources, they must submit an application to the NRA for review and approval.

[GSR Part 1, para. 2.12]

Nuclear facilities: In authorizing the nuclear facilities, Under relevant clauses, the Nuclear Regulation Authority reviews conformity with standards specified in the NRA Ordinances with regulatory requirements applied in a consistent manner. Articles 71 and 72 of the Reactor Regulation Act also provide for the involvement of multiple authorities in the licensing process.

Radiation facilities: In authorizing the use of radiation sources, the Nuclear Regulation Authority reviews conformity with standards specified in the NRA Ordinance for Enforcement of the Act, with regulatory requirements applied in a consistent manner, pursuant to the Radiation Hazards Prevention Act and its Ordinances.

[GSR Part 1, para. 2.13]

Nuclear facilities: Reactor Regulation Act, Article 67 and Article 68

Radiation facilities: Radiation Hazards Prevention Act, Article 42 and Article 43-2

<Attachments>

NRA Establishment Act, Article 1

NRA Management Rules

National Public Service Ethics Act

National Public Service Act, Article 106

Reactor Regulation Act, Article 71 and Article 72

Radiation Hazards Prevention Act, Article 6

Reactor Regulation Act, Article 67 and Article 68

Radiation Hazards Prevention Act, Article 42 and Article 43-2

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

H02The Act for Establishment of the Nuclear Regulation Authority

H15National Public Service Act

H16National Public Service Ethics Act

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.9

Describe the extent to which the national framework for safety specifies provisions for the review and assessment of facilities and activities in accordance with a graded approach.

Subsidiary Response

Nuclear facilities:

The Nuclear Regulation Authority must review conformity with standards specified in the OrdinancesRules of the Nuclear Regulation Authority, etc. for authorization, depending on the types of nuclear facilities. In Article 43-3-5, Article 43-3-8, etc., for example, the Nuclear Regulation Authority requires commercial reactor facilities to obtain authorization, etc.

Radiation facilities:

Chapter 2 of the Radiation Hazards Prevention Act and Chapter 2 of the Radiation Hazards Prevention Cabinet Order provide for the following classifications of authorized users of radiation sources, depending on the quantity of radiation sources and the classification of sealed source/unsealed source/radiation generating apparatus: (1) specified permitted user; (2) permitted user; (3) registered user; (4) registered user of approved devices with certification label, and provide that conformity with technical standards specified in the Ordinances of the Nuclear Regulation Authority shall be reviewed for authorization.

<Attachments>

Nuclear facilities:

Reactor Regulation Act

Article 43-3-8

Article 43-3-29

Radiation facilities:

Chapter 2 of the Radiation Hazards Prevention Act

Chapter 2 of the Radiation Hazards Prevention Cabinet Order

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.10

Explain how the national framework for safety establishes the authority and responsibility of the regulatory body to promulgate (or to prepare for enactment) regulations and to develop guidance for their implementation.

Subsidiary Response

The Nuclear Regulation Authority is authorized to establish the Ordinances of the Nuclear Regulation Authority by Article 26 of the NRA Establishment Act and formulates guidelines for complying with rules based on the provisions concerned.

<Attachments>

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 1.3.11

Describe the extent to which the national framework for safety makes provision for inspection and enforcement, in accordance with a graded approach.

Subsidiary Response

Nuclear facilities:

The Reactor Regulation Act provides that the Nuclear Regulation Authority shall conduct inspections on individual facilities, such as commercial power reactors, research and test reactors, spent fuel reprocessing facilities, and nuclear fuel material Facilities using Nuclear Fuel Materials taking the risks of the facilities into consideration. The Act also provides that in certain conditions, the Nuclear Regulation Authority may rescind the permission for facilities utilizing nuclear power, or specify a period not exceeding one year and order suspension of operation for that period with consideration given to the risks of the facilities

Radiation facilities:

It is provided that the Nuclear Regulation Authority shall conduct periodic inspections (Article 12-9 of the Radiation Hazards Prevention Act) and periodic confirmations (Article 12-10 of the Act) on specified permitted users or permitted waste management operators, and on-site inspections (Article 43-2 of the Act) on all authorized operators. The Act also provides that the Nuclear Regulation Authority may rescind the permission for facilities of use or waste management business of radioisotopes or a radiation generating apparatus, or specify a period not exceeding one year and order suspension of operation for that period, in certain conditions (Article 26 of the Act).

<Attachments>

Example (commercial power reactor facilities)

Article 43-3-15 of the Reactor Regulation Act

Article 43-3-16 of the Reactor Regulation Act

Article 43-3-24, paragraph (5) of the Reactor Regulation Act

Article 43-3-20 of the Reactor Regulation Act

Radiation facilities:

Articles 12-9, 12-10, 13, 26 and 43-2 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.12

Describe the extent to which the national framework for safety makes provision for appeal against regulatory decisions.

Subsidiary Response

The Act for Administrative Appeal, etc. provides that a citizen of Japan may file for an appeal against the regulatory decisions of regulatory authorities (Article 4 of the Act for Administrative Appeal).

Article 69 of the Reactor Regulation Act provides that a hearing shall be held to issue an order for suspension of use due to license revocation or cancellation, etc. (paragraph (2) of Article 43-3-20, etc. of the Reactor Regulation Act).

Article 44 of the Radiation Hazards Prevention Act provides that a hearing shall be held to issue an order for suspension of the use, sale, rent, or waste management of a radiation source due to rescission of permission, etc. (Article 26 of the Radiation Hazards Prevention Act).

<Attachments>

Nuclear facilities:

Article 69 of the Reactor Regulation Act

Radiation facilities:

Articles 26 and 44 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.13

Describe the extent to which the national framework for safety makes provision for arrangements for preparedness for and response to a nuclear or radiological emergency.

Subsidiary Response

Nuclear facilities:

The Reactor Regulation Act provides that the Nuclear Regulation Authority shall provide for responses to be implemented in emergencies in operational safety programs formulated for individual facilities, such as commercial power reactors, test and research and test reactors, spent fuel reprocessing facilities, and nuclear fuel material facilities using nuclear fuel

materials. The Nuclear Regulation Authority basically conducts inspections on compliance with operational safety programs four times per year.

In addition, Article 64 of the Reactor Regulation Act provides for emergency measures, providing that licensees of nuclear energy activities shall implement emergency measures, and that regulatory authorities may issue orders to implement necessary measures to prevent disaster.

Radiation facilities:

The Radiation Hazards Prevention Act makes it obligatory to file reports and notifications of emergencies and to create actions to be implemented in the event of an emergency or disaster in Radiation Hazards Prevention Program.

Article 33 of the Radiation Hazards Prevention Act provides for emergency measures, providing that authorized operator or entrusted transporter shall implement emergency measures, and that the NRA may issue orders to implement necessary actions to prevent radiation hazards.

<Attachments>

Nuclear facilities:

Reactor Regulation Act

Articles 12, 22, 37, 43-3-24, 43-20, 50, 51-18, and 56-3 (Operational Safety Programs)

Article 64 (Emergency Measures)

Radiation facilities:

Articles 21, 32 and 33 of the Radiation Hazards Prevention Act

Articles 21 and 29 of the Radiation Hazards Prevention Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.14

Describe the extent to which the national framework for safety makes provision for an interface with nuclear security.

Subsidiary Response

Safety and nuclear security are both under the jurisdiction of the Nuclear Regulation Authority. The Action Guidelines for Nuclear Security Culture (a bylaw of the Nuclear Regulation Authority) formulated in January 2015 and the Declaration on Nuclear Safety Culture formulated in May 2015 provide for balance between safety and nuclear security as a goal of the Nuclear Regulation Authority.

It is provided that the Nuclear Regulation Authority shall endeavor to achieve a balance between safety and nuclear security and implement appropriate organizational measures in a conflict between the two. Efficient cooperation for compatibility between safety and nuclear security is also stated as a mid-term goal for the first period (from April 2015 to March 2020) of the Nuclear Regulation Authority.

Futhermore, about the implementation of a contract of this mid-term goal, it is prescribed in the Nuclear Regulatory Authority management Rules.

Subsidiary Question 1.3.15

Describe the extent to which the national framework for safety makes provision for a system of accounting for and control of nuclear material.

Subsidiary Response

Licensees are required to establish accounting provisions in order to ensure appropriate accounting and control of international controlled materials pursuant to the Reactor

Regulation Act and to obtain the approval of the Nuclear Regulation Authority for the provision.

<Attachments>

Article 61-8 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.3.16

Describe the extent to which the national framework for safety makes provision for acquiring and maintaining the necessary competence nationally for ensuring safety.

Subsidiary Response

The NRA Establishment Act provides that persons possessing expertise, experience, and deep insight into ensuring safety in the utilization of nuclear energy shall be assigned as Commissioners of the Nuclear Regulation Authority (Article 7). The Act also provides that councils consisting of persons of learning and experience shall be organized (Article 13).

Nuclear facilities:

The Reactor Regulation Act provides that the responsibilities of licensees shall include installation of equipment or components for enhancing the safety of nuclear facilities, provision of sufficient education on operational safety, and implementation of other necessary measures related to nuclear source materials, nuclear fuel materials, and prevention of disasters caused by reactors, on the basis of the latest knowledge of safety in nuclear facilities (Article 57-9).

It is also provided that, pursuant to the Act, the Nuclear Regulation Authority shall implement various measures, such as granting authorization, conducting inspections,

requiring nuclear facilities to be in conformity with technical standards, and designating chief engineers of reactors, so individual licensees can maintain the necessary capabilities.

Radiation facilities:

It is provided that, pursuant to the Radiation Hazards Prevention Act, the Nuclear Regulation Authority shall implement various measures, such as granting authorization, conducting inspections, requiring radiation facilities to be in conformity with technical standards, and designating Radiation Protection Supervisors, so individual operators can maintain the necessary capabilities.

<Attachments>

Article 13 of the NRA Establishment Act

Article 57-9 of the Reactor Regulation Act

Articles 3, 3-2, 3-3, 4, 4-2, 12-8, 12-9, 12-10, 22, 34 and 36-2 of the Radiation Hazards Prevention Act

Articles 14-7, 14-8, 14-9, 14-10 and 14-11 of the Radiation Hazards Prevention Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H02The Act for Establishment of the Nuclear Regulation Authority

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.17

Describe the extent to which the national framework for safety specifies responsibilities and obligations in respect of financial provisions for the management of radioactive waste and of spent fuel, for decommissioning of facilities and termination of activities.

Subsidiary Response

Licensees who install the commercial reactors are required to assure financial provision as follows necessary for dismantling the reactor facilities pursuant to the Ordinance on the Nuclear Power Generation Facility Dismantling Allowance, stipulated by the METI pursuant to the Electricity Business Act, and also required to obtain the approval of the Minister of METI on the estimated funds for individual reactor facilities at the end of each fiscal year.

- fund to be used in dismantling the reactor facilities,*
- fund to be used in dispose the waste generated during dismantling the reactor facilities.*

Concerning the management of spent fuels, it is the Japan's basic policy to reprocess spent fuels and use effectively the extracted plutonium, under the Strategic Energy Plan.

Concerning the funds necessary for managing and reprocessing spent fuels, as shown below, a person or organization who installed commercial reactors are required to set aside the reserve funds to the fund administration corporation designated by the Minister of METI, under the Law Relating to Accumulation and Management of Reserve Funds for Reprocessing, etc., of Spent Fuels Produced by Nuclear Power Generation;

- funds to be used in reprocessing spent fuels,*
- fund to be used in the storage of reusable materials and the treatment, processing and disposal of the residuum after reprocessing, and*
- fund to be used to dismantle reprocessing facilities.*

Subsidiary Question 1.3.18

Does the national framework for safety specify criteria for the release from regulatory control?

Subsidiary Response

The Reactor Regulation Act separately provides the criteria of the Nuclear Regulation Authority for designation rescission and license revocation for each type of facility, such as commercial power reactors, research and test reactors, spent fuel reprocessing facilities,

and nuclear fuel material facilities using nuclear fuel materials. It is also provided that, for abolition of nuclear energy activity, licensees shall obtain approval of the Nuclear Regulation Authority for their decommissioning plans and undergo confirmation of the completion of the decommissioning by the Nuclear Regulation Authority.

The Radiation Hazards Prevention Act provides the criteria for rescission of permission for licensees and suspension of handling radiation sources for authorized operators. It is also provided that, for termination of use, authorized operators shall submit notifications of termination of use along with decommissioning plans in advance to transfer radioisotopes, to decontaminate the place of use, to remove radioactive contaminants, and to implement other measures specified in the NRA Ordinances.

<Attachments>

Nuclear facilities:

Articles 10, 20, 33, 43-3-20, 43-16, 46-7, 51-14, and 56 of the Reactor Regulation Act

Radiation facilities:

Articles 26, 27, and 28 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.19

Describe the extent to which the national framework for safety specifies offences and the corresponding penalties.

Subsidiary Response

Nuclear facilities:

Chapter 8 of the Reactor Regulation Act provides for penal regulations on unlicensed implementation of nuclear energy activity, unlicensed installation of a reactor, alteration without license or notification, etc.

Radiation facilities:

Chapter 7 of the Radiation Hazards Prevention Act provides for penal regulations on unlicensed or unregistered utilization of a radioisotope or a radiation generating apparatus, alteration without permission or notification, etc.

<Attachments>

Nuclear facilities:

Chapt 8 of the Reactor Regulation Act

Radiation facilities:

Chapter 7 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.20

Describe the extent to which the national framework for safety makes provision for controls on import and export of nuclear and/or radioactive material and for its tracking within and outside national boundaries.

Subsidiary Response

Nuclear fuel material and nuclear source material:

The METI regulates the export of nuclear fuel material and nuclear source material pursuant to the Export Trade Control Order under Article 48, paragraphs (1) and (3) of the Foreign Exchange and Foreign Trade Control Act, and the import of them pursuant to the Import Trade Control Order under Article 52 of the said act.

The NRA monitors nuclear material inventories, inventory changes within the national boundary and international transfers through receiving the reports on nationality management and accounting for control of nuclear material, in accordance with the provisions of the Reactor Regulation Act based on the requirements of bilateral agreements and Japan-IAEA Safeguards Agreement.

Radioisotopes:

Export of sealed radioisotopes with radioactivity of 300 GBq or more, or sealed radioisotopes with radioactivity of 100 to 300 GBq contained in specific devices, is subject to the NRA confirmation, as required by the Import and Export Guidance of Radioactive Sources. With this confirmation, exporters may be approved by the METI.

To import radioisotopes, importers must submit to customs a copy of a certificate of permission, etc. to use radioisotopes in Japan. Category 2 or higher radiation sources and specific Category 3 radiation sources are tracked within Japan through the Source Tracking System established under Article 39, paragraph (4) of the Radiation Hazards Prevention Ordinances.

<Attachments>

Nuclear fuel material and nuclear source material

Foreign Exchange and Foreign Trade Act, Article 48, paragraph (1) and paragraph (3), Article 52

Reactor Regulation Act, Article 61-8, Article 67

Radioisotopes:

Radiation Hazards Prevention Ordinance, Article 39 paragraph 4

Foreign Exchange and Foreign Trade Act, Article 48, paragraph (3), and Article 52

For Export Approval of Radioisotopes (Export Control Notice 17, No. 34)

Handling of Permit of Use and Documents to Prove Registration of Use, Selling or Rental Business concerning Import of Radioisotopes (Import Control Notice 12, No. 177, (12.12.25))

Subsidiary Attachments

A12_For Export Approval of Radioisotopes

A15_Handling of Permit of Use and Documents to Prove Registration of Use Selling or Rental Business concerning Import of Radioisotopes

H06Foreign Exchange and Foreign Trade Act

H09Import Trade Control Order

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.3.21

Where several authorities are involved in the regulatory process, explain how and to what extent, the responsibilities and functions of each authority within the regulatory framework for safety are specified.

Subsidiary Response

Nuclear facilities:

Articles 71 and 72 of the Reactor Regulation Act provide the involvement of multiple regulatory authorities in the authorization process.

Radiation facilities:

The NRA sends notification to the relevant ministries and governmental agencies when the NRA grants permission.

<Attachments>

Articles 71 and 72 of the Reactor Regulation Act

Article 47 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.4

Has the government, through its legal system, established a regulatory body for safety??

Answer

Yes

Finding

The Government has established and maintains, through its legal system, a regulatory body for safety

Response

Yes.

Subsidiary Question 1.4.1

List and explain the legal provisions currently in force relating directly to the establishment of the regulatory body.

Subsidiary Response

Atomic Energy Basic Act

Article 3-2 of the Atomic Energy Basic Act states that the separate act provides the establishment of the NRA under the Ministry of Environment as its external organization.

NRA Establishment Act

It is provided that the NRA shall be established under the Ministry of Environment as its external organization, based on the provision of Article 3, paragraph (2) of the National Government Organization Act

<Attachments>

Article 3-2 of the Atomic Energy Basic Act

Each Article of the NRA Establishment Act

Subsidiary Attachments

B01The Atomic Energy Basic Act

H02The Act for Establishment of the Nuclear Regulation Authority

Question 1.5

Has the government provided the regulatory body with the necessary legal authority to fulfill its statutory obligation for the regulatory control of facilities and activities?

Answer

Yes

Finding

The Government has provided the regulatory body with the necessary legal authority to fulfill its statutory obligation for the regulatory control of facilities and activities.

Response

Yes.

Subsidiary Question 1.5.1

Describe, making reference to the relevant clauses in legislation, how the authority assigned in legislation enables the regulatory body to fulfill its statutory obligation for the regulatory control of facilities and activities.

Subsidiary Response

The NRA has jurisdiction over affairs for ensuring safety in the utilization of nuclear energy pursuant to the NRA Establishment Act. The NRA is assigned various types of authorities. Examples of the assigned authorities are shown below

- Authority necessary for regulating nuclear power plants: permit for the establishment of nuclear power plants (Article 43-3-5 of the Reactor Regulation Act), approval of the plan for construction work (Article 43-3-9), conducting pre-service inspections (Article 43-3-11) and periodic facility inspections (Article 43-3-15), collecting reports (Article 67), and conducting on-site inspections (Article 68).

- Authority necessary for regulating users of radioisotope or radiation generating apparatus: permission of use (Article 3 of the Radiation Hazards Prevention Act), conducting facility inspections (Article 12-8) and periodic inspections (Article 12-9), levying of reports (Article 42), and conducting on-site inspections (Article 43-2);

- Authority necessary for nuclear emergency preparedness: imposing the licensees to prepare nuclear operators' EPR (Article 7, paragraph (1) of the Nuclear Emergency Act), to nominate nuclear emergency preparedness managers and notify it to relevant entities (Article 9, paragraph (5), to inform of nuclear emergency immediately to relevant entities in the event of emergency (Article 10, paragraph (1)), and to notify the relevant entities of the installation of radiation measuring equipment (Article 11, paragraph (3)).

<Attachments>

Nuclear facilities:

Article 43-3-5 of the Reactor Regulation Act

Article 43-3-9 of the Reactor Regulation Act

Article 43-3-11 of the Reactor Regulation Act

Article 43-3-15 of the Reactor Regulation Act

Article 67 of the Reactor Regulation Act

Article 68 of the Reactor Regulation Act

Radiation facilities:

Articles 3, 12-8, 12-9, 42 and 43-2 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.6

Has the government provided the regulatory body with the competences and resources necessary for fulfilling its statutory obligation for regulatory control of facilities and activities?

Answer

Yes

Finding

The Government has provided the regulatory body with the competences and resources necessary for fulfilling its statutory obligation for regulatory control of facilities and activities.

Response

Yes.

Subsidiary Question 1.6.1

Explain how, and the extent to which the government provides the regulatory body with the necessary competences and resources to fulfill its statutory obligation for regulatory control of facilities and activities.

Subsidiary Response

The number and position of the personnel of the Secretariat of the NRA and its budget are adjusted in accordance with the estimated future workloads and the importance of individual works on the basis of policies prioritised for the next fiscal year.

Taking into accounts this adjustment, the NRA makes efforts to ensure necessary capabilities through recruiting new graduates who passed examinations relevant to the task category of the NRA in national civil service examinations, and recruiting mid-career experts satisfying conditions which the NRA had made clear in vacancy notifications.

Question 1.7

Has the government ensured functional separation between the regulatory body and other entities having interests or responsibilities that could unduly influence regulatory decision making?

Answer

Yes

Finding

The Government has ensured functional separation between the regulatory body and other entities having interests or responsibilities that could unduly influence regulatory decision making.

Response

Yes.

Subsidiary Question 1.7.1

In the context of effective independence, describe how it is ensured and the extent to which, the regulatory body has functional separation from entities having interests or responsibilities that could unduly influence its decision making on safety matters.

Subsidiary Response

See the answer to SQID 3.8

Question 1.8

Has the government ensured that the regulatory body is effectively independent in its decision making on safety matters?

Answer

Yes

Finding

The Government has ensured that the regulatory body is effectively independent in its decision making on safety matters.

Response

Yes.

Subsidiary Question 1.8.1

Describe how the regulatory body's judgements and regulatory decisions are made independently, free from undue influence that may compromise safety, such as pressures associated with changing political circumstances or economic conditions or pressures from other organizations or government departments.

Subsidiary Response

See the answer to SQID 3.8

Subsidiary Question 1.8.2

Where ultimately, decision-making rests with the government, describe how it is ensured that the regulatory body is able to give independent advice to other government departments on matters relating to the safety of facilities and activities.

Subsidiary Response

Final decision-making is done by the NRA, not by the government.

Subsidiary Question 1.8.3

Describe any measures in place to ensure that other responsibilities assigned to the regulatory body do not compromise or conflict with its responsibility for regulating safety

Subsidiary Response

The NRA is responsible for ensuring safety in the use of nuclear energy and not for promoting the use of nuclear energy.

Subsidiary Question 1.8.4

In the context of effective independence, describe measures in place that ensure staff of the regulatory body have no direct or indirect interest in facilities and activities, or authorized parties, beyond that necessary for regulatory purposes.

Subsidiary Response

Under the NRA Establishment Act, licensees of nuclear energy related activities and executives or employers of these licensees may not be the NRA Chairperson or Commissioners (NRA Establishment Act, Article 7, item (7)).

The NRA seeks to maintain the ethics of its Chairperson and Commissioners by establishing an ethics code. They must "perform duties without bringing about suspicion and distrust among people," "restraint in stock trading," "not receive donations from licensees of nuclear energy related activity," and "disclose at the time of appointment the value of donations that were made to their research or laboratories they belong to in the last three years from any licensees of nuclear energy related activity, as well as the number of students who were taught by them and hired by any licensees of nuclear energy related activity" (The Policy on Ensuring the Operational Transparency of the NRA).

Under the National Public Service Ethics Act, the personnel of the Secretariat of the NRA are prohibited from receiving gifts and entertainment from those who have interests in their duties (National Public Service Ethics Act and National Public Service Ethics Code).

Furthermore, the National Public Service Act provides for reemployment regulation, requiring that an independent body called the Reemployment Surveillance Commission be established and strictly monitor violations (National Public Service Act, Article 106).

<Attachments>

Article 7, item (vii) of the NRA Establishment Act

Act for National Public Service Ethics

Article 106 of the Act for National Public Service

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

H16National Public Service Ethics Act

Subsidiary Question 1.8.5

In the event that a department or agency of government is an authorized party operating facilities or conducting activities, describe all measures in place that ensure the Regulatory body is separate and effectively independent from the authorized party.

Subsidiary Response

The NRA is empowered to exercise its authority independently from any of other agencies, pursuant to Article 5 of the NRA Establishment Act. Even in the case that a department or an agency of the government is an authorized party operating facilities or conducting activities, the NRA is effectively independent from these authorized parties.

<Attachments>

Article 5 of the NRA Establishment Act

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 1.8.6

In the context of effective independence, where several authorities are involved in the authorization process, describe measures in place that ensure regulatory requirements are applied consistently by all authorities, without undue modifications.

Subsidiary Response

Nuclear facilities:

In authorizing nuclear facilities, the NRA reviews conformity of the applications with the standards specified in the NRA ordinances, with keeping consistency in applying regulatory requirements, based on the Reactor Regulation Act. Involvement of multiple authorities in the authorization process is provided in Articles 71 and 72 of that Act.

Radiation facilities:

In authorizing the handling of radiation sources, the NRA reviews conformity of the applications with technical standards specified in the NRA ordinances, with keeping consistency in applying regulatory requirements based on the Radiation Hazards Prevention Act.

<Attachments>

Articles 71 and 72 of the Reactor Regulation Act

Articles 3, 3-2, 3-3, 4 and 4-2 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.8.7

List the authorities typically involved in the authorisation process.

Subsidiary Response

Involvement of multiple authorities in the authorization process is provided in Articles 71 and 72 of the Reactor Regulation Act.

Also see the answer to SQID 1.2.

<Attachments>

Articles 71 and 72 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.8.8

In the context of effective independence, does the regulatory body have the legal authority to require a person or organization (as authorized party or applicant) to provide all necessary safety related information, including information from its suppliers, even where this information is proprietary?

Subsidiary Response

Nuclear facilities

Article 67 of the Reactor Regulation Act enables the NRA to request licensees to submit a report relating to their activities as necessary for enforcing that act.

Radiation facilities

Article 42 of the Radiation Hazards Prevention Act enables the NRA to order authorized operators to submit a report on their activities as necessary for enforcing that act.

<Attachments>

Article 68 of the Reactor Regulation Act

Article 43-2 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.8.9

In the context of effective independence, does the regulatory body have the legal authority to require a person or organization (as authorized party or applicant) to provide access to make inspections (solely or together with the authorized party or applicant) on the premises of any designer, supplier, manufacturer, constructor or contractor associated with the authorized party?

Subsidiary Response

Nuclear facilities:

Article 68, paragraph (3) of the Reactor Regulation Act, enables the NRA to enter the offices, factories or places of activity of designers, constructors, nuclear facility equipment manufacturers, or licensees including their subcontractors in order to inspect their books, documents, and other necessary property, and to question the people concerned, or to request the submission of radioisotopes or radioactive contaminants in the minimum necessary amounts for examination.

Radiation facilities:

Article 43-2 of the Radiation Hazards Prevention Act enables the NRA to enter the offices, factories, or places of activity of authorized operators to inspect their books, documents, and other necessary property, and to question people concerned, or to remove radioisotopes or radioactive contaminants in the minimum necessary amounts for examination.

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.9

Has the government explicitly assigned prime responsibility for safety to the person or organisation responsible for the facility or the activity?

Answer

Yes

Finding

The Government has explicitly assigned prime responsibility for safety to the person or organisation responsible for the facility or the activity

Response

Yes.

Subsidiary Question 1.9.1

Does the legal framework for safety clearly establish that the authorized party cannot delegate its responsibility for safety?

Subsidiary Response

Nuclear facilities:

The Reactor Regulation Act provides that the licensees are allowed to use nuclear facilities in accordance with the relevant standards, but does not allow the delegation of the

licensees' safety responsibilities, which means that such maneuvers are legally prohibited for licensees.

Radiation facilities

The Radiation Hazards Prevention Act provides that authorized operators are allowed to handle radiation sources in accordance with the relevant technical standards, but does not allow the delegation of the operators' safety responsibilities, which means that such maneuvers are legally prohibited for authorized operators.

Subsidiary Question 1.9.2

Are there legal provisions with regard to the transfer of responsibilities for facilities or activities between different parties?

Subsidiary Response

Nuclear facilities:

Article 43-3-18 or Article 43-3-25 of the Reactor Regulation Act provides that any merger or split of authorized parties, or transfer of a facility shall be subject to the NRA approval .

Radiation facilities:

Article 26-2 of the Radiation Hazards Prevention Act provides that any merger or split of authorized operators shall be subject to the NRA approval.

<Attachments>

Nuclear facilities:

Article 43-3-18 of the Reactor Regulation Act

Article 43-3-25 of the Reactor Regulation Act

Radiation facilities:

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.9.3

Describe how, and the extent to which the regulatory framework extends responsibility for safety to other groups associated with the authorized party (such as designers, suppliers, manufacturers and constructors, employers, contractors and consignors and carriers).

Subsidiary Response

Nuclear facilities:

The licensees are required to specify the methods for appropriately managing procurement of goods or services from the subcontractors in the quality assurance program, pursuant to Article 72, item (iii) of the Commercial Reactors Ordinance.

Furthermore, pursuant to Article 73, item (ii) of the Ordinance, licensees are required to specify the matters necessary for appropriate implementation of procurement of goods or services from the subcontractors and management methods for ensuring appropriate procurement in the implementation plan for quality assurance program.

Article 68, paragraph (3) of the Reactor Regulation Act provides that the NRA may enter the offices, factories, or places of activity of designers, constructors, nuclear facility equipment manufacturers, or other related parties to inspect their books, documents, and other necessary property, or to question people concerned.

Radiation facilities:

The Radiation Hazards Prevention Act and its Ordinances stipulate that the responsibility for safety in handling radioisotopes shall be assigned for authorized operators. The Act and its Ordinances also stipulate technical standards for facilities and handling procedures. The

manufacturers, suppliers and designers of radioisotopes fulfill their responsibility in ensuring the compliance with these technical standards. The Act and its Ordinances also stipulate that the NRA and Ministry of LIT regulates on the land transportation of radioisotopes with the cooperation of Prefectural Public Safety commissions.

<Attachments>

Nuclear facilities:

Article 72, item (iii) and Article 73 of the Commercial Reactors Ordinance, Article 68, paragraph (3) of the Reactor Regulation Act,

Radiation facilities:

Articles 17, 18, and 29 of the Radiation Hazards Prevention Act

Articles 18 to 18-20 of the Radiation Hazards Prevention Ordinance

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.9.4

Does the legal and regulatory framework stipulate that the authorized party has the responsibility to verify that products and services meet its expectations (e.g. completeness, validity, robustness) and comply with the relevant requirements?

Subsidiary Response

Nuclear facilities:

See the answer to SQID 4.

Radiation facilities

Articles 15, 16, 17, and 19 of the Radiation Hazards Prevention Act provide that each of the services of use, storage, transportation, and waste management shall comply with the relevant technical standards provided in the NRA ordinances.

Article 18-15 of the Radiation Hazards Prevention Ordinance requires the submission of documents demonstrating the safety design of containers to be used for transportation, and the NRA review for such documents

<Attachments>

Nuclear facilities:

Article 72, item (iii) and Article 73 of the Commercial Reactor Establishment Permit Ordinance

Radiation facilities:

Articles 15, 16, 17 and 19 of the Radiation Hazards Prevention Act

Article 18-15 of the Radiation Hazards Prevention Ordinance

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.9.5

Describe how the legal and regulatory framework ensures that responsibility for safety covers all stages in the lifetime of facilities (such as siting, design, construction, commissioning, operation, shutdown - or closure in the case of disposal facilities for radioactive waste- and decommissioning) and the duration of activities.

Subsidiary Response

Nuclear facilities:

The Reactor Regulation Act regulates the activities during all stages such as establishment, construction, operation and decommissioning, covering nuclear power plants, refining facilities, fuel fabrication facilities, the interim storage of spent fuel, disposal facilities, and reprocessing facilities. For decommissioning, the activities are regulated up to the completion of decommissioning. For disposal of radioactive waste, the activities are regulated up to the completion of decommissioning of the waste disposal facilities.

Radiation facilities

The Radiation Hazards Prevention Act covers the regulation from commencement to termination of use of radioisotopes and radiation generating apparatuses with requiring authorized operators to conform with the relevant technical standards. For termination of use, that the Act provides that authorized users shall notify the intent of termination of use and submit decommissioning plans in advance of transferring radioisotopes, to decontaminate the place of use, to remove radioactive contaminants, and implementing other measures prescribed in the NRA ordinances.

<Attachments>

Radiation facilities:

Articles 6, 13, 27 and 28 of the Radiation Hazards Prevention Act

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.9.6

Does the legal and regulatory framework include provisions for clearly assigning responsibility for the safe management of spent fuel?

Subsidiary Response

Article 43-3-22 of the Reactor Regulation Act provides that any licensee of nuclear power plants shall take necessary safety measures (including the matters concerning measures to be taken in the event of a severe accident), pursuant to the relevant NRA ordinances, covering transportation and storage of nuclear fuel materials or materials contaminated by nuclear fuel materials within places of activity, as well as safe management of spent fuel.

Subsidiary Question 1.9.7

Does the legal and regulatory framework include provisions for clearly assigning responsibility for safe remediation of contaminated areas?

Subsidiary Response

Nuclear facilities:

Article 43-3-33 and other articles of the Reactor Regulation Act provide that, when planning to decommission facilities or abolish activities, licensees shall implement measures to eliminate contamination caused by nuclear fuel materials and other necessary measures. Article 92, paragraph (1), item (xiv) of the Commercial Reactor Establishment Permit Ordinance requires licensees to formulate the programmes for monitoring doses, equivalent dose, concentrations of radioactive materials, and the density of radioactive materials on the surfaces of objects contaminated by radioactive materials, and for eliminating contamination, in their operational safety programme. Licensees are required to have the NRA approval for the operational safety programme, and to comply their activities with that programme.

Radiation facilities:

Article 28 of the Radiation Hazards Prevention Act provides that authorized users who have terminated the use shall implement measures to remove contamination caused by radioisotopes and other measures.

<Attachments>

Nuclear facilities:

Article 43-3-33 of the Reactor Regulation Act

Article 92, paragraph (1), item (xiv) of the Commercial Reactor Establishment Permit Ordinance

Radiation facilities:

Article 28 of the Radiation Hazards Prevention Act

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.9.8

Does the legal and regulatory framework include provisions for clearly assigning responsibility for safety covering all activities in which radioactive material and radioactive sources are produced, used, stored, transported or handled?

Subsidiary Response

Nuclear facilities

The Reactor Regulation Act assigns licensees the responsibility for safety over the activities of refining, fabricating and enrichment, reprocessing, disposal, and the installation and operation of reactors. That act assigns licensees responsibility for enhancing safety by taking into account the latest findings, through installation of components or equipment, or other measures such as strengthening safety training program.

Radiation facilities

Chapters 2 and 3 of the Radiation Hazards Prevention Act clearly assign authorized operators responsibility for safety, covering all activities in the manufacture, use, storage, transportation, or processing of radiation sources.

<Attachments>

Nuclear facilities:

Individual chapters of the Reactor Regulation Act

Radiation facilities:

Chapters 2 and 3 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.9.9

Does the legal and regulatory framework stipulate that persons or organizations responsible for facilities and activities in which radioactive waste is generated have responsibility for the safe management of the waste, including its characterization and safe storage?

Subsidiary Response

Nuclear facilities:

For disposal within places of activity, Article 43-3-22, paragraph (1) of the Reactor Regulation Act provides that necessary measures to ensure operational safety (including

matters related to responses to severe accidents) shall be implemented in the transportation, storage, or disposal of nuclear fuel materials or objects contaminated by nuclear fuel materials.

For disposal outside places of activity, Article 58 of the Reactor Regulation provides that licensees shall implement necessary measures to ensure operational safety, pursuant to provisions in the NRA Ordinances, when they are to dispose nuclear fuel materials or objects contaminated by nuclear fuel materials outside the places of refining facilities, fabricating or enrichment facilities, test and research reactor facilities, nuclear power plants, spent fuel interim storage facilities, reprocessing facilities, waste disposal facilities or waste management facilities, or facilities using nuclear fuel materials.

Radiation facilities:

Article 19 of the Radiation Hazards Prevention Act provides that authorized operators shall implement measures for waste management. Article 7 of that Act provides technical standards for waste-related facilities and operators' responsibility for safety management.

<Attachments>

Nuclear facilities:

Article 43-3-22, paragraph (1) of the Reactor Regulation Act

Article 58 of the Reactor Regulation Act

Radiation facilities:

Article 19 of the Radiation Hazards Prevention Act; Article 19 of the Radiation Hazards Prevention Ordinance;

Article 7 of the Radiation Hazards Prevention Act; Articles 14-8, 14-10, and 14-11 of the Radiation Hazards Prevention Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.9.10

Given that safety in the transport of radioactive material primarily relies on the performance of packages, describe how the regulatory framework ensures the consignor is responsible for ensuring appropriate selection of the package, packaging and mode of transport.

Subsidiary Response

Nuclear fuel material:

Article 59 of the Reactor Regulation Act provides that licensees, including parties who have been entrusted with transportation from licensees, shall implement necessary measures to ensure operational safety in transporting nuclear fuel materials or contaminated materials by nuclear fuel materials, in the land outside the facilities. The package for transportation shall comply with NRA ordinance. Other measures shall comply with the technical standards stipulated by the NRA ordinances and, when transporting through train, tram, cableway, trackless train, car, or light vehicle, by the ordinances the Ministry of Land, Infrastructure, Transport and Tourism.

Technical standards for safe transportation of nuclear fuel materials are provided in Off - Site Transportation Ordinance and Off - Site Transportation Notice.

Radioisotope:

Article 18 of the Radiation Hazards Prevention Act provides that authorized users, registered dealer, registered leasers, permitted waste management operator, and parties who have been entrusted with transportation from them (hereinafter, "authorized operators or entrusted transporters.") shall implement necessary measures to prevent radiation hazards in performing transportation of radioisotopes or radioactive contaminants in the land outside factories or places of activity.

The package for transportation shall comply with the NRA Ordinance. The other measures shall comply with the technical standards stipulated by the NRA Ordinances, and, when transporting by train, tram, cableway, trackless train, car, or light vehicle, with the Ordinance of the Ministry of Land, Infrastructure, Transport and Tourism. The technical standards for the safety of packages of radioisotopes are provided for in Articles 18 to 18-20 of the Radiation Hazards Prevention Ordinance and the RI Off - Site Transportation Notice.

Nuclear fuel material and Radioisotope:

The requirements for land transportation of nuclear source materials, nuclear fuel materials, and radioisotopes by train, tram, cableway, trackless train, car, or light vehicle are provided in the "Ordinance on Vehicle Transportation of Nuclear Fuel Materials, etc." The requirements for marine transportation are provided for in "Section 10 (Radioactive materials, etc.) of the Ordinance on the Carriage and Storage of Dangerous Goods in Ships", and the "Notification to Stipulate Detailed Standards for Transport of Radioactive Materials, etc. by Vessel". The requirements for air transportation are provided in "Article 194 of the Ordinance for Enforcement of the Civil Aeronautics Act", and the "Notification to Stipulate Detailed Standards for Transport of Radioactive Materials by Aircraft."

<Attachement>

Nuclear fuel material:

Article 59 of the Reactor Regulation Act

Off - Site Transportation Notice

Radioisotope:

Article 18 of the Radiation Hazards Prevention Act

Articles 18 to 18-20 of the Radiation Hazards Prevention Ordinance

RI Off - Site Transportation Notice

Common:

Article 194 of the Ordinance for Enforcement of the Civil Aeronautics Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H17Ordinance for Enforcement of the Civil Aeronautics Act

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.10

Does the regulatory body have the authority to require responsible persons or organizations to comply with stipulated regulatory requirements and to demonstrate this compliance?

Answer

Yes

Finding

The regulatory body has the authority to require responsible persons or organizations to comply with stipulated safety requirements and to demonstrate this compliance.

Response

-

Subsidiary Question 1.10.1

Indicate and as appropriate, explain the relevant legal provisions that give the regulatory body the authority to require responsible persons or organizations to comply with stipulated safety requirements.

Subsidiary Response

Nuclear facilities:

For example, Article 43-3-14 of the Reactor Regulation Act requires licensees to maintain commercial power reactor facilities in such a manner that the facilities will comply with technical standards. Article 43-3-23 of the Reactor Regulation Act provides that the Nuclear Regulation Authority may order licensees to implement necessary measures to ensure operational safety, such as the suspension of use, alteration, repair, and relocation of facilities.

Radiation facilities:

Article 13 of the Radiation Hazards Prevention Act provides for obligations requiring usage facilities, storage facilities, or waste management facilities to comply with technical standards. Article 14 of the Radiation Hazards Prevention Act provides that the Nuclear Regulation Authority may issue orders for their relocation, repair, or alteration if it is recognized that they do not comply with the technical standards.

<Attachments>

Nuclear facilities:

Article 43-3-14 of the Reactor Regulation Act

Article 43-3-23 of the Reactor Regulation Act

Radiation facilities:

Articles 13 and 14 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.10.2

Indicate and as appropriate, explain the legal provisions that give the regulatory body authority to require responsible persons or organizations to demonstrate compliance with stipulated safety requirements

Subsidiary Response

Nuclear facilities:

For authorization, the Nuclear Regulation Authority presents criteria based on the Reactor Regulation Act and conducts reviews by asking applicants to explain how the criteria are satisfied. The applicants are also obliged to undergo inspections on compliance with operational safety programs.

Radiation facilities:

For the usage of radiation sources, a graded approach depending on the activity and type of radiation sources has been adopted, requiring the following procedures: (1) registered use of approved devices with certification label, (2) registered use, (3) permitted use, and (4) specified permitted use. In this order, the procedures are in ascending order of activity of radiation source.

In any of the above four procedures, the Nuclear Regulation Authority states technical standards in the Radiation Hazards Prevention Ordinance and conducts a review after receiving applications demonstrating concordance with the standards from applicants. Specified permitted users are required to undergo facility inspections pursuant to Article 12-8 of the Act, periodic inspections pursuant to Article 12-9 of the Act, and periodic confirmation pursuant to Article 12-10 of the Act.

<Attachments>

Nuclear facilities:

Reactor Regulation Act

Section 2 Regulations on the Installation, Operation, Etc. of Commercial Power Reactors

Article 43-3-6 (Criteria for Permission)

Article 43-3-9 (Approval for Construction Plans)

Article 43-3-24 (Operational Safety Programs)

Radiation facilities:

Article 6, 12-8, 12-9 and 12-10 of the Radiation Hazards Prevention Act

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.11

Has the government stipulated that compliance with regulations and requirements established or adopted by the regulatory body does not relieve the person or organization responsible for a facility or an activity of its prime responsibility for safety?

Answer

Yes

Finding

Legislation stipulates that compliance with regulations and requirements promulgated by the regulatory body does not relieve authorized parties of prime responsibility for safety.

Response

-

Subsidiary Question 1.11.1

Describe the extent to which the legal and regulatory framework requires that authorized parties establish their own systems of internal requirements, rules, performance standards and expectations such as to ensure they adequately fulfill their prime responsibility for safety.

Subsidiary Response

Nuclear facilities:

The Reactor Regulation Act requires licensees to develop operational safety programs and obtain the NRA's approval for the programs.(Article 43-3-24) The Reactor Regulation Act requires operational safety programs to include quality assurance programs. The Reactor Regulation Act requires licensees to comply with the operational safety programs approved by the NRA and to undergo operational safety inspections conducted by the NRA.

In addition,the Reactor Regulation Act requires licensees to conduct periodic safety assessments of continuous improvement in fabrication and enrichment facilities, commercial power reactor facilities, and reprocessing facilities and to disclose the results of the assessments. (Article 43-3-29 and other articles)

Radiation facilities:

The Radiation Hazards Prevention Act requires authorized operators to establish Radiation Hazard Prevention Programs and to notify them to the NRA (Article 21). The Radiation Hazards Prevention Ordinance requires Radiation Hazard Prevention Programs to include various aspects of radiation hazards prevention for individual facilities and actions (Article 21).

<Attachments>

Nuclear facilities:

Examples for commercial power reactor facilities:

The Reactor Regulation Act

Article 43-3-24 (Operational Safety Programs)

Article 43-3-29 (Evaluation for Enhancing the Safety of Commercial Power Reactor Facilities)

Radiation facilities:

Article 21 of the Radiation Hazards Prevention Act

Article 21 of the Radiation Hazards Prevention Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.11.2

List relevant provisions and where appropriate explain, how the legal and regulatory framework stipulates that having an authorization does not exonerate an authorized person or organization responsible for the facility or activity from responsibility for safety.

Subsidiary Response

Nuclear facilities (examples for commercial power reactor facilities):

Reactor Regulation Act

For operating power reactors, licensees need to be approved and inspected based on the provisions as follows:

Article 43-3-5 (Permit for Establishment)

Article 43-3-9 (Approval for Construction Plans)

Article 43-3-11 (Pre-service Inspection)

Licensees have a responsibility for ensuring safety as follows:

Article 43-3-14 (Obligation to Maintain Compliance with Technical Standards)

Article 43-3-20 (Rescission of Licensing, Etc.)

Article 43-3-21 (Records)

Article 43-3-22 (Measures to Be Implemented for Operational Safety)

Article 43-3-24 (Operational Safety Programs)

Article 43-3-25 (Acquisition, Etc.)

Article 43-3-29 (Periodic Safety Assessment of continuous improvement of Commercial Power Reactor Facilities)

Article 57-9 (Responsibilities of Licensees of Nuclear Energy Activity, Etc.)

Radiation facilities:

Radiation Hazards Prevention Act

For operating radiation facilities, authorized operators need to be permitted or registered and inspected based on the provisions as follows:

<Permitted Operators>

Article 3 (Permission of Use)

Article 4-2 (Permission for Waste Management Business)

<Registered Operators>

Article 3-2 (Notification of Use)

Article 3-3 (Notification of a User of an Approved device with certification label)

Article 4 (Notification of Selling and Rental Business)

<Inspections (for specified permission of use, and permission for waste management business)>

Article 12-8 (Facility Inspection)

Authorized operators have a responsibility for ensuring safety as follows:

Article 13 (Obligation to Comply with the Standards for Usage Facilities, Etc.)

Article 20 (Measurement)

Article 25 (Duty to Keep Records)

Article 26 (Rescission, etc. of Permission)

Article 28 (Measures associated with Rescission of Permission, the Termination of Use, Etc.)

Article 29 (Restrictions on Transfer of Radioisotopes)

Article 30 (Restrictions on Possession)

Article 42 (Levying of Reports)

Article 43-2 (On-site Inspections)

<followings are stipulation for specified permitted users and permitted waste management operators>

Article 12-9 (Periodic Inspection)

Article 12-10 (Periodic Confirmation)

Question 1.12

Has the government provided for effective coordination of the various authorities having responsibilities for safety within the regulatory framework?

Answer

Yes

Finding

The Government has provided for effective coordination of the regulatory functions of the various authorities having responsibilities for safety within the regulatory framework

Response

-

Subsidiary Question 1.12.1

Identify the various authorities having responsibilities for safety within the regulatory framework and indicate their respective roles.

Subsidiary Response

The NRA is solely responsible for nuclear safety regulation, except in the following circumstances (including measures not for regulations.)

Safety regulations on transportation (air and marine transportation, transporting methodology of land transportation): Ministry of Land, Infrastructure and Transport

Safety Regulations on occupational exposure in terms of labour safety, medical exposure, and control of radioactive material in food and tap water: Ministry of Health, Labour and Welfare

Emergency preparedness and response (off-site radiation protection measures): Cabinet Office

Monitoring of radioactive materials in the atmosphere, public water area, and ground water during normal situation: Ministry of the Environment

Security of nuclear facilities: National Police Agency and Japan Coast Guard

(These Ministries have the responsibilities for the above measures within their mandate)

<Attachments>

- Police Act, Article 2

- Japan Coast Guard Act, Article 2

- Strengthening of Japan's Nuclear Security Measures (March 9, 2012, Advisory Committee on Nuclear Security of the Atomic Energy Commission)

- Strategy to Make Japan the Safest Country in the World (Cabinet decision on December 10, 2013)

Subsidiary Attachments

A04Strategy to Make Japan the Safest Country in the World

A05The Japan Coast Guard Act

A21_Strengthening of Japan's Nuclear Security Measures

H22The Police Law

Subsidiary Question 1.12.2

Describe how the legal and governmental framework provides for the coordination of the regulatory functions of the various authorities having responsibilities for safety.

Subsidiary Response

The Radiation Council, formed within the NRA, receives consultations from other government agencies ; deliberates on them by requesting explanations from those agencies if necessary; and reports the results for the purpose of promoting consistency of technical standards.

Under the Reactor Regulation Act, the NRA is responsible for verifying consignments, while MLIT takes charge of regulatory instructions and shipment confirmations for incoming nuclear ships at ports. Both authorities share information as needed. The Interagency Coordination Meeting for the Safe Transport of Radioactive Material provides opportunities for government officers responsible for transportation of radioactive materials to share information and exchange views on various issues such as the development and revision of IAEA standards for the safe transport of radioactive material, as well as national legislation based on these regulations.

When approving nuclear security plan and its amendments, the NRA is required to consult with the National Public Safety Commission and commander of the Japan Coast Guard. The National Public Safety Commission, NRA, and Minister of Land, Infrastructure, Transport and Tourism are required to cooperate with respect to the regulations for the physical protection of specified nuclear fuel materials, pursuant to the Reactor Regulation Act. In order to discuss current issues regarding nuclear security from a broad perspective, interagency meetings are held of agencies relevant to nuclear security.

With the goal of ensuring safety in the use of nuclear energy, the NRA monitors radiation and concentrations of radioactive materials across Japan. The NRA also provides technical support to local governments that implement monitoring at normal times, This support aims

at contributing to the evaluation of the impact of radioactive materials or radiation released from nuclear facilities in emergencies on the surrounding environment, as defined by the Basic Plan for Disaster Preparedness.

Where deemed necessary to perform its duty, the NRA may make recommendations to the heads of related administrative agencies on issues concerning ensuring safety in the use of nuclear energy and request that they report on measures taken in accordance with the recommendations (NRA Establishment Act, Article 4, paragraph (2)).

The Nuclear Emergency Preparedness Commission, formed within the Cabinet, promotes the implementation of measures to ensure comprehensive government efforts to prepare for nuclear accidents.

Regarding occupational exposure, the Ministry of Health, Labour and Welfare (MHLW) regulates employers pursuant to the Industrial Safety and Health Act in order to ensure labor safety and health. The NRA enforces regulations from the viewpoint of preventing nuclear accidents under the Reactor Regulation Act and engages in communication and coordination with the MHLW as needed.

<Attachments>

Fundamental Approach to Ensuring Nuclear Security (September 13, 2011, decision of the Atomic Energy Commission)

Subsidiary Attachments

A13_Fundamental Approach to Ensuring Nuclear Security

Subsidiary Question 1.12.3

Describe the nature and extent of arrangements (between all authorities having responsibilities for safety within the regulatory framework) that avoid omissions, undue duplications or conflicting requirements being placed on authorized parties.

Subsidiary Response

For the enactment, revision, or abolition of acts and cabinet orders, It is required to solicit comments from the general public including licensees and the interested parties and to coordinate among the government agencies. These processes prevent undue duplications or conflicting requirements from being imposed on licensees.

Subsidiary Question 1.12.4

Describe procedures followed in cases where there is (potential) conflict between the requirements placed on an authorized party.

Subsidiary Response

The same as SQID12.3

Subsidiary Question 1.12.5

Where several authorities have roles within the regulatory framework for safety, describe the extent to which the relevant responsibilities and functions of each authority have been specified in relevant legislation.

Subsidiary Response

The NRA is solely responsible for nuclear safety regulation, except in the following circumstances (including measures not for regulations.)

The NRA, along with other agencies such as MLIT and Japan Coast Guard, are responsible for transportation-related safety regulation and regulate the transportation of nuclear fuel material in accordance with the Reactor Regulation Act, the Ordinance for Enforcement of the Civil Aeronautics Act, and the Ordinance for the Carriage and Storage of Dangerous Goods by Ships.

The Ministry of Health, Labor and Welfare is responsible for the following activities.

Occupational exposure (regulating workers' exposure limits, etc. under the ordinance for Ionizing Radiation)

Medical exposure (regulating radioisotopes used in hospitals and other institutions under the Medical Care Law)

Radioactive materials in foods (regulating radioactive materials in foods under the Food Sanitation Act)

Radioactive materials in tap water (establishing the target level)

The National Police Agency and the Japan Coast Guard protect the security of nuclear facilities.

The Cabinet Office and the NRA regulate licensees' emergency measures under the Nuclear Emergency Act.

For ensuring safety in the use of nuclear energy, the NRA monitors radiation and concentrations of radioactive materials across Japan. The NRA also provides technical support to local governments that implement monitoring at normal times. This support aims at contributing to the evaluation of the impact of radioactive material or radiation released from nuclear facilities in emergencies on the surrounding environment, as defined by the Basic Plan for Disaster Preparedness. The Ministry of the Environment is responsible for continuously monitoring radioactive materials in the atmosphere, public water area, and ground water, and conducts monitoring in accordance with the Air Pollution Control Act and the Water Pollution Control Law.

<Attachments>

Reactor Regulation Act, Article 36-2, Article 59, Article 72, etc.

Ordinance for Enforcement of the Civil Aeronautics Act, Article 104

Radiation Hazards Prevention Ordinance, Article 1

Ordinance on Prevention of Ionizing Radiation Hazards, Chapter 2

Radioactive Substances Designated by the Minister of Health, Labour and Welfare (Ministry of Health, Labour and Welfare Notification No. 129 of 2012)

Specifications and Standards for Foods, Food Additives, etc. (Ministry of Health and Welfare Notification No. 370 of 1959) 1-A-12

- Police Act, Article 2

- The Japan Coast Guard Act, Article 2

- Fundamental Approach to Ensuring Nuclear Security (September 13, 2011, decision of the Atomic Energy Commission)

Act for Establishment of the Cabinet Office, Article 4, paragraph (3), item (xiv)-(ii)

Air Pollution Control Act, Article 22

Water Pollution Control Law, Article 15

Subsidiary Attachments

A03 Specifications and Standards for Foods Food Additives etc.

A05 The Japan Coast Guard Act

A06 The Act for Establishment of the Cabinet Office

A08 The Water Pollution Control Law

A09 The Air Pollution Control Act

A13_ Fundamental Approach to Ensuring Nuclear Security

A19_ Radioactive Substances Designated by the Minister of Health Labour and Welfare

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H17 Ordinance for Enforcement of the Civil Aeronautics Act

H19 Ordinance on Prevention of Ionizing Radiation Hazards

H22 The Police Law

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.12.6

Describe how coordination and cooperation relating to safety of workers and the public is enabled and assured between all authorities involved in the regulation of safety.

Subsidiary Response

The same as SQID12.3

Subsidiary Question 1.12.7

Describe how coordination and cooperation is enabled and assured (between the various authorities involved in the regulation of safety) on environmental protection.

Subsidiary Response

To ensure safety in the utilization of nuclear energy, the NRA has been established pursuant to Article 3-2 of the Atomic Energy Basic Act. It is also provided that the NRA shall contribute to environmental conservation by implementing necessary regulations pursuant to the Reactor Regulation Act, the Radiation Hazards Prevention Act, etc.

As described in the answer in 12.5, the Nuclear Regulation Authority shares responsibility with related government agencies for ensuring safety and exchanges information with them on an as-needed basis.

<Attachments>

Article 2, paragraph (2) of the Atomic Energy Basic Act

Article 3-2 of the Atomic Energy Basic Act

Subsidiary Attachments

Subsidiary Question 1.12.8

Describe how coordination and cooperation is enabled and assured between all authorities involved in the regulation of safety relating to radiation in medical, industrial and research applications.

Subsidiary Response

The Radiation Council, formed within the NRA, receives consultations from related government agencies ; deliberates on them by requesting explanations from these agencies if necessary; and reports the results for the purpose of promoting consistency of technical standards on radiation protection.

Subsidiary Question 1.12.9

Describe how coordination and cooperation is enabled and assured between all authorities involved in the regulation of safety relating to emergency preparedness and response.

Subsidiary Response

With respect to coordination and cooperation among all authorities in emergency preparedness, the Atomic Energy Basic Act requires that the Nuclear Emergency Preparedness Commission be formed within the Cabinet, and that the Commission be chaired by the Prime Minister and consist of all ministers, NRA Chairman and others, and promote the implementation of measures to ensure comprehensive government efforts to prepare for nuclear disasters at normal times.(Article 3-3 to Article 3-6)

With respect to coordination and cooperation among authorities in emergency situations, the Nuclear Emergency Act provides that a nuclear emergency response headquarters shall be established, with the Prime Minister serving as the head and all ministers as members, in

order to conduct overall coordination among related organizations and give instructions to them.(Article 16, 17, 18, 20)

At the site of the emergency, the Nuclear Emergency Act provides that a local nuclear emergency response headquarters shall be established(Article 17), and provides that a Joint Council for Nuclear Emergency Response shall be organized in order for central government, related local governments, the licensee of nuclear energy related activity, and others to exchange information and cooperate with one another.(Article 23)

The coordination and cooperation among authorities required by these provisions are assured through the implementation of drills.

<Attachments>

the Atomic Energy Basic Act

Article 3-3 to Article 3-6

the Nuclear Emergency Act

Article 16

Article 17

Article 18

Article 20

Article 23

Subsidiary Attachments

B01The Atomic Energy Basic Act

C02 Nuclear Emergency Act

Subsidiary Question 1.12.10

Describe how coordination and cooperation relating to management of radioactive waste (including government policy-making and policy implementation) is enabled and assured between all authorities involved in the regulation of safety.

Subsidiary Response

Regulation over the management of radioactive waste is provided in the Reactor Regulation Act and the Radiation Hazards Prevention Act, and the NRA implements these safe regulation in an integrated manner.

Subsidiary Question 1.12.11

Describe how coordination and cooperation relating to liability for nuclear damage (including regulatory control and international conventions) is enabled and assured between all authorities involved in the regulation of safety.

Subsidiary Response

This matter is outside the scope of this IRRS.

Subsidiary Question 1.12.12

Describe how coordination and cooperation is enabled and assured between all authorities involved in areas of nuclear security

Subsidiary Response

The NRA is secretariat of the interagency meeting on nuclear security. The interagency meeting provides opportunities to discuss urgent issues on nuclear security issues.

Subsidiary Question 1.12.13

Describe how coordination and cooperation relating to the state system of accounting for and control of nuclear material is enabled and assured between all authorities involved in the regulation of safety.

Subsidiary Response

After the establishment of the NRA, the NRA is responsible both for the state system of accounting for and control of nuclear material(SSAC) and for the nuclear safety. When need of interface between SSAC and nuclear safety is needed, adjustments are made in order to avoid mutual interference.

<Attachments>

Article 4 of the NRA Establishment Act

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 1.12.14

Describe how coordination and cooperation is enabled and assured between all authorities involved in the regulation of safety relating to water use and the consumption of food.

Subsidiary Response

For the enactment or revision of acts and cabinet orders, it is required to solicit comments from the general public including licensees and other interested parties and to coordinate among the government agencies to avoid duplications or inconsistency.

The Radiation Council, formed within the NRA, receives consultations from the governmental agencies ; deliberates on them by requesting explanations from these agencies if necessary; and reports the results for the purpose of promoting consistency of technical standards on radiation protection.

Subsidiary Question 1.12.15

Describe how coordination and cooperation relating to land use, planning and construction is enabled and assured between all authorities involved in the regulation of safety.

Subsidiary Response

The same as SQID12.3

Subsidiary Question 1.12.16

Describe how coordination and cooperation is enabled and assured between all authorities involved in the regulation of safety relating to safe transport of dangerous goods, including nuclear material and radioactive material.

Subsidiary Response

Nuclear facilities:

With respect to the transportation of nuclear fuel material, etc. outside plant, the Reactor Regulation Act, primarily in Article 59, provides that the Minister of Land, Infrastructure, Transport and Tourism shall be responsible for the confirmation of the transportation method of type BM or type BU radioactive packages; that the NRA shall be responsible for the confirmation of their packaging; and that notifications of such transportation shall be submitted to the prefectural public safety commission.

The Interagency Coordination Meeting for the Safe Transport of Radioactive Material is held to provide opportunities for related governmental agencies responsible for transportation of radioactive materials to share information and exchange views on various issues concerning the establishment and revision of IAEA safety standards for the safe transport of radioactive material, as well as national legislation based on these standards.

Radiation facilities:

The Radiation Hazards Prevention Act provides, primarily in Article 18, that the Minister of Land, Infrastructure, Transport and Tourism shall confirm the method of transportation of type BM or type BU packages of radioisotopes, etc. that are transported by land via vehicle; that the NRA shall confirm their packaging; and that notification of such transportation shall be submitted to the prefectural public safety commission.

For type L, type A, and type IP packages of radioisotopes, etc., the NRA establishes technical standards in the Radiation Hazards Prevention Ordinances and the RI Off - Site Transportation Notice, and transportations shall be conducted in accordance with them.

Transportation by vessel, by aircraft, and by post, as well as transportation of pharmaceuticals, is regulated by other acts.

<Attachments>

Nuclear facilities:

Reactor Regulation Act, Article 59

Off - Site Transportation Ordinance

Radiation facilities:

Radiation Hazards Prevention Act, Article 18

Radiation Hazards Prevention Ordinance, Articles 18 to Article 18-20

RI Off - Site Transportation Notice

Subsidiary Attachments

G20The NRA Ordinance on Off-Site Transportation of Nuclear Fuel Materials etc.

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J07The Notification on Technical Details for Off-Site Transportation of Radioisotopes, etc.

Subsidiary Question 1.12.17

Describe how coordination and cooperation is enabled and assured between all authorities involved in the regulation of safety relating to mining and processing of radioactive ores.

Subsidiary Response

With respect to safety relating to mining and processing of radioactive ores, the Reactor Regulation Act regulates ""refining"" that means chemical processing of nuclear source material or nuclear fuel material in order to increase the content of uranium or thorium contained in nuclear source material or nuclear fuel material.

The Reactor Regulation Act requires licensees to have the NRA's designation for refining activities. (Article3)

The Reactor Regulation Act requires licensees to develop an operational safety program and to have the NRA's approval the program. (Article12)

The Reactor Regulation Act requires the NRA to ask the opinion of The Minister of Economy, Trade and Industry on regulatory decisions.(Article71-2)

There are no project of refining conducted in Japan.

<Attachment>

The Reactor Regulation Act

Article3

Article12

Article71-2

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.12.18

Describe how coordination and cooperation relating to controls on the import and export of nuclear and radioactive material is enabled and assured between all authorities involved in the regulation of safety.

Subsidiary Response

Nuclear fuel material and nuclear source material:

The Minister of Economy, Trade and Industry regulates the export of nuclear fuel material and nuclear source material pursuant to the Export Trade Control Order under Article 48, paragraphs (1) and (3) of the Foreign Exchange and Foreign Trade Control Act, and the import of them pursuant to the Import Trade Control Order under Article 52 of the said Act.

Radioisotopes:

The export of sealed radioisotopes with radioactivity of 300 GBq or more, or of 100 to 300 GBq radioisotopes contained in specific devices, requires certificates of export confirmation issued by the NRA. Exporters granted with the certificates must then obtain approval from the Minister of Economy, Trade and Industry pursuant to Article 2 of the Export Trade Control Order under Article 48 paragraph (3) of the Foreign Exchange and Foreign Trade Control Act.

To import radioisotopes, importers must submit to customs a copy of a certificate of permission or an evidence of registration to handle radioisotopes for confirmation required under Article 52 of the Foreign Exchange and Foreign Trade Control Act. Thus, the relevant ministries and agencies cooperate to control exports and imports according to their jurisdiction.

<Attachment>

Nuclear fuel material and nuclear source material

Foreign Exchange and Foreign Trade Act, Article 48, paragraphs (1) and (3), and Article 52

Export Trade Control Order, Article 1 (Permission for Export), Article 2 (Export Approval), and appended tables 1 and 2

Ordinance of the Ministry Specifying Goods and Technologies Pursuant to Provisions of the Appended Table 1 of the Export Control Order and the Appended Table of the Foreign

Exchange Order (Ordinance of the Ministry of International Trade and Industry No. 49 of 1991)

Radioisotopes:

Foreign Exchange and Foreign Trade Act, Article 48 paragraph (3), Article 52

Export Trade Control Order, Article 2 (Export Approval), appended table 2

Notification of the Ministry of Economy, Trade and Industry No. 334

For Export Approval of Radioisotopes (Export Control Notice 17, No 34)

Procedures for Issue of Verification Certificate for Export of Radioisotopes (17 MEXT Nuclear Safety Division Notice No. 124)

Import Trade Control Order, Article 3, paragraph (1) (Publication of Matters Concerning Import); Article 4, paragraphs (1) and (2) (Import Approval)

Public Announcement on the Items of Goods Subject to Import Quotas, the Place of Origin or Places of Shipment of Goods Requiring Approval for Import, and Other Necessary Matters concerning Import of Goods (Notification issued by the Ministry of International Trade and Industry No. 170)

Handling of Permit of Use and Documents to Prove Registration of Use, Selling or Rental Business concerning Import of Radioisotopes (Import Control Notice 12, No. 177)

Subsidiary Attachments

A02Public Announcement on the Items of Goods Subject to Import Quotas the Places of Origin or Places of Shipment of Goods Requiring Approval for Import and Other Necessary Matters concerning Import of Goods

A12_For Export Approval of Radioisotopes

A15_Handling of Permit of Use and Documents to Prove Registration of Use Selling or Rental Business concerning Import of Radioisotopes

A18_Notification of the Ministry of Economy Trade and Industry No. 334

A22Procedures for Issue of Verification Certificate for Export of Radioisotopes

H05Export Trade Control Order

H06Foreign Exchange and Foreign Trade Act

H09Import Trade Control Order

H18Ordinance of the Ministry Specifying Goods and Technologies Pursuant to Provisions of the Appended Table 1 of the Export Control Order and the Appended Table of the Foreign Exchange Order

H22The Police Law

Question 1.13

Has the government made provision for emergency preparedness to enable a timely and effective response in a nuclear or radiological emergency?

Answer

Yes

Finding

The government has made provision for emergency preparedness to enable

a timely and effective response in a nuclear or radiological emergency.

Response

-

Subsidiary Question 1.13.1

List and explain the legal and regulatory provisions which stipulate that each authorized party is responsible for preparing an emergency response plan and require such authorized parties to make preparedness arrangements.

Subsidiary Response

The Nuclear Emergency Act provides as follows:

Article 3 (Responsibilities of a Nuclear Operator): Stipulates the responsibilities of nuclear operators.

Article 7 (Nuclear Operator EPR Plan): Stipulates that a nuclear operator shall prepare a nuclear operator EPR plan with regard to its measures to prevent nuclear emergency, emergency response measures, and measures for restoration from nuclear emergency and other duties that are necessary for preventing and mitigating a nuclear disaster and for promoting nuclear disaster recovery efforts.

Article 8 (On-Site Organization for Nuclear Emergency Preparedness): Stipulates that a nuclear operator shall establish an on-site organization for nuclear emergency preparedness.

Article 9 (Nuclear Emergency Preparedness Manager): Stipulates that a nuclear operator shall appoint a nuclear emergency preparedness manager.

Article 10 (Obligation to Notify, etc. of a Nuclear Emergency Preparedness Manager): Stipulates the obligation of notification in abnormal events.

Article 11 (Preparation, etc. of Radiation Measurement Facility and Other Necessary Materials and Equipment): Stipulates preparation of equipment and materials necessary in emergencies.

Article 13-2 (Reporting of the Results of Disaster Prevention Drills): Stipulates that nuclear operators shall conduct disaster prevention drills and report results.

Article 25 (Emergency Responses to be Implemented by a Nuclear Operator): Stipulates implementation of emergency responses.

The Reactor Regulation Act requires licensees to develop an operational safety program (Article 43-3-24) and have the NRA approval for the program. The Commercial Reactor Ordinance requires operational safety programs to include measures to be taken in an emergency. (Article 92, paragraph (1), item (xix))

<Attachments>

The Nuclear Emergency Act

Article 3

Article 7

Article 8

Article 9

Article 10

Article 11

Article 13-2

Article 25

The Reactor Regulation Act

Article 43-3-24

The Commercial Reactor Ordinance

Article 92, paragraph (1), item (xix)

Subsidiary Attachments

C02 Nuclear Emergency Act

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.13.2

Explain how emergency response arrangements assign clear responsibility for immediate notification to the competent authorities in emergency situations.

Subsidiary Response

The Nuclear Emergency Act requires licensees to notify the Prime Minister, the NRA, the competent prefectural governor, the competent mayor of municipality and the related surrounding prefectural governors when licensees has discovered abnormal conditions at facilities etc.(Article10)

The Nuclear Emergency Act stipulates that the Prime Minister shall immediately declare a nuclear emergency when the government identifies that a nuclear emergency situation.(Article 15)

<Attachments>

The Nuclear Emergency Act

Article10

Article15

Subsidiary Attachments

C02 Nuclear Emergency Act

Subsidiary Question 1.13.3

Explain how, in certain emergencies, the regulatory body determines that routine regulatory administrative provisions, such as prior authorization, should be suspended in favour of a timely emergency response.

Subsidiary Response

The NRA's EPR plan, which was established under the Basic Act on Disaster Control Measures, provides in its Part 2 named, "Emergency Preparedness Organization and Structure," that the organizational structure be expanded to respond to any detected natural disaster or to events reported by licensees. Therefore, routine operations may be given a lower priority than emergency responses but will never be suspended.

Subsidiary Question 1.13.4

Describe the extent to which the government has established a nationwide system, including emergency response arrangements, to protect the public in a nuclear or radiological emergency declared as a consequence of an accident within or outside the territories and jurisdiction of the State.

Subsidiary Response

When a nuclear emergency is declared for an accident at nuclear power plant in Japan, the PAZ (approximately 5-km radius of nuclear power plants) are required to evacuate immediately, and the people within UPZ (approximately 5- to 30-km radius of the nuclear power plants) is required for sheltering. Following the release of any radioactive material, emergency monitoring will be conducted, and temporary relocation or other measures will be taken based on the monitoring results. These protective measures are ensured through the local government's plan for disaster preparedness, which is developed by relevant local governments in accordance with rules such as EPR Guide.

When a nuclear general emergency is declared for an accident outside Japan, the coordinating meeting for radioactively measures will be held in the cabinet and relevant agencies will communicate and coordinate with each other for taking measures such as radiation monitoring.

Subsidiary Question 1.13.5

Has the government formally designated competent authorities having the responsibilities and resources necessary for dealing with the consequences of accidents that affect or that might affect the public and the environment?

Subsidiary Response

Article 3 of the Basic Act on Disaster Control Measures and Article 4 of the Nuclear Emergency Act provide the responsibilities of the Government. Details are stipulated in the

Basic Plan for Disaster Preparedness, which has been established in accordance with the Basic Act on Disaster Control Measures.

<Attachments>

The Basic Act on Disaster Control Measures

Article 3

The Nuclear Emergency Act

Article 4

Subsidiary Attachments

C01 Basic Act on Disaster Control Measures

C02 Nuclear Emergency Act

Subsidiary Question 1.13.6

Describe the extent to which legal and regulatory provisions specify that emergency preparedness arrangements must include planning the actions to be taken both in an emergency and in the aftermath.

Subsidiary Response

The Basic Act on Disaster Control Measures provides that the government shall establish a Basic Plan for Disaster Preparedness, which is fundamental to Japan's preparedness for disasters, including nuclear disasters.(Article 34)

The Nuclear Emergency Act provides that the NRA shall establish EPR Guide to ensure smooth implementation of measures to prevent nuclear emergency, emergency response measures and measures for restoration from nuclear emergency.(Article 6-2)

The Basic Act on Disaster Control Measures and the Nuclear Emergency Act require that relevant institutions, including government agencies and private-sector business operators,

shall establish their own EPR plans in accordance with the above Basic Plan for Disaster Preparedness and the EPR Guide.

<Attachments>

The Basic Act on Disaster Control Measures

Article 34

The Nuclear Emergency Act

Article 6-2

Subsidiary Attachments

B10Basic Act on Disaster Control Measures(For QID13 in SM1-1)

C02 Nuclear Emergency Act

Subsidiary Question 1.13.7

Has the government clearly specified and assigned the responsibilities for decision making in emergency situations?

Subsidiary Response

The Nuclear Emergency Act specifies and assigns the responsibilities for declaring the state of nuclear emergency.(Article 15)

Regarding decision making in emergency response, the Nuclear Emergency Act specifies the responsibilities of the nuclear emergency response headquarters(Article 18), and the Act provides the authority of the head of that headquarters and specifies the overall coordination among relevant agencies by the head of that headquarters and gives instructions to them.(Article 20)

In addition, the responsibilities of each organization involved are specified and assigned in documents such as the NRA EPR Guide and the Basic Plan for Disaster Preparedness.

<Attachments>

The Nuclear Emergency Act

Article 15

Article 20

EPR Guideline, Part 3 Emergency Responses, (5) Protective Measures,

(i) Evacuation and Temporary Relocation

(iii) Preventive Administration of Stable Iodine

Subsidiary Attachments

B11NRA EPR Guide(For QID13 in SM1-1)

C02 Nuclear Emergency Act

Subsidiary Question 1.13.8

Has the government provided for effective liaison between the authorized parties and the competent authorities and for an effective means of communication for emergency situations?

Subsidiary Response

The Government is required to take measures for effective means of liaison and communication.

Provisions for taking measures for effective means of liaison and communication are prescribed in Nuclear Emergency Act, specifically in Article 10 (Obligation to Notify, etc. of a Nuclear Emergency Preparedness Manager), Article 16 (Establishment of Nuclear Emergency Response Headquarters), Article 17 (Organization of Nuclear Emergency Response Headquarter), Article 18 (Affairs under Jurisdiction of Nuclear Emergency Response Headquarters), Article 20 (Mandatory Establishment of Prefectural and Municipal

Headquarters for Disaster Control), Article 22 (Authority of the Director-General of Nuclear Emergency Response Headquarters), Article 23 (Joint Council for Nuclear Emergency Response), and Article 25 (Emergency Responses to be Implemented by a Nuclear Operator).

<Attachmensts>

The Nuclear Emergency Act

Article 10

Article 16

Article 17

Article 18

Article 20

Article 22

Article 23

Article 25

Subsidiary Attachments

B09Act on Special Measures Concerning Nuclear Emergency(For QID13 in SM1-1)

C02 Nuclear Emergency Act

Subsidiary Question 1.13.9

Describe arrangements in place to ensure that, in planning for and in the event of an emergency, the regulatory body advises the government and the competent authorities and is able to provide the expert services assigned to it.

Subsidiary Response

The Nuclear Emergency Act ensures that the regulatory body provides suggestions or expert services for planning for an emergency.(Article 4(Responsibilities of the State), Article 6-2(Guide for Emergency Preparedness and Response), and Article 7(Nuclear Operator Emergency Action Plan)) The act also ensures that the regulatory body provides suggestions or expert services in the event of an emergency.(Article 4(Responsibilities of the State), Article 15(Declaration of a Nuclear Emergency Situation, etc.), and Article 20(the authority of the head of the nuclear emergency response headquarters))

<Attachments>

The Nuclear Emergency Act

Article 4

Article 6-2

Article 7

Article 15

Article 20

Subsidiary Attachments

B09Act on Special Measures Concerning Nuclear Emergency(For QID13 in SM1-1)

C02 Nuclear Emergency Act

Question 1.14

Has the government established an effective system for protective actions to reduce radiation risks associated with unregulated sources (of natural and artificial origin) and contamination from past activities or events?

Answer

Yes

Finding

The Government has established an effective system for protective actions to reduce radiation risks associated with unregulated sources (of natural and artificial origin) and contamination from past activities or events.

Response

-

Subsidiary Question 1.14.1

Explain how the principles of justification and optimization are applied within the system for protective actions to reduce undue radiation risks associated with unregulated sources and contamination from past activities or events.

Subsidiary Response

If an orphan source is discovered, the NRA will request the manager of the site or facility where the source found to place the source under a safe conditions, and will give instructions for the purpose of achieving this. As required, official will be dispatched from the NRA or one of its cooperating organizations to confirm that appropriate action has been performed. The discovered orphan source will be managed under valid permission by its owner, or after undergoing measures implemented by the NRA, will be collected by an operator authorized to use, store radioactive sources, and to manage radioactive wastes (the Japan Radioisotope Association, or other appropriate operator) and placed under appropriate management.

There is no need to take measures for unregulated source of natural origin in Japan.

Subsidiary Question 1.14.2

List the organizations designated by government to be responsible for making arrangements to protect workers, the public and the environment in situations where

unacceptable radiation risks may arise as a consequence of an accident or a discontinued practice.

Subsidiary Response

Please refer to the answer to 14.1

Subsidiary Question 1.14.3

List the organizations designated by government to be responsible for making arrangements to protect workers, the public and the environment in situations where unacceptable radiation risks may arise as a consequence of an inadequately controlled radioactive source or a natural source.

Subsidiary Response

Please refer to the answer to 14.1

Subsidiary Question 1.14.4

Describe how it is ensured that an organisation responsible for taking protective actions has access to the resources necessary to fulfill its function.

Subsidiary Response

The measures concerning safety control and management of disused radioactive sources are stipulated in the Radiation Hazards Prevention Act and its Ordinances as the authorized operators' obligation, therefore the provisioning of appropriate financial resources is also attributed to the authorized operators' responsibility.

In case where operators responsible for safety management of disused radioactive sources are not identified, the NRA coordinates relevant ministries and agencies and other

organizations so as to ensure the safety management, such as safety transfer and storage of disused radioactive sources.

Subsidiary Question 1.14.5

Describe the responsibilities of the regulatory body with regard to protective actions aimed at reducing undue radiation risks associated with unregulated sources and contamination from past activities or events.

Subsidiary Response

Please refer to the answer to 14.1

Subsidiary Question 1.14.6

Explain the extent to which the regulatory body provides the necessary inputs to protective actions for reducing radiation risks associated with unregulated sources (of natural or artificial origin) or with contamination from past activities of events.

Subsidiary Response

The NRA put the leaflet of procedures when finding unregulated radioactive material in its web-site, titled "when you find an uncontrolled radioactive material".

<ATTACHMENTS>

"What to Do If You Find an Uncontrolled Radioactive Material"

Subsidiary Attachments

J05What to Do If You Find an Uncontrolled Radioactive Material

Subsidiary Question 1.14.7

Explain how, and the extent to which, the regulatory body establishes requirements and criteria for protective actions for reducing radiation risks associated with unregulated sources (of natural or artificial origin) or with contamination from past activities of events.

Subsidiary Response

Please refer to the answer to 14.1

Question 1.15

Has the government made provision for safe decommissioning of facilities?

Answer

Yes

Finding

The Government has provided for safe decommissioning of facilities.

Response

-

Subsidiary Question 1.15.1

Explain the policy and corresponding government strategy with regard to safe decommissioning of the facilities.

Subsidiary Response

Policies on regulations for safe decommissioning of facilities

The safety of facilities under decommissioning is ensured by the following regulations 1 to 3.

1. The Reactor Regulation Act requires licensees to implement decommissioning when terminating their activities. The act also requires licensees to obtain NRA's approval for decommissioning plan and operational safety programs before decommissioning.

2. A licensee who has obtained the above approval implements decommissioning based on the decommissioning plan and the operational safety programs. The NRA's following inspections are required for facilities under decommissioning.

Operational safety inspection

Periodic facility inspection (not applicable when no nuclear fuel material exists in the facilities to be decommissioned.)

3. When completing decommissioning, licensees must undergo NRA's confirmation of completing decommissioning.

<Attachments>

""Act and Rules related to No. 1""

Decommissioning plan (refining facilities: Act, Article 12-6, paragraph (2); fuel fabrication facilities: Act, Article 22-8, paragraph (2); test and research reactor facilities: Act, Article 43-3-2, paragraph (2); commercial power reactor facilities: Act, Article 43-3-33, paragraph (2); storage facilities: Act, Article 43-27, paragraph (2); reprocessing facilities: Act, Article 50-5, paragraph (2); waste management facilities: Act, Article 51-25, paragraph (2); Facilities using Nuclear Fuel Materials: Act, Article 57-6, paragraph (2))

Operational safety program (refining facilities: Act, Article 12, paragraph (1); fuel fabrication facilities: Act, Article 22, paragraph (1); test and research reactor facilities: Act, Article 37, paragraph (1); commercial power reactor facilities: Act, Article 43-3-24, paragraph (1); storage facilities: Act, Article 43-20, paragraph (1); reprocessing facilities: Act, Article 50, paragraph (1); waste management facilities: Act, Article 51-18, paragraph (1); Facilities using Nuclear Fuel Materials: Act, Article 56-3, paragraph (1))

""Act and Rules related to No. 2""

Operational safety inspection (refining facilities: Act, Article 12, paragraph (5); fuel fabrication facilities: Act, Article 22, paragraph (5); test and research reactor facilities: Act, Article 37, paragraph (5); commercial power reactor facilities: Act, Article 43-3-24, paragraph (5); storage facilities: Act, Article 43-20, paragraph (5); reprocessing facilities: Act, Article 50, paragraph (5); waste management facilities: Act, Article 51-18, paragraph (5); Facilities using Nuclear Fuel Materials: Act, Article 56-3, paragraph (5))

Periodic facility inspection (fuel fabrication facilities: Act, Article 16-5, paragraph (1); test and research reactor facilities: Act, Article 29, paragraph (1); commercial power reactor facilities: Act, Article 43-3-15, paragraph (1); storage facilities: Act, Article 43-11, paragraph (1); reprocessing facilities: Act, Article 46-2-3, paragraph (1); waste management facilities: Act, Article 51-10, paragraph (1))

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.15.2

Describe requirements and the arrangements in place to ensure that appropriate financial provisions are made for safe decommissioning of facilities.

Subsidiary Response

See the answer to SQID3.17.

Subsidiary Question 1.15.3

Describe requirements and the arrangements in place to ensure that appropriate financial provisions are made for safe management of disused radioactive sources and radiation generators.

Subsidiary Response

The Radiation Hazards Prevention Act and its Ordinance stipulate the measures for safety control and management of radioactive sources and radiation generators as the authorized operators' obligation, therefore the provisioning of appropriate financial resources for disused radioactive sources and radiation generators is also attributed to the authorized operators' responsibility. There are, however, no clear provisions on appropriate financial resources in the Act and its Ordinances. In case where responsible operators are not identified, the NRA coordinates relevant ministries and agencies and other organizations so as to ensure the safety management, such as transfer and storage of disused radioactive sources.

Question 1.16

Has the government made provision for safe management of spent fuel?

Answer

Yes

Finding

The Government has made provision for safe management of spent fuel.

Response

-

Subsidiary Question 1.16.1

Explain the policy and corresponding government strategy for the safe management of spent fuel.

Subsidiary Response

For commercial power reactors, the Reactor Regulation Act requires application form of establishment permit to include ""the location, structure, and equipment of the commercial power reactor facility"" including the structure and equipment of spent fuel storage facilities(Article 43-3-5) . The Reactor Regulation Act requires licensees to comply with the Commercial Reactor Establishment Permit Ordinance (Article 43-3-6 paragraph (1) item (iv)).

The Reactor Regulation Act requires licensees to take measures necessary for operational safety.(Article 43-3-22, paragraph (1)) Specifically, for commercial power reactors, the Commercial Reactors Ordinances requires licensees to take measures necessary for operational safety in the transportation and storage in plant.(Articles 88 and 89)

In addition,the Reactor Regulation Act requires licensees to develop operational safety programs and obtain NRA's approval for the programs.(Article 43-3-22, paragraph (1)) Specifically, the Commercial Reactors Ordinance requires operational safety programs to include handling of nuclear fuel materials, such as reception and transfer, transport, and storage.(Article 92)

Licensees are required to have an NRA approval for the merger or split, succession of nuclear facilities.

Thus the continuity of licensees' safety responsibilities is ensured, including those for safety management of spent fuel.

<Attachments>

Article 43-3-5 of the Reactor Regulation Act

Article 43-3-6, paragraph (1), item (iv) of the Reactor Regulation Act

Article 43-3-22, paragraph (1) of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.16.2

Describe the regulatory requirements for safe management of the spent fuel.

Subsidiary Response

Please refer to the answer to 16.1

Subsidiary Question 1.16.3

Describe requirements and the arrangements in place to ensure appropriate financial provisions are made for safe management of spent fuel.

Subsidiary Response

See the answer to SQID3.17

Question 1.17

Has the government made provision for safe management of radioactive waste arising from facilities and activities?

Answer

Yes

Finding

The Government has made provision for safe management of radioactive waste arising from facilities and activities.

Response

Licensees who install the commercial reactors are required to assure financial provision as follows necessary for dismantling the reactor facilities pursuant to the Ordinance on the Nuclear Power Generation Facility Dismantling Allowance, stipulated by the METI pursuant to the Electricity Business Act, and also required to obtain the approval of the Minister of METI on the estimated funds for individual reactor facilities at the end of each fiscal year.

- fund to be used in dismantling the reactor facilities,*
- fund to be used in dispose the waste generated during dismantling the reactor facilities.*

Concerning the management of spent fuels, it is the Japan's basic policy to reprocess spent fuels and use effectively the extracted plutonium, under the Strategic Energy Plan.

Concerning the funds necessary for managing and reprocessing spent fuels, as shown below, a person or organization who installed commercial reactors are required to set aside the reserve funds to the fund administration corporation designated by the Minister of METI, under the Law Relating to Accumulation and Management of Reserve Funds for Reprocessing, etc., of Spent Fuels Produced by Nuclear Power Generation;

- funds to be used in reprocessing spent fuels,*
- fund to be used in the storage of reusable materials and the treatment, processing and disposal of the residuum after reprocessing, and*
- fund to be used to dismantle reprocessing facilities.*

Subsidiary Question 1.17.1

Explain the policy and corresponding government strategy having regard to safe management of radioactive waste arising from facilities and activities.

Subsidiary Response

Nuclear facilities:

The Reactor Regulation Act stipulates the regulatory system for safe management of radioactive waste caused by the activities of refining, fabrication and enrichment, storage, reprocessing, and disposal and the installation, operation, etc. of reactors.

Radiation facilities:

the Radiation Hazards Prevention Act stipulates the regulatory system for safe management of radioactive waste related to radioisotopes.

<Attachments>

Articles 43-3-22 and 58 of the Reactor Regulation Act

Article 4-2 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.17.2

Explain how government enforces continuity of responsibility between successive authorized parties with regard to safe management of radioactive waste arising from facilities and activities.

Subsidiary Response

Nuclear facilities:

Licensees are required to have an NRA approval for the merger or split, succession of licensees facilities, and may transfer or receive nuclear fuel materials only among licensees.

Thus the continuity of licensees' safety responsibilities is ensured, including those for safety management of radioactive waste.

Radiation facilities:

The authorized operators are required to have an NRA approval for their merger or split, and may transfer or receive radiation sources only among authorized operators.

Thus the continuity of authorized operators' safety responsibilities is ensured, including those for safety management of radioactive waste, which is produced by the facilities and activities of authorized operators.

<Attachments>

Articles 8, 18, 31, 43-3-18, 43-14, 46-5, 51-12, and 61 of the Reactor Regulation Act

Articles 26-2 and 29 of the Radiation Hazards Prevention Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.17.3

Has the regulatory body specified requirements for safe management of the various types of radioactive waste?

Subsidiary Response

For example,for commercial reactors,The Reactor Regulation Act requires licensees to submit application form containing matters regarding ""the location, structure, and

equipment of the commercial power reactor facility"" including matters regarding the structure and equipment of radioactive waste disposal facilities(Article 43-3-5). The Reactor Regulation act also requires licensees to comply with the establishment permit standard (Article 43-3-6, paragraph (1), item (iv)). the compliance of construction plans with the approved establishment permit is confirmed at the stage of construction.

The Reactor Regulation Act requires licensees to take measures necessary for operational safety.(Article 43-3-22 Paragraph (1)) For commercial reactors, the Commercial Reactors Ordinance requires licensees to take operational safety measures necessary for managing radioactive wastes in plant depending on the properties of them.(Articles 90)

In addition,the Reactor Regulation Act requires licensees to develop operational safety programs and obtain the NRA approval.(Article 43-3-24, paragraph (1)) Specifically, the Commercial Reactors Ordinance requires operational safety programs to include disposal program of radioactive waste.(Article 92)

<Attachments>

Article 43-3-5 of the Reactor Regulation Act

Article 43-3-6, paragraph (1), item (iv) of the Reactor Regulation Act

Article 43-3-22, paragraph (1) of the Reactor Regulation Act

Article 43-3-24, paragraph (1) of the Reactor Regulation Act

Articles 90 of the Commercial Reactor Establishment Permit Ordinance

Articles 92 of the Commercial Reactor Establishment Permit Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 1.17.4

Has the regulatory body specified requirements for the radiological characterization of radioactive waste?

Subsidiary Response

The Reactor Regulation Act requires licensees to obtain the NRA's approval depending on the classification of radioactivity concentrations. The Reactor Regulation Act also requires licensees to comply that the locations, structures, and equipment of waste disposal facilities or waste management facilities conform with the standards as such that they will not hinder the prevention of disasters resulting from nuclear fuel material or material contaminated by nuclear fuel material.(Article 51-3, item (ii))

<Attachments>

Article 51-2 of the Reactor Regulation Act

Article 51-3, item (ii) of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.17.5

Describe how strategies for radioactive waste management take into account the diversity of types of radioactive waste and the radiological characteristics of radioactive waste.

Subsidiary Response

For commercial reactors, the Commercial Reactors Ordinance requires licensees to take operational safety measures necessary for managing radioactive wastes in plant depending on their properties. It is required that, when exhausted or discharged, gaseous or liquid radioactive waste shall not exceed the concentration limits specified in a notice, outside the environmental monitoring area, regardless of the nuclide type.(Articles 90) The limits are provided for in Article 9 of the Commercial Reactors Dose Limit Notice.

<Attachments>

Articles 90 of the Commercial Reactor Establishment Permit Ordinance

Article 9 of the Commercial Reactors Dose Limit Notice

Subsidiary Attachments

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 1.17.6

Explain the measures currently in place to ensure that radioactive waste generated in facilities and activities is managed in an integrated and systematic manner up to its final disposal.

Subsidiary Response

Regulation on licensees of the Reactor Regulation Act

For predisposal in plant, the Reactor Regulation Act requires licensees to take measures necessary for operational safety (including the matters concerning measures to be taken in the event of a severe accident) in the transportation, storage, or predisposal of nuclear fuel materials or materials contaminated by nuclear fuel materials (this transportation or predisposal is limited to the transportation or predisposal implemented within in plant in which commercial power reactor facilities have been installed.(Article 43-3-22, paragraph (1))

For predisposal outside plant, of the Reactor Regulation Act provides that licensees of nuclear energy activity, etc. shall implement necessary measures to ensure operational safety, pursuant to provisions in the NRA Ordinance, when they are to predispose of nuclear fuel materials or materials contaminated by nuclear fuel materials outside plant that are equipped with refining facilities, fabricating and enrichment facilities, test and research

reactor facilities, commercial power reactor facilities, spent fuel interim storage facilities, reprocessing facilities, waste disposal facilities and waste management facilities, or Facilities using Nuclear Fuel Materials, etc.(Article 58)

In addition, the Reactor Regulation Act requires licensees to obtain the NRA's approval for the management of radioactive waste to prevent radiation hazards before final disposal such as a burial disposal.(Article 51-2)

Subsidiary Question 1.17.7

Explain requirements and the arrangements in place to ensure that appropriate financial provisions are made for safe management of radioactive waste, including its storage.

Subsidiary Response

See the answer to SQID3.17 .

Question 1.18

Has the government made provision for final disposal of radioactive waste arising from facilities and activities?

Answer

Yes

Finding

The Government has made provision for final disposal of radioactive waste arising from facilities and activities.

Response

-

Subsidiary Question 1.18.1

Explain the policy and corresponding government strategy having regard to final disposal of radioactive waste arising from facilities and activities.

Subsidiary Response

The Reactor Regulation Act stipulates the regulations for buried disposals of radioactive waste coming from nuclear facilities.

With regard to the regulatory requirements for buried disposals, only those for shallow ground disposals (disposals in a trench or pit) are established.

Since the number of decommissioned plants is expected to increase and certain waste will not be allowed for shallow ground disposal because of exceeding the limit of radioactivity concentration designated for that disposal for shallow ground disposal, the NRA is developing regulatory requirements for intermediate depth disposal.

The radioactive waste from facilities other than nuclear power plants (e.g. research facilities), currently there are no projects has progressed for such disposals. Therefore, the NRA has not developed any regulatory requirements for the disposal of these wastes.

Subsidiary Question 1.18.2

Explain how strategies for final disposal of radioactive waste take account of the diverse types of radioactive waste and radiological characteristics of the radioactive waste.

Subsidiary Response

The regulatory requirements for waste management facilities are established only for shallow ground disposals which include disposals in a trench or pit according to radioactive half-life period and radioactive concentration of the waste. On the other hand, the NRA is developing regulatory requirements for intermediate depth disposal of radioactive waste such as coming from reactor core internal structures of reactor vessel.

When developing the regulatory requirements for the disposal of high-level radioactive waste or radioactive waste from research institutes in the future, the NRA will take account of the diverse types of radioactive waste and radiological characteristics of the radioactive waste appropriately in case of developing the disposal of high-level radioactive waste and radioactive waste coming from research institutes etc. in the future.

Subsidiary Question 1.18.3

Describe the legal and regulatory provisions that ensure clear assignment of responsibility for maintaining institutional control after the closure of a permanent repository for radioactive waste.

Subsidiary Response

For near surface trench disposal and near surface pit disposal of category 2 waste disposal activity, the Category 2 Waste Disposal Ordinance requires licensees to develop safety operational programs which includes maintenance program on waste disposal sites during the period from the closure of facilities to the implementation of their decommissioning, and requires the periodic safety review, etc. of waste disposal sites (Article 17, 19-2, 20).

Furthermore, The NRA checks implementation status by a operational safety inspection based on the Reactor regulation act (Article 51-18).

<Attachments>

Article 51-18 of the Reactor Regulation Act

Article 17 of the Category 2 Waste Disposal Ordinance

Article 19-2 of the Category 2 Waste Disposal Ordinance

Article 20 of the Category 2 Waste Disposal Ordinance

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.18.4

Has the government provided for appropriate research and development programmes in relation to the disposal of radioactive waste, in particular for verifying safety in the long term?

Subsidiary Response

Regarding matters related to radioactive waste disposal, the NRA conducted a research on handling of radioactive waste caused by the accident at the Fukushima Dai-ichi NPS and research for preparation of regulatory standards for category 2 waste disposal.

Subsidiary Question 1.18.5

Explain requirements and the arrangements in place to ensure that appropriate financial provisions are made for final disposal of radioactive waste.

Subsidiary Response

See the answer to SQID3.17

Question 1.19

Has the government made provision for building and maintaining the competence of all parties having responsibilities relating to the safety of facilities and activities?

Answer

Yes

Finding

The Government has made provision for building and maintaining the competence of all parties having responsibilities relating to the safety of facilities and activities.

Response

-

Subsidiary Question 1.19.1

Explain the national policy and corresponding government strategy for safety, include provisions regarding the assurance of professional training for developing and maintaining sufficient suitably qualified and experienced personnel.

Subsidiary Response

The NRA Establishment Act requires the Government to install training facilities to enhance the competence of the personnel of the Secretariat of the NRA and the establishment of other training framework. (Article 6, paragraph (1), item (iv) of the Supplementary Provisions of the NRA Establishment Act) It also requires the Government to ensure financial resources for implementing measures for human resource development. (Item (v) of the same paragraph)

The Cabinet Order for Organization of the NRA requires the establishment of a Human Resource Development Center within the NRA to enhance the competence of personnel and to provide training for personnel.(Article 8)

The Reactor Regulation Act requires licensees to specify operational safety programs before commencing the operation of the power reactors and obtain the NRA's approval. (Article 43-3-24) The Commercial Reactors Ordinance requires licensees to specify operational safety programs including education on operational safety for operational staff, and the continuous planning, implementation, evaluation, and improvement of operational safety activities including education and training. (Article 92) In conducting operational safety inspections, The NRA reviews the compliance of licensees' operational activities with the approved operational safety programs. The NRA conducts operational safety inspections quarterly.

Subsidiary Question 1.19.2

Explain how the government enforces that all parties involved in ensuring safety of facilities and activities (including authorized parties, regulatory body and organisations providing services or expert advice on relevant matters) take measures for building and maintaining the necessary competences.

Subsidiary Response

The NRA adopts successful applicants among national public service examinations in examination categories related to the NRA's work targeting undergraduate and postgraduate students in hiring new graduates and ensures fundamental competence levels in hiring mid-career employees by clarifying necessary job experience and other requirements. Inspectors are obliged to have practical experience related to nuclear activities and to complete training designated by the Chairman.

For regulatory body, the NRA Establishment Act requires the Government to install training facilities to enhance the competence of the personnel of the Secretariat of the NRA and the establishment of other training framework. (Article 6, paragraph (1), item (iv) of the Supplementary Provisions of the NRA Establishment Act) It also requires the Government to ensure financial resources for implementing measures for human resource development. (Item (v) of the same paragraph)

The Cabinet Order for Organization of the NRA requires the establishment of a Human Resource Development Center within the NRA to enhance the competence of personnel and to provide training for personnel.(Article 8)

The NRA imposes specific qualification requirements on nuclear facility inspectors, nuclear safety inspectors, physical protection inspectors, radiation inspectors, and nuclear emergency preparedness officers and provides them with training for enhancing their competences.

Subsidiary Question 1.19.3

Explain how the national infrastructure for safety provides for adequate technical training facilities, for the use of academic institutions and learning centres, as well as for necessary research and development work.

Subsidiary Response

The Cabinet Order for Organization of the NRA requires the establishment of a Human Resource Development Center within the NRA to enhance the competence of personnel and to provide training for personnel. (Article 8 of the NRA Organization Cabinet Order)

A training facility (Nuclear Safety Training Center in Hitachinaka city, Ibaraki prefecture) of the Human Resource Development Center is equipped with a model of a nuclear power station and cutaway models of individual pieces of equipment for promoting understanding of the structures of facilities, a desktop PC simulator for enhancing understanding of reactor operation, equipment for enhancing competence for checking implementation status and conducting nondestructive inspections, etc. External training facilities are also used on an as-needed basis.

The Nuclear Safety Research Center of the Japan Atomic Energy Agency is supervised by the NRA. The Center conducts safety research on the technical issues identified by the NRA. The Nuclear Emergency Support and Training Center supports the NRA to enhance preparedness and response for nuclear emergency.

Subsidiary Question 1.19.4

Has the government stipulated a necessary level of competence for persons who have responsibilities relating to the safety of facilities and activities?

Subsidiary Response

The Reactor Regulation Act require licensees to have the following types of competence.

-Licensees of refining activity shall have sufficient technical capability for executing the activity competently.

-Licensees of fabricating and enrichment activity shall have technical capability required for taking measures necessary for preventing and mitigating severe accidents and other capability sufficient for carrying out fabricating and enrichment activities competently.

-Licensees of Research and test reactor shall have technical capability necessary for installing research and test Reactors and technical capability sufficient for operating test and research reactors competently.

-Licensees of power reactor shall have technical capability sufficient for installing commercial power reactors, and have technical capability required for taking measures necessary for preventing and mitigating severe accidents, and other capability sufficient for operating commercial power reactors competently.

-Licensees of spent fuel interim storage activity shall have sufficient technical capability for executing the activity competently.

-Licensees of reprocessing activity shall have technical capability required for taking measures necessary for preventing and mitigating severe accidents and other capability sufficient for executing the reprocessing activity competently.

-Licensees of radioactive waste disposal and storage activity shall have sufficient technical capability for executing the activity competently.

-Licensed nuclear fuel material users shall have sufficient technical capability for using nuclear fuel materials competently.

Specifically, review criteria for these capabilities are provided for in the NRA standards, such as the Review Standards for the sufficient Technical Capability of Power Reactor Establishers of Commercial Power Reactors to Implement Measures Necessary for Preventing the Occurrence and Expansion of Severe Accidents.

The Reactor Regulation Act requires licensees to appoint a supervisor for safety of reactor operations or facility operation from among those who are qualified as a “Chief engineer of reactors” or “chief engineer of nuclear fuel”, who is certified under a qualification system of the Act (Article 22-3). (Article 43-3-26). Certificates shall be issued for persons who have

passed state examinations executed by the NRA, or persons who possess knowledge and experience equal to or more than those who have passed the examinations.

With regard to the competency of the NRA staff, the NRA specifies criteria for required competence for each rank, and judges whether each staff member has appropriate competence in personnel evaluation. In addition, nuclear facility inspectors, nuclear safety inspectors, physical protection inspectors, radiation inspectors, and nuclear emergency preparedness officers need to satisfy the required number of years of practical experience, completion of training designated by the NRA Chairman, and other requirements appropriate for their duties.

The NRA recruits undergraduate and graduate students who passed national public service examinations in examination categories related to the NRA's work and mid-career experts who have fundamental competence levels with job experience as described in the vacancy notice.

Subsidiary Question 1.19.5

Describe the extent to which government has made provision for the regulatory body and its support organizations to build and maintain expertise in disciplines necessary to discharge the regulatory body's responsibilities in relation to safety.

Subsidiary Response

To develop and maintain the competence of the NRA Secretariat (S/NRA) personnel, the NRA Establishment Act requires following matters. (Article 6, paragraph (1) of Supplemental Provision)

- Establishment of a salary system and improvement of the treatment of the officials*
- Ensuring a sufficient number of personnel, active use of external human resources, etc.*
- Overseas assignment and personnel exchange with universities and research institutes in Japan and in other countries*
- Installation of training facilities, establishment of training framework, etc.*
- Ensuring of financial resources*

The Cabinet Order for Organization of the NRA requires the establishment of a Human Resource Development Center within the NRA to enhance the competence of personnel and to provide training for personnel.(Article 8).

The Human Resource Development Center provides obligatory training, such as training for new employees and training for acquiring qualifications including basic training for nuclear safety inspectors. It also provides other types of training to enhance competence.

Subsidiary Question 1.19.6

Has the government required that adequate arrangements for building and maintaining technical competence and for its regular verification be provided for persons working for authorized parties?

Subsidiary Response

The Reactor Regulation Act requires licensees to appoint a supervisor for safety of reactor operations or facility operation from among those who are qualified as a “Chief engineer of reactors” or “chief engineer of nuclear fuel”, who is certified under a qualification system of the Act (Article 22-3). (Article 43-3-26). Certificates shall be issued for persons who have passed state examinations executed by the NRA, or persons who possess knowledge and experience equal to or more than those who have passed the examinations.

Reactor Regulation Act requires licensees to specify operational safety programs before commencing the operation of the power reactors and obtain the approval of the Nuclear Regulation Authority. (Article 43-3-24) The Commercial Reactors Ordinance requires licensees to specify operational safety programs including education on operational safety for operational staff, and the continuous planning, implementation, evaluation, and improvement of operational safety activities including education and training. (Article 92) In conducting operational safety inspections, The NRA reviews the compliance of licensees’ operational activities with the approved operational safety programs. The NRA conducts operational safety inspections quarterly.

The Radiation Hazards Prevention Act and its Ordinances provide that authorized operators shall designate persons having government certification for Radiation Protection Supervisors to supervise radiation hazard prevention in the facilities as Radiation Protection

Supervisors for the facilities. In addition, authorized operators are required to ensure that Radiation Protection Supervisors designated for facilities attend periodic training courses.

To prevent radiation hazards, it is also provided that authorized operators shall establish Radiation Hazard Prevention Programs that provide for matters regarding necessary education and training for radiation hazard prevention, notify the NRA of the Programs, and ensure that persons who enter facilities are provided with education and training periodically.

<Attachments>

Article 43-3-24 of the Reactor Regulation Act

Articles 21, 22, 34, 35 and 36 of the Radiation Hazards Prevention Act

Articles 21, 21-2, 30, 31 and 32 of the Radiation Hazards Prevention Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.19.7

Has the government made arrangements, with other States or with international organizations, for the provision of adequate training in cases where the available training programmes within the State are insufficient?

Subsidiary Response

Training programs necessary for the NRA Secretariat (S/NRA) personnel are available domestically. Within the frameworks of personnel exchanges in accordance with bilateral agreements or memoranda of understanding with overseas nuclear regulatory bodies, some personnel are dispatched to or accepted from overseas nuclear regulatory bodies.

The NRA dispatches some personnel to short-term overseas training courses, such as a three-day training course on decommissioning held by the U.S. Argonne National Laboratory and a five-day course on a radiological emergency planning held by Harvard School of Public Health, mainly to cultivate internationally competent personnel.

Subsidiary Question 1.19.8

Describe measures taken by government to facilitate the development of the necessary competence for operation and for regulation of facilities and activities.

Subsidiary Response

To develop and maintain the competence of the NRA Secretariat (S/NRA) personnel, the NRA Establishment Act requires that training programs, including facilities to improve their professional skills, be established, and that financial resource for human resource development be secured. (Article 6 of Supplemental Provision) To meet this requirement, the Cabinet Order for Organization of the NRA requires the establishment of a Human Resource Development Center within the NRA (Article 8).

Subsidiary Question 1.19.9

Has the government provided arrangements for the establishment of, or participation in, centres where research and development and practical applications are carried out in key areas of safety?

Subsidiary Response

For research and development, the NRA had supervised the former Japan Nuclear Energy Safety Organization (herein after the JNES) which provides technical support including safety research to the NRA for ensuring nuclear safety . In March 2014, the JNES was merged into the NRA in order to enhance the technical competence of the regulatory body. The JNES's works are currently accordingly conducted by the NRA.

The NRA supervises the groups supporting the NRA activities within the Japan Atomic Energy Agency (JAEA), which conducts safety research and provides including nuclear basic research, and the National Institute of Radiological Sciences (NIRS), which conducts studies and research about radiation and radiation medicine to support the NRA activities.

In addition, to develop and maintain the competence of the NRA Secretariat (S/NRA) personnel, the NRA Establishment Act requires that training programs, including facilities to improve their professional skills, be established, and that financial resource for human resource development be secured. (Article 6 of Supplemental Provision) To meet this requirement, the Cabinet Order for Organization of the NRA requires the establishment of a Human Resource Development Center within the NRA (Article 8).

Question 1.20

Have adequate infrastructural arrangements been established within the governmental framework to enable effective interfaces between safety and nuclear security and the State system of accounting for, and control of nuclear material?

Answer

Yes

Finding

Adequate infrastructural arrangements have been established within the governmental framework to enable effective interfaces between safety and nuclear security and the State system of accounting for, and control of nuclear material.

Response

-

Subsidiary Question 1.20.1

Describe the extent to which the legal and governmental framework includes specific responsibilities for assessment of the configuration of facilities and activities for the optimization of safety, taking into account factors relating to nuclear security and the system of accounting for, and control of nuclear material.

Subsidiary Response

The Nuclear Regulation Authority supervises safety and physical protection of nuclear materials. The NRA developed the Code of Conduct on Nuclear Security Culture in January 2015 and the Declaration on Nuclear Safety Culture in May 2015, which stipulates the harmonization of regulatory activities for nuclear safety and nuclear security. In addition, The NRA's mid-term goals (April 2015 through March 2020) under its management systems stipulates the efficient coordination for enhancing both safety and security. At present, a mechanism for managing the interfaces among related divisions to prevent any harmful interactions in the review for authorization, etc. is in the process of being established.

The NRA is responsible for safety and the state system of accounting for and controlling nuclear material (SSAC). When the coordinate of interface between SSAC and nuclear safety arises, adjustments are made in order to avoid mutual interference.

As the leadership and management for safety of licensees of nuclear energy activities, The licensees perform management for safety in design and construction in accordance with the Commercial Reactors QMS Ordinance, etc. That ordinance requires licensees to manage safety taking safety related issues into account in order to achieve the goal of integrated management system.

Subsidiary Question 1.20.2

Describe the extent to which the legal and governmental framework includes specific responsibilities for oversight and enforcement of arrangements for safety, nuclear security and the system of accounting for, and control of nuclear material.

Subsidiary Response

The Nuclear Regulation Authority supervises safety and physical protection of nuclear materials. The NRA developed the Code of Conduct on Nuclear Security Culture in January 2015 and the Declaration on Nuclear Safety Culture in May 2015, which stipulates the harmonization of regulatory activities for nuclear safety and nuclear security. In addition, The NRA's mid-term goals (April 2015 through March 2020) under its management systems stipulates the efficient coordination for enhancing both safety and security. At present, a mechanism for managing the interfaces among related divisions to prevent any harmful interactions in the review for authorization, etc. is in the process of being established.

The NRA is responsible for safety and the system of accounting for and controlling nuclear material. When the coordination interface between SSAC and nuclear safety is needed, adjustments are made in order to avoid mutual interference.

Subsidiary Question 1.20.3

Does the legal and governmental framework include specific responsibilities for the liaison with law enforcement agencies, as appropriate?

Subsidiary Response

No other arrangements regarding enforcement actions based on the Reactor Regulation Acts have been made with other agencies. The NRA shall communicate and coordinate with related agencies if required.

Subsidiary Question 1.20.4

Does the legal and governmental framework include specific responsibilities for the integration of emergency response arrangements for both safety related and nuclear security related incidents?

Subsidiary Response

Article 4-2 of the Nuclear Emergency Act provides for the responsibilities of the Government in the prevention of nuclear disasters caused by large-scale natural disasters, terrorism and other criminal acts.

The NRA provides a response system for nuclear disasters. This system covers nuclear disasters caused by not only natural disasters but also security events, etc. If it is judged that a nuclear disaster is possible to occur, emergency headquarters are organized in the NRA and the Cabinet Office, for mutual information sharing and cooperation between them.

Subsidiary Question 1.20.5

Describe the requirements and/or arrangements to ensure that safety and security measures are designed and implemented in an integrated manner so that security measures do not compromise safety and safety measures do not compromise security.

Subsidiary Response

The Nuclear Regulation Authority is responsible for safety and physical protection of nuclear materials. The NRA developed the Code of Conduct on Nuclear Security Culture in January 2015 and the Declaration on Nuclear Safety Culture in May 2015, which stipulated the harmonization of regulatory activities for nuclear safety and nuclear security. In addition, The NRA's mid-term goals (April 2015 through March 2020) under its management systems stipulates the efficient coordination for enhancing both safety and security. At present, a mechanism for managing the interfaces among related divisions to prevent any harmful interactions in the review for authorization, etc. is in the process of being established.

The NRA shall harmonize regulatory activities for nuclear safety and nuclear security and implement appropriate measures in a conflict between the two.

About the operation of these duties, it shall be implemented in the management system based on the Nuclear Regulatory Authority management Rules.

Question 1.21

Where necessary, has the government made provision for technical services relating to safety, such as services for personal dosimetry, environmental monitoring and calibration of equipment?

Answer

Yes

Finding

The government has made necessary provision for technical services relating to safety.

Response

Private companies can provide necessary and appropriate technical services relating to safety, such as services for personal dosimetry, environmental monitoring and calibration of equipment. Therefore, currently there is no need for measures taken by the government for these technical services.

Attachments

C02 Nuclear Emergency Act

Subsidiary Question 1.21.1

Explain how the government ensures adequate provision of technical services relating to safety, such as services for personal dosimetry, environmental monitoring and calibration of equipment.

Subsidiary Response

Article 11, paragraph (5) of the Nuclear Emergency Act provides that, when licensees equip themselves radiation measuring apparatus as per paragraph (1), its performance must be inspected by the NRA according to the Ordinances of the NRA.

<Attachments>

Nuclear Emergency Act

Article 11

Subsidiary Attachments

C02 Nuclear Emergency Act

Subsidiary Question 1.21.2

Does the regulatory body authorize technical services that may have significance for safety?

Subsidiary Response

The NRA authorizes nuclear facilities and activities and reviews safety of radiation controlled facilities, etc. in the authorization process. Therefore, technical services are not regulated by these authorization system. Radiation Hazards Prevention Act provides a system that registered certification body conduct an examination for design certification of facilities where the radioisotope or radiation generating apparatus is used.

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Module: The Global Safety Regime

Findings

Question 2.1

In fulfilling its international obligations does the government participate in all relevant international arrangements for enhancement of safety globally?

Answer

Yes

Finding

The Government participates in all relevant international arrangements for enhancement of safety globally.

Response

Japan is a contracting party of international conventions regarding nuclear safety.

Subsidiary Question 2.1.1

Is the government a contracting party to relevant international conventions that establish common obligations and mechanisms for ensuring safety in the utilization of nuclear energy and radiation for peaceful purposes and that provide for an effective coordinated international response to a nuclear or radiological emergency?

Subsidiary Response

YES.

Japan is a State Party to Convention on Nuclear Safety, Convention on Early Notification of a Nuclear Accident, Convention on Assistance in the case of a Nuclear Accident or Radiological Emergency, Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, Convention on the Physical Protection of Nuclear Material and others.

Subsidiary Question 2.1.2

Describe how government ensures State adherence to the codes of conduct that promote the adoption of good practices in the relevant facilities and activities.

Subsidiary Response

The Japanese government has expressed its support for the Code of Conduct on the Safety and Security of Radioactive Sources as well as the Supplementary Guidance on the Import and Export of Radioactive Sources. The government has established requirements for fulfilling the provisions defined in these documents in the Act for Radiation Hazard Prevention, Rules for the Enforcement of the Act and related regulations, and requires licensees to comply with these requirements in order to ensure adherence to the codes of conduct.

Regarding the Code of Conduct on the Safety of Research Reactors, the government has established the necessary requirements in related laws and regulations (the Act for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, the Cabinet Order for the Act, the Rules for the Installation, Operation, etc. of Reactors for the Purpose of Testing and Research, etc.) and requires licensees of reactor operation for testing and research to comply with these requirements.

Subsidiary Attachments

H12code-of-contact-status-list

Subsidiary Question 2.1.3

Does the government observe the application of the IAEA safety standards that promote the development of internationally harmonized safety related requirements, guides and practices?

Subsidiary Response

Yes.

IAEA Safety Standards are taken into account to develop regulatory requirements for domestic nuclear regulation.

After the Fukushima Daiichi NPS accident, Atomic Energy Basic Act was amended and Act for Establishment of Nuclear Regulation Authority was enacted.

In the Article 2 paragraph 2 of Atomic Energy Basic Act and in the Article 1 of the Act for Establishment of Nuclear Regulation Authority, it is stipulated that established international standards should be taken into account to develop and implement the policy to ensure safety of nuclear energy use.

Therefore, mechanism to use IAEA Safety Standards has been established.

The most part of legal framework for nuclear regulation complies with IAEA Safety Standards, although each line is not exactly same.

In addition, NRA participates CSS and four subsidiary committees as well as related international cooperation. When regulatory requirements which do not comply with IAEA Safety Standards are found, an action plan for improvement is developed and such requirements are amended based on the perspectives on the discussion about development and application of IAEA Safety Standards.

Subsidiary Question 2.1.4

Has the government made any request for receiving international peer reviews of the regulatory control and safety of facilities and activities?

Subsidiary Response

YES.

Nuclear Regulation Authority (NRA) requested the IAEA for IPPAS and IRRS. IPPAS was conducted in February 2015. IRRS will be conducted in January 2016.

Subsidiary Question 2.1.5

Has the government made available its own safety experts for participating in international peer reviews of the regulatory control and safety of facilities and activities?

Subsidiary Response

Yes.

Japanese government experts in nuclear safety have participated in the peer review of the Convention on Nuclear Safety, the peer review of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, as well as in the France IRRS, German IRRS and China IRRS missions.

To promote further contribution to the world as a large scale nuclear country, it is necessary to develop personnel who have international human network and be able to contribute international community.

Subsidiary Question 2.1.6

List and explain any formal agreements in place for multinational and bilateral cooperation that enhances safety, particularly through harmonized approaches and increased quality and effectiveness of safety reviews and inspections.

Subsidiary Response

The NRA has established cooperative relationships with the regulatory and support agencies of the following countries to promote bilateral programs in the extent of regulatory coverage: the U.S.A. (NRC and DOE), the U.K., France, South Korea, China, Sweden, Finland, Spain, Russia, Lithuania, Germany, Vietnam, and Turkey.

Meanwhile, in an effort to promote multinational programs, Japan became a member of the International Nuclear Regulators Association(), which was established in 1996, to establish a system for exchanging views and information on a wide range of issues regarding international nuclear regulation among multiple countries.*

(): Member countries are Canada, France, Germany, Spain, Sweden, the U.K., the U.S.A., South Korea, and Japan (as of June 2014). Under a memorandum of cooperation, Japan also organized the Japan-China-South Korea Nuclear Safety Top Regulator Meeting in 2008 to establish a system for exchanging information and sharing knowledge and experience regarding nuclear regulation issues between the three countries.*

Question 2.2

Has the regulatory body made arrangements for implementing and using operational and regulatory experience feedback?

Answer

Yes

Finding

The regulatory body has arrangements for implementing and using operational and regulatory experience feedback

Response

-

Subsidiary Question 2.2.1

Describe the arrangements for, and extent to which the regulatory body performs analysis to identify lessons learned from operating and regulatory experience, including experience in other States.

Subsidiary Response

The Secretariat of the NRA gathers information on operational experience in Japan and overseas, and performs a primary screening to identify information that affects the safety of nuclear facilities. Then it performs a secondary screening and, at the Technical Information Committee, evaluates and categorizes information that indicates a need for regulatory measures as technologically relevant information. The kinds of information targeted for collection are information released by overseas regulatory bodies (publically released: USA Generic Communications, etc., not publically released: IRS and FINAS reports, etc.), ordinance reports published in Japan, and information independently released to the public by licensees. In addition, all nuclear facilities are targeted, including commercial reactors, nuclear reactor at a stage of research and development, research reactors, and reprocessing facilities. In addition, Regarding safety reviews and inspections, NRA participates CNRA and CSNI of OECD/NEA.

Subsidiary Question 2.2.2

Describe the meanss the regulatory body has established for receiving information from other States and authorized parties, and to make available to others lessons learned from operating and regulatory experience.

Subsidiary Response

- Regarding information from overseas, the Secretariat of the NRA participates in the reporting systems for accidents and malfunctions operated by the IAEA and the OECD/NEA, which are IRS and FINAS, respectively. It sends information about Japan and gathers important information from other countries. These systems are also made available to a technical support organization (JAEA) and licensees in Japan. The results of analyzing the information in this system are mutually verified at meetings organized by the Secretariat of the NRA, JAEA, and the Japan Nuclear Safety Institute (JANSI).

- For information about in Japan, since Article 67 of the Reactor Regulation Act specifies that licensees can be made to submit a levy report, information about operating experiences in plants in Japan can also be gathered when necessary.
- In addition, the results of reviews by the Technical Information Committee, which reviews this information, are stipulated to be published on the website of the NRA. Furthermore, the targeted licensees should be alerted about important review results.
- Also, technological and other important information is gathered through participation in bilateral information exchanges (Japan-USA, Japan-France, Japan-UK, etc.) and in multinational conferences (IAEA, OECD/NEA WGOE, INRA, Japan-China-South Korea TRM, etc.)
- NRA-established methods for licensees to make lessons learned from operating and regulatory experience available to others are specified, for example, in Article 43-3-29 (periodic safety assessment of continuous improvement of Power Reactor Facilities) of the Commercial Reactors Ordinance; Article 99-7 (Disclosure of Evaluation Results, etc.) of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors; and Article 75 (Improvement of Safety Preservation Activities) of the same Ordinance.

Subsidiary Question 2.2.3

Describe the arrangements made by the regulatory body for dissemination of lessons learned and for promoting their implementation, as appropriate, by authorized parties and relevant authorities.

Subsidiary Response

- Based on lessons (technologically relevant information) obtained as a result of screening technological information in Japan and overseas implemented by the Secretariat of the NRA, the NRA determines actions to take to revise technological standards (including guide) and to advise on cautions as the need arises.

The Secretariat of the NRA conveys the actions determined by the NRA to licensees.

- For example, for commercial reactors, Article 75 (Improvement of Safety Preservation Activities) of the Commercial Reactors Ordinance requires that feedback should not only be given about knowledge obtained from implementation of operational safety activities at nuclear power reactor facilities but also knowledge obtained from other facilities.
- Furthermore, periodic safety assessment of continuous improvement is required. This announcement encourages licensees to undertake self-imposed measures to improve safety.

Subsidiary Question 2.2.4

Describe the process of reporting (feedback) of operational and regulatory experience used by the regulatory body to improve its processes, practices or requirements.

Subsidiary Response

- To further improve regulatory Activities, the NRA has introduced a general management system and established a system which uses operating and regulatory experience as feedback. The NRA strives for continuous improvement.*
- For actual feedback of operating experience, corrective actions are taken as-needed according to Operational guidelines created Based on the aforementioned management system.*

Subsidiary Question 2.2.5

Does the regulatory body require the appropriate corrective actions to be carried out for preventing the re-occurrence of safety significant events?

Subsidiary Response

Yes.

- In case of a safety significant event, the licensee is required to investigate the cause of the event and develop measures to prevent recurrences. It is also required to revise the Operational Safety Programs and others to ensure the implementation of the preventive measures in relevant facilities, if needed.*
- For example, the Article 54 of the NRA Ordinance for Commercial Power Reactors Concerning Technological Standards for Methods of Quality Management Regarding the Design and Construction by Licensees of Commercial Power Reactors and for Inspection Organizations, as well as the Article 75 of the NRA Ordinance for Commercial Nuclear Power Reactors Concerning the Installation, Operation, etc., stipulates the obligation to implement corrective measures.*

Subsidiary Question 2.2.6

Provide details of regulatory body resources currently devoted to acquisition of necessary information and its analysis and describe the extent of arrangements to facilitate effective utilization of international networks for mutual learning from operating and regulatory experience.

Subsidiary Response

Regulation Planning Section staff members are in charge of gathering information on operating experience in Japan and overseas as explained in 2.1 and of performing primary screening of such information. Secondary screening is performed with the participation of assistant directors or persons in equivalent positions in a research department (Regulatory Standard and Research Department) and a department in charge of regulatory operations (Department of Nuclear Regulation) as working members, with a secretariat organized by the Regulation Planning Section staff members.

The IRS and FINAS managed by the IAEA and the OECD/NEA serve as important sources of information in these activities. In addition to the Secretariat of the NRA, a technical support organization (JAEA) and licensees in Japan also have access to this system. The results of analyzing the information in this system are mutually verified at informal meetings organized by the Secretariat of the NRA, JAEA, and the Japan Nuclear Safety Institute (JANSI).

Also, the NRA participates in the activities of the OECD/NEA/CNRA/WGOE, and gathers information about operating experience overseas and sends its accumulated knowledge back to Japan.

Subsidiary Question 2.2.7

Describe how the regulatory body provides feedback on measures taken in response to safety relevant information received via national and international knowledge and reporting networks.

Subsidiary Response

The results of reviews in response to safety-related information obtained through domestic and international information reporting networks are mutually verified at informal meetings organized by the Secretariat of the NRA, JAEA, and the Japan Nuclear Safety Institute (JANSI).

- In addition, the results of reviews by the Technical Information Committee, which reviews this information, are stipulated to be published on the website of the NRA. Furthermore, the targeted licensees should be alerted about important review results.

- Also, the determination of regulatory measures and reports of measures taken are discussed in the Commission Meetings of NRA where the general public may sit in.

- Domestic information is sent overseas through participation in various international conferences and by sending out information to the IRS.

Subsidiary Question 2.2.8

Describe how, and the extent to which as part of the process of providing feedback, the regulatory body disseminates any good practices that have been adopted to reduce radiation risks.

Subsidiary Response

There are no activities for regulatory bodies to directly enlighten licensees about good practices.

However, the NRA requests licensees to conduct periodic safety assessment of continuous improvement and to publish self-imposed measures (good practices) taken to improve safety.

In addition, operational safety programs must describe a system to bring about safety culture.

Module: Responsibilities and Functions of the Regulatory Body

Findings

Question 3.1

Does the regulatory body's organizational structure enable it to discharge its responsibilities and perform its functions effectively in a manner commensurate with the radiation risks associated with facilities and activities?

Answer

Yes

Finding

The regulatory body's organizational structure enables it to discharge its responsibilities and perform its functions effectively.

Response

-

Subsidiary Question 3.1.1

Does the regulatory body have sufficient institutional freedom to determine the structure for its organisation and modify it as necessary? Describe the process followed by the regulatory body for managing changes to its organizational structure

Subsidiary Response

The Nuclear Regulation Authority (hereinafter referred to as the "NRA") is capable of changing its organizational structure in response to the necessities dictated by its duties, and has the same structure as that of other governmental organizations.

Subsidiary Question 3.1.2

Explain how the current structure of the regulatory body has been determined.

Subsidiary Response

In order to eliminate the negative effects of the involvement of a vertically divided administration in policies relating to the utilization of nuclear energy, and to solve issues stemming from allowing a single administrative organization to fulfill the functions of both promoting and regulating nuclear energy utilization, the NRA was established as an organization that handles all affairs regarding formulation and enforcement of the policies necessary for ensuring safety in the utilization of nuclear energy, based on international standards, with its Chairperson and Commissioners also exercising independent authority based on expert knowledge obtained from a neutral and fair standpoint.

Based on the integration of the Japan Nuclear Energy Safety Organization (JNES) in March 2014, NRA has been reorganized, giving rise to establishment of Regulatory Standards and Research Group and NRA Human Resource Development Center.

Furthermore, in October 2014, as a part of a governmental re-organization to strengthen the support for off-site of emergency preparedness and response, the Radiation Protection Department was moved to the Secretary-General's Secretariat.

Currently, the NRA Secretariat has the following three departments and one HRD center, as well as Secretarial-General (SG), Deputy SG, 3 Directors for planning/coordination, personnel affairs and budget.

- Regulatory Standards and Research Group, responsible for establishing and improving regulatory requirements and safety research*
- Radiation Protection Department, responsible for the establishment of a system of emergency preparedness, radiation monitoring, and regulation of radiation sources, etc.*
- Nuclear Regulation Department, responsible for the authorization activities (review, inspection, or enforcement) pursuant to the Reactor Regulation Act.*
- NRA Human Resource Development Center, responsible for human resource development for ensuring safe utilization of nuclear energy.*

<Attachments>

the NRA Establishment Act, Articles 5 and 7

the NRA Organization Cabinet Order, Chapters 2 and 3

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Question 3.2

Does the Regulatory Body manage its resources so as to discharge its responsibilities and perform its functions effectively commensurate with the radiation risks associated with facilities and activities?

Answer

Yes

Finding

The Regulatory Body manages its resources so as to discharge its responsibilities and perform its functions effectively.

Response

-

Subsidiary Question 3.2.1

Broadly describe the regulatory body's processes designed to ensure effective implementation of resources in discharging its responsibilities and performing its functions.

Subsidiary Response

Under the Management System of the NRA, which is documented in the NRA Management Rules, the NRA develops and implements annual strategic plan for each fiscal year (Article 12 of that Rule). For the development of the annual strategic plan for the next fiscal year, the NRA reflects the result of the annual management review covering the progress of that annual strategic plan for fiscal year and the effectiveness of management system itself, and may specifically modify the strategic plan in terms of assigned human resources or modification of management system (Article 37).

More specifically, after determining its policy on the annual strategic plan for the next year, the NRA plans for the number and allocation of its staff and fiscal budget for the next year, with consideration of the priority to the tasks and the trend of necessary resources for the tasks. According to the strategic plan, the NRA may propose the increase or decrease of the number of staff or its fiscal budget.

Subsidiary Question 3.2.2

Describe the process and explain how the regulatory body ensures that allocation of resources within its organisation is commensurate with the radiation risks associated with facilities and activities in accordance with a graded approach.

Subsidiary Response

Under the management system, the NRA ensures to manage the tasks commensurate with the importance and risk associated with such tasks (Article 5 of the Rule)

More specifically, after determining its policy on the annual strategic plan for the next year, the NRA decides the proposal for the competency level (grade) of required personnel and fiscal budget, with consideration of the importance and the risk associated with that task in terms of nuclear safety.

Question 3.3

Does the regulatory body perform its functions in a manner that does not compromise its effective independence?

Answer

Yes

Finding

The regulatory body performs its functions in a manner that does not compromise its effective independence.

Response

-

Subsidiary Question 3.3.1

Explain how the regulatory body ensures its responsibilities are discharged in such a way as to preserve its effective independence.

Subsidiary Response

Based on Article 5 of the NRA Establishment Act, the Chairperson and Commissioners of the NRA are mandated to exercise independent authority, and have effective independence from relevant facilities/activities and the organizations/institutions responsible for promoting those of facilities/activities.

Based on Article 27 of the NRA Establishment Act, the NRA is mandated to establish the NRA Ordinance, these include regulatory requirements

In addition, the NRA is the competent authority, the same as State Ministers for other laws, with jurisdiction over the Reactor Regulation Act and the Radiation Hazards Prevention Act, and has the authority to grant licenses.

<Attachments>

the NRA Establishment Act, Articles 5 and 27

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 3.3.2

Describe the mechanisms by which the regulatory body ensures its staff remain focused on safety irrespective of their personal views.

Subsidiary Response

The NRA Secretariat has a hierarchical structure consisting of the Secretary General, Deputy Secretary General, Director Generals, and directors, with responsibilities allocated in accordance with role.

When making any important decision related to safety, before the final decision of the NRA commissioners, that decision must be approved by the NRA Secretariat, and such approval is made only from the viewpoint of compliance with regulatory standards, as based on the latest knowledge or findings, through the involvement of the Secretary General, Deputy Secretary General, Director General, directors, and staff with responsibility for the relevant matter.

Subsidiary Question 3.3.3

Describe the mechanisms by which the regulatory body prevents or duly resolves any conflicts of interest or, where this is not possible, seeks their resolution within the governmental and legal framework.

Subsidiary Response

○ Article 5 of the NRA Establishment Act stipulates that the chairperson and commissioners of the NRA shall exercise their independent authority. The NRA decision is made by voting in the chairperson and 4 commissioners, on the basis of expert knowledge. Therefore no conflicts of interest existing with regard to ensuring nuclear safety.

○ With regard to the internal conflicts on the decisions within the NRA Secretariat, based on Article 3 of the NRA Organization Ordinance, the Policy Planning and Coordination Division has the authority to perform general coordination with respect to affairs under the jurisdiction of the NRA.

<Attachment>

the NRA Establishment Act, Article 5

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 3.3.4

In the context of maintaining effective independence, explain how the regulatory body instructs and trains new staff recruited from organizations that apply nuclear or radiation related technologies.

Subsidiary Response

Based on the National Public Service Act, new staff, at the time of their employment, sign a written oath stating that they, “as a servant of all citizens, shall serve the public interest, and exert their utmost efforts in the performance of their duties,” and they are reminded of the National Public Service Ethics Act and of the NRA’s core values and principles.

In addition, all the staff of the NRA are required to make and disclose summaries and reference documents used during the interviews involving contact with persons associated with organization subject to NRA regulations.

New staff, including those recruited from organizations promoting the use of nuclear or radiation related technologies, receive mid-career employee training after starting employment.

Mid-career employee training gives an explanation of the NRA's core values and principles and an overview of the NRA, including a lecture on how the independence of the NRA is ensured.

Subsidiary Question 3.3.5

Explain how the regulatory body ensures, in liaison with interested parties, a clear separation from organizations or bodies charged with responsibilities for the promotion or application of nuclear or radiation related technologies.

Subsidiary Response

The NRA does not own any nuclear facilities.

In addition, based on Article 5 of the NRA Establishment Act, the chairperson and commissioners of the NRA are mandated to exercise independent authority, have effective independence from organizations and institutions charged with responsibility for the promotion or use of nuclear or radiation related technologies, and have the power to implement administrative dispositions against them.

Subsidiary Question 3.3.6

Does the regulatory body, consistent with its effective independence, have the authority to intervene in any facilities or activities that present significant radiation risks, irrespective of the costs to the authorized party?

Subsidiary Response

With regard to nuclear facilities, the NRA may issue orders to suspend use, remodel, repair or change the location of reactor facilities, designate the method of operation of the

reactors, or take other necessary safety measures, based on Article 43-3-23 of the Reactor Regulation Act.

Based on Article 64, paragraph (3) of the Reactor Regulation Act, in the case when disasters (e.g. earthquake, fire) may cause or have caused nuclear emergency situations, or when the danger of nuclear emergency is imminent, the NRA may order a licensee to suspend use of the facility, move the nuclear fuel material or material contaminated by nuclear fuel material, or take any other measures necessary to prevent the said disaster, if the NRA considers that urgent prevention measures are necessary.

Based on Article 14 of the Radiation Hazards Prevention Act, if the NRA recognize that the usage facility, storage facility or waste management facility, does not conform to technical standards, it may order authorized operators to change the location of, repair, or remodel the relevant facility in order to conform to the technical standards.

Based on Article 33 of the Radiation Hazards Prevention Act, if an earthquake, fire or any other disaster occurs that may cause or has caused a radiation hazard, and the NRA deems such measures urgently necessary in order to prevent the radiation hazard, it may order the authorized operators and entrusted transporters to change the location of radioisotopes or radioactive contaminants, remove the contamination caused by radioisotopes, etc., or take any other measures necessary to prevent the said radiation hazard.

<Attachments>

the Reactor Regulation Act, Article 43-3-23 and Article 64, paragraph 3

the Radiation Hazards Prevention Act, Articles 14 and 33

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 3.3.7

Has the regulatory body exercised its authority to intervene in facilities or activities that presented significant radiation risks, irrespective of the costs to the authorized party?

Subsidiary Response

Concerning the incident in which many pieces of equipment had become overdue for inspection at Monju, operated by National Research and Development Agency the Japan Atomic Energy Agency (hereinafter referred to as “JAEA”), the NRA ordered the JAEA to take measures to ensure operational safety, including rebuilding of the maintenance management system and quality assurance system, on May 29, 2013, based on the Reactor Regulation Act.

Question 3.4

Does the regulatory body employ sufficient number of qualified and competent staff, commensurate with the nature and number of facilities and activities to be regulated, to carry out its functions and discharge its responsibilities?

Answer

Yes

Finding

The regulatory body employs a sufficient number of qualified and competent staff, commensurate with the nature and number of facilities and activities to be regulated, to carry out its functions and discharge its responsibilities.

Response

Yes

In this QID, it concludes that the framework and measures of the NRA are in principle in accordance with the relevant IAEA safety requirements, except the following challenges.

- The NRA does not have sufficient qualified staff to meet the needs of the several specific regulatory activities and therefore needs to ensure sufficient staff to perform its responsibilities.*
- The NRA should optimize the frequency and pattern of personnel rotation in consideration of the characteristics of individual posts, based on the NRA's "Basic policy for human resource development" and the "Model career path for NRA personnel". This effort should be combined with training in specialized fields to help personnel effectively acquire the competence necessary for their tasks.*

Subsidiary Question 3.4.1

Explain how the regulatory body determines the appropriate number, qualifications and competences of its staff and how this takes into account the nature and number of facilities and activities under regulatory jurisdiction.

Subsidiary Response

The NRA is capable of changing its organizational structure depending on the necessities dictated by its duties, and such change is made in the same procedure for other governmental organizations.

With regard to the qualifications and competence of its staff, for freshmen graduating universities, the NRA reviews their engineering knowledge through interview or written tests at the time of recruitment. For mid-career employees, the NRA announces the clear qualification (e.g. job experience, expert knowledge) for the post, and confirms the satisfaction to these qualifications, as well as their aptitude and motivation. In the appointment of Nuclear Safety Inspectors, Nuclear Facility Inspectors and Senior Specialists for Nuclear Emergency Preparedness, who are required with high degree of expertise in these fields, the NRA confirms that the years of working experiences in these fields are more than required and that they have had specialized training as specified by the NRA.

With regard to Nuclear Safety Inspectors stationing on-site, the number of assigned inspectors in one site is determined by the number of reactors in the case of a nuclear power station, and by the level of radiation risk for other facilities.

For the implementation of Systematic Approach to Training (SAT), the NRA Human Resources Development Basic Policy describes the targeted standards of knowledge and skills required for staff according to the major tasks of the regulatory body, such as safety assessment or inspection, with reference to the IAEA safety standards or other documents. With this clear target for knowledge and skills, various training program are in place, including OJT by senior experienced staff or dedicated training programs.

<Attachments>

NRA Human Resources Development Basic Policy

Subsidiary Question 3.4.2

Has the regulatory body developed a human resources plan that states the number of staff necessary and the essential knowledge, skills and abilities to perform all the necessary regulatory functions?

Subsidiary Response

The NRA develops a human resource plan every year, with keeping a ledger on the post and staff number/grade assigned to the post. This plan is developed reflecting the priority to the tasks and the trend of task load, and the NRA proposals necessary measures for the government, namely the proposal for staff increase in the case of staff shortage.

The capabilities of general staff (e.g. section head, deputy director, director) are evaluated based on the standardized criteria for the government staff. With regard to staff assigned to the task with a high degree of expertise such as Nuclear Safety Inspectors, Nuclear Facility Inspectors and Senior Specialist for Nuclear Emergency Preparedness, the NRA specifies qualifications such as working experience of more than required and training attendance.

For the implementation of Systematic Approach to Training (SAT), the NRA Human Resources Development Basic Policy describes the targeted standards of knowledge and skills required for staff according to the major tasks of the regulatory body, such as safety assessment or inspection, with reference to the IAEA safety standards or other documents. With this clear target for knowledge and skills, various training program are in place, including OJT by senior experienced staff or dedicated training programs.

Subsidiary Question 3.4.3

Explain the Regulatory Body's processes for recruitment and where relevant, staff rotation and describe the extent to which this currently ensures the appropriate competences and skills.

Subsidiary Response

Recruitment of NRA staff is carried out differently for mid-career and new graduates.

First, with respect to mid-career recruitment of experienced workers, for each type of work—such as operational safety inspection, etc.—recruitment is conducted on the basis of clearly specified requirements for application relating to work history and knowledge possessed, etc. For example, when merging the JNES into the NRA in March 2014, the assignments (post or duties) of the former JNES staff were decided according to their competent fields or expertise.

Next, with regard to new graduates, these applicants shall pass the National Public Service Examination in technical fields (nuclear engineering, machinery, chemistry, electricity, or civil engineering, etc.). For staff who will conduct research, graduation from graduate school (a master's degree) or higher is required, and the technical field are clearly indicated at the time of recruitment.

The NRA has different forms of contracts. The NRA may have fixed-term contract with a person of high level of expertise and career experience, or part-time contracts with technical advisors.

Currently, the number of NRA staff with technical knowledge or expertise is more than 80% of the NRA's total staff.

With regard to the personal rotation, the NRA implements the rotation according to the types of job (e.g. administrative tasks or research) and the capabilities to enable staff employed by the NRA to gain appropriate work experience. Specifically, it is basic policy for administrative staff engaged in reviews or inspections to be rotated every two or three years, with consideration given to aptitude, etc., so that they can gain experience in various different operations, such as regulation and emergency preparedness and response, etc.

Research staff are generally enjoined to improve their skills as experts in their specialized fields through research studies and projects, although they may be given experience in administrative operations as a part of their career development.

Subsidiary Question 3.4.4

Explain the strategy to compensate for the departure of qualified staff; Indicate any Regulatory Body processes designed.

Subsidiary Response

As a strategy to compensate for the departure of staff, the NRA continuously recruits the necessary number of mid-career experts and new graduates, including those with technical background, taking into consideration of the number of staff who have left or will leave.

1. Recruitment of mid-career experts

The NRA continuously recruits experts with experience of working, such as, at vendors or power operators.

2. Recruitment of new graduates

The NRA started a dedicated qualification examination in the field of nuclear engineering to recruit experts suitable to the NRA in 2014, in addition to the National Public Service Examination which covers general fields and are used for all the central government organizations.

Newly recruited staff has necessary training by at the NRA Human Resource Development Center.

Subsidiary Question 3.4.5

Describe the nature and extent of any arrangements made by the regulatory body in the area of knowledge management.

Subsidiary Response

The NRA Management Rule (Article 15) stipulates that the managers (Directors or DGs) establish and maintain the system to identify, collect and utilize the necessary knowledge for the tasks, and the head of NRA HRD Center to support such knowledge management through establishing the system in the NRA.

The present significant knowledge is;

- Knowledge of conformity assessment with new regulatory standards which is so precious to be gained at present*
- Knowledge which will be lost due to staff retirement*

As part of knowledge management, the center is now developing knowledge management portal site (intranet) and uploading various materials. For example, training materials and videos are uploaded to the portal site, so that all staff can utilize these training materials at any time.

Subsidiary Question 3.4.6

Does the regulatory body have a systematic approach to developing and sustaining the necessary competences and skills of staff as part of the knowledge management process? If so, please describe the processes.

Subsidiary Response

The NRA HRD Center develops the training programs incorporating training menus suited to the each task, and provides training based on those programs. OJT is also utilized as necessary.

In order to establish competence management as an area deserving systematic implementation of entire organization, Article 14 of the Nuclear Regulation Authority Management Rules stipulates that each section shall define the required competence.

Going forward, it is planned to further clarify the competence (knowledge, skills and attitudes) necessary to accomplish NRA mission, and review the training programs to acquire and maintain that competence. Ex-post evaluations of training are conducted for further improvements.

Currently, the NRA is considering to have a system for evaluating the competence of each staff member, and ensuring that individuals receive the training necessary for enhancing their competence.

Subsidiary Question 3.4.7

Has the regulatory body established specific training programmes for its staff, on the basis of an analysis of the necessary competence and skills?

Subsidiary Response

The NRA HRD Center develops the training programs incorporating training menus suited to the each task, and provides training based on those programs. Going forward, it is planned to further clarify the competence (knowledge, skills and attitudes) necessary to accomplish NRA mission , and review the training programs to acquire and maintain that competence.

Currently, the NRA is considering to have a system for evaluating the competence of each staff member, and ensuring that individuals receive the training necessary for enhancing their competence.

Subsidiary Question 3.4.8

Describe the extent to which training provided by the regulatory body for its staff covers relevant areas (such as principles, concepts and technological aspects) as well as the procedures followed by the regulatory body for assessing applications for authorization, for inspecting facilities and activities, and for enforcing the regulatory requirements.

Subsidiary Response

The NRA training covers all the areas of NRA regulatory activities, including review/assessment, inspections, emergency preparedness and response, physical protection, and safeguards, together with the associated administrative procedures. These trainings also cover those for safety research and general administrative activities. Some examples of the training programs are as follows:

- Two year training mandatory for new employees
- Special training for Nuclear Safety Inspectors and other inspectors for whom qualifications are required by law
- Training using full-size equipment or facilities for inspection or other on-hands practice
- Lectures using graduate school level textbooks,

The NRA plans to further clarify the competence (knowledge, skills and attitudes) necessary to accomplish NRA mission, review the training system and training programs to acquire and maintain that competence, and supplement these if any insufficiencies exist.

Question 3.5

Has the regulatory body established and implemented a management system, aligned with its safety goals and contributing to their achievement?

Answer

Yes

Finding

The regulatory body has established and implemented a management system, aligned with its safety goals and contributing to their achievement.

Response

-

Subsidiary Question 3.5.1

Explain how the management system is appropriate for the regulatory body's functions and responsibilities and the extent to which it is aligned with regulatory safety goals.

Subsidiary Response

The NRA Establishment Act (2012) stipulates the purpose of the NRA as the protection of life, health and property of the public, protection of environment, and contribution to the national security (Article 1). That Act further stipulates the NRA's tasks to achieve this purpose as ensuring safety in the utilization of nuclear energy, including regulations for nuclear facilities and activities and regulation over internationally controlled nuclear materials. The NRA, after its establishment, decided on the "The NRA's Core Values and Principles" providing clearly its mission and 5 guiding principles for activities in January 2013.

Under the framework of the NRA's management system, which enters its full implementation since April 2015, Article 1 of the NRA Management Rules clearly makes the purpose of the Rules to satisfy the tasks stipulated in the NRA Establishment Act. Article 11 of that rule requires to establish "Management Policy" and the NRA decided to use "The NRA's Core Values and Principles (Jan. 2013)" as its Management Policy under its management system.

The NRA Management Rules apply to all the NRA activities as stipulated its Article 2.

Therefore, the NRA management system is fully in compliance with the role and responsibilities assigned to the NRA.

<Attachments>

the NRA Establishment Act, Articles 1 and 3

NRA Management Rules, Article 1

NRA's core values and principles

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

E02Management Policy(NRA's Core Values and Principles)

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 3.5.2

Explain how the regulatory body continuously improves its management system.

Subsidiary Response

In accordance with Article 42 of the NRA Management Rules, the NRA continually improves the effectiveness of its management system through management policy, mid-term goals, annual strategic plans, the results of internal audits, data analysis, corrective actions, preventive actions, and management reviews.

In accordance with Article 37, paragraph (3) of the same Rules, the NRA reflects the results of management system reviews in the preparation of annual strategic plans for the following fiscal year.

<Attachments>

NRA Management Rules, Article 42

NRA Management Rules, Article 37, paragraph (3)

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 3.5.3

Explain how the regulatory body ensures that processes within its management system are open and transparent.

Subsidiary Response

The NRA sets out “open and transparent organization” as one of its guiding principles for activities, stating, “We shall ensure transparency and appropriate information disclosure on regulations, including the decision- making process. We shall be open to domestic and the international opinions and advices and avoid both self-isolation and self-righteousness.”

In implementing this principle, the NRA decided on the “NRA Transparency Policy” and “Operational Guidelines for NRA Commission Meeting at the date of its establishment (September 19, 2012).

More specifically, the commissioner regular meetings and other meetings designated by the commissioner (e.g. study team) are open to the public, and the documents, broadcast live, and subsequently the minutes of these meetings are available on the NRA web-site. In addition, for the meetings involving equal to or more than 3 NRA commissioners, and meetings between the NRA commissioner/staff and those under NRA regulations, the outline of minutes (with the name of NRA attendance and the position for those under regulations) as well as documents used are uploaded to the NRA web-site and available to the public.

<Attachments>

the NRA Transparency Policy (decision by the NRA on September 19, 2012)

Subsidiary Attachments

B04ThePolicy on Ensuring the Operational Transparency of the Nuclear Regulatory Authority

Subsidiary Question 3.5.4

Explain how the regulatory body assesses the overall effectiveness of its management system including in ensuring that regulatory responsibilities are met in a timely and cost-effective manner that builds confidence.

Subsidiary Response

Based on Article 5 of the NRA Management Rules, the NRA manages each task commensurate with its level of importance/ complexity as well as associated risk and its impact, both in terms of nuclear safety, for ensuring the safety. In addition, based on Article

37 of the same Rules, the NRA conducts management reviews to evaluate the implementation status and effectiveness of the management system.

<Attachments>

NRA Management Rules, Article 5

NRA Management Rules, Article 37

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 3.5.5

Explain how the regulatory body assesses the effectiveness of its management system in sustaining and improving regulatory performance through planning, control and supervision of safety related activities.

Subsidiary Response

Based on Article 37 of the NRA Management Rules, management reviews are conducted to evaluate the implementation status and effectiveness of the management system.

In addition, based on Article 35 of the same Rules, senior executives and managers conduct self-assessment of the suitability and effectiveness of the management system.

Furthermore, the Management Promotion Office conducts internal audits based on Article 36 of the same Rules.

<Attachments>

NRA Management Rules, Articles 35, 36 and 37

Subsidiary Attachments

Subsidiary Question 3.5.6

Explain how the regulatory body assesses the effectiveness of its management system in fostering and supporting a safety culture.

Subsidiary Response

Based on Article 29 of the NRA Management Rules, senior executives and managers, on their own initiative, plan and implement actions for fostering safety culture, striving also to encourage other staff to take the same actions. In addition, based on Article 35 of the same Rules, senior executives and managers conduct self-assessment of the suitability and effectiveness of the activities for fostering safety culture.

Furthermore, the Management Promotion Office conducts internal audits based on Article 36 of the same Rules.

Subsidiary Question 3.5.7

Describe how the regulatory body encourages and directs the development and reinforcement of leadership, good attitudes and behaviour on the part of individuals and teams in relation to safety.

Subsidiary Response

The NRA decided on the Statement on Nuclear Safety Culture in May 2015, which supplements the NRA's Core Values and Principles and provides the following principles:

- Priority to safety*
- Decision-making taking into account the risks*
- Fostering, sustaining and strengthening safety culture*

- *Maintaining high level of expertise and organizational learning*
- *Effective Communication*
- *Questioning attitude*
- *Rigorous and prudent decisions and agile actions*
- *Harmonization with nuclear security*

Based on this statement , and pursuant to Article 29 of the NRA Management Rules, senior executives and managers, on their own initiative, plan and implement actions for the fostering safety culture, striving also to encourage staff to take the same actions. In addition, based on Article 35 of the same Rule, senior executives and managers conduct self-assessment of the suitability and effectiveness of the activities for fostering safety culture.

Furthermore, the Management Promotion Office, based on Article 36 of the same Rule, conducts internal audits that include evaluation from the perspective of leadership.

<Attachments>

Statement on Nuclear Safety Culture

NRA Management Rules, Article 29

NRA Management Rules, Article 35

NRA Management Rules, Article 36

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

E04Statement on Nuclear Safety Culture

Subsidiary Question 3.5.8

Describe how the management system of the regulatory body identifies and brings together, in a coherent manner, all the applicable and relevant safety requirements.

Subsidiary Response

The management system of the NRA is formulated in accordance with the laws of Japan and is developed using IAEA and ISO standards as a reference. When implementing tasks, the requirements for each task—including the IAEA safety requirements—are specified, listed in implement manuals such as standards review plans, and accordingly applied. In addition, standards review plans are set in accordance with the requirements prescribed in the Administrative Procedure Law.

Subsidiary Question 3.5.9

Explain the extent to which the management system sets out the planned and systematic actions necessary to demonstrate that regulatory body obligations are being fulfilled.

Subsidiary Response

Based on Articles 11 and 12 of the NRA Management Rules, the NRA determines management policy and annual strategic plans. In addition, based on Article 37 of the same Rules, it also conducts management reviews at planned intervals in order to evaluate the implementation status and effectiveness of the management system, and gives instructions for revisions of the management system and its processes to be carried out.

<Attachments>

NRA Management Rules, Articles 11 and 12

NRA Management Rules, Article 37

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 3.5.10

Explain how the regulatory body management system ensures that safety is given due priority in all regulatory activities and decisions.

Subsidiary Response

The NRA decided on the Statement on Nuclear Safety Culture in May 2015, stating “ Safety shall be given the utmost priority in the use of nuclear energy, Safety culture is recognized as continued practices with mindful awareness of this principle. It is the duty of everyone involved in nuclear energy to foster safety culture” at the beginning of its introduction, and the first code of conduct is “Priority to Safety” with saying “In lucid recognition that absolute safety is not achievable and the possibility of a serious accident remains, the overriding priority shall be placed on safety for protecting people and the environment.”

Based on Articles 7 and 8 of the NRA Management Rules, its senior executives and managers inform all the personnel of the importance of satisfying the requirements stipulated for each task, and confirm the achievements of each task through management reviews (based on Article 37 of the same Rules) and evaluation of the annual implementation plan (based on Article 35 of the same Rules). In doing so, the appropriate priority is given to safety.

<Attachments>

Statement on Nuclear Safety Culture

NRA Management Rules, Articles 7, 8, 35 and 37

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

E04Statement on Nuclear Safety Culture

Question 3.6

Does the regulatory body have adequate arrangements for obtaining technical or other expert professional advice or services as necessary, in support of its regulatory functions (while retaining full responsibility for its decision-making on safety matters)?

Answer

Yes

Finding

The regulatory body has adequate arrangements for obtaining technical or other expert professional advice or services in support of its regulatory functions and retains full responsibility for its decision-making on safety matters.

Response

Yes.

In this QID, it concludes that the framework and measures of the NRA are in principle in accordance with the relevant IAEA safety requirements, except the following challenges.

② It is necessary to further enhance safety research of JAEA (Japan Atomic Energy Agency) for strengthening technical competence of the regulatory body, and also to enhance the cooperation between NRA and JAEA in terms of human resource development.

For addressing this challenges, the NRA will implement the Action Plan below.

The NRA will enhance activities to achieve objectives set forth in “Safety Research by the NRA,” with an emphasis on the following aspects:

- (i) Enhancing fundamental research that contributes to human resource development*
- (ii) Strengthening cooperation between the NRA and JAEA in research fields*

Subsidiary Question 3.6.1

Explain the mechanisms by which the regulatory body is provided with expert opinion and advice in support of its regulatory functions.

Subsidiary Response

The NRA has advisory committees consisting of external experts, based on the NRA Establishment Act and the Act on Technical Standards for Radiation Hazard Prevention, and may order these committees (excluding Radiation Council) to discuss and examine the specific matters. These committees are as follows:

- Reactor Safety Examination Committee: Established based on the NRA Establishment Act (Article 13) and responsible for matters relating to safety of nuclear reactors*
- Nuclear Fuel Safety Examination Committee: Established based on the NRA Establishment Act (Article 13) and responsible for matters relating to safety of nuclear fuel and associated facilities*
- Radiation Council: Established based on with the Act on Technical Standards for Radiation Hazards Prevention, and responsible for matters related to radiation hazards prevention, including the harmonization of these technical standards through the ministries. The other ministries may consult with this council if necessary.*

In addition to the above committees, the NRA establishes study teams or other committees consisting of NRA commissioner/ staff and external experts, to have a broad range of views and expertise in making regulatory criteria or other decisions.

The NRA holds jurisdiction to supervise the designated divisions for supporting the NRA activities within the JAEA and National Institute of Radiological Sciences, as technical support organizations (TSOs), and these TSO divisions conduct safety research and provide technical information to the NRA.

In the field of emergency preparedness and response, based on Article 22 of the NRA Establishment Act, external experts are appointed as a member of the Emergency Response Measures Committee, and they provide technical advice and support with their own knowledge and experience in the case of nuclear emergencies, as well as other advices at normal.

<Attachments>

the NRA Establishment Act, Article 13

FY2013 Annual Report Appendix, Section 3

Act on the Japan Atomic Energy Agency, National Research Development Agency

Subsidiary Attachments

B12Act on the Japan Atomic Energy Agency, National Research Development Agency

H02The Act for Establishment of the Nuclear Regulation Authority

H07 FY2013 Annual Report

Subsidiary Question 3.6.2

Provide details of the areas of expertise for which the regulatory body relies mainly on technical support from outside its own organisation.

Subsidiary Response

The areas of expertise differ depending on the matters to be reviewed and discussed. For example, for the Reactor Safety Examination Committee, the required expertise is mainly in the area of engineering with focusing on nuclear engineering, and for the Radiation Council, the required expertise are mainly in radiation protection, medical treatment for exposure, and radiology.

Subsidiary Question 3.6.3

Describe the nature of matters upon which advisory bodies are consulted by the regulatory body.

Subsidiary Response

The nature of the issues on which NRA consults with advisory bodies varies depending on the terms of reference of the advisory bodies. For instance, the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee are currently mandated to provide advice on the operational feedback of domestic and overseas incidents and accidents as well as the latest regulatory activities overseas. The Radiation Council deliberates and reports its findings to the NRA in cases of consultation regarding the uniformity of technical standards for preventing radiation damage.

Other than the committees established with a legal basis, the advisory committees established by the NRA decision conduct detailed examination and discussion on specific technical matters as mandated by the NRA.

The Emergency Response Measures Committee examines and discusses matters relating to emergency response measures.

Subsidiary Question 3.6.4

Describe arrangements in place that ensure advisory bodies give independent advice to the regulatory body.

Subsidiary Response

NRA commissioners are not included in the Reactor Safety Examination Committee or Nuclear Fuel Safety Examination Committee, established pursuant to Article 13 of the NRA Establishment Act, nor in the Radiation Council, established pursuant to the Act on Technical Standards for Prevention of Radiation Hazard. The chairperson of each committee or council is decided by and from amongst the members themselves.

Furthermore, NRA commissioners are not included in the Emergency Response Measures Committee established pursuant to Article 22 of the NRA Establishment Act. The appointed members are persons capable of providing technical advice and support in relevant areas of expertise.

<Attachments>

the NRA Establishment Act, Articles 13 to 20

Act on Technical Standards for Prevention of Radiation Hazards, Articles 4 to 8

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

H19Ordinance on Prevention of Ionizing Radiation Hazards

Subsidiary Question 3.6.5

How is it ensured that there are no conflicts of interest for those who provide advice or assistance to the regulatory body?

Subsidiary Response

Since the scope of discussion by councils established pursuant to Article 13 etc. of the NRA Establishment Act is defined by that Act, no conflicts occur regarding the content of discussions.

Part of the work of the Japan Atomic Energy Agency (JAEA) and National Institute of Radiological Sciences (NIRS) is supervised by the NRA, these organizations, as TSOs, providing the NRA with information on nuclear technologies relevant to regulations, etc. However, since the NRA supervises only that part of the JAEA's basic and applied research aimed at ensuring nuclear safety, and only that part of the NIRS's research regarding medical treatment of exposure, no conflict of interest arises with respect to the content of advice.

Subsidiary Question 3.6.6

If the necessary advice or assistance can be obtained from organizations whose interests potentially conflict with those of the regulatory body, describe the extent to which arrangements are in place to ensure that the independence and objectivity of the regulatory decision-making process are not compromised.

Subsidiary Response

The NRA chairperson and commissioners shall carry out their duties independently of any interest groups, and the NRA has the statutory right in making regulatory decisions based on the Reactor Regulation Act or other Acts. Therefore, even in cases where there is a potential conflict of interest with advisory or supporting bodies, the NRA may override these decisions.

When using external experts for the NRA advisory committees, the NRA pursues thorough information disclosure of the relationship between these external experts and licensees, based on the NRA Directive “About requirements for ensuring transparency and neutrality in hearing opinions of external experts for reference purposes for the Nuclear Regulation Authority to make a decision on nuclear safety regulations, etc. intended for electricity utilities.

In addition, when using external experts for reviewing the safety of the specific facilities or activities (e.g. review for new facilities, review of the past regulatory decisions of existing facilities), the NRA appoints these external experts with the conditions that (i) they have not been executives or permanent staff of the electric utility company responsible for these facilities, and have not received remuneration of 500,000 yen or more as individuals in one fiscal year, in the last three years, and (ii) they were not involved in the past review of the relevant facilities.

<Attachments>

“Requirements for Ensuring Transparency and Neutrality of External Experts in Case the NRA Seeks Their Opinions for Reference to Make Decisions Concerning Nuclear Safety Regulations Involving Electric Utilities, etc.” (NRA Directive)

Subsidiary Question 3.6.7

Explain how, and the extent to which, the regulatory body assesses advice provided by advisers and information submitted by authorized parties or applicants, in such a way that it is able to take responsible decisions.

Subsidiary Response

The results of deliberation by committees etc. are reported to the NRA for further discussion. The NRA makes the final decision regarding incorporation of the matters discussed into the regulatory framework, or regarding the response to a licensing application, etc. As a general

rule, the NRA and relevant committees etc., shall carry out their deliberations open to the public..

The NRA confirms the contents in the application documents submitted by the applicantslicensees, through review meetings open to the public, or the interviews with applicantslicensees on which the outline of minutes and reference documents are subsequently disclosed on the website.

Question 3.7

Has the regulatory body established formal and informal mechanisms of communication with authorized parties on all safety related issues, conducting a professional and constructive liaison?

Answer

Yes

Finding

The regulatory body has established formal and informal mechanisms of communication with authorized parties on all safety related issues, conducting a professional and constructive liaison.

Response

Yes.

Subsidiary Question 3.7.1

Describe how the regulatory body fosters mutual understanding and respect on the part of authorized parties.

Subsidiary Response

The NRA has periodic frank dialogues with each licensee's CEO, and listens to their basic approach to seeking excellence of nuclear safety and their ideas for improving the existing regulatory framework for continuous enhancement of safety. These dialogues contribute to fostering of mutual understandings between the top management of licensees and the NRA commissioners.

The NRA actively pursue frank and in-depth communications with the licensees, in the form of "interviews" where information disclosure and full transparency is secured, for the purpose of identifying new findings in Japan and abroad, ensuring adequate understanding of regulations, and establishing good collaboration system which enables a swift response to any emergencies.

Subsidiary Question 3.7.2

Describe how the regulatory body justifies and explains the basis for its decisions, in order to ensure that authorized parties fully understand arguments made on safety related issues.

Subsidiary Response

As a general rule, the NRA makes decisions on safety related matters after having deliberation in the NRA commissioner meetings. These meetings are open to the public and the relevant documents are available to the public on the NRA's official website.

When making a decision to issue the permit for the amended Establishment Permit in accordance with new regulatory requirements, the NRA publishes a report describing the review results of the submitted information based on regulatory criteria.

Question 3.8

Does the regulatory body ensure that regulatory control is stable and consistent?

Answer

Yes

Finding

The regulatory body ensures that regulatory control is stable and consistent.

Response

Yes.

Subsidiary Question 3.8.1

Explain the mechanisms by which the regulatory body has formally specified the policies, principles and criteria to be observed in the implementation of its core processes (e.g. establishment of regulatory requirements, licensing, review and assessment, inspection, enforcement, etc.).

Subsidiary Response

The regulatory framework under the Japanese legal system comprises of the Atomic Energy Basic Act, located at the top level, which defines the basic principles for the application of nuclear energy in Japan, and its subordinate laws, the Reactor Regulation Act, which defines the government's nuclear regulation, and the NRA Establishment Act, which defines the mandate of the regulatory body. The requirements rules (e.g. regulatory criteria or procedure for regulation) for implementing these laws are defined in the NRA Ordinance.

In accordance with the above, the NRA may issue permissions or approvals for several activities e.g. establishment plan of nuclear facilities, construction plans, operational safety programs and decommissioning plans. The NRA also conducts necessary inspection and enforcement activities such collection of reports or on-site inspections .

For radiation facilities under the Radiation Hazards Prevention Act, the same as the Reactor Regulation Act, the requirements necessary rules are stipulated in the NRA Ordinances etc. and the NRA is responsible for its implementation.

Subsidiary Question 3.8.2

Describe how the regulatory body informs applicants and authorized parties of the policies, principles, safety objectives and associated criteria on which regulatory judgements and decisions are based.

Subsidiary Response

Any modification of legal documents such as acts, NRA ordinances, etc. is posted in the official gazette. The amendments of these legal documents and the NRA's important decisions are published on the NRA's official website.

Subsidiary Question 3.8.3

Describe the extent to which the regulatory body has established formal procedures for the implementation of its core processes (e.g. establishment of regulatory requirements, licensing, review and assessment, inspection, enforcement, etc.)

Subsidiary Response

The official procedures for developing regulatory standards and implementing the core processes for authorization, licensing and approval are defined in the Reactor Regulation Act, the Radiation Hazards Prevention Act, and their subordinate legal documents.

Subsidiary Question 3.8.4

Describe the mechanisms in place to prevent subjectivity in decision-making by individual staff members of the regulatory body.

Subsidiary Response

The NRA Secretariat has a hierarchical structure consisting of the Secretary General, Deputy Secretary General, Director Generals, and directors, with responsibilities allocated in accordance with role.

When making any important decision related to safety, before the final decision of the NRA commissioners, that decision must be approved by the NRA Secretariat, and such approval is made only from the viewpoint of compliance with regulatory standards based on the latest knowledge or findings, through the involvement of the Secretary General, Deputy Secretary General, Director General, directors, and staff with responsibility for the relevant matter.

Subsidiary Question 3.8.5

Describe the regulatory body's formal process for issuing new regulatory requirements or changing existing ones.

Subsidiary Response

When developing or improving regulatory requirements (e.g. regulatory criteria, procedures for regulation) on specific issues, the NRA establishes "Study Team" consisting of NRA commissioners/ staff and external experts, and utilizes the external experts' knowledge and expertise. The NRA may also have interviews with additional external experts or relevant licensees, and develops draft regulatory requirements on specific issues. The NRA then solicits public comments in accordance with the Administrative Procedure Act and makes its decision on the relevant regulatory requirements.

Subsidiary Question 3.8.6

Describe the regulatory body's process for consulting with and/or informing interested parties of new regulatory requirements or changes to existing ones.

Subsidiary Response

The same as answers to 8.5

Subsidiary Question 3.8.7

Explain the mechanisms by which the regulatory body ensures the consistency of regulatory requirements and regulatory decision-making.

Subsidiary Response

Consistency of regulatory requirements:

When developing or improving regulatory requirements (e.g. regulatory criteria, procedures for regulation) on specific issues, the NRA establishes “Study Team” consisting of NRA commissioners/ staff and external experts, when necessary, and develops draft regulatory requirements on specific issues. The NRA then solicits public comments in accordance with the Administrative Procedure Act and makes its decision on the relevant regulatory requirements. In this manner, the consistency of regulatory requirements is ensured.

Consistency of application:

Nuclear facilities: Pursuant to the relevant provisions of the Reactor Regulation Act, in issuing permit or approval for nuclear facilities and activities, the NRA reviews the conformance of licensees’ applications with the regulatory requirements defined in the NRA Ordinance, thereby applying the relevant regulatory requirements in a consistent manner.

Radiation facilities: Pursuant to the Radiation Hazard Prevention Act and its Ordinances, the NRA reviews the applications in authorizing the operation of handling radiation sources, conformance with the regulatory requirements defined in the NRA Ordinance, thereby applying the relevant regulatory requirements in a consistent manner.

Question 3.9

Is authorization by the regulatory body, including specification of conditions necessary for safety, a prerequisite for facilities and activities not either explicitly exempted or approved by a notification process?

Answer

Yes

Finding

Authorization by the regulatory body, including specification of the conditions necessary for safety, is a prerequisite for facilities and activities not either explicitly exempted or approved by a notification process.

Response

Yes.

Subsidiary Question 3.9.1

List the facilities and activities explicitly subject to authorization by the regulatory body.

Subsidiary Response

Reactor Regulation Act:

Refining, fabrication and enrichment of nuclear fuels, installation and operation of reactors, interim storage of nuclear spent fuels, reprocessing, management and disposal of radioactive waste, use of nuclear source/ fuel materials (when not subject to the NRA authorization for other purposes), transport of nuclear source/ fuel materials.

Radiation Hazards Prevention Act:

Use, selling, renting, waste management, and transportation of radioisotopes and radiation generating apparatus.

Subsidiary Question 3.9.2

List the facilities and activities explicitly exempted from regulatory authorization (with further explanation if appropriate) and indicate any which must be approved by a notification process.

Subsidiary Response

Reactor Regulation Act:

Under the regulations over facilities using nuclear source/ fuel materials, if the refined chemical materials containing uranium, thorium, or plutonium is equal to or below the following limits specified in the Cabinet Order under Reactor Regulation Act, the authorization is not required for the facilities using these materials (Article 39)

(a) Natural uranium and uranium with the equivalent concentration of U235: 300 g of uranium

(b) Depleted uranium: 300 g of uranium

(c) Materials containing (a) or/and (b) and applicable as nuclear fuel materials: 300 g of uranium

(d) Thorium and thorium compounds: 900 g of thorium

(e) Materials containing any or all of (a)-(d) and applicable as nuclear fuel materials: 900 g of thorium

In addition to the above, the exemption criteria are set based on the concentration of radioactivity and the total amount of nuclear source materials (Article 44). If the nuclear source materials satisfy the following criteria, the facilities using these materials may not notify to the NRA

- Concentration of radioactivity is equal to or less than 74 Bq/g and 370 Bq/g in the case of solid state

- The sum of the amount of three times of contained uranium and the amount of contained thorium is equal to or less than 900g

Note, however, permission of the NRA is required for the use of internationally controlled nuclear materials substances.

No exemption from regulatory authorization is allowed for facilities using enriched uranium, plutonium, and uranium-233. Even in small amounts, the use of these materials shall be subject to the NRA authorization.

Radiation Hazards Prevention Act:

Facilities handling radioisotopes below the exemption levels of IAEA Basic Safety Standards are exempted from the permission and notification requirements.

Question 3.10

Is the applicant required to submit an adequate demonstration of safety in support of the application for authorization of a facility or an activity?

Answer

Yes

Finding

The applicant is required to submit an adequate demonstration of safety in support of the application for authorization of a facility or an activity.

Response

Yes.

Subsidiary Question 3.10.1

Explain the extent to which the regulatory body has the authority to modify authorizations (including conditions) for safety-related purposes (including those specific to the various stages in the lifetime of a facility or the duration of an activity).

Subsidiary Response

In the case of nuclear power plants, pursuant to Article 43-3-23 of the Reactor Regulation Act, the NRA may order the licensee to suspend the use of the facility, remodel, repair, or relocate the facility, specify the operational conditions, or to take other necessary measures, if the NRA confirms licensees' incompliance with the regulatory requirements (e.g. technical standards for establishment permit, technical standards for construction plan, measures required to ensure safety).

Following such an order, if the modification of conditions for establishment permit is required, licensees shall have the NRA's authorization of establishment permit with modified conditions under Article 42-3-8. The same process shall apply to the modification of construction plan under Article 43-3-9, while minor modification requires only the notification to the NRA.

When the NRA confirms licensees' violation against the NRA orders or other regulatory requirements as listed in Article 43-3-20 of that Act, the NRA can revoke the establishment permit under Article 43-3-5 or order shutdown of the reactors for a period of up to one year.

With regard to Operational Safety Program, when licensees modify their Operational Safety Program, they shall have the NRA approval. The NRA may order the licensees' to modify the Operational Safety Program, when it recognizes the necessary additional measures for preventing nuclear accidents (caused by nuclear fuel materials, contaminated materials, or reactors), pursuant to Article 43-3-24.

During the stage of decommissioning, the NRA approves licensees' decommissioning plan before its implementation, and, when such decommission plan is modified (e.g. change of facilities for decommissioning), the licensees shall have the NRA's approval, pursuant to Article 12-6(3) as quoted in Article 43-3-33(3). When such modifications does not affect the measures for preventing accidents (e.g. extension of storage time), the licensees may notify such modifications to the NRA, pursuant to Article 12-6(5) as quoted in Article 43-3-33(3).

With regard to safety operational program at the decommissioning stage, the same as during the operation, its modifications (e.g. modification of time for maintaining the specific facilities) are in principle subject to the NRA's approval while minor modifications require only notification to the NRA.

A serious violation of the operational safety program is regarded one of the criteria for ordering the modification of the Operational Safety Program (Procedure for Conducting Operational Safety Inspections at Reactor Facilities with Approved Decommissioning Plans [Directive], Nuclear and Industrial Safety Agency [2008], NISA No. 9, April 22, 2008).

<Attachments>

the Reactor Regulation Act, Article 43-3-8, Article 43-3-9 and 43-3-9 paragraph (2) , Article 43-3-20, Article 43-3-23 and Article 43-3-24

the Reactor Regulation Act, Article 12-6, paragraph (3) and paragraph (5) applied mutatis mutandis to the same Act, Article 43-3-33, paragraph (3)

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.10.2

Where appropriate, does authorization for a facility include authorization of the various separate activities taking place in the facility (e.g. operation, maintenance, engineering activities)?

Subsidiary Response

Yes, these can be included. For example, when reviewing a construction plan for a commercial reactor, the NRA verifies conformance of licensees' quality management system to the criteria defined in the NRA Ordinance, while quality management system covers the method to manage the quality of the design and construction, and the organization for internal audit of quality management.

Subsidiary Question 3.10.3

Explain how the regulatory body verifies the competence of individuals with assigned responsibility for safety of authorized facilities and activities.

Subsidiary Response

With regard to establishment permit, the Reactor Regulation Act sets “Technical Competency” as one of the criteria for that permit, and the NRA applies “Regulatory Guide for Reviewing Technical Competence of Nuclear Operators (Decision by Nuclear Safety Commission on May 27, 2004)” in reviewing licensees’ technical competency. The NRA Ordinance on commercial reactor (Article 3(2)) requires “Explanatory Notes on Technical Competence for Installation and Operation of Commercial Reactor Facilities” as appendix documents for applications to establishment permit. The NRA reviews these submitted documents based on the above regulatory guide.

With regard to construction approval, the Reactor Regulation Act set “Quality management methodology for design and construction, and internal audit organization” as one of the criteria for that approval, and the NRA develops its criteria as the NRA Ordinance “Technical Standards for Quality management methodology for design and construction, and internal audit organization for commercial reactors” (June 2013). That NRA Ordinance includes the requirements to staff as ‘completion of appropriate training programs’ and ‘the required skills and experiences’ (Article 21). The NRA Ordinance on commercial reactor (Article 9) requires “Matters Related to Methods for Quality Management of Design, Construction, Etc.” and its appendix document “Explanatory Notes on Methods for Quality Management of Design and Construction, Etc.” for applications to construction approval. The NRA reviews these submitted documents based on the above regulatory rule.

Under operational safety inspections as stipulated in Article 43-3-24 (5) of the Act, the NRA inspects on the status of compliance to the approved operational safety program. As a part of operational safety inspections, the NRA also inspects on the status of training program and identification of individual competences, since the operational safety program includes the activities for quality assurance (Article 92 (1-3) of the NRA Ordinance for commercial reactors) .

<Attachments>

the Reactor Regulation Enforcement Cabinet Order, Article 20-2, paragraph (2)

the Commercial Reactors Ordinance, Article 3, paragraph (2)

the Reactor Regulation Act, Article 43-3-24, paragraph (5)

the Commercial Reactors Ordinance, Article 92, paragraph (3)

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.10.4

In the granting of an authorization, explain the mechanisms by which the regulatory body may impose limits, conditions and controls on the authorized party's subsequent activities.

Subsidiary Response

The NRA may impose conditions to the permit for the establishment of nuclear facilities, in accordance with Article 62-2 of the Reactor Regulation Act.

In addition, for example, in the case of commercial power reactors, the NRA imposes restrictions, conditions and control on licensees' activities following the establishment permit, based on the requirements defined in the operational safety program. The NRA Ordinance for commercial reactors (Article 92) requires operational safety program to include the items such as Limit of Conditions for Operation (LCO), Organizations, Quality Assurance, Emergency Measures, and other measures necessary for the operation. The licensees are required to comply with the approved operational safety program (Article 43-3-24(4) of the Act).

<Attachments>

the Reactor Regulation Act, Article 62-2 and Article 43-3-24, paragraph (1)

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.10.5

Describe the processes (where they exist) by which an authorized party can appeal against a regulatory decision relating to an authorization or a condition attached to an authorization.

Subsidiary Response

When the administrative agencies make adverse dispositions where the agencies designate specified persons as subject parties to the Disposition and directly impose duties upon them or limit their rights, the administrative agencies shall establish procedures for hearing statements of opinion of the subject persons prior to the decision of disposition, pursuant to Article 13 of the Administrative Procedure Act. More specifically, when the agencies rescind their permissions or approvals, "Hearing" shall be held, while, in most cases, an opportunity for the statement of opinions will be given. In the case to order shut-down of reactors pursuant to Article 43-3-20 of the Reactor Regulation Act, Hearing is held pursuant to Article 69 of that Act

A licensee can raise an objection to a disposition by the NRA in accordance with the Administrative Appeal Act, Article 6. However, the party or participants involved in the adverse disposition may not file objection proceedings pursuant to the Administrative Appeal Act if such dispositions are made with 'hearing'.

<Attachments>

Administrative Procedure Act, Article 13

Administrative Appeal Act, Article 6

Administrative Appeal Act, Article 27, paragraph (2)

Subsidiary Attachments

Subsidiary Question 3.10.6

List and, if necessary, explain the legal and/or regulatory requirements that require an applicant for authorization to submit a safety demonstration in support of the application.

Subsidiary Response

Applicants for licenses and approvals are required to support their applications by submitting demonstration of the safety of facilities and activities regulated by the Reactor Regulation Act or the Radiation Hazards Prevention Act. In accordance with a graded approach, the required demonstration of safety depends on the facility or activity concerned.

With regard to commercial reactors, applicants shall attach the documents listed in the below must be attached to an application for a commercial reactor.

[Establishment Permit]

The necessary items and contents of the application to be filed by an applicant for a license for establishment of a nuclear power plant are specified as regulatory requirements. Specifically, Article 43-3-5 of the Reactor Regulation Act specifies the items to be included in the application, Article 20-2 of the Cabinet Order for that Act stipulates the inclusion of necessary attachments, and Article 3 of the NRA Ordinance on commercial reactors specifies the descriptions and types of attachment that the application must include.

The following attachments are required:

(i) Explanatory notes on the use of the commercial reactor

(ii) Explanatory notes on the thermal power of the commercial reactor

(iii) Document stating the amount of funding required for the construction, and giving a procurement plan

(iv) Document stating the plan for acquiring the nuclear fuel materials necessary for operation of the commercial reactor

(v) Explanatory notes on the technical competence required for installation and operation of the commercial reactor facilities

(vi) Explanatory notes on weather, ground, hydraulic and seismic conditions, social environment, and other relevant conditions at the intended site of installation of the commercial reactor facilities

(vii) Maps of scales 1:200,000 and 1:50,000 that respectively include areas up to 20 km and 5 km away from the intended site of establishment of the commercial reactor and its important auxiliary facilities

(viii) Explanatory notes on the safety design of the commercial reactor facilities

(ix) Explanatory notes on the radiation protection of the commercial reactor facilities

(x) Explanatory notes on development of necessary facilities and systems for responding to accidents at the commercial reactor facilities

(xi) If the applicant is a corporation, the applicant must also submit an article of association and certificate of registered matters, together with the latest inventory of assets, balance sheet, and profit-and-loss statement

[Approval of construction plan]

The necessary items and contents of an application to be filed by an applicant for approval of the construction plan of a nuclear power plant are specified as regulatory requirements. Specifically, Article 43-3-9 of the Reactor Regulation Act stipulates requirements regarding filing of the application, and Article 9 of the NRA Ordinance on commercial reactors stipulates the items and contents of the application, together with necessary attachments.

For example, the following attachments are required for a reactor:

-Explanatory notes on earthquake resistance

-Explanatory notes on structural integrity

-Drawings on structure

-Explanatory notes on the foundations of the reactor, and a drawing that clearly indicates the state of the foundations

-A drawing that clearly indicates the mounting position of a monitored test piece (in reactor pressure vessels)

-Explanatory notes on prevention of brittle fracture of the reactor pressure vessel

-Explanatory notes on the methods for managing the quality of the design and construction

[Operational safety program]

The NRA requires licensees to explain the demonstration of safety during review meetings with them, while the NRA Ordinance does not specify the documents to be submitted for the support safety demonstration.

Subsidiary Question 3.10.7

Does the regulatory body have clearly defined procedures for the review and assessment of applications for authorization of facilities and activities (including the supporting safety demonstration)?

Subsidiary Response

There are no written procedures.

Subsidiary Question 3.10.8

Describe how it is ensured that the extent of regulatory control applied in the authorization process is commensurate with the radiation risks associated with the facilities and activities, in accordance with a graded approach.

Subsidiary Response

As a first step, regulations are developed for commercial reactors, which carry the greatest risks. Based on these regulations, those for other facilities and activities are developed according to a graded approach. In this manner, regulations are commensurate to the radiation risks associated with the corresponding facilities and activities.

Subsidiary Question 3.10.9

List and briefly describe any guidance the regulatory body has issued on the format and content of documents to be submitted by the applicant in support of an application for authorization.

Subsidiary Response

Requirements for commercial reactors are as follows:

[Establishment Permit]

The items and contents to be included in the application to be filed for establishment of a nuclear power plant are specified as regulatory requirements. Specifically, Article 43-3-5 of the Reactor Regulation Act specifies the items to be included in the application, Article 20-2 of the Cabinet Order for that Act stipulates the inclusion of necessary attachments, and Article 3 of the NRA Ordinance for Commercial Reactors specifies the descriptions and types of attachment to be included. Furthermore, the NRA Regulatory Guide “Operational Guidelines on Application for Approval of Establishment (Modification) of Commercial Reactor Facilities” provides details on the definition of terminology and the implementation of the above NRA Ordinances.

[Approval of construction plan]

The items and contents of the application to be filed for approval of the construction plan of a nuclear power plant are specified as regulatory requirements. Specifically, Article 43-3-9 of the Reactor Regulation Act stipulates requirements regarding filing of the application, and Article 9 and Appendix 2 of the NRA Ordinance for Commercial Reactors stipulate the items and contents of the application, together with necessary attachments. The NRA regulatory guide “Procedure Guidelines on Construction Plans for Commercial Reactor Facilities” provides details on the definition of terminology and the implementation of the above NRA Ordinances.

[Operational safety program]

The required contents are specified by Article 92 of the NRA Ordinances for Commercial Reactors, and these contents must satisfy the NRA “Standard Review Plan for operational safety programs of commercial reactors”.

Subsidiary Question 3.10.10

Describe the processes to ensure consistency and continuity of regulatory control for facilities for which the authorization process is carried out in stages.

Subsidiary Response

For the authorization process, the regulatory criteria defined in the NRA Ordinance, regulatory guides on the regulatory criteria, and guidelines applying to each facility are clearly defined, and the process for modifying authorization is also clearly defined.

Consistency and continuity of the regulation and management of all the NRA permits and approvals are ensured since the NRA is the only competent authority over these authorizations and can make decisions in an integrated manner.

Subsidiary Question 3.10.11

Explain the regulatory procedures for amendment, renewal, suspension or revocation and/or renewal of an authorization.

Subsidiary Response

Any licensee seeking to modify a license must file an application for approval of the modification. The regulatory body reviews the application and grants approval for the modification if it complies with the relevant regulatory criteria.

The Reactor Regulation Act defines the circumstances under which the regulatory body will revoke an establishment permit or order a shutdown of facilities for the operators of nuclear power plants.

Subsidiary Question 3.10.12

Describe how the regulatory body formally records the basis of a decision regarding authorization or its amendment, renewal, suspension or revocation.

Subsidiary Response

Pursuant to item (iv), Article 4 of the Public Records and Archives Management Act, the personnel of administrative agencies shall develop documents regarding the authorizations obtained or revoked, together with relevant background information, in order to enable tracking and validation of the decision making process, administrative procedures, and performance of administrative agencies in an efficient manner. In addition, the “Policy for Ensuring Transparency of Operation of the NRA” stipulates that the NRA’s response, instructions, guidance, requests, and answers regarding interpretation of laws and regulations must be documented for the purpose of proper enforcement of regulations. These documents must be managed in accordance with the NRA Rules for Management of Administrative Documents and NRA Procedure for Management of Administrative Documents. This requirement also applies to authorization, suspension of use, and revocation of licenses by the regulatory body.

Subsidiary Question 3.10.13

Explain how the regulatory body informs the applicant for authorization of its decisions, including any time limits for such a response and whether reasons and/or justification of the response are fully provided.

Subsidiary Response

The NRA specifies a standard processing period for responding to each type of application. When any decision is made in response to an application, a review report is prepared to notify the licensee of that decision, together with the grounds or reasons.

Question 3.11

Does the regulatory body perform review and assessment of relevant information for determining whether the applicant for authorization or the authorized party complies with applicable safety requirements and conditions of authorization, both prior to issuance of the authorization and over the lifetime of the facility or duration of the activity?

Answer

Yes

Finding

The regulatory body performs review and assessment of relevant information for determining whether the applicant for authorization or the authorized party complies with applicable safety requirements and conditions for authorization, both prior to issuance of the authorization and over the lifetime of the facility or duration of the activity.

Response

Yes.

Subsidiary Question 3.11.1

Explain the reviews and assessment performed by the regulatory body at various stages in the regulatory process for facilities and activities.

Subsidiary Response

The NRA conducts reviews and assessments at various stages.

In the case of nuclear power reactors, the NRA issues establishment permits after reviewing the conformance of basic policy for design/installation and operation in the applications, with the regulatory criteria. As a next step, the NRA issues approval for construction plans after reviewing the conformance of the detailed design for SSCs with the regulatory criteria. During the construction and up to the full commercial operation, the NRA conducts inspections on SSCs by reviewing the conformance of the constructed SSCs with the regulatory criteria and approved construction plans. Even after the start of the operation, if licensees modify the SSCs important to safety, the NRA may modify its permit or approval after reviewing the applications for such modifications. When the operation exceeds 30 years, the NRA reviews the licensees' aging management measures.

Subsidiary Question 3.11.2

List and describe the types of technical documents and information usually required as the basis of regulatory review and assessment.

Subsidiary Response

As in the answer to Q10.6.

Subsidiary Question 3.11.3

Describe the range of information the regulatory body expects to be submitted by the applicant to demonstrate optimization of protection.

Subsidiary Response

As in the answer to Q10.6.

Subsidiary Question 3.11.4

Describe the regulatory requirements and expectations regarding accuracy and sufficiency of information provided in applicant's submissions.

Subsidiary Response

The NRA publishes the items to be reviewed for judging the compliance to the regulatory requirements in the relevant NRA Ordinances, regulatory guides or guidelines, so that licensees are aware of the needed information in applications. In practice, when reviewing the application documents, the NRA first confirms that sufficient and accurate information has been supplied to make a judgment on compliance to the required standards. If any inadequacies are identified, the applicant makes corrections to the application so that adequate accurate information can be obtained.

Subsidiary Question 3.11.5

Describe the information that must be submitted by the applicant to demonstrate that operational and technical provisions (in particular, any novel provisions) have been proven or qualified by experience, testing, or both and will ensure the required level of safety to be achieved.

Subsidiary Response

Each applicant is required to submit the information necessary to demonstrate compliance with regulatory requirements. As an accepted practice, when licensees apply new technologies, the NRA requires submission of justifications and relevant data proving the effectiveness of these new technologies. If the information is insufficient, the NRA requests the applicant to add the required information to the application.

Subsidiary Question 3.11.6

Describe how, prior to operation and periodically throughout the lifetime of the facility or the duration of the activity, the regulatory body performs an assessment of all radiation risks (associated with normal operation, unanticipated operational occurrences and accident conditions) in order to determine whether radiation risks are kept as low as reasonably achievable.

Subsidiary Response

Before granting establishment permit for nuclear reactors, the NRA evaluates the effectiveness of the measures under all the conditions- normal operation, transients, design basis accidents, and severe accidents. After the nuclear power plant starts its operation, the NRA further requires the licensee to conduct safety assessment, including probabilistic risk assessment, at the facility once every 5 years and submit the assessment results, based on the Reactor Regulation Act.

Subsidiary Question 3.11.7

Describe how the regulatory body ensures that any proposed modification that may affect the safety of a facility or activity is submitted for a new review and assessment.

Subsidiary Response

If changes are to be made to a facility, an application must be made for modification of the license for establishment or approval of the construction plan, and a corresponding license for establishment or approval of the modification must be issued. The Reactor Regulation Act stipulates these requirements for establishment permit and construction plans (detailed design for SSCs) on commercial reactors.

Subsidiary Question 3.11.8

Describe how the regulatory body, when performing a safety assessment of a facility or activity, takes into account all relevant factors and the dependencies between them.

Subsidiary Response

The NRA develops regulatory guides and technical guidelines for regulatory requirements, and utilizes these regulatory guides and technical guidelines in the review of applications. For example, for reviewing the matters related to seismic and tsunami hazards, these guidelines describe the relevant factors to be considered, including the latest findings.

In addition, with respect to nuclear security, both the Department of Nuclear Regulation and Physical Protection Office examine the content of applications, respectively in terms of safety and security, to make sure that there is no mutual interference. For example, the officer responsible for reviewing safety also assumes physical protection officer, and reviews the application in terms of security, so that safety measures do not adversely affect the security measures.

Subsidiary Question 3.11.9

Explain how risks unrelated to radiation which could arise in the operation of facilities and conduct of activities, are taken into account in the regulatory decision-making process.

Subsidiary Response

When risks that are unrelated to radiation become apparent with regard to the operation of facilities or performance of activities, the NRA considers and carefully assesses these risks when making decisions. For example, with regard to facilities for fabricating uranium fuel (enrichment and reconversion facilities), the chemical impact of uranium hexafluoride in accidents is considered and assessed.

Subsidiary Question 3.11.10

Describe the extent of arrangements in place to record the results and decisions of reviews and assessment and for ensuring these are fed back into the regulatory process.

Subsidiary Response

When making a decision to issue the permit for the amended Establishment Permit in accordance with new regulatory requirements, the NRA publishes "Safety Evaluation Report" describing the review results of the submitted information based on regulatory criteria. These NRA evaluation reports are used as a reference for reviewing the conformance at other power plants.

Review meeting are open to the public, and materials and live-video are available on the NRA web-site in general. Regulatory standards may be revised whenever an inadequacy is identified during review.

Question 3.12

Is review and assessment commensurate with the radiation risks associated with any particular facility or activity, in accordance with a graded approach?

Answer

Yes

Finding

Review and assessment is commensurate with the radiation risks associated with the facility or activity, in accordance with a graded approach.

Response

Yes.

Subsidiary Question 3.12.1

List and explain any other aspects tailored into the regulatory body's graded approach, in addition to the radiation risks associated with the facility or activity under review.

Subsidiary Response

The NRA conducts Periodic Facility Inspections to inspect robustness and function of SSCs important to safety, focusing on the SSCs as designated by the NRA Ordinances based on graded approach.

In addition, the NRA conducts Operational Safety Inspections with regard to the operational aspects, including management systems, recordings of its activities and monitoring results, based on graded approach.

Question 3.13

Does the regulatory body carry out inspections of facilities and activities to verify that the authorized party is in compliance with regulatory requirements and the conditions upon which authorization is granted?

Answer

Yes

Finding

The regulatory body carries out inspections of facilities and activities to verify that the authorized party is in compliance with safety requirements and the conditions upon which authorization is granted

Response

Yes.

Subsidiary Question 3.13.1

Explain how the regulatory body establishes and maintains the principle that regulatory inspections do not diminish the authorized party's prime responsibility for safety and do not substitute for the control, supervision and verification activities conducted under their responsibility.

Subsidiary Response

Article 57-9 of the Reactor Regulation Act clearly states the safety principles of primary responsibility of licensees of nuclear facilities for nuclear safety, and requires licensees to take necessary measure for enhancing safety, though installation of necessary SSCs, and enhancement of training programs.

That Act provides more specific requirements for licensees. Here are some examples of these requirements for commercial reactors.

- Obligation of maintaining SSCs in conformity to regulatory standards

Article 43-3-14 of the Reactor Regulations Act requires licensees to maintain their nuclear power reactor facilities in conformity to the Commercial Reactor Technical Standards Ordinance.

- Obligation to have the operational activities in conformity to the Operational Safety Program

Article 43-3-24 of the Reactor Regulation Act requires licensees to have and observe their Operational Safety Program. The Standard Review Plan on Operational Safety Program requires them to include the basic policy in that Program, and such basic policy should make it clear that operational activities are, based on safety culture, in line with the spirit of ALARA, and under an appropriate quality assurance program for preventing nuclear disasters.

- Obligations to conduct internal facility patrols and inspections

Article 80 of the Commercial Reactor Ordinance requires licensees to have staff to patrol the relevant facilities as well as inspect the facilities and equipment at least once a day.

However, with regard to inspections, the roles of licensees in conducting inspections are not clearly assigned in some areas for nuclear facilities.

For example, for the facility Inspections and welding inspections other than those for commercial reactors, the Act does not clearly require licensees to have their inspections.

Subsidiary Question 3.13.2

Describe the current status and extent of the regulatory body's programme of inspection of facilities and activities by which it confirms compliance with authorizations and safety requirements.

Subsidiary Response

The Reactor Regulation Act specifies regulatory inspections required at each stage such as construction, operation, and decommissioning,

Regulatory inspections at the construction stage for nuclear power plants are basically three types: pre-service inspections, fuel assembly inspections, and welding safety management review.

Amongst these, the NRA conducts Pre-service Inspections for several steps based on the construction status of nuclear power reactor facilities, and confirms that the facilities' conformance to the approved construction plans and to the relevant NRA technical standards.

The NRA conducts Fuel Assembly Inspections for several steps of the fabrication of fuel assemblies and confirms that their conformance to the approved design and to the relevant NRA technical standards.

In Welding Safety Management Review, facility operators are required to conduct their own welding inspections and the NRA subsequently inspects the operators' quality assurance system.

o Regulatory inspections at the operation stage are basically three types: Periodic Facility Inspections, Periodic Safety Management Reviews, and Operational Safety Inspections.

Amongst these, the NRA conducts Periodic Facility Inspections during reactor shutdowns and that inspection covers SSCs specified in the NRA Ordinance.

In Periodic Safety Management Review, facility operators are required to conduct their own inspections during maintenance period, including both reactor shutdown and operation, and the NRA subsequently reviews the operator's quality assurance system.

The NRA conducts Operational Safety Inspections, four times per year and during activities important to safety, in order to review the conformance of their activities to their approved operational safety program.

At the decommissioning stage, the NRA conducts Periodic Facility Inspections and Operational Safety Inspections. The NRA also confirms the completion of decommissioning at the time of completion.

The NRA conducts Periodic Facility Inspections within nine months from the completion of the previous Periodic Facility Inspection, and this inspection covers SSCs specified by the NRA ordinance.

The NRA conducts Operational Safety Inspections basically the same manner as in the operation stage. However, operational safety inspections are conducted four times or less per year depending on the progress of decommissioning. In addition, at the end of decommissioning, inspections confirm the conformance of the measures specified in the decommissioning plans to the NRA technical standards.

Furthermore, the NRA is also authorized to conduct on-site inspections, as required for the enforcement of law, at the detail design, construction, operation, and decommissioning stages.

The Reactor Regulation Act provides detailed framework for inspections, designating those scope and frequencies per year. However, action has not been taken to response to the 2007 IRRS recommendations “.. should establish a process with more flexibility to change the type and frequency of inspections without having to change the law.”

Furthermore, these Periodic Facility Inspections, Welding Inspections and Pre-service Inspections much focus on the robustness and functions of SSCs.

Subsidiary Question 3.13.3

Explain how the regulatory body records the results of inspection activities (including actions taken or the basis thereof) and the extent to which such records are used to provide feedback to authorized parties on the regulatory process.

Subsidiary Response

(Preparation of reports on inspection results)

The NRA directive specifies that inspectors, when conducting inspections, shall make its records and reports on inspection results, and submit them to the designated managerial and other staff of the NRA.

(Handling of non-conformities)

During Periodic Facility Inspections, when the NRA inspectors find non-conformities that may affect conformance to the regulatory standards, the inspectors shall record the facts on those non-conformities, explain the found non-conformities to the operator, and ask their confirmation by the signature and seals on the inspection record. In such cases, if the NRA is required to make a pass-fail assessment, the NRA suspends on-going inspections and asks the operator to report on the measures taken to correct non-conformities.

With regard to Operational Safety Inspections, the inspectors inform the operator of the inspection results by giving the inspection report to them.

The results of Operational Safety Inspections are reflected in the plans for the next inspections.

Subsidiary Question 3.13.4

Do regulatory inspections cover all areas under the regulatory body's responsibility? If not, list and explain the gaps.

Subsidiary Response

The NRA's regulatory inspections cover the stages of construction, operation and decommissioning. The NRA reviews the application of Establishment Plan (covering siting and basic design) and issues permit, while regulatory inspection does not cover these areas.

Under our regulatory framework which requires the NRA authorizations based on the progress of stages, at the detailed design stage, the NRA's review for construction plans confirms their adequacy (or detailed designs) based on the authorized Establishment Permit, and at the construction stage, the NRA's Pre-service Inspections confirm the adequacy of SSCs based on the approved construction plans.

Subsidiary Question 3.13.5

Has the regulatory body been provided with sufficient authority to carry out independent inspections of all the areas under its responsibility?

Subsidiary Response

Facility operators are required to undergo all regulatory inspections specified in the Reactor Regulation Act. Article 67-2 of the same act provides the NRA's Qualified Inspectors or Appointed Officers (in the case of an on-site inspection) with the authority to conduct inspections.

Subsidiary Question 3.13.6

Describe arrangements in place to enable regulatory inspectors to have free access to any facility or activity at any time.

Subsidiary Response

Concerning the Operational Safety Inspections for commercial reactors, Article 43-3-24 (5) of the Reactor Regulation Act and Article 93 (3) of the Commercial Reactor Ordinance enable the NRA to conduct field-investigations at nuclear facilities, to review recoding books and documentation, to inspect the SSCs, to interview with the concerned staff, and to request the submission of the related materials.

The "Implementation Procedures for Commercial Power Reactor Operational Safety Inspections" provide that for quarterly scheduled inspections, the NRA shall give advance notice to the licensee of the inspection schedule (inspection location, implementation period, personnel in charge of the inspection, and inspection items). However, the NRA may also conduct unannounced inspections for some inspection items.

When the NRA conducts an Operational Safety Investigation based on administrative guidance, supplementing to the quarterly Operational Safety Inspections, the NRA may conduct unannounced investigations with escort free, according to the advance agreements with all the licensees. Such investigations include the confirmation of operation management, patrolling facilities, or attendance to a licensee's surveillance test. The escort-free access program started since May 2007, under the agreement with all the nuclear power operators.

Subsidiary Question 3.13.7

Describe the regulatory inspection activities undertaken to assess structures, systems, equipment, components and materials important to safety.

Subsidiary Response

The NRA conducts Pre-service Inspections and Fuel Assembly Inspections at the construction stage and confirms the conformance of SSCs important to safety, to the authorized specifications as construction plans and fuel assembly design respectively, and to the relevant NRA technical standards.

At the operation stage, the NRA conducts Periodic Facility Inspections and review the conformance of designated SSCs important to safety to the relevant NRA technical standards. The NRA also conducts Periodic Safety Management Reviews and reviews licensees' quality assurance program for its own inspections covering more SSCs than Periodic Facility Inspections.

Subsidiary Question 3.13.8

Describe regulatory inspection activities undertaken to assess safety-relevant aspects of the management systems of new applicants and authorized parties.

Subsidiary Response

The NRA conducts Pre-service Inspections at the construction stage and confirms that the methods for quality management on the construction and internal system for auditing that quality management are implemented according to the authorized construction plans, which specify process for quality management of the constructions.

The NRA conducts Welding Safety Management Reviews and reviews on the implementation system for operator's welding inspections and the quality assurance system.

The NRA conducts Periodic Safety Management Reviews at the operation stage, and reviews the adequacy of operators' implementation system on the inspections, through assessment of the implementation of maintenance program and quality assurance activities.

The NRA conducts the Operational Safety Inspections and reviews the conformance of operators' activities to their approved Operational Safety Program, by laying the main emphasis on the process of operator's activities, and supplementary by checking their compliance with all the provisions of their Operational Safety Program, one by one.

The NRA conducts Operational Safety Inspections at the decommissioning stage in the same manner as in the operation stage, in terms of management systems..

With regard to inspections for Specified Nuclear Facilities (disaster-experienced), the NRA conducts Welding Inspections to confirm the manner of licensees' implementing quality management, and to check the reliability of records. The NRA conducts Operational Safety Inspection in order to check whether safety activities are being performed in accordance with the quality assurance plans based on the Implementation Plans. A variety of methods are used in Operational Safety Inspections, including interviews on operation management, checking of records, walking-down, and attendance at operators' periodic tests of SSCs.

Subsidiary Question 3.13.9

Describe briefly the range of regulatory inspection activities undertaken to assess the operational activities and procedures of the authorized parties.

Subsidiary Response

Operators are required to have the NRA approval for their Operational Safety Program, before starting operations, and this Operational Safety Program includes the provisions for safety activities. The NRA conducts Operational Safety Inspections to review the conformance of their operational activities to the approved Operational Safety Program.

The scope of safety inspections covers the items specified in the Operational Safety Programs (systems for compliance with the NRA ordinances and Operational Safety Program, systems for fostering a culture of safety, matters related to quality assurance, scope of tasks and organizations, training program, operation management, and maintenance etc.).

Subsidiary Question 3.13.10

Describe briefly any regulatory inspection activities undertaken to assess the records of operational activities and the results of monitoring by the authorized parties.

Subsidiary Response

Under the Operational Safety Inspections, the Reactor Regulation Act and its ordinances allow the NRA to use various methods, in order to review the conformance of operational activities to the approved Operational Safety Program, including field inspections, examination of ledgers, documents, and other necessary materials, interviews with involved parties, and collection of samples of nuclear source materials, nuclear fuel materials, and other necessary substances (limited to minimal amounts required for testing). In conducting Operational Safety Inspections, with prior notification, those inspectors may have interviews on operation management, review of the records, walk-down at nuclear power reactor facilities, and attendance at periodic tests, and further inspection on items which are not specifically informed to the operator in advance.

Subsidiary Question 3.13.11

Describe any regulatory inspection activities undertaken to assess the extent and effectiveness of liaison between applicants/authorized parties and their contractors and/or service providers.

Subsidiary Response

The NRA conducts pre-service inspections at the construction stage to confirm that the quality management and the system for internal audit of quality management are implemented according to the approved construction plans, which specify construction quality management processes. Since these quality management processes include items related to procurement management for construction, inspections also review the manner in which procurement management is implemented by the facility operator.

The NRA conducts Welding Safety Management Review to check the implementation system for internal welding inspections, and that a quality assurance system is in place and used for continuous improvements.

If the operator raises internal welding inspections, the review of quality assurance system includes the operator's management over suppliers with regard to procurement activities.

The NRA conducts Periodic Safety Management Review to check the implementation system for Periodic operator's inspections at the operation stage, and that a quality assurance system is in place and used for continuous improvements. If the operator raised internal welding inspections, the review of quality assurance system includes the operator's management over suppliers with regard to procurement activities.

The NRA conducts Operational Safety Inspections and this inspection also covers procurement management specified in operational safety programs. The NRA inspector may conduct on-site inspections to examine ledgers, documents, and other necessary materials, and to interview related parties.

Subsidiary Question 3.13.12

Describe any regulatory inspection activities undertaken to assess the competence of staff of applicant organisations and authorized parties.

Subsidiary Response

The NRA conducts Pre-Service Inspections at the construction stage and confirms also that the construction quality management is implemented using the methods and organizations specified in the approved construction plans, which define construction quality management processes. Since these quality management processes include competency management as part of the management and supervision of resources, these inspections also check the manner in which human resources are managed by the facility operator.

The NRA conducts Welding Safety Management Reviews to check the implementation system for operators' welding inspections, and that a quality assurance is in place for continuous improvement. Scope of the inspection includes the manner in which the skills of the facility operator's inspection staff are managed, focusing on items related to organizations and training that are part of the quality assurance system.

The NRA conducts Periodic Safety Management Review at the operation stage to check how the competency of personnel for Periodic operator's inspection is managed, focusing on items related to organizations and training program.

The NRA conducts Operational Safety Inspections to check issues related to the competency management and training programs for safety as stipulated in their Operational Safety Program.

Subsidiary Question 3.13.13

List and briefly describe any regulatory inspection activities undertaken to assess the safety culture of authorized parties.

Subsidiary Response

Operational Safety Inspections check matters related to the fostering of safety culture as specified in the Operational Safety Program.

Subsidiary Question 3.13.14

List and describe any joint inspections in which the regulatory body participates with other relevant organisations, including their scope and arrangements made for conducting such inspections.

Subsidiary Response

There are no prior agreements regarding joint inspections conducted with other institutions under the Act. The NRA contacts and coordinates with related institutions as necessary.

Question 3.14

Does the regulatory body perform different types of inspections (including at least, programmed and reactive inspections as well as announced and unannounced inspections)?

Answer

Yes

Finding

The regulatory body performs different types of inspections (including at least, programmed and reactive inspections as well as announced and unannounced inspections).

Response

-

Subsidiary Question 3.14.1

Explain how regulatory inspections are prepared and organised (including the resources allocated), depending on the type of inspections and the areas to be reviewed.

Subsidiary Response

Pre-service Inspections and Fuel Assembly Inspections at the construction stage aim to check robustness and functions of SSCs important to safety. Qualified inspectors under the Reactor Regulation Act conduct this inspection, according to the inspection manuals which are prepared for each plant as required by the Commercial Reactor Ordinance. Pre-service Inspections also cover the construction quality management activities of the facility operator.

Welding Safety Management Reviews at the construction stage aim to check the operators' internal inspection activities. Qualified inspectors under the Act conduct the inspections, according to the inspection manuals prepared for each plant.

Periodic Facility Inspection at the operation stage aims to check robustness and function of the SSCs designated by the Commercial Reactor Ordinance. Qualified inspectors under the Act conduct inspections according to the inspection manuals prepared for each plant as required in that Ordinance.

Periodic Safety Management Review at the operation stage aim to check the operators' inspection and maintenance activities of the facility operator. Qualified inspectors under the Act conducts this inspection based on review plans prepared for each plant.

Operational Safety Inspection at the operation stage aims to check the operational activities of the facility operator. Qualified inspectors under the Act conducts this inspection based on inspection plans for each plant.

Subsidiary Question 3.14.2

Explain the bases for regulatory decisions that lead to conduct unannounced inspections.

Subsidiary Response

For commercial reactors, when licensees notify the LCO deviation, the NRA may conduct the On-site Inspection without announcement of the inspection itself based on the "Implementation Manuals for On-site Inspections". But for other On-site Inspections under the Reactor Regulation Act, announcements are provided in advance so that the NRA may reviews all the matters under the scope during the inspections.

As explained in the below, the inspections on commercial reactors other than on-site inspections also provide announcements of inspections in advance, but the specific items for inspection may not be announced.

- In conducting Periodic Facility Inspections, Welding Safety Management Review and Periodic Safety Management Review, the NRA may not specify the licensees' surveillance test for the inspectors' attendance in advance.

- In conducting Operational Safety Inspections, the "Implementation Manuals for Operational Safety Inspections" encourages the Inspectors not to inform the test for their attendance in advance.

Subsidiary Question 3.14.3

Explain the events for which the regulatory body performs reactive inspections.

Subsidiary Response

As for the on-site inspections that correspond to reactive inspections, Article 68, paragraphs 1 through 3 of the Reactor Regulation Act provide that the NRA may have fields inspections at the plants or other facilities of licensees, vendors or suppliers, and concerned parties. In on-site inspections, the NRA may inspect records and documentation, or interview with the staff. Normally, the NRA conducts announced inspections in which the licensee is given advance notice. However, the NRA may also conduct unannounced inspections for which the licensee is given no advance notice by giving such notice in a short time..

The NRA's procedures for conducting on-site inspections include specification of the inspection scope and designation of the inspector in advance.

Subsidiary Question 3.14.4

Explain how the regulatory body ensures that regulatory inspectors apply inspection policies and procedures, including enforcement actions, in an objective and consistent manner.

Subsidiary Response

For Pre-service Inspections and Fuel Assembly Inspections, qualified inspectors under the Reactor Regulation Act conduct this inspection, according to the inspection manuals which are prepared for each plant as required by the Commercial Reactor Ordinance.

For Welding Safety Management Reviews, qualified inspectors under the Act conducts the inspections, according to the inspection manuals prepared for each plant.

For Periodic Facility Inspection, qualified inspectors under the Act conducts inspections according to the inspection manuals prepared for each plant as required in that Ordinance.

For Periodic Safety Management Review, qualified inspectors under the Act conducts this inspection based on review plans prepared for each plant.

For Operational Safety Inspection, qualified inspectors under the Act conducts this inspection based on inspection plans for each plant.

Inspection plans, inspection manuals, and review plans are prepared based on a set of rules for document management within organizations entitled “the NRA Document Management Ordinance”, and the method and other details of the inspection are checked within the organization.

Question 3.15

Are regulatory inspections commensurate with the radiation risks associated with the facility or activity, in accordance with a graded approach?

Answer

Yes

Finding

Regulatory inspections are commensurate with the radiation risks associated with the facility or activity, in accordance with a graded approach.

Response

-

Subsidiary Question 3.15.1

Describe the internal procedures for regulatory inspections that give guidance on the application of the graded approach to inspection activities for the various facilities and activities.

Subsidiary Response

The Reactor Regulation Act requires different inspections depending on the types of facilities and activities, e.g. Nuclear Power, Research Reactor, Enrichment and fabrication, Interim Storage of Spent Fuel, Reprocessing, Radioactive waste disposal or Use of nuclear fuel materials. For example, the users of certain amount of nuclear materials are not required to have Operational Safety Inspections

For the inspections to Nuclear Power, the frequency and the items for the inspections can be adjusted, as in the followings:

- For Pre-service Inspections, the frequency of inspectors' attendance to the operators' test is specified in Pre-service Inspection Manuals, based on a graded approach.*
- For Fuel Assembly Inspections, the Commercial Reactor Ordinance allows to reduce the items for inspections, and specific rules are provided in fuel assembly manuals, based on a graded approach.*
- For Welding Safety Management Reviews and Periodic Safety Management Reviews, the Commercial Reactor Ordinance allows to change the items and frequency for these reviews, and specific rules are provided in manuals based on a graded approach.*
- For Operational Safety Inspections, inspectors may decide on the focused items for inspections based on a graded approach.*

Subsidiary Question 3.15.2

Explain how the appropriate frequency and types of regulatory inspections are determined for the various facilities and activities.

Subsidiary Response

The NRA Ordinances on the Reactor Regulation Act stipulates types and frequencies of the regulatory inspections according to the facilities and activities, i.e. Nuclear Power, Research Reactor, Enrichment and fabrication, Interim Storage of Spent Fuel, Reprocessing, Radioactive waste disposal or Use of nuclear fuel materials.

With regard to inspections to commercial reactors, the Commercial Reactor Ordinance stipulates the types and frequency of regulatory inspections as in the following examples:

- Periodic Safety Inspections: The NRA Ordinance stipulates the intervals between these Inspections as 13, 18, or 24 months , which is defined from the completion of the inspection to the beginning of the next, and the NRA notifies the interval months for each nuclear reactors, currently all the reactors for 13 months. The inspectors prepare Inspection manuals for each plant.

- Operational Safety Inspection: The NRA Ordinance stipulates the frequency, 4 times per year and additionally in the case of the designated operations e.g. shut-down or start-up the reactors. The inspectors prepare inspection manuals for each plant.

Question 3.16

Has the government and/or regulatory body established and implemented an enforcement policy, within the legal framework, for responding to non-compliance by authorized parties with safety requirements or with any conditions specified in the authorization?

Answer

Yes

Finding

Within the legal framework an enforcement policy has been established and implemented for responding to non-compliance by authorized parties with safety requirements or with any conditions specified in the authorization.

Response

-

Subsidiary Question 3.16.1

Describe any arrangements in place to ensure the regulatory body response to non-compliance with specified conditions and requirements is commensurate with the significance of the non-compliance, in accordance with a graded approach.

Subsidiary Response

The Reactor Regulation Act specifies the conditions for regulatory enforcement actions, and in deciding such enforcement actions, the NRA takes into accounts the seriousness of non-compliance.

For example, if violations of operational safety programs are detected in a nuclear power reactor facility, the following regulatory actions may be taken, depending on the seriousness of those violations:

- Administrative guidance*
- Order to modify Operational Safety Program based on Article 43-3-24, paragraph (3) of the Act*
- Revocation of establishment permit or suspension of operation based on Article 43-3-20, paragraph (2) of the Act.*

Subsidiary Question 3.16.2

Describe the types of regulatory enforcement actions taken.

Subsidiary Response

The Reactor Regulation Act stipulates the regulatory enforcement actions specifically for various nuclear facilities and activities.

For example, that Act stipulates the following specific enforcement actions over nuclear power plants.

- Order to revoke the chief reactor engineer's certificate (Article 41),*
- Order to submit application for modifications of applications for establishment permit (43-3-8)*
- Order to submit application for modification of construction plans (43-3-10)*
- Revocation of establishment permit (43-3-20)*
- Order to suspend the use of facilities (43-3-23)*
- Order to modify Operational Safety Programs (43-3-24)*
- Order to dismiss the nuclear power reactor chief engineer*
- Order to modify Nuclear Material Physical Protection Programs (43-3-27)*
- Order to dismiss the nuclear material physical protection manager)(43-3-28)*
- Order to modify Safety Assessment (for continuous improvements) (43-3-29)*
- Revocation of Design Certificates for specific equipment (43-3-30)*
- Revocation of designation design for Design Certificates (43-3-31)*
- Order to take measures for decommissioning (43-3-33)*
- Order for revoked nuclear power licensees to take necessary measures (43-3-34)*
- Order to take emergency measures (64)*

Subsidiary Question 3.16.3

List and explain the types of non-compliance for which only notifications are issued by the regulatory body.

Subsidiary Response

Types of noncompliance that require only the issuing of notifications are not specified in the Reactor Regulation Act. If any noncompliance is detected in Operational Safety Inspections, the NRA specifies items to be monitored and reviews the corrective actions.

Subsidiary Question 3.16.4

List and explain the types of non-compliance for which additional conditions and requirements are imposed by the regulatory body.

Subsidiary Response

The Reactor Regulation Act (Article 43-3-23) enables the NRA to take measures necessary for safety, e.g. suspension of use of the facilities, reconstruction/repair/relocation of the facilities, or specification of operation methods, in the following cases: when SSCs are not in compliance to the relevant regulatory standards, or when the maintenance and operation of nuclear power plants or the measures for transportation/storage/disposal of nuclear fuel materials (or objects contaminated by nuclear fuel materials) are not in compliance to the relevant requirements.

Subsidiary Question 3.16.5

List and explain the types of non-compliance for which written warnings and penalties are issued by the regulatory body.

Subsidiary Response

Articles 77 to 83 of the Reactor Regulation Act specify the requirements for various regulatory enforcement actions.

For example, Article 77 of the act specifies the following requirements with regard to imposing imprisonment for a period not exceeding three years and/or a penalty not exceeding 3 million yen:

- Those who, without permit or designation by the NRA, engaged in the business for refinery or processing, spent fuel storage, reprocessing or waste disposal/management; installed a nuclear test/research reactor or nuclear power reactor; or used nuclear fuel materials*
 - Those who violated an NRA order to: suspend business; suspend the operation of a nuclear test/research reactor or nuclear power reactor; or suspend the use of nuclear fuel materials*
 - Those in possession of a nuclear powered naval vessel in Japan without permit*
 - Those who: took over a nuclear test/research reactor or facilities (including nuclear powered naval vessels) that include such a reactor without permit; or took over a nuclear powered naval vessel without permit*
 - Those who took over a nuclear power reactor or facilities without permit*
 - Those who took over a waste disposal site or facilities that include a waste disposal site without permission*
- * For details, see the attached excerpts from Articles 77 through 83 of the Reactor Regulation Act.*

Subsidiary Question 3.16.6

List and explain the types of non-compliance for which the regulatory body would revoke an authorization.

Subsidiary Response

The Reactor Regulation Act specifies conditions for the revocation of licensing. For example, Article 43-3-20 of the Act specifies the following conditions for nuclear power reactors. The Act also specifies similar conditions for other facilities.

- If the licensee did not start the operation of the nuclear power reactor within a period of five years from the date of establishment permit, or suspended operation for a continuous period of one year or more without justifiable reason*
- If the licensee has become ineligible*

- *If the licensee performed without permission operations for which permission is required*
- *If the licensee carried out construction operations associated with an application for a license change prior to 30 days after the application was submitted.*
- *If the licensee violated an order to revise or cancel an application for a license change*
- *If the licensee violated an order to suspend the use of facilities*
- *If the licensee did not obtain licensing for operational safety programs, or violated operational safety programs*
- *If the licensee violated an order to revise operational safety programs*
- *If the licensee violated an order to dismiss the nuclear power reactor chief engineer*
- *If the licensee did not obtain licensing for the physical protection program*
- *If the licensee violated an order to revise the physical protection program*
- *If the licensee violated the physical protection program*
- *If the licensee did not appoint a physical protection manager*
- *If the licensee violated an order to dismiss the physical protection manager*
- *If the licensee operated facilities after the end of a licensed extended operating period*
- *If the licensee operated facilities in excess of 40 years without licensing*
- *If the licensee decommissioned facilities without taking the required decommissioning measures*
- *If the licensee did not obtain licensing for decommissioning plans*
- *If the licensee disposed of waste outside the plant without certification, or violated safety orders regarding waste disposal outside the plant*
- *If the licensee transported materials outside the plant without certification, or violated safety orders regarding transportation outside the plant*
- *If the licensee transported specified nuclear fuel materials without certification*
- *If the licensee did not obtain licensing for accounting provisions*
- *If the licensee violated accounting provisions*
- *If the licensee violated an order to revise accounting provisions*
- *If the licensee violated supplementary conditions imposed on the licensing or permission*
- *If the licensee violated an order to prepare or revise Nuclear Operator Emergency Plans*

- If the licensee violated an order to establish an on-site organization for Nuclear Emergency preparedness, or to allocate Nuclear disaster prevention staff
- If the licensee violated an order to appoint or dismiss a Nuclear Emergency preparedness Manager or Deputy Manager
- If the licensee violated an order to take necessary measures to install, maintain, or improve radiation measurement equipment, or to install, maintain, or inspect materials or equipment for Nuclear disaster prevention
- If the licensee violated an order to take necessary measures to improve disaster prevention training methods

Subsidiary Question 3.16.7

List and explain the types of non-compliance for which regulatory enforcement may also entail prosecution.

Subsidiary Response

Based on the Code of Criminal Procedure, the penalties as explained in SQID 16.5 are imposed in accordance with the decision of the court that receives the indictment of the prosecutor or judicial police officer who files a charge regarding the offense. Article 239 of the Code of Criminal Procedure stipulates that government or public officials must file a charge if, in the course of their duties, they believe a criminal offense to have been committed.

Subsidiary Question 3.16.8

Describe actions taken by the regulatory body in the event that unforeseen radiation risks are later identified that were due to non-compliance or not considered at the time of the authorization process for a facility or an activity.

Subsidiary Response

For nuclear power facilities, if radiation risks due to non-compliance are identified, the NRA may issue orders to take necessary measures based on Article 43-3-23 of the Reactor Regulation Act.

If unforeseen radiation risks are subsequently identified, the NRA may modify the regulatory standards and may issue orders to take necessary measures based on Article 43-3-23 of that Act.

Subsidiary Question 3.16.9

Describe how the regulatory body identifies and documents the nature of a non-compliance and the period of time allowed for correcting it at each significant step of the enforcement process.

Subsidiary Response

Based on the level of seriousness of the problem and scope of the corrective measures to be taken, the NRA determines the period within which the facility operators shall complete the required corrective measures, and notifies them of that period in writing.

Subsidiary Question 3.16.10

Describe how the regulatory body communicates to the authorized party, information relating to the correction of a non-compliance at each significant step of the enforcement process.

Subsidiary Response

When issuing an order to take corrective measures, the NRA issues such order in the form of written documents, after the decision at the NRA commissioners' meeting. The order and the NRA commissioners' meeting are open to the public.

Subsidiary Question 3.16.11

Describe how the regulatory body ensures that the authorized party is held responsible for remedying any non-compliance, for performing a thorough investigation in accordance with an agreed timetable and for taking all the necessary measures to prevent recurrence of the non-compliance.

Subsidiary Response

The Reactor Regulation Act requires facility operators to maintain the conformity of their SSCs (hard aspect) and operation (soft aspect) to the regulatory standards. Operators that violate these requirements are ordered to take necessary measures for safety, including suspension of use of facilities. These orders do not rescind until the violations are eliminated.

Subsidiary Question 3.16.12

Describe the regulatory body's established criteria for corrective actions, including, where applicable, enforcing the cessation of activities or the shutting down of a facility.

Subsidiary Response

The Reactor Regulation Act stipulates the conditions for the interruption of activities or suspension of facility operation. For example, in the case of nuclear power reactors, Article 43-3-23 stipulates the following conditions for ordering safety measures such as suspension of use of facilities, facility reconstruction or relocation, or specification of facility operation methods, etc.:

- A commercial nuclear power reactor or its associated facilities are considered not to conform to regulatory standards for establishment permit*
- A commercial nuclear power reactor or its associated facilities are considered not to conform to regulatory standards for construction plans.*
- It is considered that necessary safety measures regarding facility maintenance or operation, or the transportation/storage/disposal of nuclear fuel materials (or objects contaminated by nuclear fuel materials) are not being taken for the facilities in question*

With regard to these conditions, the various NRA ordinances describe specific requirements for regulatory standards.

Subsidiary Question 3.16.13

Explain the regulatory actions that inspectors are authorized to take in case they identify a non-compliance with important implications for the safety of the facility or the activity.

Subsidiary Response

Inspectors are not authorized to order any enforcement measures.

However, with respect to nuclear power reactor facilities, based on the internal operational manual for on-site inspections on LCO (Limits of Conditions for Operation) deviations, the Head (DG) of NRA Nuclear Regulation Department may decide to conduct an on-site inspection without written notification. This decision is delegated to this DG, while the inspections shall be retrospectively authorized in the NRA right after the conduct of the inspections.

In addition, if, for example, non-compliance that may affect conformance to technical standards is identified in a Pre-service Inspection, the inspection is temporarily suspended, to be resumed after the noncompliance has been corrected. As a result, use of the nuclear power reactor facilities is suspended during Pre-service Inspections.

Subsidiary Question 3.16.14

Describe follow-up activities undertaken by the regulatory body to confirm that the authorized party has effectively implemented any necessary corrective actions.

Subsidiary Response

Operational Safety Inspections confirms the corrective measures taken by facility operators.

If non-compliance is discovered in Welding Safety Management Review or Periodic Safety Management Review for a nuclear power reactor facility, the facility manager is required—based on records describing the circumstances surrounding the relevant events—to confirm

the facts and draw up a plan for handling and correcting the non-compliance, implement the plan, and report on the results. Based on the report, the NRA checks what measures are being taken by the facility operator to correct the non-compliance.

Question 3.17

In the event that risks are identified, including risks unforeseen in the authorization process, does the regulatory body require corrective actions to be taken by authorized parties?

Answer

Yes

Finding

In the event that risks are identified, including risks unforeseen in the authorization process, the regulatory body requires corrective actions to be taken by authorized parties.

Response

-

Subsidiary Question 3.17.1

Explain the regulatory body's criteria for requiring corrective actions.

Subsidiary Response

Same as answer in SQID 16.12.

Question 3.18

Has the regulatory body established or adopted regulations and guides to specify the principles, requirements and associated criteria for safety upon which its regulatory judgements, decisions and actions are based?

Answer

Yes

Finding

The regulatory body has established or adopted regulations and guides to specify the principles, requirements and associated criteria for safety upon which its regulatory judgements, decisions and actions are based.

Response

-

Subsidiary Question 3.18.1

Describe the processes established within the legal system for issuing, adopting, promoting and amending safety regulations and guides.

Subsidiary Response

The Reactor Regulation Act requires the development of the NRA Ordinances which define detailed technical standards for Establishment Permit and Construction Plans. When

formulating rules, the NRA holds discussions open to the public, in which experts participate, if necessary, and prepares drafts and solicits public comments prior to the enactment of these NRA ordinances.

Subsidiary Question 3.18.2

Describe the nature and extent of any mechanisms for consultation with interested parties during the development of safety regulations and guides.

Subsidiary Response

In developing safety regulations and guides, the Study Team is established with participation of NRA commissioner/ staff and external experts, as necessary, and that Study Team develops draft regulations and guides. The Study Team meetings are open to the public, and the materials and minutes are uploaded in the NRA web-site. Once the NRA decides on draft regulations and guides, it solicits public comments to allow interested parties to provide their opinions. The NRA then shows its response to these comments, modifies the draft when it considers appropriate, and finalizes regulations and guides. When the NRA formulated new regulatory standards in 2013, which changes significantly the regulatory requirement by incorporating lessons from Fukushima Dai-ichi accident, the NRA held several public hearings with electric power companies.

Subsidiary Question 3.18.3

Identify the main parties interested in the development of safety regulations and guides that actively participate in consultations undertaken by the regulatory body.

Subsidiary Response

Interested parties include the public, facility operators (licensees), and academic societies

Subsidiary Question 3.18.4

Explain how the regulatory body ensures that safety regulations and guides currently in force provide an adequate framework for the requirements and conditions incorporated into individual authorizations, as well as for the requirements and conditions that need to be met by applicants for authorizations.

Subsidiary Response

The Reactor Regulation Act stipulates that, in having a permit or approval from the NRA, the applicants shall satisfy the relevant NRA regulatory standards and other requirements.

Subsidiary Question 3.18.5

Explain how the regulatory body ensures that regulations and guides always include the basic criteria for assessing compliance with the respective requirements and recommendations.

Subsidiary Response

The regulatory standards, as in the form of the NRA ordinances, are performance-based, and regulatory guides of the regulatory standards and review guides provide details on assessing criteria for the conformance as necessary.

Subsidiary Question 3.18.6

Explain how the regulatory body ensures that safety regulations and guides are consistent and comprehensive and provide adequate coverage commensurate with the radiation risks associated with the facilities and activities, in accordance with a graded approach.

Subsidiary Response

Within the NRA, the Department of Regulatory Standards and Safety Research is responsible for the development and modification of the regulatory standards, for all the nuclear

facilities and activities, e.g. power reactor, research reactor or fuel cycle facility, with the cooperation of the department responsible for implementing regulations. In addition, the NRA commissioners' meeting makes the final decision on all the regulatory standards. Therefore, the consistency is ensured.

The comprehensiveness and graded approach are ensured by developing these standards with reference to the IAEA safety standards or other countries.

Question 3.19

Does the regulatory body review and revise the regulations and guides, as necessary, to keep them up to date, with due consideration of relevant international safety and technical standards and experience gained?

Answer

Yes

Finding

The regulatory body reviews and revises the regulations and guides, as necessary, to keep them up to date, with due consideration of relevant international safety and technical standards and experience gained.

Response

-

Subsidiary Question 3.19.1

Explain how the development of safety regulations and guides takes account of internationally agreed standards and the feedback of relevant experience.

Subsidiary Response

Within the NRA, the staff are assigned for international standards in the Regulatory Standard and Research Division, responsible for the formulation of these standards, and collect and analyze any differences between Japanese and international standards. When the NRA formulated new regulation standards in 2013, it took into accounts of the safety standards of the United States, Germany, the United Kingdom, France, and Finland, together with those of the IAEA.

Furthermore, with regard to reflecting domestic and overseas operational feedback, the NRA has the system to incorporate the operational feedback to regulatory standard.

However, currently, the NRA does not establish a mechanism sufficient to identify, collect, and evaluate new radiation protection findings in order to reflect such findings in the regulatory activities adequately.

Subsidiary Question 3.19.2

Explain how the regulatory body analyses technological advances, research and development, pertinent operational lessons learned and institutional knowledge in order to identify information relevant for the revision of its safety regulations and guides.

Subsidiary Response

Within the NRA, Regulatory Standard and Research Department has the function to conduct safety research as internal TSO, as well as the formulation of regulatory standards. This organizational structure enables to quickly share the latest knowledge which needs to be reflected in standards. Hence, revisions of standards can be promptly reviewed.

Subsidiary Question 3.19.3

List and as appropriate, explain the main sources of information used by the regulatory body to identify internationally recognised good practice relevant for safety and the global trends in the development of safety requirements.

Subsidiary Response

- *Information on accidents and regulations of overseas countries: information on power reactors from the U.S. NRC and OECD/NEA & IAEA-IRS (Incidents Reporting System); and information on nuclear fuel cycle facilities from regulatory bodies in overseas countries and IAEA-FINAS.*
- *Information on accidents and regulatory activities in Japan: Information provided from JANSI's database (Nucia) and from within the NRA. The collected information is compiled as weekly reports or monthly reports.*
- *Information from the bilateral and multinational meetings with overseas regulatory bodies (e.g. INRA).*

Question 3.20

Does the regulatory body notify interested parties and the public of the principles and criteria for safety used as the basis for its regulations and guides, and make these regulations and guides available?

Answer

Yes

Finding

The regulatory body notifies interested parties and the public of the principles and criteria for safety used as the basis for its regulations and guides, and makes these regulations and guides available.

Response

-

Subsidiary Question 3.20.1

Describe how the regulatory body informs interested parties and the public of the principles and criteria for safety used as the basis for its regulations and guides, and of any important changes in the regulatory framework.

Subsidiary Response

- *Information on the safety principles and criteria used as the basis for its regulations and guides, and any important changes in the regulatory framework, is provided in the NRA's official website.*
- *The NRA ordinances related to regulatory requirements are published in the Official Gazette.*
- *As a Study Team is established for the development and amendment of regulatory requirements with participation of NRA commissioner/ staff and external experts in general, and that team deliberates on these standards. These Study Teams are open to the public and all related materials as well as video-broadcasts are also made available on the NRA website.*
- *The NRA makes decisions in the NRA commissioner meetings, which is in principle (except for those on nuclear security and other confidential matters) open to the public. These meeting are broadcast live on the Internet and the recorded video is available in the NRA web-site. Materials used for such meetings are made available to the public on the NRA's website promptly after their start.*
- *The NRA holds meetings to provide detailed explanation to the residents near the nuclear facilities' site on important regulatory decisions such as the permit for the amendment of establishment permit in accordance with new regulatory requirements (as enacted in 2013). These meetings are held, taking into accounts of the local governments' request.*

Subsidiary Question 3.20.2

Describe how the regulatory body ensures transparency in the process of developing safety requirements and how it facilitates access by interested parties to safety regulations and guides.

Subsidiary Response

- As a Study Team is established for the development and amendment of regulatory requirements with participation of NRA commissioner/ staff and external experts in general, and that team deliberates on these standards. These Study Teams are open to the public and all the related materials as well as video-broadcasts are also made available on the NRA website.

The NRA makes decisions in the NRA commissioner meetings, which is in principle (except for those on nuclear security and other confidential matters) open to the public. These meeting are broadcast live on the Internet and the recorded video is available in the NRA web-site. Materials used for such meetings are made available to the public on the NRA's website promptly after their start.

- When formulating regulatory standards, the NRA prepares drafts, solicits public comments regarding these, and then establishes the regulatory standards as the decision of NRA commissioners.

Question 3.21

Has the regulatory body made provision for establishing, maintaining and retrieving adequate records relating to the safety of facilities and activities?

Answer

Yes

Finding

The regulatory body has made provision for establishing, maintaining and retrieving adequate records relating to the safety of facilities and activities.

Response

-

Subsidiary Question 3.21.1

Describe the regulatory body processes for establishing and maintaining adequate and retrievable records relating to the safety of facilities and activities.

Subsidiary Response

Application documents submitted by facility operators are managed as administrative documents, in accordance with the Public Records and Archives Management Act. In addition, regulatory inspection records are created based on internal rules and managed, together with application documents, as administrative documents. Applications for the establishment of nuclear power reactors, applications for the approval of construction plans, and reports on accidents and incidents are, in part, managed as a database.

The Reactor Regulation Act requires licensees to record necessary items, and to keep the corresponding records at their facilities.

Subsidiary Question 3.21.2

Describe the arrangements made by the regulatory body for establishing and maintaining registers of sealed radioactive sources and radiation generators.

Subsidiary Response

The NRA has established the Source Tracking System for all radioactive sources included in Categories 1 and 2 of CoC Annex I and some sources in Category 3, and those are registered under that system. This system requires facility operators to report to the NRA the transfer of all source materials, both transfer from the sites and to the sites, where they are used,

sold, or rented. In accordance with the NRA ordinance, facility operators are required to report the data necessary for registration, which may be notified via the Internet, and the NRA identifies and traces radioactive sources. The NRA also requires the relevant facility operators to submit reports on radioactive sources, including the storing status of these sources, to the NRA, at the end of each fiscal year. The NRA confirms these records periodically and keeps them as administrative documents.

Those who use, sell, or rent sealed radioactive sources, including Category 3 and lower level sources, are required by law to file an application for permission or notification to the NRA. These applications and notifications are also kept as administrative documents.

Subsidiary Question 3.21.3

Describe the arrangements made by the regulatory body for establishing and maintaining records of occupational doses.

Subsidiary Response

The Reactor Regulation Act requires licensees to record necessary items and keep the corresponding records at their facilities, and these items include the records on occupational exposure, e.g. in the case of commercial reactors, Article 67 of the Commercial Reactors Ordinance requires to keep the records of occupational exposure at the nuclear power reactor facilities.

The NRA Ordinances of the Reactor Regulation Act, those for commercial reactors or fabrications, requires licensees to submit reports on the annual radiation doses of radiation workers, and treats these reports as administrative documents.

Subsidiary Question 3.21.4

List and, as appropriate, explain other records the regulatory body maintains relating to the safety of facilities and activities.

Subsidiary Response

The NRA maintains the records of regulatory activities, such as operators' applications for authorization and its inspection reports as administrative documents.

The Reactor Regulation Act requires facility operators to record necessary items and keep these records at their facilities.

In addition, based on the Reactor regulation act, facility operators required to take measures for severe accidents are required to notify the NRA the results of the updated safety assessment of power reactor facilities periodically and publicize the result of the evaluation.

Subsidiary Question 3.21.5

Describe arrangements made by the regulatory body for establishing and maintaining records of accidents and/or significant events including non-routine releases of radioactive material to the environment

Subsidiary Response

Article 62-3 of the Reactor Regulation Act requires licensees to submit a report to the NRA immediately after identifying an accident or incident occurs.

In addition, Article 10 of the Act on Special Measures Concerning Nuclear Emergency Preparedness requires licensees to submit a report immediately after identifying an event designated by that Act, while Article 25 of the same Act requires them to submit a summary report on emergency measures taken when such an event has occurred.

These reports are managed as administrative documents.

Subsidiary Question 3.21.6

Describe arrangements made by the regulatory body for establishing and maintaining records relating to the inventories of radioactive waste and of spent fuel

Subsidiary Response

The NRA Ordinances and the associated administrative guidance require licensees to report on the management of radioactive waste, including those inventories, periodically.

With regard to the data on spent fuel in nuclear reactors, Article 43-3-17 of that Act requires nuclear power reactor operators to submit Operation Plan, and the Commercial Reactor Ordinance requires the management of spent fuels to be included in that operation plan.

Subsidiary Question 3.21.7

Describe arrangements made by the regulatory body for establishing and maintaining records that might be necessary for the decommissioning and closure of facilities.

Subsidiary Response

Article 43-3-21 of the Reactor Regulation Act requires facility operators to record necessary items, including records of operations required for decommissioning, and to keep these records at their facilities. More specifically, the NRA commercial reactor ordinance stipulates the items to be recorded and such items include the records of operations and nuclear fuels, which may be used in developing a decommissioning plan.

Subsidiary Question 3.21.8

If the regulatory body is not the solely responsible for maintenance of registers and inventories relating to the safety of facilities and activities, describe how it ensures its adequate involvement in their proper retention and use.

Subsidiary Response

The Reactor Regulation Act requires licensees to record necessary items and keep the corresponding records at their facilities.

In addition, that Act allows facility operators to delegate the management of the occupational exposure to the agency designated by the NRA for record keeping. That Act allows the NRA to require these designated record preservation agency to take necessary measures, and to revoke its designation or collect reports from it.

Subsidiary Question 3.21.9

Explain how the regulatory body ensures that authorized parties maintain all the records necessary for the safe operation of facilities and the safe conduct of activities, as specified in the authorizations, including an inventory of radioactive sources and of radioactive waste and/or spent fuel, as well as records of occupational dose.

Subsidiary Response

The Reactor Regulation Act requires licensees to record necessary items and keep the corresponding records at their facilities.

For example, Article 67 of the Commercial Reactor Ordinance requires nuclear power reactor facility operators to keep the following records:

- maintenance and management records;*
- operation records;*
- fuel assembly records;*
- records on casks containing spent fuels to be stored outside facilities;*
- radiation management records;*
- accident records;*
- weather records;*
- safety training program records;*
- decommissioning plan*
- documents regarding quality assurance plans and their implementation*
- records on protective measures*
- results of assessments for safety improvement; and*
- records on objects targeted for the monitoring of radiation concentration.*

Operational Safety Program requires operator to properly manage the records. The NRA reviews these records keeping as a part of Operational Safety Inspections.

Subsidiary Question 3.21.10

Has the regulatory body clearly required that all applicants and authorized parties make adequate arrangements for recording all safety related information for their facilities and activities and for analysing it, where relevant, for safety reviews and assessments?

Subsidiary Response

The Reactor Regulation Act requires licensees to record necessary items and keep the corresponding records at their facilities.

For example, Article 67 of the Commercial Reactor Ordinance requires nuclear power reactor facility operators to keep the following records:

- maintenance and management records;*
- operation records;*
- fuel assembly records;*
- records on casks containing spent fuels to be stored outside facilities;*
- radiation management records;*
- accident records;*
- weather records;*
- safety training program records;*
- decommissioning plan*
- documents regarding quality assurance plans and their implementation*
- records on protective measures*
- results of assessments for safety improvement; and*
- records on objects targeted for the monitoring of radiation concentration.*

Operational Safety Program requires operator to properly manage the records. The NRA reviews these records keeping as a part of Operational Safety Inspections.

That Act requires facility operators to include a quality management system in the applications for construction plan approval, and the NRA checks the implementation of the approved quality management system in Pre-service Inspections.

Subsidiary Question 3.21.11

Explain how the regulatory body makes use of safety related records in support of its regulatory activities, including the enforcement of safety requirements.

Subsidiary Response

The NRA may use safety related records in making a decision on administrative enforcement.

For example, when finding non-conformances on the safety-related records during Operational Safety Inspections or Periodic Facility Inspections, the NRA may require the facility operator to take necessary corrective actions.

Question 3.22

Does the regulatory body promote the establishment of appropriate means of informing and consulting interested parties and the public about possible radiation risks associated with facilities and activities, and about the processes of the regulatory body and related decisions?

Answer

Yes

Finding

The regulatory body promotes the establishment of appropriate means of informing and consulting interested parties and the public about possible radiation risks associated with facilities and activities and about the processes of the regulatory body.

Response

-

Subsidiary Question 3.22.1

Describe the communication mechanisms directly or through authorized parties used by the regulatory body to inform interested parties and/or the public about its regulatory requirements, judgements, actions and decisions.

Subsidiary Response

The NRA makes decisions in the NRA commissioner meetings, which is in principle (except for those on nuclear security and other confidential matters) open to the public. These meeting are broadcast live on the Internet and the recorded video is available in the NRA web-site. Materials used for such meetings are made available to the public on the NRA's website promptly after their start.

In addition, when revising regulatory standards and other important regulatory frameworks, the NRA solicits public comments on these drafts.

The NRA holds a dialogue with the Japan Nuclear Safety Institute (JANSI) and the heads of licensees periodically starting from April 2014 in order to exchange views on the measures for further enhancing safety of their nuclear facilities.

For academic society, the NRA participants in the discussion on research or in the committees for industrial standards development as an observer, and also provides information on regulatory activities.

For the press, the NRA organizes press conferences by the Chairman once a week and regular briefings by the S/NRA twice a week.

Subsidiary Question 3.22.2

Explain the direct lines of communication used by the regulatory body to liaise with governmental authorities at high levels when such communication is considered necessary for effectively exercising the functions of the regulatory body.

Subsidiary Response

With regard to security, when approving operators' physical protection programs and the amendment of those programs, the Reactor Regulation Act requires the NRA to consult with the National Public Safety Commission and Japan Coast Guard. That Act also requires to have cooperation among the National Public Safety Commission, the NRA, and Minister of Land, Infrastructure, Transport and Tourism with respect to regulation for the protection of specified nuclear fuel materials. In order to discuss pressing issues regarding nuclear security from a broad perspective, the NRA holds coordination meetings with the participation of other agencies related to nuclear security.

When the NRA considers it necessary to have the dialogues with other government agencies at high levels in order to perform the regulatory functions more effectively, the NRA may have dialogues with other agencies through various methods.

Subsidiary Question 3.22.3

Describe the mechanisms which enable the regulatory body to collect documents and opinions from private or public organizations or persons, as may be considered necessary and appropriate.

Subsidiary Response

When developing or amending the regulatory requirements and making important regulatory decisions, based on Article 39 of the Administrative Procedure Act requires the government agencies to solicit public comments on those drafts. In addition, the NRA also solicits public comments even on the documents or decisions which the Administrative Procedure Act does not require to do, in order to increase the opportunities for the public to present their opinions.

When reviewing technical issues, the NRA requests external experts to attend meetings in order to have their advice.

Furthermore, the NRA invites former top-level officials of nuclear regulatory agencies of the United States, United Kingdom, and France as external advisers to receive advice through exchanging views regarding a wide range of initiatives for the improvement of nuclear regulation—including safety culture and on how internal discussions should be conducted.

Subsidiary Question 3.22.4

Describe how the regulatory body provides information on incidents and abnormal occurrences to relevant authorized parties, governmental bodies, national and international organizations and to the public.

Subsidiary Response

The Reactor Regulation Act requires facility operators to file a report when identifying an accident and incidents, which are specifically designated by the NRA ordinances.. The NRA has a well-organized system for providing information around the clock (24 hours/ 7 days) to the government organizations, the press, and subscribed members of the general public via a simultaneous e-mail distribution.

Subsidiary Question 3.22.5

Describe how the regulatory body explains to interested parties, the public and news media, the possible radiation risks associated with facilities and activities (including the protection of people and the environment) and the associated regulatory processes.

Subsidiary Response

In accordance with the “Policy on Ensuring the Operational Transparency of the NRA”, the NRA normally holds discussions at NRA meetings and other review meetings in public. In

addition, the NRA Chairman holds press conferences (once a week) and the NRA Secretariat holds press briefings (twice a week).

Furthermore, the NRA provides basic information to overseas, including information on legal matters, and accidents and monitoring, on its English official website.

Subsidiary Question 3.22.6

Explain how and the extent to which, consultations are undertaken by the regulatory body with interested parties in the vicinity of authorized facilities.

Subsidiary Response

When making important regulatory decisions such as the permit for the amendment of establishment permit in accordance with new regulatory requirements (as enacted in 2013), the NRA solicits public comments on the draft decisions from scientific and technical perspectives, and the interested parties in the vicinity of authorized facilities may provide their comments.

After issuing permit, upon requests of the local governments, the NRA provides detailed explanation on the permission to residents if necessary.

Subsidiary Question 3.22.7

Is an authorized party's obligation to inform the public about possible radiation risks associated with its facilities and activities clearly specified in regulations, authorizations and/or by other legal means?

Subsidiary Response

Pursuant to Ordinances related to the Reactor Regulation Act, etc., licensees are currently required to perform PRA (IPE: Individual Plant Examination) for internal events and PRA (IPEEE: IPE for External Events) for external events at each plant, in addition to NRA-designated incidents (including accident sequence groups that lead to significant core

damage and containment damage mode, etc.). The results of these assessments are made public through a review of conformity to the new regulatory standards. Licensees are also required to perform periodic safety assessment for safety enhancement (including implementation of probabilistic risk assessment (PRA)) and publish the results thereof.

Subsidiary Question 3.22.8

Describe the extent to which a graded approach is applied with regard to public information activities, reflecting the radiation risks associated with particular facilities and activities.

Subsidiary Response

For some important regulatory decisions such as the permit for the amendment of establishment permit in accordance with new regulatory requirements (as enacted in 2013), the NRA solicits public comments on the draft decisions. For others, the NRA may make decisions without public comments.

Upon requests of local governments, the NRA provides detailed explanation on important regulatory decisions if necessary.

Module: Management System for the Regulatory Body

Findings

Question 4.1

Has the Regulatory Body established and implemented a Management System?

Answer

Yes

Finding

The Regulatory Body has established and implemented a Management System

Response

The Nuclear Regulation Authority (hereinafter referred to as the NRA) management rules were established by refer the standards stipulated by the International Atomic Energy Agency (IAEA) and by the International Organization for Standardization (ISO9001). From April 2015, NRA management rules were operating in full scope.

After having placed "The NRA's Core Values and Principles (Jan. 2013)" as the NRA Management Policy under its management system, NRA management system has provided for mid-term goals (five fiscal years) and annual strategic plans based on its policy. The NRA management system has established concerning to the resource management, management of activities, evaluations and improvements of management system, etc. so that these goals and plans are accomplished.

According to the NRA management system, following operation has been started like organizational, responsibilities and authorities, resource management (provision of human resources and financial resources, knowledge management, human resource development, training, etc.), control of documents, communication, management of activities, procurement control, etc.

Also, NRA carries out the management review by the top management, based on the results of internal audit, control of matters to be improved, self-assessment of the achievement status of plans to evaluate and improve the management system, and decides to reflect the result for goals, plans of the next fiscal year.

In addition, on implementing the NRA management system, the NRA established of "the Statement on Nuclear Safety Culture" in May 2015, which supplements to the NRA's Core Values and Principles. As the integrated management system was just established, It will be necessary to activate the integrated management system through improving steadily by PDCA cycle with regard to recognized matters to be improved.

Subsidiary Question 4.1.1

How has the regulatory body ensured that its management system is appropriate for its functions and responsibilities and that it is aligned with the regulatory safety goals?

Subsidiary Response

- *The safety goals of the NRA are set forth in the Act for Establishment of the Nuclear Regulation Authority (hereinafter referred to as the NRA Establishment Act), Articles 1 and 3.*
- *NRA's Management System is intended to achieve the mission described in the Act for Establishment, Article 3, as set forth in the NRA's Management Rules, Article 1, and the system upholds NRA's Core Values and Principles as management policies, thereby harmonizing with the NRA's mission.*

<Attachments>

- *NRA Establishment Act, Articles 1 and 3 (the Act for Establishment of the NRA, Articles 1 and 3)*
- *NRA Management Rules, Article 1*

Subsidiary Attachments

E01 Nuclear Regulation Authority Management Rules

H02 The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 4.1.2

What are the safety goals of the regulatory body and which are the policy documents outlining these goals?

Subsidiary Response

NRA safety goals are set forth in the Act on Establishment, Articles 1 and 3.

<Attachments>

- *Act on Establishment, Articles 1 and 3 (the Act for Establishment of the NRA, Articles 1 and 3)*

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 4.1.3

What are the requirements, standards, guides, models, which have been used in the development of the management system of the regulatory body?

Subsidiary Response

○ *As set forth in the NRA Management Rules, Article 1, the NRA's Management System is based on the NRA Establishment Act and is refer to the IAEA standards (GS-R-3 and DS456) and International Organization for Standardization's ISO 9001 (JIS Q9001).*

○ *Requirements, criteria, policies, etc. that were used by other than above are shown in the list concerning laws and ordinances overseen by the NRA. (abbreviation).*

<Attachments>

○ *NRA Establishment Act (the Act for Establishment of the NRA)*

○ *NRA Management Rules, Article 1*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

H02The Act for Establishment of the Nuclear Regulation Authority

Question 4.2

Does the Management System bring together in a coherent manner all the requirements for managing the Regulatory Body?

Answer

Yes

Finding

The Management System coherently brings together all the requirements for managing the Regulatory Body.

Response

-

Subsidiary Question 4.2.1

Does the Management System describe the planned and systematic actions necessary to provide adequate confidence that all these requirements are satisfied?

Subsidiary Response

○ *NRA has provided for its Management Rules in such a manner that its Management System satisfies any requirement for managing the regulatory body.*

- Adequately planned systematic measures are in place to ensure sufficient reliability so that implementing the NRA Management Rules fulfills any requirement of ISO 9001 and GS-R-3.

<Attachments>

- NRA Management Rules, Article 1

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.2.2

Describe how the regulatory body has identified all the relevant requirements applicable to its managements system and the regulatory processes and activities.

Subsidiary Response

- The NRA decides to give the overriding priority to safety as set forth in NRA's Core Value and Principles as a management policy, Statement on Nuclear Safety Culture and Nuclear Regulation Authority Management Rules Article 7 and Article 9.

- Specifically, when NRA regulated, for NRA taking the steps by which all related divisions confirm that NRA;s regulations fit in with the safety standard determined by laws and ordinance without exception from the point of view over which each holds jurisdiction.

<Attachments>

- List concerning laws overseen by the NRA

Subsidiary Attachments

E03List concerning laws overseen by the NRA

Subsidiary Question 4.2.3

Describe how the Management System identifies and integrates the relevant requirements contained in the national statutory and regulatory requirements.

Subsidiary Response

○ *Laws overseen by the NRA based on the NRA Establishment Act include national laws and regulatory requirements. The NRA executes these laws and regulatory requirements and as necessary prepares a manual for each of its operations in order to integrate the laws and regulatory requirements into its Management System.*

○ *Relevant requirements that have been identified are shown in the list concerning laws and ordinances overseen by the NRA (abbreviation).*

<Attachments>

○ *NRA Establishment Act (the Act for Establishment of the NRA)*

○ *List concerning laws overseen by the NRA*

Subsidiary Attachments

E03List concerning laws overseen by the NRA

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 4.2.4

Does the Management System identify and integrate the requirements contained in requirements formally agreed with stakeholders?

Subsidiary Response

- *All NRA operations are stipulated by national laws such as the NRA Establishment Act, which was established by the national diet representing the people of Japan.*
- *Regulatory standards set forth in NRA rules take into account public opinions gathered in accordance with Administrative Procedure Act.*

<Attachments>

- *NRA Establishment Act (the Act for Establishment of the NRA)*
- *Administrative Procedure Act*

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

H11Administrative Procedure Act

Subsidiary Question 4.2.5

Does the Management System identify and integrate the requirements contained in other relevant IAEA Safety Requirements publications?

Subsidiary Response

- *NRA Management System draws on standards (GS-R-3 and DS456) stipulated by the IAEA.*

Subsidiary Question 4.2.6

Does the Management System identify and integrate the requirements contained in requirements from other relevant codes and standards?

Subsidiary Response

○ *NRA's Management System draws on the standard ISO9001 (JIS Q9001) provided for by the International Organization for Standardization (ISO).*

Question 4.3

Does the Management System of the regulatory body ensure that safety is paramount, overriding all other demands?

Answer

Yes

Finding

The Management System of the regulatory body ensures that safety is paramount, overriding all other demands.

Response

-

Subsidiary Question 4.3.1

How does the management system of the regulatory body ensure that safety is given due priority in all the regulatory activities and decisions?

Subsidiary Response

○ *NRA highest prioritizes safety as indicated by its management policies ("NRA's Core Values and Principles") and "Statement on Nuclear Safety Culture" and as provided for by its Management Rules, Articles 7 and 9.*

○ *More specifically, before implementing any of its rules all departments and divisions of the NRA undergo a process of checking without fail whether its rules.*

<Attachments>

○ *NRA Management Rules, Articles 7 and 9*

○ *Management policies (NRA's Core Values and Principles)*

○ *Statement on Nuclear Safety Culture*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

E02Management Policy(NRA's Core Values and Principles)

E04Statement on Nuclear Safety Culture

Subsidiary Question 4.3.2

How does the management system of the regulatory body ensure that conflicting requirements or opinions are dealt with by adequate processes and that the regulatory decision-making process is open and transparent?

Subsidiary Response

○As stipulated in Article 5 of NRA Management Rules, the NRA Management System clarifies each regulatory process to perform its operations and services including the issuance of licenses and permits according to the transparency policy.

<Attachments>

○ NRA Management Rules, Article 5

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.3.3

How does the management system of the regulatory body ensure that the objectivity and the adequacy of the regulatory review processes are not compromised by external pressures?

Subsidiary Response

○ Based on Article 5 of Act for Establishment the NRA has an authority for independently executing its official power. Based on its management policies (NRA's Core Values and Principles), the NRA can independently make decisions using scientific and technological knowledge.

○ Based on the Policy on Ensuring the Operational Transparency of the NRA , the NRA is making commission meetings and deliberation meetings open to the public and holds regulatory operator interviews with the attendance of two or more persons each time. The objectivity of regulatory review processes are in this way adequately ensured.

<Attachments>

○ NRA Establishment Act, Article 5 (the Act for Establishment of the NRA, Article 5)

○ Management policies (NRA's Core Values and Principles)

- *Policy on Ensuring the Operational Transparency of the NRA*

Subsidiary Attachments

B04ThePolicy on Ensuring the Operational Transparency of the Nuclear Regulatory Authority

E02Management Policy(NRA's Core Values and Principles)

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.3.4

What are the main policies and principles observed by the regulatory body in the performance of its regulatory activities in order to ensure the independence of its decision-making processes?

Subsidiary Response

To ensure the independence of its decision making processes, the NRA complies with Article 5 of the Act for Establishment and NRA's Core Values and Principles as major policies and principles used in its regulatory activities.

<Attachments>

- *NRA Establishment Act, Article 5 (the Act for Establishment of the NRA, Article 5)*
- *NRA's Core Values and Principles (management policies)*

Subsidiary Attachments

E02Management Policy(NRA's Core Values and Principles)

H02The Act for Establishment of the Nuclear Regulation Authority

Question 4.4

Is the Regulatory Body able to demonstrate the effective fulfilment of the requirements of its Management System?

Answer

Yes

Finding

The Regulatory Body is able to demonstrate the effective fulfilment of the requirements of its Management System.

Response

-

Subsidiary Question 4.4.1

How does the regulatory body review the fulfilment of the requirements of its management system?

Subsidiary Response

○ As provided for in NRA Management Rules Article 34 to 37, each division and department of the NRA evaluates the effectiveness of its Management System through internal audits and management reviews.

<Attachments>

- *NRA's Management Rules, Articles 34, 35 and 36*
- *NRA's Management Rules, Article 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.4.2

What is the scope and frequency of the assessments performed by the regulatory body in order to ascertain whether all the regulatory processes and activities are in compliance with the requirements of its management system?

Subsidiary Response

- *As provided for in its Management Rules, Article 36, the NRA performs internal audits. As set forth in Article 37, the NRA carries out an annual management review targeting every operation and service (including an assessment of the need for modifying goals) to achieve its management policies, mid-term goals and annual strategic plans.*

<Attachments>

- *NRA Management Rules, Articles 36 and 37*
- *Management policies (NRA's Core Values and Principles)*
- *Mid-term goals*

Subsidiary Attachments

B06Nuclear Regulation Authority Mid-term Goal(2015-2020)

E01Nuclear Regulation Authority Management Rules

E02Management Policy(NRA's Core Values and Principles)

Question 4.5

Does the Management System of the regulatory body promote and support a strong safety culture?

Answer

Yes

Finding

The Management System of the regulatory body promotes and supports a strong safety culture.

Response

-

Subsidiary Question 4.5.1

Describe how and the extent to which, the regulatory body ensures the achievement of a common understanding, within its organisation, of the key aspects of safety culture.

Subsidiary Response

○ *NRA's Management System is intended to foster a safety culture as stated in NRA's Core Values and Principles, Statement on Nuclear Safety Culture and NRA Management Rules, Article 1, which are its management policies.*

○ *NRA Management Rules, Article 12 states that the NRA must ensure that activities for fostering safety culture based on annual strategic plan and other plans are implemented and that each NRA department must foster safety culture activities for each operation and service.*

In addition, Articles 35 and 36 require self assessment and internal audits in order to continual foster and improve the safety culture.

○ *Safety culture required for the NRA Management System is refer to IAEA standards as stipulated by the NRA Management Rules, Article 1.*

○ *NRA has issued "Statement on Nuclear Safety Culture", based on which it is promoting its operations and making efforts to foster safety culture.*

<Attachments>

○ *Management policies (NRA's Core Values and Principles)*

○ *NRA Management Rules, Articles 1, 12, 35 and 36*

○ *Statement on Nuclear Safety Culture*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

E02Management Policy(NRA's Core Values and Principles)

E04Statement on Nuclear Safety Culture

Subsidiary Question 4.5.2

Describe any formal means employed by the regulatory body to support individuals and teams within its organisation in carrying out their tasks safely and successfully.

Subsidiary Response

○ *NRA's Management System is intended to ensure operations are carried out safely by setting goals to be achieved in processes stipulated in NRA Management Rules, Articles 4 and 28, and by incorporating the necessary review processes.*

<Attachments>

○ *NRA Management Rules, Article 4*

○ *NRA Management Rules, Article 28*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.5.3

Describe measures taken by the regulatory body for reinforcing a learning and questioning attitude at all organizational levels.

Subsidiary Response

○ *NRA recognizes that an attitude of active learning and asking questions is an important element of safety culture. One of the NRA's activity principles, namely NRA's Core Values and Principles, prescribe that "We shall be assiduous in learning and absorbing the latest regulatory know-how and best practices, enhancing individual capacity, and performing our duties, mindful of the highest ethical standards, a sense of mission, and rightful pride."*

○ *Moreover, the NRA declares in Statement on Nuclear Safety Culture that "All the personnel shall have one's own "Questioning attitude" without complacency whether there are any weaknesses that may affect safety, as well as whether there is any room for further improvement, and thereby identify safety issues", which is one of its code of conduct.*

○ *NRA Management Rules, Article 12 states that the NRA must ensure that activities for fostering safety culture based on annual strategic plan are implemented and that each NRA department and division must implement safety culture fostering activities for each operation and service. In addition, NRA Management Rules, Articles 35 and 36 stipulate that*

the NRA shall undergo self-assessment and a Management System internal audit regarding safety culture. NRA Management Rules, Article 37 requires that the NRA fosters and improves safety culture.

<Attachments>

○ NRA Management Rules, Articles 12, 35 and 36

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.5.4

Describe how the regulatory body identifies and implements measures for continually developing and improving the safety culture within its organisation.

Subsidiary Response

○ NRA Management Rules, Article 12-3 and Article 29-4 require that the senior management of each department and division ensure activities for fostering safety culture related to their regulatory operation and promote such activities among personnel based on annual implementation plan .

○ Moreover, NRA Management Rules, Articles 35 and 36 stipulate that the NRA shall undergo self-assessment and an internal audit. NRA Management Rules, Article 37 require that the NRA continuously fosters and improves safety culture.

<Attachments>

○ NRA Management Rules, Article 12-1, Article 29-4, and Articles 35, 36 and 37.

Subsidiary Attachments

Question 4.6

Does the regulatory body apply a graded approach in the performance of its activities?

Answer

Yes

Finding

The regulatory body applies a graded approach in the performance of its activities.

Response

-

Subsidiary Question 4.6.1

Describe the bases for determining the graded approach with regard to the main areas of regulatory activity (e.g. issuance of regulatory requirements, review and assessment, inspection and enforcement).

Subsidiary Response

○The Reactor Regulation Act, the Act concerning Prevention from Radiation Hazards and the Act on Special Measures concerning Nuclear Emergency Preparedness are set forth with a

graded approach taken into account. With these laws as a basis, the NRA manages each operation according to its importance, complexity, potential risk, and impact.

As one example of the above-mentioned graded approach, the NRA is setting standards for each nuclear fuel cycle facility according to the type of nuclear fuel it handles and facility structure, because these vary significantly among facilities.

<Attachments>

- the Act on the Regulation of Nuclear Source Material Nuclear Fuel Material and Reactors*
- Radiation Hazards Prevention Act*
- Act on Special Measures concerning Nuclear Emergency Preparedness(Nuclear Emergency Act)*
- NRA Management Rules, Article 5*

Subsidiary Attachments

C02 Nuclear Emergency Act

E01Nuclear Regulation Authority Management Rules

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 4.6.2

How is the graded approach applied in the scope and depth of regulatory reviews and inspection activities?

Subsidiary Response

- As an example of classification, the NRA is setting standards for each nuclear fuel cycle facility according to the type of nuclear fuel it handles and facility structure, because these*

vary significantly among facilities. Based on this classification, the NRA decides the range and depth of its regulatory activities at each facility.

Subsidiary Question 4.6.3

How is the graded approach reflected in the deployment of the regulatory resources across the different areas of regulatory activities?

Subsidiary Response

○ *Based on NRA Management Rules, Article 37, the NRA carries out management reviews by taking into account the situation of nuclear safety management. Based on their results, the NRA reviews its resource allocation based on the management according to the degree of effect on nuclear safety as specified in Article 5.*

<Attachments>

NRA Management Rules, Articles 5 and 37

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.6.4

How is the graded approach applied to the products and activities of each process undertaken by the regulatory body? Please provide examples from different areas of activity.

Subsidiary Response

○ *NRA judges nuclear safety according to the characteristics and risk of each nuclear facility.*

○ In regards to document management, the NRA puts emphasis on the management of documents important in terms of nuclear regulation, for example by preserving documents related to legal system and standards for long periods.

Question 4.7

Has the regulatory body ensured that its management system is adequately documented?

Answer

Yes

Finding

The regulatory body's management system is adequately documented.

Response

-

Subsidiary Question 4.7.1

Does the documentation of the management system include the policy statements and the goals of the regulatory body?

Subsidiary Response

○ As set forth in the NRA Management Rules, Articles 11 and 29, the NRA manages and preserves documents that set Rules related to Management System including policies and objectives.

<Attachments>

○ NRA Management Provisions, Articles 7, 11 and 29

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.7.2

Is the management system of the regulatory body described in a single document (e.g. management system manual)?

Subsidiary Response

○ The Management System of the NRA is described in its Management Rules.

<Attachments>

NRA Management Rules

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.7.3

Does the documentation of the management system include the description of the structure of the regulatory body and of the functional responsibilities, accountabilities, levels of authority and interactions of those managing, performing and assessing work?

Subsidiary Response

○ *As set forth in the NRA Management Rules, Article 6, organizations, responsibilities, authorities and relationships thereof relating to the NRA Management System are documented based on the NRA Establishment Act and its related laws.*

<Attachments>

○ *NRA Management Rules, Article 6*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.7.4

Does the documentation of the management system include the description of the processes and supporting information that explain how work is to be prepared, reviewed, carried out, recorded, assessed and improved?

Subsidiary Response

○ *As provided for in the NRA Management Rules, Articles 29 and 35, the Management System PDCA cycle have been documented.*

<Attachments>

○ *NRA Management Rules, Article 35*

- *NRA Management Provisions, Article 29*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.7.5

Explain how it is ensured that the documentation of the management system of the regulatory body is understandable, legible, readily identifiable and available to all the staff of the regulatory body.

Subsidiary Response

- *As specified in the NRA Management Rules, Articles 21 and 25, the NRA ensures accessibility to Management System-related documents.*

<Attachments>

- *NRA Management Rules, Article 21*
- *NRA Management Rules, Article 25*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.7.6

How does the documentation of the management system reflect the characteristics of the Regulatory Body and its activities and the complexities of regulatory processes and their interactions?

Subsidiary Response

○ *The documentation of the NRA's Management System appropriately reflects the complexity and interrelationships of regulatory processes. Specifically, with regard to the most complex power reactors with a high radiation risk, the NRA refers to the Reactor Regulation Act and related laws, thereby setting interpretative criteria and many guidelines to clarify concepts concerning standards and criteria.*

<Attachments>

○ *the Act on the Regulation of Nuclear Source Material Nuclear Fuel Material and Reactors*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 4.8

Does management at all levels in the regulatory body demonstrate its commitment to the establishment, implementation, assessment and continual improvement of the Management System?

Answer

Yes

Finding

Management at all levels in the regulatory body demonstrates commitment to the establishment, implementation, assessment and continual improvement of the Management System

Response

-

Subsidiary Question 4.8.1

Explain the involvement of the managers at the different levels in the development, implementation and improvement of the management system of the regulatory body.

Subsidiary Response

The NRA stipulates the NRA Management Rules, management policies, mid-term goals and annual strategic plans and requires the senior management of each department and division to set and execute an annual implementation plan, evaluate the results, and make improvements through management review and an internal audit.

The NRA's chairman designates a "Management Promoter ". The chairman provides management promoter with responsibility and authority for establishing, implementing and improving the Management System. The chairman also becomes involved in these processes through management promoter.

<Attachments>

- NRA Management Rules*
- Management policies (NRA's Core Values and Principles)*
- Mid-term goal*

Subsidiary Attachments

B06Nuclear Regulation Authority Mid-term Goal(2015-2020)

E01Nuclear Regulation Authority Management Rules

E02Management Policy(NRA's Core Values and Principles)

Subsidiary Question 4.8.2

Explain how the management of the regulatory body ensures that adequate resources are allocated for the fulfilment of its commitment to the establishment, implementation, assessment and continual improvement of the Management System.

Subsidiary Response

○ *Based on the NRA Management Rules, Article 37, the NRA performs a management review based on the degree of effect on nuclear safety. On the basis of the management review results, the NRA reviews resource allocation for the next fiscal year and onward.*

<Attachments>

○ *NRA Management Rules, Article 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.8.3

Describe how the senior management of the regulatory body develops individual values, institutional values and behavioural expectations to support the implementation of the Management System.

Subsidiary Response

- *The NRA's Core Values and Principles of the NRA Management System have been established as management policies, organizational missions and principles for activities. The NRA's Core Values and Principles were determined by the NRA.*
- *In the "Statement on Nuclear Safety Culture", the NRA has set forth action principles for fostering safety culture. The statement were determined by the NRA.*
- *In the NRA Management Rules, Article 12-3, the NRA requires its divisions and departments to carry out activities for fostering safety culture based on their annual strategic plan. In Article 29-4, the NRA requires the senior management of each department and division to set actions for fostering safety culture in annual implementation plan and to carry them out as well as to promote such actions among staff members.*

<Attachments>

- *NRA Management Rules, Article 12-3 and Article 29*
- *Management policies (NRA's Core Values and Principles)*
- *Statement on Nuclear Safety Culture*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

E02Management Policy(NRA's Core Values and Principles)

E04Statement on Nuclear Safety Culture

Subsidiary Question 4.8.4

Do senior managers of the regulatory body act effectively as role models in the visible promulgation of individual values, institutional values and behavioural expectations?

Subsidiary Response

○ *NRA Management System sets its "NRA's Core Values and Principles" as management policies and sets forth organizational missions and principles for activities.*

○ *Together with NRA Management Rules, the management policies are uploaded to the intranet, which is accessible by any person of the organization. The Rules and management policies are circulated throughout the organization for example, by means of Management System training.*

○ *NRA Management Rules, Article 12-3 and Article 29-4 require the senior management of each department and division to set actions for fostering safety culture in an annual implementation plan and carry them out.*

○ *In the "Statement on Nuclear Safety Culture", the NRA states its determination to exercise leadership in executing actions based on the code of conduct of the statement.*

<Attachments>

○ *Management policies (NRA's Core Values and Principles)*

○ *NRA Management Rules, Articles 12-3 and 29-4*

○ *Statement on Nuclear Safety Culture*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

E02Management Policy(NRA's Core Values and Principles)

E04Statement on Nuclear Safety Culture

Subsidiary Question 4.8.5

Describe how management of the regulatory body, at all levels, communicates to individuals the need to adopt individual values, institutional values and behavioural expectations in order to be able to comply with the requirements of the Management System.

Subsidiary Response

○ In Articles 26 and 29, the NRA requires the senior management of each department and division to set nuclear safety culture-fostering actions in an annual implementation plan and carry them out as well as to promote such actions among staff members by the sharing of their individual sense of value, organizational sense of value, and expectations through communication among them. These activities are checked through management review on the basis of the Management Rules, Article 37.

<Attachments>

○ NRA Management Rules, Articles 26 and 29

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.8.6

Describe how and the extent to which, management at all levels of the regulatory body fosters the involvement of all individuals in the implementation and continual improvement of the Management System.

Subsidiary Response

○ As specified in the NRA Management Rules, Article 2, the NRA Management System is continually operated and improved with every regulatory operation and personnel as targets in principle. Administrators at all levels participates in the implementation and continuous improvement of the Management System through the preparation, implementation, evaluation, and improvement of the annual implementation plan.

<Attachments>

○ NRA Management Rules, Article 2

Subsidiary Attachments

Subsidiary Question 4.8.7

How does senior management of the regulatory body ensure that it is clear when, how and by whom decisions are to be made?

Subsidiary Response

○ *NRA sets forth arbitrary decision Rules in the NRA Administrative Document Management Guideline, Article 24, where the arbitrary decision maker for each case is clarified. This Rules has been uploaded to the intranet to allow it to circulate throughout the organization.*

Question 4.9

Does the senior management of the regulatory body take the expectations of the stakeholders into consideration in the activities and processes of the management system while ensuring that safety is given priority in all regulatory activities?

Answer

Yes

Finding

The senior management of the regulatory body takes the expectations of stakeholders into consideration in the activities and processes of the management system while ensuring that safety is given priority in all regulatory activities

Response

-

Subsidiary Question 4.9.1

Describe how the expectations of stakeholders are considered by senior management in the activities and interactions in the processes of the Management System.

Subsidiary Response

○ *NRA complies with safety standards based on relevant laws. The NRA Management Rules, Article 27 requires that hearings and the exchange of opinions among licensee and outside experts as well as public comment activities be held so that the expectations and opinions of interested parties are taken into account as necessary.*

<Attachments>

- *NRA Management Rules, Article 27*
- *Administrative Procedure Act*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

H11Administrative Procedure Act

Subsidiary Question 4.9.2

Explain how it is ensured that actions aimed at enhancing stakeholder satisfaction would not compromise regulatory functions and responsibilities for safety.

Subsidiary Response

- *NRA carries out regulatory operations according to its management policies and pays attention so that measures for enhancing interested parties satisfactions will not compromise its duties for ensuring regulatory functions and safety.*
- *Currently, the NRA prioritizes the restoration of trust from interested parties inside and outside Japan over the enhancing satisfaction of licensee who are part of its interested parties.*

<Attachments>

- *Management policies, Preamble*

Subsidiary Attachments

E02Management Policy(NRA's Core Values and Principles)

Question 4.10

Has senior management developed the policies of the Regulatory Body?

Answer

Yes

Finding

Senior management has developed the policies of the Regulatory Body.

Response

-

Subsidiary Question 4.10.1

How has it been ensured that these policies are appropriate to the activities of the Regulatory Body?

Subsidiary Response

- *The NRA Management Rules, Article 11 requires the NRA to establish management policies, which can be reviewed and modified through management review when necessary.*
- *NRA has set the NRA's Core Values and Principles as the current "Management policies".*

<Attachments>

- *NRA Management Rules, Article 11*
- *Management policies (NRA's Core Values and Principles)*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

E02Management Policy(NRA's Core Values and Principles)

Subsidiary Question 4.10.2

How it is ensured that the regulatory policies are made known to all the staff of the regulatory body and are properly followed and implemented?

Subsidiary Response

○ *The NRA Management Rules, Article 11 requires the NRA to establish management policies and sets the NRA's Core Values and Principles as its management policies. It also requires that each division and department establish an annual implementation plan based on those "Management policies". According to the NRA Management Rules, Articles 11 and 29-3, each department's and division's personnel shall carry out their duties based on the annual implementation plan.*

○ *In regards to each regulatory policy, the NRA chairman or a committee member shall make that policy public or the chairman shall answer questions from journalists and reporters at press conferences. The NRA makes such regulatory policies available not only to related personnel but also to all personnel through public disclosure or through video footage of such conferences.*

<Attachments>

○ *NRA Management Rules, Articles 11 and 29-3*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.10.3

How are the regulatory policies communicated to the interested parties, including the public?

Subsidiary Response

○ *NRA's management policies are made public together with the NRA Management Rules through its website.*

○ *In regards to each regulatory policy, the NRA chairman or a committee member shall make that policy public or the chairman shall answer questions from journalists and reporters at press conferences. The NRA makes such regulatory policies available not only to*

related inrested parties but also to all inrested parties through public disclosure or through video footage of such conferences.

<Attachments>

o *Management policies (NRA's Core Values and Principles)*

Subsidiary Attachments

E02Management Policy(NRA's Core Values and Principles)

Question 4.11

Has the senior management developed goals, strategies, plans and objectives that are consistent with the policies of the Regulatory Body?

Answer

Yes

Finding

The senior management has developed goals, strategies, plans and objectives that are consistent with the policies of the Regulatory Body.

Response

-

Subsidiary Question 4.11.1

How has the senior management ensured that the goals, strategies, plans and objectives of the Regulatory Body are developed in an integrated manner so that their collective impact on safety is understood and managed?

Subsidiary Response

○ *NRA Management Rules, Articles 11 and 12 require the NRA to develop its management policies, mid-term goals and annual strategic plan and Article 29 requires the administrator of each department and division to develop an annual implementation plan based on said policies, goals and plan. This ensures the integral setting of organizational operations, objectives, strategies, plans and individual goals for understanding and managing general effects on safety.*

○ *NRA Management Rules, Article 4 requires the NRA to establish a Management System effectively integrating management elements that ensure safety in nuclear utilization. To achieve this, responsibility and authority are provided to the "Management Promoter", who integrally manages the establishment, implementation, and improvement of the Management System.*

<Attachments>

○ *NRA Management Rules, Articles 4, 11 and 12*

○ *NRA Management Rules, Article 29*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.11.2

How does senior management ensure that measurable objectives for implementing the goals, strategies and plans are established through appropriate processes at various levels in the Regulatory Body?

Subsidiary Response

○ *As part of the NRA Management Rules, Article 29 requires that the senior management of each division and department must develop an annual implementation plan based on mid-term goals and annual strategic plan.*

○ *As part of the NRA Management Rules, Article 28 stipulates that the senior management of each department and division must establish necessary regulatory operation processes while setting goals required for the operations and setting measurement indicators and analytical methods for achieving goals. Goals and measurement indicators required for regulatory operations are clarified to set measurable objectives.*

<Attachments>

○ *NRA Management Rules, Article 28*

○ *NRA Management Rules, Article 29*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.11.3

How does the senior management ensure that the implementation of the plans is regularly reviewed against the objectives and actions are taken to address deviations from the plans where necessary?

Subsidiary Response

○ *On the basis of the NRA Management Rules, Article 35, the senior management of each department and division evaluates the appropriateness and effectiveness of the operation of the Management System, including the results of the internal audit. When the senior management has found out points to be improved, then the head of that division must immediately take necessary measures.*

- *Matters to be improved (non-conformances) that have been discovered during a internal audit, which is conducted based on the NRA Management Rules, Article 36, are notified to the senior management of each division and department in accordance with internal rules.*
- *As the NRA Management Rules, Article 37 sets forth, the NRA carries out management review annually to evaluate the implementation status and effectiveness of its Management System.*
- *The Secretary-General of NRA and the Director-General for NRA Human Resource Development Center shall perform management and corrective action to the matters to be improved and prevent their recurrence according to internal rule.*

<Attachments>

- *NRA Management Rules, Articles 35 and 36*
- *NRA Management Rules, Article 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.12

Has the senior management of the Regulatory Body taken the ultimate responsibility for ensuring that the Management System is established, implemented, assessed and continually improved?

Answer

Yes

Finding

Senior management of the Regulatory Body has ultimate responsibility for ensuring that the Management System is established, implemented, assessed and continually improved.

Response

-

Subsidiary Question 4.12.1

Describe formal activities of the senior management of the regulatory body that are intended to fulfil its responsibility for ensuring the establishment, implementation, assessment and continuous improvement of the management system.

Subsidiary Response

- *As specified by the NRA Management Rules, Article 7, the NRA develops management policies, mid-term goals and an annual strategic plan and carries out management reviews and resource allocation based on the reviews.*
- *As set forth in the NRA Management Rules, Article 9, the NRA chairman shall designate and provide authority and responsibility to a “Management Promoter ” to establish, implement and improve Management System.*
- *As set forth in the NRA Management Rules, Article 8, the senior executives and managers develop an annual implementation plan, carry out evaluation.*

<Attachments>

- *NRA Management Rules, Article 7*
- *NRA Management Rules, Articles 8 and 9*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.12.2

Is specific responsibility and authority for coordinating the development and implementation of the management system, for reporting on the performance of the management system and the need for improvement, and for resolving any potential conflicts between requirements, assigned to an individual reporting directly to senior management?

Subsidiary Response

- *As set forth in the NRA Management Rules, Article 9, the NRA chairman designates a management promoter, thereby promoting the establishment, implementation and improvement of Management System.*
- *With regard to a potential inconsistencies among requirements, the senior management of each division, department, etc. assumes responsibility and authority for removing such inconsistencies.*
- *For example, inconsistencies among requirements in a department must be dealt with by that department director-general and those in a division must be dealt with by that division director having the responsibility and authority.*
- *With regard to a potential inconsistencies extending beyond one department, the Secretary-General of NRA has the responsibility and authority to resolve such inconsistencies.*

<Attachments>

- *NRA Management Rules, Article 9*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.12.3

What are the arrangements in place to identify and resolve any potential conflicts between the require

ments within the management system?

Subsidiary Response

- *As set forth in the NRA Management Rules, Article 9, the NRA chairman designates a management promoter, thereby promoting the establishment, implementation and improvement of Management System and resolving potential inconsistencies.*
- *On the basis of the NRA Organizational Rules, Article 3, in case an inconsistency has arisen in the organization, the Policy Planning and Coordination Division is authorized to coordinate the matter.*
- *Usually, potential inconsistencies among requirements are identified in daily regulatory operation, but they can also be identified through internal audits based on the NRA Management Rules, Article 36.*

<Attachments>

- *NRA Management Rules, Articles 9 and 36*
- *NRA Organization Ordinance, Article 3*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.12.4

What are the measures in place to ensure that the regulatory body retains overall responsibility for the management system when an external organization is involved in the work of developing all or part of the management system?

Subsidiary Response

○ *As set forth in the NRA Management Rules, Articles 28 and 31, and the internal rules, when the NRA has outsourced its processes, it decides the related management methods and procurement process. The outsourced regulatory organization assumes related responsibility.*

<Attachments>

○ *NRA Management Rules, Article 28*

○ *NRA Management Rules, Article 31*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.13

Has the senior management determined and provided the resources necessary to establish, implement, assess and continually improve the management system?

Answer

Yes

Finding

Senior management has determined and provided the resources necessary to establish, implement, assess and continually improve the management system.

Response

-

Subsidiary Question 4.13.1

How has the senior management determined the amount of resources necessary to carry out the activities of the regulatory body and to establish, implement, assess and continually improve the management system?

Subsidiary Response

○ *With an annual strategic plan reflecting resources necessary on the basis of the results of management review under the NRA Management Rules, Article 37, and with necessary resources including manpower for executing the Management System that was made clear based on NRA Management Rules Article 13 by the senior management of each division and department, the NRA determines resource allocation based on the management according to the degree of effect on nuclear safety as specified in Article 5 and secures a budget, mechanisms and personnel.*

<Attachments>

- *NRA Management Rules, Articles 5 and 13*
- *NRA Management Rules, Article 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.13.2

Explain any arrangements in place for the management of knowledge as a resource of the regulatory body.

Subsidiary Response

○ *NRA Management Rules, Article 15 requires the senior management of each department and division to identify the knowledge necessary to accomplish duties, establish a mechanism for collecting, organizing and utilizing such knowledge and maintain and manage such a mechanism.*

○ *The article also requires the NRA to establish and maintain a mechanism for knowledge management at the NRA Human Resource Development Center and provide support to the center necessary to establish, maintain and manage the said mechanism.*

<Attachments>

○ *NRA Management Rules, Article 15*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.14

Has the senior management ensured that individuals are competent to perform their assigned work and that they understand the consequences for safety of their activities?

Answer

Yes

Finding

Senior management has ensured that individuals are competent to perform their assigned work and understand the consequences for safety of their activities.

Response

○ *NRA's Management System requires the NRA to provide support to promote the understanding and awareness among personnel that their activities are important for nuclear safety.*

Subsidiary Question 4.14.1

How has the senior management of the regulatory body determined the competence requirements for individuals at all levels?

Subsidiary Response

○ *On the basis of National Public Service Act, the NRA sets ability criteria for each class of employees as personnel evaluation standards and judges whether each personnel has appropriate competences.*

○ *Regarding each of the Nuclear Safety Inspectors, Nuclear Facility Inspectors, Senior Specialists for Nuclear Emergency Preparedness, Radiation Inspectors and Physical Protection Inspectors, the NRA has requirements for hands-on experience and training designated by the NRA chairman, etc.*

○ *On the basis of NRA human resource fostering basic policies and the Management Rules, Article 14, the NRA chairman requires the senior management of each division to clarify requirements concerning the knowledge and competences required of personnel to ensure safety in nuclear utilization and to determine the competences of each personnel.*

Moreover, new graduates are employed from among those who passed designated tests among official government tests. A mid-career is employed after their job history in the private sector is checked and that person is found to have basic competences for a NRA personnel.

<Attachments>

- *National Public Service Act*
- *NRA Management Rules, Article 14*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

H15National Public Service Act

Subsidiary Question 4.14.2

What are the arrangements made by the regulatory body for recruiting individuals with appropriate education, skills and experience?

Subsidiary Response

- *Government officials are employed based on National Public Service Act and related rules.*

In compliance with the Law and rules, the NRA employs new graduates from among passers of specific tests (test related to nuclear power engineering, machinery, chemistry, civil engineering, etc.) among government official tests.

With regard to mid-career employees, application conditions such as job history necessary for each operation such as operational safety inspection are presented to applicants and those who satisfy the conditions are selected for employment.

- *When the Incorporated Administrative Agency Japan Nuclear Energy Safety Organization (JNES) was integrated into the NRA, arrangements for employing former JNES employees to the NRA were made based on an Act on the dissolution of the JNES and related laws.*

<Attachments>

- *National Public Service Act*

Subsidiary Attachments

H15National Public Service Act

Subsidiary Question 4.14.3

What are the arrangements for providing training for the staff of the regulatory body in order to achieve and maintain the required level of competence and proficiency and to ensure that they are aware of the importance of their activities and of the way in which these contribute to the achievement of the objectives of the organisation?

Subsidiary Response

○ *As provided for by basic policies for fostering human resources and the Management Rules, Articles 14-1 and 16, the NRA sets competences required of its personnel to accomplish operations at each division and department, and provides the necessary education and trainings to its personnel.*

○ *NRA Human Resource Development Center will take into account the results of the above efforts and of training effectiveness assessment based on the NRA Management Rules, Article 17 to continual improve training programs.*

Moreover, on the basis of the NRA Management Rules, Article 18, the NRA will record the training history of each personnel to use it for supervision of the skills described in the NRA Management Rules, Article 14-2.

In addition, the NRA is making efforts so that its personnel can recognize the importance of their activities and how their activities can contribute to the achievement of organizational goals for example by providing trainings to new graduates and mid-career personnel to teach them NRA's Core Values and Principles, the contents of operations at each division and office, and legal systems, etc.

<Attachments>

○ *NRA Management Rules, Articles 14-1, 14-2 and 18*

○ *NRA Management Rules, Article 16*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.14.4

What are the measures taken by the senior management of the regulatory body in order to ensure that all individuals have the suitable skills, knowledge and experience needed so that they are competent to perform their assigned work?

Subsidiary Response

○ *In order for personnel to acquire relevant skills and experiences, the NRA examines career paths for each personnel.*

○ *In order for all the personnel to obtain skills, knowledge and experiences so that they can accomplish their given duties, the NRA provides resources based on the NRA Management Rules, Article 13, manages skills based on Article 14, and manages knowledge based on Article 15 and provides education and trainings based on Article 16.*

○ *Examples of these efforts are as follows:*

- OJT

- Implementation of trainings for acquiring skills and knowledge necessary for duties and the allocation of necessary budgets

- Open recruitment of employee candidates and employment after screening

<Attachments>

○ *NRA Management Rules, Articles 13, 14, 15 and 16*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.14.5

What are the arrangements for measuring the effectiveness of the actions taken to achieve and maintain the competence of the staff of the regulatory body?

Subsidiary Response

○ *According to the NRA Management Rules, Articles 14, 16 and 17, the NRA is considering identifying competences required of personnel for regulatory operation at each department and division and including Rules concerning the necessary education and training and the assessment of their effectiveness.*

<Attachments>

○ *NRA Management Rules, Articles 14 ,16 and 17*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.15

Does senior management determine, provide, maintain and re-evaluate the infrastructure and the working environment necessary for work to be carried out in a safe manner and for requirements to be met?

Answer

Yes

Finding

Senior management determines, provides, maintains and re-evaluates the infrastructure and the working environment necessary for work to be carried out in a safe manner and for requirements to be met.

Response

-

Subsidiary Question 4.15.1

How have the infrastructure and the working environment necessary for the regulatory work to be carried out safely and efficiently been determined, provided, maintained and re-evaluated?

Subsidiary Response

○ *By means of intra-organizational communication as set forth in the NRA Management Rules, Article 26 and as stipulated in the NRA Management Rules, Article 19-3, the Secretary-General of NRA clarifies, maintains and manages work environment necessary to accomplish duties as required by the rules of the National Personnel Authority. The Secretary-General annually reviews the work environment and takes necessary budgetary measures.*

○ *With regard to infrastructures, the NRA makes it an obligation to specify the necessary materials and equipment in annual implementation plan, as specified in Article 29 of the NRA Management Rules, according to internal rules. Necessary infrastructures are determined during the development of annual implementation plan and supplied and maintained during the implementation of the plan. The results are re-evaluated in annual implementation plan review.*

<Attachments>

○ *NRA Management Rules, Article 26*

○ NRA Management Rules, Article 19

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.16

Has the regulatory body identified and developed the processes of its management system necessary to achieve goals, provide the means to fulfill all regulatory responsibilities and enable regulatory activities to be performed in an effective and efficient manner?

Answer

Yes

Finding

The regulatory body has implemented the management system processes necessary to achieve goals, provide the means to fulfill all regulatory responsibilities and enable regulatory activities to be performed in an effective and efficient manner.

Response

-

Subsidiary Question 4.16.1

Describe how the regulatory body has identified and developed its management system processes (including planning, implementation, assessment and continuous improvement).

Subsidiary Response

○ *On the basis of the NRA Management Rules, Articles 4, 28, 29, 35 and 37, processes necessary for operations are clarified, operation processes are developed, an annual implementation plan is developed and implemented, the Management System is analyzed and assessed, and management review is performed, and the Management System processes are thereby identified and established.*

<Attachments>

○ *NRA Management Rules, Articles 4, 28, 29, 35 and 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.2

How have the sequence and interactions of the processes been determined?

Subsidiary Response

○ *On the basis of the NRA Management Rules, Article 4-1-3, the NRA shall clarify the sequence of and interrelationships among processes.*

<Attachments>

○ *NRA Management Rules, Article 4-1-3*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.3

Describe how the methods that ensure effectiveness of both the implementation and the control of the processes have been determined and implemented.

Subsidiary Response

○ *On the basis of the NRA Management Rules, Article 28, processes necessary for the NRA Management System are established, based on which the business operations are carried out.*

○ *To properly manage the NRA Management System processes, each division and department develops an annual implementation plan on the basis of Article 29, and evaluates the degree of achievement on the basis of Articles 34 and 35, thereby checking the effectiveness of each plan.*

<Attachments>

○ *NRA Management Rules, Articles 28, 29, 34 and 35.*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.4

Have the processes of the management system of the regulatory body been documented?

Subsidiary Response

- *As set forth in the NRA Management Rules, Article 4, the NRA must prepare documents to clarify the following: (1) processes necessary for regulatory operations, (2) internal organizations executing the processes, (3) sequence of and interrelationships among processes, (4) criteria and methods for effectively operating and managing the processes, (5) resources necessary to effectively operate and manage the processes, and (6) monitoring of processes, including measurement, analysis and evaluation.*
- *On the basis of the NRA Management Rules, Article 28, the necessary processes are established, on the basis of which operations are carried out, and operational manuals documenting the operational processes are developed as necessary.*

<Attachments>

- *NRA Management Rules, Article 4*
- *NRA Management Rules, Article 28*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.5

How have the responsibilities and authorities for the development of the processes been assigned?

Subsidiary Response

- *Based on Article 28 of the NRA Management Rules, NRA specifies that the senior management of departments and divisions shall have responsibility and authority for developing processes for the work under their control, and the scope of the work to be under their control is specified in the NRA organization ordinance.*

<Attachments>

- *NRA Management Rules, Article 28*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.6

Have the inputs, process flow and outputs of each process been identified?

Subsidiary Response

- *Based on Article 28 of the NRA Management Rules, NRA is to identify the goals required by the work objectives, and also identify the inputs, process flows, etc. that are required to accomplish the relevant goals.*
- *NRA specifies in the internal rules that regulatory work shall be extend into processes and the outputs for the relevant inputs shall be clearly defined.*
- *For example, the process flow is clearly described as a work flow in "the Analysis Operation Manual for Safety Research" of the Regulatory Standard and Research Department.*
- *In addition, NRA takes appropriate actions, based on Article 5 of the NRA Management Rules, based on a graded approach depending on the level of significance, etc.*

<Attachments>

- *NRA Management Rules, Article 28*
- *NRA Management Rules, Article 5*

Subsidiary Attachments

Subsidiary Question 4.16.7

How have the applicable requirements for each process been identified and specified?

Subsidiary Response

○ *Based on Article 28 of the NRA Management Rules, NRA is to develop work processes. In doing so, NRA has identified those requirements that are clearly defined in the review criteria, guidelines, and others, based on the relevant laws and acts such as the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.*

<Attachments>

○ *NRA Management Rules, Article 28*

Subsidiary Attachments

Subsidiary Question 4.16.8

Describe the extent to which there is effective interaction between interfacing processes. Please give examples.

Subsidiary Response

○ *For example, in the New Regulation Standard Conformity Review, review teams are organized and roles are shared among the team members, while meetings with all members participating are regularly held to ensure effective communication.*

○ For example, the departments responsible for inspection and examination are to attend the hearings on the permission for installation changes of a power reactor and to confirm the details of review; coordination is to be made in advance so that an examination shall be properly conducted in the case installation changes are permitted.

Subsidiary Question 4.16.9

Describe how the activities and interfaces between different individuals or groups involved in a single process are planned, controlled and managed to ensure effective communication and clear assignment of responsibilities.

Subsidiary Response

○ As specified in Article 28 of the NRA Management Rules, the NRA is to ensure a clear assignment of responsibilities in developing work processes, through work allocation among personnel involved in each process as well as clarifying their responsibility and authority; as specified in Article 26, the NRA is to ensure effective communication among individuals involved in processes, through establishing a mechanism for proper sharing of information, exchange of views, etc. that are required to perform the relevant work.

○ For example, in the case that personnel and groups exceeding the scope of departments and divisions are engaged in a single process, a team shall be organized and the team leader shall be responsible for planning, managing, and operating the relevant work. Such an example includes the team for the Conformity Review for Regulation Standards.

<Attachments>

○ NRA Management Rules, Articles 26 and 28

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.10

Describe arrangements that ensure the documentation for each process is consistent with other relevant documents and specifies the records required to demonstrate that the process results have been achieved.

Subsidiary Response

○ *Based on Article 28 of the NRA Management Rules, NRA is to confirm that work processes are consistent with other related documents when developing them; and each work process shall be documented on that basis.*

○ *As specified in Article 28 of the NRA Management Rules, the NRA specifies that records shall be prepared to demonstrate the performance results of effective operation of the management system.*

○ *Based on Article 29 of the NRA Management Rules, the NRA is to set achievement levels to judge the degree of accomplishing the goals, in developing an annual implementation plan of each division, in Article 35 of said Rules, NRA is also to assess whether the achievement level is satisfied or not in performing a self assessment and to make records for them based on Article 35-4.*

<Attachments>

○ *NRA Management Rules, Articles 28, 29 and 35*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.11

How have the process measurement criteria been established and what are the arrangements for monitoring and reporting on the performance of the processes?

Subsidiary Response

○ As specified in Article 28 of the NRA Management Rules, the NRA is to accordingly specify the measurement indicators for achievement criteria in developing a work process, and such indicators shall be specified in manuals that will be prepared as required, in addition to statutory ones.

○ In addition, the NRA as specified in Articles 34 and 35 of the NRA Management Rules, is also to monitor the processes and evaluates the achievement status of work; and the evaluation results will be reported to the Management Promotion Office.

<Attachments>

○ NRA Management Rules, Articles 28, 34 and 35

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.12

How are improvements in processes determined and promoted?

Subsidiary Response

○ As specified in Articles 34 to 42 of the NRA Management Rules, the NRA is to improve the processes through self-assessment, internal audits, and management reviews.

<Attachments>

○ NRA Management Rules, Articles 34 to 42

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.13

Describe how each process, including any subsequent changes to it, is aligned with the goals, strategies, plans and objectives of the regulatory body.

Subsidiary Response

○ *Based on Article 28 of the NRA Management Rules, the NRA specifies that the senior management of departments and divisions shall make the work processes align with the management policies, mid-term goals and annual strategic plans that are developed by NRA, when developing them.*

○ *In addition, the NRA as specified in Article 37 of the NRA Management Rules, is to conduct management reviews on the implementation status of the management system annually on a regular basis, and review the management system including improvements to the processes; the NRA is also to ensure consistency by assessing the necessity for making changes to the required goals so that the management policies, mid-term goals and annual strategic plans should be properly accomplished.*

<Attachments>

○ *NRA Management Rules, Articles 28 and 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.14

How are the responsibilities and authorities for the development of the processes assigned within the management system?

Subsidiary Response

○ *As specified in Articles 6 to 10 of the NRA Management Rules, NRA assigns responsibilities and authority in developing the processes, to the senior management of divisions, based on the Act for Installation and the acts related to other organizations.*

<Attachments>

- *NRA Establishment Act (the Act for Establishment of the NRA)*
- *NRA Management Rules, Articles 6 to 10*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 4.16.15

What verification activities and evaluations are conducted to confirm the adequate performance and ensure the effectiveness of each process and how are the responsibilities for verification specified?

Subsidiary Response

○ *The management system of the NRA as specified in Articles 34, 35, 36, and 37 of the NRA Management Rules, is to perform the monitoring, measurement, analysis and assessment, internal audits of the management system, and management reviews to demonstrate the adequacy and effectiveness of the management system.*

<Attachments>

- *NRA Management Rules, Articles 34, 35, 36, and 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.16

What are the processes and activities within processes for which independent verification activities are required?

Subsidiary Response

○ *The management system of NRA as specified in Articles 34 and 35 of the NRA Management Rules, is to perform the monitoring, measurement, analysis and evaluation to demonstrate the adequacy and effectiveness of the management system. Specifically, this refers to the task of creating inputs for analysis codes in the analysis work.*

<Attachments>

○ *NRA Management Rules, Articles 34 and 35*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.17

How it is ensured that the work performed in each process is carried out in accordance with approved current procedures and instructions that are periodically reviewed to ensure their adequacy and effectiveness?

Subsidiary Response

○ *The management system of the NRA as specified in Article 4-1-4 of the NRA Management Rules, is to clearly specify the approved current procedures and instructions as the criteria for judgment and methods required to perform effective operation and management of the processes; as specified in Article 21 of said Rules, the management system shall also take appropriate measures to ensure availability of the current documents so that the approved current procedures and instructions shall be always available.*

<Attachments>

- *NRA Management Rules, Article 4-1-4*
- *NRA Management Rules, Article 21*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.16.18

How is the control of processes contracted to external organizations identified and addressed in the management system?

Subsidiary Response

○ *Management of the processes within the management system of NRA is to be completely performed by the organizations under the NRA, without being outsourced to external organizations.*

○ *For management of the work processes outsourced to external organizations, the NRA is to manage the procurement process as specified in Article 31 of the NRA Management Rules.*

<Attachments>

○ *NRA Management Rules, Article 28*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.17

Does the regulatory body have a process for the control of documents?

Answer

Yes

Finding

The regulatory body has a process for the control of documents.

Response

-

Subsidiary Question 4.17.1

How is it ensured that document users are aware of, and use the appropriate and correct documents?

Subsidiary Response

○ *As specified in Article 21 of the NRA Management Rules, when preparing or revising and enforcing a document, the NRA is to properly manage its original and always ensure availability of the current version.*

<Attachments>

○ *NRA Management Rules, Article 21*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.17.2

How is it ensured that all individuals involved in preparing, revising, reviewing or approving documents are competent to perform these tasks and have access to appropriate information on which to base their inputs or decisions?

Subsidiary Response

○ *Based on Articles 13, 15, and 16 of the NRA Management Rules, the NRA is to ensure that all individuals involved in preparing, revising, reviewing or approving documents shall be competent to carry out these tasks by performing the Rules of resources, knowledge management, and education and training.*

○ *In identifying the knowledge required to carry out the knowledge management tasks based on Article 15 of the NRA Management Rules, the NRA is to identify the information suitable as the basis for inputs and decision making, and to provide opportunities to learn the method for accessing the information suitable as the basis for inputs and decision making as a part of education and training based on Article 16 of said Rules.*

<Attachments>

○ *NRA Management Rules, Articles 13, 15, and 16*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.17.3

How is it ensured that changes to documents are reviewed and recorded and are subject to the same level of approval as the documents themselves?

Subsidiary Response

○ *The approval (final decision making) process for documents is specified in the management procedures of NRA administrative documents, and NRA is to follow the same process that was taken in approving (or making a final decision) of the original document even when a document is revised.*

○ *Consequently, even when a document is revised, all personnel associated with the document shall assess the changes to revise the document through the approval process.*

Question 4.18

Are specifications for the products of regulatory activities (review and assessment reports, inspection and audit reports, regulatory documents, licences, certificates of approval and authorizations, etc.) defined in accordance with established standards and incorporate the applicable requirements?

Answer

Yes

Finding

Specifications for the products of regulatory activities are defined in accordance with established standards and incorporate the applicable requirements.

Response

-

Subsidiary Question 4.18.1

Describe how products of regulatory activities that interface or interact with each other are identified and controlled.

Subsidiary Response

○ *As specified in Article 4 of the NRA Management Rules, the NRA is to identify works (products) when clearly defining the processes, the sequence between processes, and their interactions that are required to carry out the relevant work; the senior management of departments and divisions shall manage this task as specified in Article 28.*

<Attachments>

○ *NRA Management Rules, Articles 4 and 28*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.18.2

Describe the extent of arrangements in place that ensure all the products of regulatory activities and processes are verified in accordance with specified requirements.

Subsidiary Response

- *As specified in Article 4 of the NRA Management Rules, NRA is to identify individual requirements that should be satisfied by works (products) when clearly defining the criteria for judgment and the method required to perform effective operation and management of processes.*
- *Specifically, the measurement indicators and analysis method are to be planned for work processes as specified in Article 28 of the NRA Management Rules, so that the NRA can monitor and determine if individual requirements are satisfied or not as specified in Article 34 of the NRA Management Rules.*
- *In addition, NRA based on Article 35 of the NRA Management Rules is to perform self-assessment based on the measurement indicators and so on.*

<Attachments>

- *NRA Management Rules, Articles of 4, 28, 34, and 35*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.18.3

How is it ensured that products do not bypass the required verification activities?

Subsidiary Response

- *As specified in Article 4 of the NRA Management Rules, the NRA is to identify individual requirements that should be satisfied by works (products) when clearly defining the criteria*

for judgment and the method required to perform effective operation and management of processes.

○ *Specifically, the measurement indicators and analysis method are to be planned for work processes as specified in Article 28 of the NRA Management Rules, so that the NRA can monitor and determine if individual requirements are satisfied or not as specified in Article 34 of the NRA Management Rules.*

○ *In addition, NRA as based on Article 35 of the NRA Management Rules is to perform self-assessment based on the measurement indicators and so on.*

<Attachments>

○ *NRA Management Rules, Articles 4, 28, 34, and 35*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.18.4

What are the arrangements in place to ensure the identification of the products for their proper use and ensure their traceability?

Subsidiary Response

○ *Since the work (products) carried out by the NRA are prepared for the purpose of work duties and are to be shared within the NRA organizations, these shall be treated as administrative documents, and shall be completely documented as specified in Article 9 of the NRA Administrative Document Management Ordinance.*

○ *As specified in Article 21 of the NRA Management Rules, the NRA is to properly manage the originals and ensure that the current versions are always available as specified in the document rules, in the case of preparing, revising, enforcing of documents.*

○ *In addition, as specified in Article 22 of the NRA Management Rules, the NRA is to ensure that revised documents are managed so that the revised parts can be easily identified and*

the date of revision is clearly described to differentiate the revised documents from the old ones, in order to ensure traceability.

<Attachments>

- *NRA Management Rules, Article 21*
- *NRA Management Rules, Article 2*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.18.5

What are the arrangements in place to ensure prevent loss, deterioration or inadvertent use of products?

Subsidiary Response

- *Based on Article 28 of the NRA Management Rules , the senior management of departments and divisions are to plan the processes necessary for carrying out the work and manage the work, and determine the type of documents and records as well as the method of management for each work, depending on individual works.*
- *Since the works (products) carried out by NRA are prepared for the purpose of functions and are to be shared within the NRA organizations, they shall be treated as administrative documents, and shall be completely documented as specified in Article 9 of the NRA Administrative Document Management Rules.*
- *Through the document management specified in Articles 22 to 25 of the NRA Management Rules, appropriate measures are to be taken to prevent disappear, deterioration, or inadvertent use of works (products).*

<Attachments>

- *NRA Management Rules, Articles 9, 20 to 25, and 28*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.19

Has the regulatory body ensured that records are specified in the process documentation and that they are controlled?

Answer

Yes

Finding

Regulatory body records are specified in the process documentation and are controlled.

Response

-

Subsidiary Question 4.19.1

What are the arrangements to ensure that all records are readable, complete, identifiable and easily retrievable?

Subsidiary Response

○ *Based on Article 24 of the NRA Management Rules, the NRA is to manage all documents that are selected by the senior management of departments or divisions to be recorded in a legible, easily identifiable and retrievable way, as specified in Article 25 of the NRA Management Rules.*

In addition, in the preparation procedures for operation manual, the NRA specifies that the operation manual shall prescribe the identification and management of documents required for the work assigned to individual divisions and the records to be kept for the purposes of work. Further, arrangements are carried out through training or discussion held in the relevant divisions.

<Attachments>

○ *NRA Management Rules, Articles 24 and 25*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.19.2

How are retention times of records established to be consistent with statutory requirements and knowledge management obligations of the regulatory body?

Subsidiary Response

○ *Since the records specified by the senior management of departments or divisions to be recorded, based on Article 24 of the NRA Management Rules, are prepared for the purpose of work duties and are to be shared within the NRA organizations, these shall be treated as administrative documents, based on the NRA Administrative Document Management Rules.*

○ *Pursuant to the criteria for retention time for administrative documents specified in "the Guideline for Administrative Document Management (determined by the Prime Minister), Appendix 1", based on the NRA Administrative Document Management Rules, the document*

manager (the senior management of individual divisions and offices) is to establish the retention time for administrative documents for each record.

For example, for inspection tasks, the documents associated with important background of licensing are to be retained for five years after the relevant licensing loses its validity. Incidentally, the retention time can be extended while the administrative document is necessary for work despite the above mentioned statement.

<Attachments>

- *NRA Management Rules, Article 24*
- *NRA Document Management Guide*
- *the Guideline for Administrative Document Management (determined by the Prime Minister) Appendix 1*
- *NRA Administrative Document Management Rules*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.19.3

Is media used for records suitable to ensure that the records are readable for the duration of the retention times specified for each record?

Subsidiary Response

- *As specified in Article 25 of the NRA Management Rules, NRA requests the senior management of departments and divisions as the record manager to manage the records in a legible, easily identifiable and retrievable way; in addition, for storing and retaining the records, consideration shall be given to the impacts from deterioration and disapper due to the properties of the medium, as well as the impacts by human-caused disasters and natural disasters.*

○ *NRA does not impose limitations on the type of recording medium; in practice, it uses paper or electronic media depending on the characteristics of the relevant record.*

<Attachments>

○ *NRA Management Rules, Article 25*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.20

Does the regulatory body ensure that its suppliers of products are selected on the basis of specified criteria and that their performance is evaluated?

Answer

Yes

Finding

The regulatory body ensures that its suppliers of products are selected on the basis of specified criteria and that their performance is evaluated.

Response

-

Attachments

Subsidiary Question 4.20.1

How are purchasing requirements developed and specified in procurement documents?

Subsidiary Response

○ As specified in Article 32 of the NRA Management Rules, the NRA specifies that the procurement information required for agreements shall be described in specifications that are prepared according to the prescriptions in the accounting rules, and the following items shall accordingly be described as procurement requirements.

- 1. Requirements for work contents, and procedures, and for the approval of outcomes*
- 2. Requirements for the eligibility of personnel*
- 3. Requirements for the management systems*
- 4. Technical requirements such as applicable laws and regulations and other necessary matters*

<Attachments>

- NRA Management Rules, Article 32*

Subsidiary Attachments

Subsidiary Question 4.20.2

How is it ensured that evidence that products meet the requirements is available to the Regulatory Body before the products are used?

Subsidiary Response

○ *To complete Rules received from procurement agreements and other items, the NRA specifies, under Article 33 of the NRA Management Rules, that the senior management of divisions shall take necessary actions such as necessary inspection, monitoring, and so on, by confirming that the procured goods and services meet the given requirements according to the accounting rules. In addition, the NRA specifies that also for procurement contracts and other areas, the relevant inspections shall be successfully passed so that an agreement with the contract partner can be achieved in advance to ensure effectiveness.*

<Attachments>

○ *NRA Management Rules, Article 33*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.20.3

Are the requirements for reporting and resolution of non-conformances specified in the procurement documents?

Subsidiary Response

○ *NRA specifies that if a difference from the contract should be found as a result of inspections stated in 20.2 above, actions such as reworking and additional deliveries shall be taken according to the accounting rules; and in practice, the agreements of procurement and others shall also give instructions for the relevant actions, so that such actions can be properly taken.*

○ In this regard, Article 32 of the NRA Management Rules requests that "the requirements for the management system" for the suppliers be described as required.

<Attachments>

○ NRA Management Rules, Article 32

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.21

Is information relevant to safety, health, environmental, security, quality and economic related goals communicated to individuals in the Regulatory Body and, where necessary to other stakeholders?

Answer

Yes

Finding

Information relevant to safety, health, environmental, security, quality and economic related goals is communicated to individuals in the Regulatory Body and, where necessary to other stakeholders.

Response

-

Subsidiary Question 4.21.1

How is information relevant to safety, health, environmental, security, quality and economic related goals communicated to individuals in the Regulatory Body and, where necessary to other stakeholders?

Subsidiary Response

- *In the NRA management system, the NRA is to establish communication for information related to safety, health, environment, security, and quality information through communication between individuals based on Article 26 of the NRA Management Rules, and through communication with stakeholders based on Article 27 of the NRA Management Rules.*
- *Reply on a specific method for communicating with interested parties is given in SQID9.1.*

<Attachments>

- *NRA Management Rules, Article 26*
- *NRA Management Rules, Article 27*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.21.2

Describe the formal and informal communication mechanisms concerning implementation and effectiveness of the management system between the various levels and functions of the regulatory body.

Subsidiary Response

○ *The NRA management system stipulates, as specified in Article 26 of the NRA Management Rules, that information sharing and exchange of views between personnel shall be ensured in regards to the effectiveness of the management system.*

○ *Specifically, as specified in the internal rules, as well as in management reviews, the NRA is to establish communication between the parties concerned, as required, in the management committee, management meetings of departments, management meetings of divisions, and also in meetings and discussions related to individual works.*

<Attachments>

○ *NRA Management Rules, Article 26*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.22

Does the regulatory body have in place a process for the management of its organisational changes?

Answer

Yes

Finding

The regulatory body has implemented a process for the management of its organisational changes.

Response

-

Subsidiary Question 4.22.1

Describe arrangements in place that ensure organisational changes are properly evaluated, classified according to their importance and justified.

Subsidiary Response

○ *To make organizational changes in order to add new works, NRA shall ensure the establishing of a mechanism by assessing the amount of resources and an organizational system required to accomplish the relevant works, and make necessary organizational changes.*

○ *For organizational changes within the NRA, the NRA shall ensure the establishment of a mechanism by arranging priority policies for the next year, assessing the necessary organizational changes.*

○ *In this regard, NRA stipulates in Article 4-1-8 of the NRA Management Rules that "the impact from the relevant organizational changes shall be considered, and necessary actions shall be taken."*

<Attachments>

○ *NRA Management Rules, Article 4-1-8*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.23

Does the regulatory body monitor and measure the effectiveness of its management system to confirm the ability of the processes to achieve the intended results and to identify opportunities for improvement?

Answer

Yes

Finding

The regulatory body monitors and measures the effectiveness of its management system to confirm the ability of the processes to achieve the intended results and to identify opportunities for improvement.

Response

-

Subsidiary Question 4.23.1

Describe the arrangements for monitoring and measuring the effectiveness of the management system of the regulatory body to confirm the ability of the processes to achieve the intended results and to identify opportunities for improvement.

Subsidiary Response

○ As specified in Article 34 of the NRA Management Rules, the NRA is to perform monitoring and measurement using the following means to monitor or measure the adequacy and effectiveness of the management system.

1) Status of achievement of requirements for detail implementing items

2) Results of evaluation by a committee etc. consisting of appointed academic experts and technical experts

3) Information obtained from information sharing and opinion exchange with interested parties, etc.

4) Results of the internal audit

○ In addition, as specified in Article 37 of the NRA Management Rules, the NRA ensures monitoring and measurement of the implementation status and effectiveness of the management system through management reviews.

<Attachments>

○ NRA Management Rules, Articles 34 and 37

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.24

Does senior management and management at all other levels in the regulatory body carry out self-assessment to evaluate the performance of work and the improvement of the safety culture?

Answer

Yes

Finding

Senior management and management at all other levels in the regulatory body carry out self-assessment to evaluate the performance of work and the improvement of the safety culture

Response

-

Subsidiary Question 4.24.1

Prior to this IAEA methodology for self-assessment, how has senior management and management at all other levels in the regulatory body carried out self-assessment to evaluate the performance of work and the improvement of the safety culture?

Subsidiary Response

○ *NRA has conventionally implemented assessment of NRA policies based on the statutory policy assessment system; in addition, NRA has conducted post-inspections of budget implementation status of the previous year, based on the administrative work review system, to identify details and objectives of the work, results, the flow of funds, and inspection results.*

○ *So far, a safety culture assessment has not been performed.*

○ *Since the NRA Management Rules was enforced in October, 2014, the NRA intends in the future, based on Article 35-2 of the NRA Management Rules, to evaluate the adequacy and effectiveness of the management system in individual departments and divisions. In doing so, the NRA intends to perform activities for fostering a safety culture and to evaluate the results of such activities.*

<Attachments>

○ *NRA Management Rules, Article 35-1-2*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.24.2

What guidelines are used by the managers in the performance of self-assessments and what is the frequency of the self-assessments performed?

Subsidiary Response

○ *Based on Article 35 of the NRA Management Rules and the internal rules, the NRA is to make assessments from the viewpoint of whether matters to be improved, such as violation of laws and acts, are discovered or not, whether the work accomplishment criteria is met or not and so on. Self assessments are to be carried out twice a year.*

<Attachments>

○ *NRA Management Rules, Article 35*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.25

Does the regulatory body have arrangements for independent assessments to be conducted regularly?

Answer

Yes

Finding

The regulatory body has arrangements for independent assessments to be conducted regularly.

Response

-

Subsidiary Question 4.25.1

Describe any independent assessments conducted to evaluate the effectiveness of processes in meeting and fulfilling the goals, strategies, plans and objectives of the regulatory body.

Subsidiary Response

○ *As specified in Article 36 of the NRA Management Rules, during the internal audits for the management system, the NRA is to assess matters associated with the progress of annual implementation plans, and the matters associated with the status of achievement of requirements for detail implementing items.*

<Attachments>

○ *NRA Management Rules, Article 36*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.25.2

Describe any independent assessments conducted to determine the adequacy of work performance and leadership within the regulatory body.

Subsidiary Response

○ *Based on National Public Service Act , the NRA is to assess individual work performance by grasping the competence the individual demonstrated and the performance achieved to accomplish their work; in doing so, the NRA shall conduct assessments from the viewpoint of leadership such as the ability to lead an organization.*

○ *As specified in Article 36 of the NRA Management Rules, NRA is to during the internal audit for the management system, assess matters associated with leadership, and also assess the leadership of individuals engaged in the work, if possible, during the conducting of assessments of the adequacy and effectiveness of the work.*

<Attachments>

○ *National Public Service Act*

○ *NRA Management Rules, Article 36*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

H15National Public Service Act

Subsidiary Question 4.25.3

Describe any independent assessments conducted to evaluate the safety culture of the regulatory body.

Subsidiary Response

○ *As specified in Article 36 of the NRA Management Rules, the NRA management system is to conduct assessments of matters associated with the fostering of safety culture during the internal audit, and as specified in Article 29-4 of the NRA Management Rules, the activities to promote the fostering of a safety culture are to be assessed during the internal audit.*

<Attachments>

○ *NRA Management Rules, Article 29-4 and Article 36*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.25.4

Describe any independent assessments conducted to identify opportunities for improvement in the regulatory body's facilities, resources, functions and activities.

Subsidiary Response

○ *The NRA Management System as specified in Article 36 of the NRA Management Rules, is to identify matters to be improved for the resources, functions, and activities of the regulatory body by assessing during the internal audit of the management system, those matters relating to the progress status of annual strategic plans and annual implementation plans of departments and divisions, matters relating to the status of accomplishment of individual work requirements, and matters relating to the adequacy of resources required to accomplish individual work requirements and annual implementation plans.*

<Attachments>

○ *NRA Management Rules, Article 36*

Subsidiary Attachments

Subsidiary Question 4.25.5

Is an organisational unit within the regulatory body responsible for conducting independent assessments? If so, describe how it is ensured that the unit has sufficient authority for discharging its responsibilities.

Subsidiary Response

○ *As specified in Article 9 of the NRA Management Rules, the Chairman of NRA assigns responsibility and authority to those management promoter regarding establishment, implementation, and promotion for improvement of the management system. For example, the management promoter have the authority to decide the documents relating to the management system.*

○ *Especially for the internal audit, as specified in Article 36 of the NRA Management Rules, the management promoter are to conduct the internal audit on behalf of the NRA, and have authority to decide the documents relating to the management system by obtaining approval from Secretary-General of NRA, according to the NRA Administrative Document Management Procedures.*

<Attachments>

○ *NRA Management Rules, Articles 9 and 36*

Subsidiary Attachments

Subsidiary Question 4.25.6

Has it been ensured that individuals conducting independent assessments do not assess their own work? Describe the relevant arrangements for ensuring this.

Subsidiary Response

○ *NRA stipulates in the internal rules that the persons conducting the internal audit of the management system shall not perform assessment of their own work.*

Subsidiary Question 4.25.7

Describe how senior management evaluates the results of independent assessments, takes any necessary actions, and records and communicates their decisions and reasons.

Subsidiary Response

○ *As specified in the internal rules, the NRA stipulates that the results of the internal audit of the management system shall be reported to the management committee consisting of senior executives, and shall be assessed by the management system.*

○ *As specified in Article 37 of the NRA Management Rules, the NRA is to conduct management reviews by reviewing the information about the assessment of the progress status of annual strategic plans and other information contributing to the assessment of the management system and by making decisions pursuant to the management review result. The NRA is to reflect those results in the annual strategic plan of the next year.*

<Attachments>

○ *NRA Management Rules, Article 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.26

Are management system reviews conducted at planned intervals to ensure the continuing suitability and effectiveness of the management system and its ability to enable the accomplishment of the objectives of the regulatory body?

Answer

Yes

Finding

Management system reviews are conducted at planned intervals to ensure the continuing suitability and effectiveness of the management system and its ability to enable the accomplishment of the objectives of the regulatory body.

Response

-

Subsidiary Question 4.26.1

What is the scope and frequency of the management system reviews?

Subsidiary Response

○ *As specified in Article 2 of the NRA Management Rules, the scope of the management reviews shall be applied to all works performed by NRA.*

○ *As specified in Article 37 of the NRA Management Rules and the internal rules, the NRA is to regularly conduct management reviews in the NRA and the management committee annually.*

<Attachments>

- *NRA Management Rules, Article 2*
- *NRA Management Rules, Article 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.26.2

How do the management system reviews make use of outputs from all forms of assessment?

Subsidiary Response

- *Conducting management reviews of NRA is stipulated in Article 37 of the NRA Management Rules and the internal rules.*
- *Specifically, based on Article 35 of the NRA Management Rules, the senior management of departments and divisions (directors) shall review assessment results for the status of work accomplishment, the results of internal audits, and the status of occurrence of matters to be improved in the management committee, and in addition, the management committee shall review some important outputs from meetings. NRA requests that the management system shall be reviewed, including preparation of the next year's annual strategic plan, improvement of the management system and its processes, improvement of work associated with requirements for detail implementing items, and necessary resources.*

<Attachments>

- *NRA Management Rules, Articles 35 and 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.26.3

How do the management system reviews cover and address the results delivered and objectives achieved by the regulatory body and its processes?

Subsidiary Response

○ *Based on Article 37-2 of the NRA Management Rules, the NRA is to review the assessment of the progress status of annual strategic plans in line with mid-term goals in the venue for management reviews, and in order to contribute to the assessment, the NRA shall also review the implementation status of work in the management committee as specified in the internal rules, to contribute to the assessment of the implementation status of the management system and its effectiveness.*

<Attachments>

○ *NRA Management Rules, Article 37-2*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.26.4

How do the management system reviews cover and address the non-conformances identified and the corrective and preventing actions taken to solve them?

Subsidiary Response

○ *Based on Article 37-2 of the NRA Management Rules, the NRA is to review the assessment of the progress status of annual strategic plans in the venue for management reviews, and in order to contribute to the assessment, NRA is also to review the management of matters to be improved, the implementation status of corrective actions and preventive actions, as specified in the internal rules, to contribute to the assessment of the implementation status of the management system and its effectiveness in the process of conducting management reviews.*

○ *In addition, based on Article 37 of the NRA Management Rules, pursuant to the management review results, the NRA is to direct the Secretary General to reflect the review results of the management system in preparation of the next year's annual strategic plan.*

<Attachments>

○ *NRA Management Rules, Article 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.26.5

How do the management system reviews take account of lessons learned from other organisations?

Subsidiary Response

○ *Based on Article 37-2 of the NRA Management Rules, the NRA is to review the assessment of the progress status of annual strategic plans in the venue for management reviews, and in order to contribute to the assessment, NRA is also to review as specified in the internal rules, the proposal for improvement, including the lessons obtained from other organizations, in the management committee, to contribute to the assessment of the*

implementation status of the management system and its effectiveness in the process of conducting management reviews.

<Attachments>

- *NRA Management Rules, Article 37-2*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.26.6

How do the management system reviews address the opportunities for improvement?

Subsidiary Response

○ *Based on Article 35 of the NRA Management Rules, NRA specifies that the senior management of departments and divisions (directors) shall review (analyze and assess) the achievement status of requirements for detail implementing items and the matters to be improved for which the work objectives could not be achieved, and identify the improved matters.*

○ *In addition, based on Article 37-2 of the NRA Management Rules, NRA is to review the assessment of progress status of annual strategic plans and improve them in the venue of management reviews. In order to contribute to the assessment, the NRA is to review as specified in the internal rules, the problems and proposal for improvement in the management committee, to contribute to the assessment of the implementation status of the management system and its effectiveness in the process of conducting management reviews.*

<Attachments>

- *NRA Management Rules, Article 35*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.26.7

How do the management system reviews identify weaknesses and obstacles and thereafter evaluate these obstacles in order to remedy the weaknesses in a timely manner?

Subsidiary Response

○ *NRA is to identify weaknesses and obstacles through the analysis and assessment based on Article 35 of the NRA Management Rules and the internal audit based on Article 36 of said Rules.*

○ *On that basis, the NRA as specified in the internal rules, is to assess the weaknesses and obstacles in the management committee, based on the reports from departments as well as the achievement status of work and proposals for improvement.*

○ *In addition, based on Article 37 of the NRA Management Rules, the NRA is to conduct management reviews and pursuant to the review results, and to direct Secretary General of NRA to reflect the review results of the management system in preparation of the next year's annual strategic plan.*

<Attachments>

○ *NRA Management Rules, Articles 35, 36, and 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.26.8

How do the management system reviews identify whether there is a need to make changes to or improvements in policies, goals, strategies, plans, objectives and the processes?

Subsidiary Response

○ *NRA is to identify if there is a need for making changes to or to improve individual goals and processes through analysis and assessment based on Article 35 of the NRA Management Rules and the internal audit based on Article 36 of said Rules.*

○ *In addition, as specified in Article 37 of the NRA Management Rules and in the internal rules, the NRA is to include the assessment of the need for changing the goals required to accomplish the management policies, mid-term goals, and annual strategic plans in the assessment with management reviews. If there is a need to change priorities of measures according to the changes in circumstances, the NRA is to identify if there is a need for changing or improving the policies, goals, and programs.*

<Attachments>

○ *NRA Management Rules, Articles 35, 36, and 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 4.27

Does the regulatory body have arrangements for the management of non-conformances within its management system?

Answer

Yes

Finding

The regulatory body has arrangements for the management of non-conformances within its management system.

Response

-

Subsidiary Question 4.27.1

Describe how non-conformances are defined in relation to the activities and processes of the regulatory body and the arrangements in place to identify non-conformances, determine their causes and take remedial actions to prevent their recurrence.

Subsidiary Response

○ *As specified in Article 38 of the NRA Management Rules, the NRA defines matters to be improved as follows:*

- 1) Any matter that violates the laws and regulations or which may result in a legal violation*
- 2) Any matter whereby the requirements for detail implementing items are not achieved*
- 3) In addition to the preceding items, any items deemed necessary by the management promoter*

○ *In addition, based on Article 40 of the NRA Management Rules, the NRA stipulates that the Secretary General of the NRA and Director General for the NRA Human Resource Development Center shall manage the procedures for identifying the causes of matters to be improved, and manage responsibility and authority associated with making decisions and implementing the necessary corrective actions.*

○ *Specifically, in accordance with the internal rules, the NRA is to identify matters to be improved, determine the causes, and take necessary corrective actions to prevent recurrence.*

○ *In addition, the analysis and assessment that are performed by the senior management of departments and divisions based on Article 35 of the NRA Management Rules may produce opportunities to identify those matters to be improved.*

<Attachments>

○ *NRA Management Rules, Article 38*

○ *NRA Management Rules, Articles 35 and 40*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.27.2

How are processes and products that do not conform to specified requirements identified, segregated, controlled, recorded and reported at an appropriate level of management within the regulatory body?

Subsidiary Response

○ *In accordance with the NRA Administrative Document Management Procedures, the NRA stipulates the process for approving (making final decisions) of documents, and that the document meets the required criteria depending on the work.*

○ *In addition, as specified in Article 39 of the NRA Management Rules and in the internal rules, the NRA stipulates that if an individual should discover a matter to be improved or receive such information, then the individual shall promptly report that to the directors of the divisions (managers), and the directors of the divisions (managers) shall identify, manage, and record the matters to be improved.*

<Attachments>

○ *NRA Management Rules, Article 39*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.27.3

How are corrective actions for eliminating non-conformances in regulatory activities or processes determined and implemented?

Subsidiary Response

○ *As specified in Article 40 of the NRA Management Rules, the NRA stipulates the procedures for deciding and implementing corrective actions in the internal rules.*

<Attachments>

○ *NRA Management Rules, Article 40*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.27.4

Describe preventive actions taken to eliminate the causes of potential non-conformances in regulatory activities or processes.

Subsidiary Response

○ As specified in Article 41 of the NRA Management Rules and in the internal rules, the NRA is to perform the following items as preventive actions.

1) To determine any potential matter to be improved and the cause leading to that matter

2) To evaluate the necessity for preventive actions

3) To determine and implement the necessary preventive actions

4) To record the results of implemented preventive actions

5) To evaluate the effectiveness of implemented preventive actions

<Attachments>

○ NRA Management Rules, Article 41

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.27.5

Describe arrangements for monitoring and reporting the status and effectiveness of all corrective and preventive actions to the management at an appropriate level in the organisation.

Subsidiary Response

○ As specified in the internal rules, the senior management of divisions are to manage the status of implementation and the effect of corrective actions and preventive ones, prepare reports of corrective actions and those of preventive actions, and report them to the senior management of departments and management promoter.

<Attachments>

○ NRA Management Rules, Articles 40 and 41

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.27.6

Describe arrangements in place to identify any potential non-conformances that could detract from the organization's performance.

Subsidiary Response

○ *As specified in the internal rules, the NRA is to identify potential matters to be improved.*

Question 4.28

Does the regulatory body have arrangements in place for the improvement of its management system?

Answer

Yes

Finding

The regulatory body has arrangements in place for the improvement of its management system.

Response

-

Subsidiary Question 4.28.1

Describe how opportunities for improvement of the management system are identified and how actions to improve the processes are selected, planned and recorded.

Subsidiary Response

○ *As specified in Article 42 of the NRA Management Rules, NRA is to continual improve the effectiveness of the management system through self-assessment of annual implementation plans, review of the management committee, management reviews, and the internal audit of the management system.*

○ *NRA is to select improvement actions in the self-assessment of annual implementation plans; these are to be planned in the next year's implementation plan and recorded.*

<Attachments>

○ *NRA Management Rules, Article 42*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.28.2

Describe the extent of arrangements to ensure that improvement plans are supported by the provision of adequate resources.

Subsidiary Response

○ *The NRA management system as specified in Article 37 of the NRA Management Rules, is to review the management system including necessary resources based on the management review results.*

○ *The senior management of departments and divisions, based on Article 13 of the NRA Management Rules, are to clearly specify the human resources required to implement the improvement program, and promptly secure the resources.*

<Attachments>

○ *NRA Management Provisions, Articles 13 and 37*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Subsidiary Question 4.28.3

How are the actions for improvement monitored through to their completion and what are the arrangements for checking the effectiveness of the improvement?

Subsidiary Response

○ *In regards to the improvement program established for corrective actions and preventive actions, the management system of the NRA stipulates that, as specified in the internal rules, the senior management of divisions shall confirm the effectiveness of improvement measures by managing and monitoring the improvement program and confirming the effect of corrective actions, and so on.*

○ *When making more autonomous improvements instead of management of matters to be improved, the NRA is to establish improvement measures as a goal in annual implementation plans based on Article 28 of the NRA Management Rules, specify the monitoring indices as required, and then confirm the effectiveness of improvements in the analysis and evaluation, based on Article 35 of the NRA Management Rules.*

○ *NRA shall as specified in the internal rules, perform audits of matters relating to the improvement measures, in the internal audit.*

○ *In addition, the NRA pursuant to the management review results, shall reflect the review results in the next year's annual strategic plan.*

<Attachments>

○ *NRA Management Rules, Articles 28 and 35*

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

OUTCOMES OF THE SELF-ASSESSMENT FOR EMERGENCY PREPAREDNESS AND RESPONSE

Module: Basic Primary responsibilities of the regulatory body (RB)

Findings

Question 1.1

Is it the responsibility of the regulatory body to ensure that on-site (operator's) emergency arrangements provide a reasonable assurance of an effective response?

Answer

Yes

Finding

The regulatory body is responsible to ensure that on-site (operator's) emergency arrangements provide a reasonable assurance of an effective response.

Response

-

Subsidiary Question 1.1.1

Describe the scope of the regulatory mandate of the Regulatory Body (RB) over emergency preparedness and response for licensees involved in nuclear, radiological and transport activities.

Subsidiary Response

Nuclear facilities: The Nuclear Regulation Authority (hereinafter referred to as the “NRA”) obligates each licensee to prepare a plan for emergency preparedness and response (hereinafter referred to as Nuclear Operator’s EPR plan) for each place of activity and review each plan every year. A licensee must coordinate appropriately with the government and related municipalities when preparing or revising Nuclear Operator’s EPR plan. In addition, the NRA requires each licensee to report the results of emergency exercises. When the NRA finds in that report that the exercise was not adequate for preventing or mitigating a nuclear disaster, it can order the licensee to improve the exercises and take other necessary measures. The NRA thus has authority over licensees’ planning, implementation, and improvement for EPR.

In other words, the Act on Special Measures Concerning Nuclear Emergency Preparedness (hereinafter referred to as the Nuclear Emergency Act) requires each licensee to develop an Nuclear Operator’s EPR plan based on Article 7, to establish a nuclear disaster prevention organization based on Article 8, to designate a nuclear emergency preparedness manager based on Article 9 and to secure radiation-measuring equipment and other necessary materials and components based on Article 11. The “Order Concerning Nuclear Operator’s EPR Plan and Others that should be Prepared by Nuclear Operators Pursuant to the Act on Special Measures Concerning Nuclear Emergency Preparedness” (hereinafter referred to as the Order for Nuclear Operator’s EPR plan) provides the details of these requirements, and the NRA confirms the compliance with the requirements based on the “Viewpoints in reviewing the Nuclear Operator’s EPR plan” (hereinafter referred to as the Guide for Nuclear Operator’s EPR plan).

Moreover, the Nuclear Emergency Act, Article 13-2 requires each licensee to carry out exercises, report their results, improve exercise methods and take necessary measures when the reported results are insufficient to meet its needs.

In addition, the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (hereinafter referred to as the Reactor Regulation Act), Article 43-3-20 may enable the NRA to require the suspension of operation or the revocation of an establishment permit when an order based on these provisions is violated.

Radiation facilities: Radiation Hazards Prevention Act, its cabinet order, ordinance, and related notifications (hereinafter, referred to as “the Radiation Hazards Prevention Act and its Ordinances”) require licensees and registrants (hereinafter referred to as “authorized operators”) to notify the accidents on radiation sources (e.g. theft or loss) and to develop measures to be taken (e.g. emergency measures, notification to the competent authorities) in the case of disaster (e.g. earthquake or fire) and other emergencies. Authorized operators shall include these measures in their Radiation Hazards Prevention Program and submit it to the NRA.

<Attachments>

Nuclear Emergency Act, Article 7

Nuclear Emergency Act, Article 8

Nuclear Emergency Act, Article 9

Nuclear Emergency Act, Article 11

Nuclear Emergency Act, Article 13-2

Order for Nuclear Operator's EPR plan

Guide for Nuclear Operator's EPR plan - Nuclear Emergency Act, Article 7

Guide for Nuclear Operator's EPR plan - Nuclear Emergency Act, Article 30

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1) item (iii)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vi)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (viii)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (x)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (xi)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (xiv)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (xv)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (xvi)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (2), item (i)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (2), item (ii)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (2), item (iii)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (2), item (iv)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (2), item (v)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (2), item (vi)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (2), item (vii)

Reactor Regulation Act, Article 43-3-20, paragraph (2), item (xxii)

Radiation Hazards Prevention Act, Articles 21, 32 and 33

Radiation Hazards Prevention Ordinance, Articles 21 and 29

Subsidiary Attachments

C02 Nuclear Emergency Act

C09 Order for Nuclear Operator's EPR plan

C10 Guide for Nuclear Operator's EPR plan

C15 Reactor Regulation Act (For SARIS Module 3)

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.1.2

Do the regulations clearly state the role of the licensees in EPR?

Subsidiary Response

Nuclear facilities: The roles of these operators have been clearly stipulated.

In other words, the Nuclear Emergency Act requires each licensee to fulfill its responsibilities for prevention and mitigation of nuclear disaster based on its Article 3, to develop Nuclear Operator's EPR plan based on its Article 7, to establish a nuclear disaster prevention organization based on Article 8, to designate a nuclear emergency preparedness manager based on Article 9, to ensure notification obligation by nuclear emergency preparedness manager based on Article 10, and to secure radiation-measuring equipment and other necessary materials and components based on Article 11.

The Reactor Regulation Act, Article 57-9 provides duties for disaster prevention.

Radiation facilities: The roles of authorized operators have been clearly stipulated.

The Radiation Hazards Prevention Act and its Ordinances require each operator to take necessary measures such as for mitigation, evacuation, and notification, during an emergency. Moreover, each operator must stipulate, in its Radiation Hazards Prevention Program, measures to be taken during a disaster or risk such as an earthquake and fire and report them to the NRA.

<Attachments>

Nuclear Emergency Act, Article 3

Nuclear Emergency Act, Article 7

Nuclear Emergency Act, Article 8

Nuclear Emergency Act, Article 9

Nuclear Emergency Act, Article 10

Nuclear Emergency Act, Article 11

Reactor Regulation Act, Article 57-9

Radiation Hazards Prevention Act, Articles 21, 32 and 33

Radiation Hazards Prevention Ordinance, Articles 21 and 29

Subsidiary Attachments

C02 Nuclear Emergency Act

C15 Reactor Regulation Act (For SARIS Module 3)

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.1.3

Is this consistent with the division of roles and responsibilities in the national EPR framework?

Subsidiary Response

Nuclear facilities and Radiation facilities: The roles of each licensee are provided to be consistent with the division of roles and responsibilities in the national EPR framework on the basis of the Nuclear Emergency Act and the Radiation Hazards Prevention Act.

<Attachments>

Nuclear Emergency Act, Article 4, paragraph (2)

Nuclear Emergency Act, Article 4, paragraph (3)

Radiation Hazards Prevention Act, Articles 32 and 33

Radiation Hazards Prevention Ordinance, Article 29

Subsidiary Attachments

C02 Nuclear Emergency Act

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.1.4

How does the RB coordinate/provide advice to other organisations involved in EPR during the preparedness phase? What aspects are covered, what aspects are not covered?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires the NRA to provide instructions to local municipalities and take measures necessary for nuclear disaster prevention and requires the central government, local municipalities, licensee and related organizations to cooperate one another. The Basic Act on Disaster Control Measures positions the NRA as an advisory body for disaster prevention, emergency measures and post-emergency measures.

Radiation facilities: The Radiation Hazards Prevention Act and its Ordinances set forth measures to be taken by authorized operators, such as notification to related organizations during accidents and disasters including earthquakes and fires. The NRA maintains coordination with such organizations so that it can provide them with technical support as necessary.

<Attachments>

Nuclear Emergency Act, Article 4

Nuclear Emergency Act, Article 6

Basic Act on Disaster Control Measures, Article 3

Radiation Hazards Prevention Act, Articles 32 and 33

Radiation Hazards Prevention Ordinance, Article 29

Subsidiary Attachments

C01 Basic Act on Disaster Control Measures

C02 Nuclear Emergency Act

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.1.5

Are there other government agencies that have EPR-related regulatory responsibilities over licensees, and in what areas?

Subsidiary Response

Nuclear facilities and Radiation facilities: The NRA primarily assumes responsibility for on-site regulations on licensees.

<Attachment>

Nuclear Emergency Act, Article 4, paragraph (3)

Radiation Hazards Prevention Act, Article 33

Radiation Hazards Prevention Ordinance, Article 29

Subsidiary Attachments

C02 Nuclear Emergency Act

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.2

Does the RB have regulatory authority over licensees for all aspects related to EPR?

Answer

Yes

Finding

The RB has full authority for the regulation of licensees with respect to EPR.

Response

The Reactor Regulation Act, the Radiation Hazards Prevention Act, the Basic Act on Disaster Control Measures, the NRA EPR Guide set forth the NRA's legal authority over licensees.

Question 1.3

Are there regulatory requirements for the licensee to develop a threat assessment as the basis of its EPR plans?

Answer

Yes

Finding

There are regulatory requirements for the licensee to develop a threat assessment to be the basis of its EPR planning.

Response

-

Subsidiary Question 1.3.1

Describe what these regulatory requirements are.

Subsidiary Response

Nuclear facilities: Regulations on commercial power reactor facilities, research & test reactor facilities, nuclear fuel cycle facilities, and facilities handling nuclear fuel materials are enforced commensurate with the degree of radiation risk of the types of facility.

The NRA EPR Guide, which is stipulated in Article 6-2 of the Nuclear Emergency Act, classifies nuclear facilities into commercial power reactor facilities and other nuclear facilities, based on the types and states of facilities, and sets nuclear emergency planning zones according to such classification. (See SQID5.1)

Radiation facilities: Under the Radiation Hazards Prevention Act and its Ordinances, authorized operators are classified into specified permitted users, permitted users, registered users, registered users of approved devices with certification label, registered dealers/ lessors, and permitted waste management operators. Under the classification, each business operator is regulated according to radiation risk. In addition, the NRA requires authorized operators (excluding registered users of approved devices with certification label) to stipulate measures to be taken during an emergency in their Radiation Hazards Prevention Programs.

<Attachments>

Reactor Regulation Act

Nuclear Emergency Act, Article 6-2

NRA EPR Guide, No. 2(3)

Radiation Hazards Prevention Act, Articles 3 and 3-2, and Articles 4, 4-2 and 21

Radiation Hazards Prevention Cabinet Order, Articles 3 and 13

Radiation Hazards Prevention Ordinance, Articles 14-7 and 21

Chart of "National laws to control the management and protection of radioactive sources" and "Types of authorization defined in the Act on Prevention of Radiation Hazards due to Radioisotopes, etc."

(same evidence as that of module 5 SQID 7.1)

Subsidiary Attachments

C02 Nuclear Emergency Act

C03NRA EPR Guide

C15 Reactor Regulation Act (For SARIS Module 3)

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J10National laws to control the management and protection of radioactive sources (major ones) SQID 7.1-related

Question 1.4

Is there regulatory guidance on how to develop a threat assessment?

Answer

Yes

Finding

There is regulatory guidance for the licensee to develop a threat assessment.

Response

-

Subsidiary Question 1.4.1

Describe what these regulatory guidance documents are.

Subsidiary Response

Nuclear facilities: For commercial reactors, the Commercial Reactor Establishment Permit Ordinance requires licensees to evaluate the measures against severe accidents, where licensees shall select sequences leading to severe accidents based upon probabilistic risk assessment (PRA) and evaluate the effectiveness of the measures for such sequences.

In addition, the Reactor Regulation Act requires licensees to conduct periodic safety assessments for continuous improvement of safety for the commercial reactors, and to apply the PRA in that safety assessment.

Radiation facilities: The standards are stipulated for facilities where emergency preparedness is required according to the types and quantity of radiation sources. Applicants for permission of relevant facilities must submit a written application that shows facilities' conformity to the said standards.

<Attachment>

Commercial Reactor Establishment Permit Ordinance

Reactor Regulation Act

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-9 and 14-11

Subsidiary Attachments

C15 Reactor Regulation Act (For SARIS Module 3)

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 1.5

Are there emergency planning or threat categories for licensed facilities and activities?

Answer

Yes

Finding

There are emergency planning or threat categories for licensed facilities and activities

Response

-

Subsidiary Question 1.5.1

What are these categories?

Subsidiary Response

Nuclear facilities: The NRA EPR Guide classifies nuclear facilities into commercial reactor facilities and other nuclear facilities.

In regards to commercial reactors, a precautionary action zone (PAZ) and an urgent protective action planning zone (UPZ) are set as nuclear emergency response zones. In regard to other nuclear facilities, the range of the emergency planning zone is set according to facility type.

Radiation facilities: The standards for each radiation facility are stipulated in the NRA Ordinance for Enforcement of the Radiation Hazards Prevention Act (Radiation Hazards Prevention Ordinance) on the basis of radiation risk at each facility. Authorized operators (excluding registered users of approved devices with certification label) are required to stipulate measures to be taken during an emergency in their Radiation Hazards Prevention Programs.

<Attachment>

NRA EPR Guide, No. 2(3)

Radiation Hazards Prevention Act, Article 21

Radiation Hazards Prevention Ordinance, Articles 14-7 and 21

Subsidiary Attachments

C03NRA EPR Guide

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.5.2

Are the categories consistent (this does not mean identical) with the IAEA threat categories described in Table 1 of GS-R-2?

Subsidiary Response

Nuclear facilities: Commercial reactors are classified according to GS-R-2. For other nuclear facilities, although the term “threat categories” is not clearly used in Japan, the NRA ensures the compliance with the contents of the IAEA's categories.

Radiation facilities: On the basis of the graded approach, the Radiation Hazards Prevention Act and its Ordinances stipulate the classification of permission and registration.

<Attachment>

Radiation Hazards Prevention Act, Chapter 2

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.6

Are there regulatory requirements on the licensee's emergency management structure?

Answer

Yes

Finding

There are regulatory requirements on the licensee's emergency management structure.

Response

-

Subsidiary Question 1.6.1

Do these requirements address the need for the on-site emergency to be promptly executed and managed without impairing the performance of the continuing operational safety functions?

Subsidiary Response

Nuclear facilities: The Reactor Regulation Act requires to install the emergency response centre in the site afar from the control room in order to take adequate response in the case of emergency for the commercial reactor.

It also requires equipment for collecting necessary information, communication tools and habitability of staff even during severe accidents.

The Guide for Nuclear Operator's EPR plan provides detailed requirements for EPR staff and the on-site emergency response center.

Radiation facilities: The need for on-site emergency measures to be promptly executed and managed without impairing the performance of the continuing operational safety functions is clarified. The Radiation Hazards Prevention Program based on the Radiation Hazards Prevention Act stipulates measures to be taken during an emergency and requires measures

for preventing radiation hazards under supervision by persons having adequate radiation-related knowledge such as a radiation protection supervisor.

<Attachments>

Commercial Reactor Establishment Permit Ordinance

Radiation Hazards Prevention Act, Articles 21, 32, 33 and 34

Radiation Hazards Prevention Ordinance, Articles 21 and 29

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 1.6.2

Explain how the effectiveness of the licensee's emergency management function is verified by the RB.

Subsidiary Response

Nuclear facilities: The NRA checks each Nuclear Operator's EPR plan (as required by Article 7 of the Nuclear Emergency Act), receives each licensee's report on emergency exercise results and items to be improved thereof to verify the effectiveness of their emergency management functions (as required by Article 13-2 of the Nuclear Emergency Act).

Radiation facilities: The NRA may confirm and verify the effectiveness of authorized operators' emergency management functions by on-site inspections. The authorized

operators are obligated to stipulate measures to be taken during natural disaster and other emergencies in their Radiation Hazards Prevention Program, and the NRA may order them to modify that Program.

<Attachments>

Nuclear Emergency Act, Article 7, paragraph (3)

Nuclear Emergency Act, Article 7, paragraph (4)

Nuclear Emergency Act, Article 13-2

Radiation Hazards Prevention Act, Articles 21, 33 and 43-2

Radiation Hazards Prevention Ordinance, Article 21 paragraphs 1 and 2, and Article 29 paragraph 3

Subsidiary Attachments

C02 Nuclear Emergency Act

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.7

Are there requirements for licensees to classify emergencies?

Answer

Yes

Finding

Regulatory requirements have been developed for identifying a situation that warrants emergency response and classifying the emergency.

Response

-

Subsidiary Question 1.7.1

Describe the system for classifying all potential nuclear and radiological emergencies, i.e. compare it with the emergencies (classification scheme) listed in GS-R-2, paragraph 4.19.

Subsidiary Response

Nuclear facilities: The system for classifying emergencies is stipulated in the NRA EPR Guide, and it divides emergencies into three classes: Alert, Site Area Emergency, and General Emergency. Site Area Emergencies include Facility Emergencies and Site Area Emergencies, as listed in GS-R-2, and this classification is developed with reference to the US classification. With regard to nuclear facilities other than nuclear powers, their emergencies classification is under preparation.

Radiation facilities: The Radiation Hazards Prevention Act and its Ordinances stipulate items concerning the accidents on radioactive sources (e.g. theft or loss) (Article 32 of the Radiation Hazards Prevention Act, Article 39 paragraph 1 Item (1) of the Radiation Hazards Prevention Ordinance), measures during an earthquake, fire and other disasters (Article 33 of Radiation Hazards Prevention Act, Article 29 of Radiation Hazards Prevention Ordinance), discharge or exhaust exceeding the prescribed limit (Article 39 paragraph 1 Items (2) and (3) of the Radiation Hazards Prevention Ordinance), leakage of radioactive materials (Article 39 paragraph 1 Items (4) and (5) of the Radiation Hazards Prevention Ordinance) and radiation dose exceeding the dose limit (Article 39 paragraph 1 Items (6) through (9) of the Radiation Hazards Prevention Ordinance).

<Attachment>

NRA EPR Guide, Part 2-(2)-(ii)

Radiation Hazards Prevention Act, Articles 32, 33 and 42

Radiation Hazards Prevention Ordinance, Articles 29 and 39

Subsidiary Attachments

C03NRA EPR Guide

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.7.2

What are the regulatory requirements for emergency notification by licensees? Are they consistent with GS-R-2?

Subsidiary Response

Nuclear facilities: The requirements consistent with GS-R-2 are in place.

The Nuclear Emergency Act requires each licensee to take necessary measures according to Nuclear Operator's EPR plan (Article 7) and to provide emergency notification to relevant organizations (Article 10).

The Reactor Regulation Act, Article 62-3, requires each licensee to report emergency situations and others to the NRA without delay when an event (such as a human injury) has occurred. This is deemed consistent with the time requirements of GS-G-2.1, Appendix VI.

Radiation facilities: The Radiation Hazards Prevention Act and its Ordinances obligate each authorized operator to give notification during disasters such as fires, earthquakes and in-facility leakages to the fire department, police, NRA, etc.

<Attachments>

Nuclear Emergency Act, Article 7

Nuclear Emergency Act, Article 10

Reactor Regulation Act, Article 62-3

Radiation Hazards Prevention Act, Articles 32, 33 and 42

Radiation Hazards Prevention Ordinance, Articles 29 and 39

Subsidiary Attachments

C02 Nuclear Emergency Act

C15 Reactor Regulation Act (For SARIS Module 3)

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.7.3

What are the time objectives for the operator to notify the authorities? Are they consistent with the time requirements defined in GS-G-2.1, appendix VI? How is the ability of the licensee to meet these timing requirements verified?

Subsidiary Response

Nuclear facilities: The Reactor Regulation Act requires each licensee to report, upon the occurrence of event such as a human injury, to the NRA regarding its situation without delay (Article 62-3).

For incidents as defined in the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors (hereinafter referred to as the Commercial Reactors Ordinance) and other articles, such incidents must be immediately reported to the NRA.

The procedure for reporting after alert situation must be stipulated in the Nuclear Operator's EPR. The timing of such report is stipulated as "within 15 minutes" in the Japan Electric Association Guide (JEAG 4102) NPP Emergency Response Guidelines.

These are deemed consistent with the time requirements of the GS-G-2.1 Appendix VI.

The NRA evaluates the competence of the licensee, based on the exercise results provided by each licensee under the Nuclear Emergency Act, Article 13-2.

Radiation Facilities: The NRA may confirm the competence of authorized operators by on-site inspections.

<Attachments>

Reactor Regulation Act, Article 62-3

Commercial Reactors Ordinance, Article 134

Research Reactors Ordinance, Article 16-14

Research Power Reactors Ordinance, Article 129

Refining Ordinance, Article 7-7

Fuel Fabrication Ordinance, Article 9-16

Spent Fuel Storage Ordinance, Article 43-13

Reprocessing Ordinance, Article 19-16

Category 1 Waste Disposal Ordinance, Article 89

Category 2 Waste Disposal Ordinance, Article 22-17

Waste Storage Ordinance, Article 35-16

Nuclear Fuel Materials Use Ordinance, Article 6-10

Nuclear Source Materials Use Ordinance, Article 5

Japan Electric Association Guide No. 4.3

Nuclear Emergency Act, Article 13-2

Radiation Hazards Prevention Act, Article 43-2

Subsidiary Attachments

C02 Nuclear Emergency Act

C08 Japan Electric Association Guide

C15 Reactor Regulation Act (For SARIS Module 3)

C16 Commercial Reactors Ordinance (For SARIS Module 3)

C17 Research Reactors Ordinance (For SARIS Module 3)

C18 Research Power Reactors Ordinance (For SARIS Module 3)

C19 Refining Ordinance (For SARIS Module 3)

C20 Fuel Fabrication Ordinance (For SARIS Module 3)

C21 Spent Fuel Storage Ordinance (For SARIS Module 3)

C22 Reprocessing Ordinance (For SARIS Module 3)

C23 Category 1 Waste Disposal Ordinance (For SARIS Module 3)

C24 Category 2 Waste Disposal Ordinance (For SARIS Module 3)

C25 Waste Storage Ordinance (For SARIS Module 3)

C26 Nuclear Fuel Materials Use Ordinance (For SARIS Module 3)

C27 Nuclear Source Materials Use Ordinance (For SARIS Module 3)

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.8

Are there regulations regarding the provision of emergency services at the licensed facilities?

Answer

Yes

Finding

There are regulations regarding the provision of emergency services at the licensed facilities.

Response

-

Subsidiary Question 1.8.1

Describe the regulatory requirements for mitigatory actions, including for example services to be provided, need for firefighting and medical services, minimum shift complement to address mitigation issues, etc.

Subsidiary Response

Nuclear facilities: The Reactor Regulation Act, Article 43-3-22 requires each licensee to take measures necessary for safety. For example, the Commercial Reactors Ordinance, Article 87 sets forth measures to be taken during an emergency and requires each licensee to ensure that the operators follow the procedure.

The Reactor Regulation Act, Article 64 obligates licensees to take emergency measures in emergency situation.

The Order for Nuclear Operator's EPR plan, which is based on Article 7 of the Nuclear Emergency Act, set forth requirements regarding the duties of nuclear disaster prevention personnel and the formation of a nuclear disaster prevention organization.

Radiation facilities: Each authorized operator is obligated to make efforts to extinguish a fire and prevent its expansion, prevent contamination expansion and remove contamination, and is required to stipulate measures to take during a disaster such as earthquake and fire in its own Radiation Hazards Prevention Program.

<Attachments>

Reactor Regulation Act, Article 43-3-22

Reactor Regulation Act, Article 64, paragraph (1)

Commercial Reactors Ordinance, Article 87

Nuclear Emergency Act, Article 7

Order for Nuclear Operator's EPR plan, Article 2, paragraph (1)

Radiation Hazards Prevention Act, Articles 21 and 33

Radiation Hazards Prevention Ordinance, Articles 21 and 29

Subsidiary Attachments

C02 Nuclear Emergency Act

C09 Order for Nuclear Operator's EPR plan

C15 Reactor Regulation Act (For SARIS Module 3)

C16 Commercial Reactors Ordinance (For SARIS Module 3)

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.9

Are external emergency services part of the licensee's plan to take mitigatory actions (e.g. police, medical and firefighting services)?

Answer

Yes

Finding

External emergency services are part of the licensee's plan to take mitigatory actions (e.g. police, medical and firefighting services)?

Response

-

Subsidiary Question 1.9.1

What are the regulatory requirements regarding the use of external services for mitigatory actions?

Subsidiary Response

Nuclear facilities: The ordinance under the Nuclear Emergency Act requires licensees to have the plan for the use of external service, Nuclear Emergency Support Organizations (Nuclear Rescue), in the Nuclear Operator's EPR plan. More specifically, the operator is required to describe the organizational structure and equipment of Nuclear Emergency Support Organization, and the measures to transport its equipment to the NPP site in the emergencies. The Guide for Nuclear Operator's EPR plan further provides details to be included on the implementation of external services, such as emergency call system, chain of command, role sharing.

The Basic Plan for Disaster Preparedness requires the Government, a licensee and local governments to daily enhance inter-organizational coordination with the police and fire services, for the purpose of emergency response and recovery activities.

Radiation facilities: The Radiation Hazards Prevention Act requires each authorized operator to report to the police or coast guard officer upon the occurrence of an accident such as theft or loss of radioactive source and in case of disaster such as an earthquake, and to immediately report to the fire department in case of a fire. Upon such notification, the authorized operator can obtain support (mitigation measures) from outside organizations.

<Attachments>

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (2), item (vii)

Basic Plan for Disaster Preparedness, Part 12, Chapter 1, Section 5-1(7)

Radiation Hazards Prevention Act, Article 21, 32 and 33

Radiation Hazards Prevention Ordinance, Articles 21 and 29

Subsidiary Attachments

C04 Basic Plan for Disaster Preparedness

C10 Guide for Nuclear Operator's EPR plan

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.9.2

How does the RB verify that those arrangements are implemented?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires the NRA to confirm the Nuclear Operator's EPR plan and assess the applicability of the plan for emergency even in the exercises based on the Guide for Nuclear Operator's EPR plan. The Basic Plan for Emergency Preparedness also requires such confirmation.

Radiation facilities: Authorized operators are obligated to establish measures to be taken during disasters such as an earthquake and fire in their Radiation Hazards Prevention

Programs. The NRA may order the modification of the Programs. In addition, the NRA may confirm and verify the authorized operators' emergency management functions by on-site inspections.

<Attachments>

Guide for Nuclear Operator's EPR plan -1

Guide for Nuclear Operator's EPR plan -2

Nuclear Emergency Act, Article 13-2

Basic Plan for Disaster Preparedness, Part 12, Chapter 1, Section 5-8(3)

Radiation Hazards Prevention Act, Articles 21 and 43-2

Radiation Hazards Prevention Ordinance, Article 21

Subsidiary Attachments

C02 Nuclear Emergency Act

C04 Basic Plan for Disaster Preparedness

C10 Guide for Nuclear Operator's EPR plan

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.10

Does the RB have a role in establishing regulations or levels for the protection of the public during an emergency (generic criteria)?

Answer

Yes

Finding

The RB has a role in establishing regulations or levels for the protection of the public during an emergency.

Response

-

Subsidiary Question 1.10.1

Describe the intervention levels or generic criteria. Are they consistent with the IAEA standards?

Subsidiary Response

Nuclear facilities: The NRA EPR Guide stipulates protective measure criteria as operational intervention levels (OIL). The criteria generally conform to the IAEA standards.

Radiation facilities: Radiation Hazards Prevention Act and its Ordinances do not set any requirements or levels concerning the protection of the public in emergency, based on the graded approach.

<Attachment>

NRA EPR Guide, Table 3

Subsidiary Attachments

Question 1.11

Is the RB responsible for the determination of emergency planning zones or distances?

Answer

Yes

Finding

The RB has a responsibility in the definition of emergency planning zones.

Response

-

Subsidiary Question 1.11.1

What are the regulatory requirements related to emergency planning zones?

Subsidiary Response

Nuclear facilities: The NRA EPR Guide sets forth precautionary protective actions and urgent protective actions in emergency planning zones.

Radiation facilities: The Radiation Hazards Prevention Act and its Ordinances do not set forth requirements for EPZ on the basis of the graded approach.

<Attachments>

NRA EPR Guide, No. 2(2)

NRA EPR Guide, No. 2(3)

Subsidiary Attachments

C03NRA EPR Guide

Question 1.12

Is the RB responsible for regulations regarding the responsibilities of licensees in instructing the public during an emergency?

Answer

Yes

Finding

The RB is responsible for regulations regarding the role of licensees in instructing the public.

Response

-

Subsidiary Question 1.12.1

What are the regulatory requirements related to the licensee providing information and issuing instructions to the public during an emergency? Are these regulatory requirements consistent with the IAEA standards?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires each licensee to report to the central government and local governments in an emergency. The Basic Plan for Disaster Preparedness requires the central government and local governments to directly provide information and instruct the public on protective measures, which are in conformance to IAEA standards.

Radiation facilities: The Radiation Hazards Prevention Act requires each authorized operator to take emergency response measures such as providing evacuation warnings to the people living in the facility vicinity, reporting to the police, coast guard officer or fire department, and providing notification to the NRA without delay in response to a disaster. Upon receiving the notification, the NRA provides the related organizations and the public with relevant information as necessary.

<Attachments>

Nuclear Emergency Act, Article 10

Basic Plan for Disaster Preparedness, Part 12, Chapter 1, Section 5-2(5)

Radiation Hazards Prevention Act, Article 33

Radiation Hazards Prevention Ordinance, Article 29

Subsidiary Attachments

C02 Nuclear Emergency Act

C04 Basic Plan for Disaster Preparedness

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.12.2

How is the ability of the licensee to provide information and issue instructions to the public during emergency verified?

Subsidiary Response

Nuclear facilities: Licensees are obligated to report to the central government and local governments upon the occurrence of an emergency. In response, the central government and local governments issue information and instructions to the public. The NRA checks licensee's ability to report to the central government and local governments with regard to the contents and ways of notification described in each Nuclear Operator's EPR plan and reviews reports on the licensee's exercise results to verify its notification capability.

Radiation facilities: The Radiation Hazards Prevention Act requires each authorized operator to stipulate measures in each facility to be taken in response to a disaster such as an earthquake and fire and to other emergency situation in their Radiation Hazards Prevention Programs and notify them to the NRA. The NRA confirms the contents of the Program, and may verify the ability of the authorized operators to conduct notification through on-site inspections.

<Attachments>

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (viii)

Nuclear Emergency Act, Article 13-2

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Radiation Hazards Prevention Act, Articles 21 and 43-2

Subsidiary Attachments

C02 Nuclear Emergency Act

C10 Guide for Nuclear Operator's EPR plan

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.13

Is the RB responsible for regulations regarding the protection of on-site emergency workers?

Answer

Yes

Finding

The RB is the responsible authority for regulations regarding the protection of on-site emergency workers.

Response

-

Subsidiary Question 1.13.1

What are the RB's regulations regarding the protection of those emergency workers? Are they consistent with GS-R-2 Annex 1, GS-G-2.1 Table 4 and Section 4?

Subsidiary Response

Nuclear facilities and Radiation facilities: The Commercial Reactors Radiation Dose Notification and other ordinances and notifications set the dose limit for radiation workers in emergency, which is lower than the 500 mSv as stipulated in GSG-2.

Dose limits for radiation workers in emergency are set as follows: 100 mSv for effective dose, 300 mSv for equivalent dose for eye lens, and 1 Sv for equivalent dose for skin.

In August 2015, the NRA amended the relevant NRA ordinances and notifications. That amendment allows an increase of the effective dose limit from 100 mSv to 250 mSv in emergency, provided that radiation workers for emergency work shows its intention in writing to undertake emergency work after being informed of the possibility of exposure, and that have undergone the necessary training. Moreover, NRA introduced the requirements that licensees provide medical checkups to radiation workers after emergency works. These amendments are consistent with GS-R-2 Annex 1. The amendments will come into force in April 2016.

<Attachments>

Commercial Reactors Dose Limit Notice, Article 6

Commercial Reactors Dose Limit Notice, Article 8

Fuel Fabrication Dose Limit Notice, Article 6

Fuel Fabrication Dose Limit Notice, Article 8

Research Reactors Dose Limit Notice, Article 6

Research Reactors Dose Limit Notice, Article 8

Amount of RI Notice, Article 5

Amount of RI Notice, Article 6

Amount of RI Notice, Article 22

Subsidiary Attachments

C29 Commercial Reactors Dose Limit Notice (For SARIS Module 3)

C31 Fuel Fabrication Dose Limit Notice (For SARIS Module 3)

C32 Research Reactors Dose Limit Notice (For SARIS Module 3)

C33 Amount of RI Notice (For SARIS Module 3)

Question 1.14

Is the RB responsible for regulations regarding the protection of off-site emergency workers involved in the on-site support to the licensee?

Answer

Yes

Finding

The RB is the responsible authority for regulations regarding the protection of off-site emergency workers involved in the on-site support to the licensee.

Response

-

Subsidiary Question 1.14.1

What are the regulations regarding the protection of those emergency workers? Are they consistent with GS-R-2 Annex 1, GS-G-2.1 Table 4 and Section 4?

Subsidiary Response

Nuclear facilities and Radiation facilities: See the answer in 13.1

<Attachments>

Commercial Reactors Dose Limit Notice, Article 6

Commercial Reactors Dose Limit Notice, Article 8

Fuel Fabrication Dose Limit Notice, Article 6

Fuel Fabrication Dose Limit Notice, Article 8

Research Reactors Dose Limit Notice, Article 6

Research Reactors Dose Limit Notice, Article 8

Amount of RI Notice, Article 5

Amount of RI Notice, Article 6

Amount of RI Notice, Article 22

Subsidiary Attachments

C29 Commercial Reactors Dose Limit Notice (For SARIS Module 3)

C31 Fuel Fabrication Dose Limit Notice (For SARIS Module 3)

C32 Research Reactors Dose Limit Notice (For SARIS Module 3)

C33 Amount of RI Notice (For SARIS Module 3)

Question 1.15

Is the RB responsible for regulations regarding the protection of other off-site emergency workers (not involved in on-site support to the licensee)?

Answer

No

Finding

The RB has no responsibility in regulating the protection of other off-site emergency workers (not involved in on-site support to the licensee)?

Response

This question relates to off-site emergency work and is therefore outside the scope of this IRRS.

Subsidiary Question 1.15.2

Explain who is responsible for regulating the protection of off-site emergency workers and how does the RB take part (e.g. coordinating, contributing, commenting etc.) in making these regulations.

Subsidiary Response

See the answer in 15

Question 1.16

Does the RB have regulations regarding the assessment of the initial phase of an emergency?

Answer

Yes

Finding

The RB has regulations on the need to promptly assess abnormal conditions at the facility or practice, including potential or actual radioactive releases, as well as characterization of abnormal exposures and the extent and significance contamination.

Response

-

Subsidiary Question 1.16.1

What are the RB's regulations regarding the assessment of the initial phase?

Subsidiary Response

Nuclear facilities: The NRA EPR Guide defines EALs (Emergency Action Levels) for initial-phase assessment.

Radiation facilities: The Radiation Hazards Prevention Act, Article 39, Paragraph 1 stipulates the notification to the NRA and relevant organizations in case of an accident.

<Attachment>

NRA EPR Guide, No. 2(2)2(i)

Radiation Hazards Prevention Act, Article 42

Radiation Hazards Prevention Ordinance, Article 39

Subsidiary Attachments

C03NRA EPR Guide

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.16.2

Do the regulations take into account both radiation levels and plant/site conditions in the assessment of the initial phase?

Subsidiary Response

Nuclear facilities and Radiation facilities: Both radiation levels and plant/site conditions are taken into account for the initial-phase assessment.

<Attachment>

NRA EPR Guide, Table 2

Radiation Hazards Prevention Act, Article 42

Radiation Hazards Prevention Ordinance, Article 39

Subsidiary Attachments

C03NRA EPR Guide

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.16.3

How is the ability of the licensee to assess the initial phase verified?

Subsidiary Response

Nuclear facilities: On the basis of the Nuclear Emergency Act and the Guide for Nuclear Operator's EPR plan, the NRA checks each licensee's exercise plan, participates in the emergency exercise and verifies the exercise results reported by the licensee (Nuclear Emergency Act, Article 13).

Radiation Facilities: The assessment of the initial phase of an emergency is stipulated in the Radiation Hazards Prevention Act as the conditions of notification.

<Attachments>

Nuclear Emergency Act, Article 7, paragraph (3)

Nuclear Emergency Act, Article 7, paragraph (4)

Nuclear Emergency Act, Article 13-2

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Radiation Hazards Prevention Act, Articles 42 and 43-2

Radiation Hazards Prevention Ordinance, Article 39

Subsidiary Attachments

C02 Nuclear Emergency Act

C10 Guide for Nuclear Operator's EPR plan

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.17

Does the RB have a role in regulating medical response management by the licensees?

Answer

Yes

Finding

The RB has a role in regulating of medical response management by the licensees.

Response

-

Subsidiary Question 1.17.1

What are the regulatory requirements? Are they consistent with GS-R-2 para 4.78 and 4.79 and GS-G-2.1 para 4.45?

Subsidiary Response

Nuclear facilities: The requirements are consistent with GS-R-2 para 4.78 and 4.79 and GS-G-2.1 para 4.45. The Basic Plan for Disaster Preparedness and the Nuclear Emergency Response Manual set forth its provisions similar to GS-R-2 4.78 and 4.79.

Radiation facilities: The Radiation Hazards Prevention Act, Article 29 requires each authorized operator to take immediately measures such as rescue and evacuation in response to an accident at radiation facilities.

Moreover, in emergency at radiation facilities, the same as in the case of nuclear facilities, medical measures will be taken on the basis of Medical Care System for Emergency Exposure set forth in the Basic Plan for Disaster Preparedness and the Nuclear Emergency Preparedness Manual.

<Attachments>

Basic Plan for Disaster Preparedness, Part 12, Chapter 2, Section 6

Nuclear Emergency Response Manual, No. 2, Part 1, Chapter 4, Section 2-16

Radiation Hazards Prevention Act, Article 33

Radiation Hazards Prevention Ordinance, Article 39

Whole Concept of Medical Care for Emergency Exposure, Special Committee on Nuclear Disaster, Nuclear Safety Commission (Issued in June 2001, partially revised in October 2008)

Subsidiary Attachments

C04 Basic Plan for Disaster Preparedness

C05 Nuclear Emergency Response Manual

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J25 Whole Concept of Medical Care for Emergency Exposure

Question 1.18

Is the RB responsible for regulations regarding the role of licensees in keeping the public informed?

Answer

Yes

Finding

The RB is responsible for regulations regarding the role of licensees in keeping the public informed.

Response

-

Subsidiary Question 1.18.1

What are the regulatory requirements and are they consistent with IAEA standards?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act, Article 10 requires each licensee to notify the NRA and local governments in the case of an abnormal event. Article 25, paragraph (2) of the said act requires each licensee to report an outline of its emergency response measures to the NRA, the central government and local municipalities.

In addition, the Basic Plan for Disaster Preparedness requires the government to continuously provide the public and overseas governments with necessary information.

These are in compliance with the IAEA standards.

Radiation facilities: The Radiation Hazards Prevention Act, Article 33 and the Radiation Hazards Prevention Ordinance, Article 29 require each authorized operator to give warnings to the people in facility vicinity and provide notification to the police, coast guard officer, fire departments and the NRA in response to a disaster such as earthquake and fire.

<Attachments>

Nuclear Emergency Act, Article 10

Nuclear Emergency Act, Article 25, paragraph (2)

NRA EPR Guide, No. 3(4)

Basic Plan for Disaster Preparedness, Part 12, Chapter 2, Section 2-8

Radiation Hazards Prevention Act, Article 33

Radiation Hazards Prevention Ordinance, Article 29

Subsidiary Attachments

C02 Nuclear Emergency Act

C03NRA EPR Guide

C04 Basic Plan for Disaster Preparedness

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.19

Does the RB have a role in defining the criteria for agricultural countermeasures, countermeasures against ingestion and longer-term protective actions?

Answer

Yes

Finding

The RB has a role in defining the criteria for agricultural countermeasures, countermeasures against ingestion and longer-term protective actions.

Response

-

Subsidiary Question 1.19.1

What are the regulatory requirements for agricultural countermeasures, countermeasures against ingestion and longer-term protective actions? Are they consistent with GS-R-2 para 4.88?

Subsidiary Response

Nuclear facilities: The NRA EPR Guide sets forth operational intervention levels (OIL). Default values for ingestion restriction-related OIL have been set in accordance with the purpose of GS-R-2, 4.88.

The Enforcement ordinance for The Radioactive Material Contamination Special Measures Law, the Ministry of Environment, sets forth a contaminant management standard (8,000 Bq/kg) as the standard for long-term protective actions.

Radiation facilities: the Radiation Hazards Prevention Act and its Ordinances do not set requirements for agricultural countermeasures, food ingestion countermeasures or long-term protective measures on the basis of the graded approach.

<Attachments>

NRA EPR Guide, No. 2(2)2(ii)

Act for Special Measures, Enforcement Rules concerning the Handling of Environmental Pollution from Radioactive Materials Discharged by the NPS Accident Associated with the 2011 Tohoku Earthquake and Tsunami that Occurred on March 11, 2011, Article 14

Subsidiary Attachments

C03NRA EPR Guide

C35 Handling of Environmental Pollution Ordinance

Question 1.20

Does the RB have regulations for licensees to consider non-radiological impacts on workers?

Answer

No

Finding

The RB does not have any regulations for licensees to consider non-radiological impacts on workers.

Response

-

Subsidiary Question 1.20.2

Is there any other requirement for the licensee to consider non-radiological impacts?

Subsidiary Response

Nuclear facilities and Radiation facilities: The Ministry of Health, Labor and Welfare's Industrial Safety and Health Act is established and in place for the safety of workers in all aspects. Business operators perform their operations in compliance with the regulation by these Acts. These Acts also apply to operators of nuclear and radiation facilities.

<Attachment>

Industrial Safety and Health Act, Article 22

Subsidiary Attachments

C34 Industrial Safety and Health Act(For SARIS module 3)

Question 1.21

Does the RB have regulatory responsibilities in recovery, including for example transitions threshold, workers protection, response criteria?

Answer

Yes

Finding

The RB has regulatory responsibilities in recovery, including for example transitions threshold, workers protection, response criteria?

Response

-

Subsidiary Question 1.21.1

Briefly describe the regulatory requirements for the transition from emergency phase operations to existing or planned exposure situations. Are these regulations consistent with GS-R-2 para 4.99?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires the government to terminate the nuclear emergency situation immediately after recognizing that there is no need to take further emergency response measures for preventing nuclear disaster expansion.

In consideration of the Fukushima Daiichi NPS accident, the Reactor Regulation Act, Articles 64-2 and 64-3 stipulates that the facilities which experienced nuclear accidents may be designated as specified nuclear facilities and these designated facilities are required to submit the implementation plan for enhancing their nuclear safety and protection to the NRA for its approval. The NRA may order necessary measures when the plan is inadequate. This provision conforms to GS-R-2, 4.99.

Radiation facilities: The Radiation Hazards Prevention Act and its Ordinances do not set requirements for recovery or restoration on the basis of the graded approach.

<Attachments>

Nuclear Emergency Act, Article 15, paragraph (4)

Reactor Regulation Act, Article 64-2

Reactor Regulation Act, Article 64-3

Subsidiary Attachments

C02 Nuclear Emergency Act

C15 Reactor Regulation Act (For SARIS Module 3)

Question 1.22

Are there regulatory requirements for the staffing of licensee emergency response organisations (in accordance with GS-R-2 para 5.8)?

Answer

Yes

Finding

There are regulatory requirements for the staffing of licensee emergency response organisations (in accordance with GS-R-2 para 5.8).

Response

-

Subsidiary Question 1.22.1

Does the requirement address the minimum number and qualification of the personnel, in accordance with GS-R-2 para 5.9?

Subsidiary Response

Nuclear facilities: Under the framework of the Nuclear Emergency Act, licensees are required to develop Nuclear Operator's EPR plan and to submit it to the NRA. The relevant ordinance requires them to include the assignment of the nuclear disaster prevention personnel and training program for them in that plan. The Guide for Nuclear Operator's EPR plan further provides detailed criteria to satisfy these requirements such as the number of the personnel.

Radiation facilities: In an emergency, radiation workers are engaged in emergency measures under the instruction of the Radiation Protection Supervisor designated by the authorized operator. The qualification of a Radiation Protection Supervisor, who is a government-certified person, shall be provided only after passing designated examinations and completing qualification seminars. Although the Radiation Hazards Prevention Act and its Ordinances do not stipulate provisions concerning the staffing of the emergency response organization on the basis of the graded approach, items concerning emergency measures may be verified by on-site inspection.

<Attachments>

Nuclear Emergency Act, Article 7

Order for Nuclear Operator's EPR plan, Article 2

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (i)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (iv)

Radiation Hazards Prevention Act, Articles 22, 33, 34, 35, 36 and 43-2

Radiation Hazards Prevention Ordinance, Articles 21-2 and 29

Subsidiary Attachments

C02 Nuclear Emergency Act

C09 Order for Nuclear Operator's EPR plan

C10 Guide for Nuclear Operator's EPR plan

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.22.2

How is the adequacy of the licensee's emergency response organization staffing verified?

Subsidiary Response

Nuclear facilities: The Guide for Nuclear Operator's EPR plan requires each licensee to verify the adequacy of the number and quality of their emergency response staff through performing exercises.

Radiation facilities: The adequacy may be verified by on-site inspection.

<Attachments>

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (iv)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Radiation Hazards Prevention Act, Article 43-2

Subsidiary Attachments

C10 Guide for Nuclear Operator's EPR plan

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.23

Are there regulatory requirements addressing the coordination of licensees and off-site (for a facility) or emergency services (threat category IV) during an emergency?

Answer

Yes

Finding

There are regulatory requirements addressing the coordination of licensees and off-site (for a facility) or emergency services (threat category IV) during an emergency.

Response

The answer is “Yes” if the “related offsite organizations” refer to central government organizations, local governments and other licensees.

Subsidiary Question 1.23.1

What are these requirements and are they consistent with other national requirements in this area?

Subsidiary Response

Nuclear facilities: The Basic Plan for Disaster Preparedness (Part 12) and Nuclear Emergency Act (Article 18) require related organizations and licensees to perform the overall coordination of emergency response measures. Therefore the consistency is secured among the relevant requirements.

The Nuclear Emergency Act (Article 23) requires the establishment of Joint Council for Nuclear Emergency Response to ensure mutual cooperation, which consists of relevant ministries, local governments, operators or other designated organizations. The NRA EPR Guide requires, in implementing the protective measures at the initial stage, licensees, central and local governments to perform their functions adequately. More specifically, it requires them to have necessary measures (e.g. information sharing, preparation for protective measure) in their emergency plans, namely “Nuclear Operator’s EPR Plan” for licensees, “Basic Plan for Disaster Preparedness” and “Nuclear Emergency Response Manual” for the central government, and “Regional Disaster Prevention Plan (in the part of nuclear disaster)” for local governments.

Under the framework of the Nuclear Emergency Act, licensees are required to develop Nuclear Operator EPR plan and to have an NRA approval. The relevant ordinance requires them to include the assignment of the nuclear disaster prevention personnel in that plan. The Guide for Nuclear Operator’s EPR plan further provides detailed criteria to satisfy these requirements such as the number of the personnel to be dispatched to other organizations.

Radiation facilities: The Radiation Hazards Prevention Act requires each authorized operator to cooperate with offsite organizations (police and fire department) in response to the loss or theft of radioactive source, or in case of earthquakes, fires and other disasters at radiation facilities.

<Attachments>

Basic Plan for Disaster Preparedness, Part 12, Chap. 1, 5,1,(4)

Basic Plan for Disaster Preparedness, Part 1, Chap. 4, 1

Basic Act on Disaster Control Measures, Article 37, 2

Nuclear Emergency Act, Article 7

Nuclear Emergency Act, Article 18

Nuclear Emergency Act, Article 23

NRA EPR Guide, No. 2(2)2(iii)

Order for Nuclear Operator’s EPR plan, Article 2

Order for Nuclear Operator's EPR plan, Article 3

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (2), item (vii)

Radiation Hazards Prevention Act, Articles 32 and 33

Radiation Hazards Prevention Ordinance, Article 29

Subsidiary Attachments

C01 Basic Act on Disaster Control Measures

C02 Nuclear Emergency Act

C03NRA EPR Guide

C04 Basic Plan for Disaster Preparedness

C09 Order for Nuclear Operator's EPR plan

C10 Guide for Nuclear Operator's EPR plan

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.23.2

Are these requirements consistent with GS-R-2 para 5.10? Do the requirements address language and physical units, in accordance with GS-R-2 para 5.12?

Subsidiary Response

Nuclear facilities: Consistent with GS-R-2, Paragraph 5.10

In regards to the arrangements for neighboring States within the defined emergency zones, mentioned in GS-R-2, Paragraph 5.12, no country falls under such zones in the case of Japan.

Radiation facilities: There is no requirement to develop arrangements for operational interface between authorized operators and local or regional governments, mentioned in GS-R-2, Paragraph 5.10 on the basis of the graded approach.

In regards to the arrangements for neighboring States within the defined emergency zones, mentioned in GS-R-2, Paragraph 5.12, no country falls under such zones in the case of Japan.

<Attachments>

Nuclear Emergency Act, Article 18

Nuclear Emergency Act, Article 23

Subsidiary Attachments

C02 Nuclear Emergency Act

Subsidiary Question 1.23.3

How is the effectiveness of the coordination arrangements verified by the RB?

Subsidiary Response

Nuclear facilities: In accordance with the Nuclear Emergency Act and the Guide for Nuclear Operator's EPR plan, the NRA verifies the effectiveness of the coordination arrangements by checking the exercise plan and its implementation status by assessing the exercise results.

Radiation facilities: Radiation facilities are not the subject of verification by the NRA, as is the answer to SQID 23.2.

<Attachments>

Nuclear Emergency Act, Article 13

Nuclear Emergency Act, Article 13-2

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

NRA EPR Plan, Part 3, Chapter 1, 5, 5

Subsidiary Attachments

C02 Nuclear Emergency Act

C10 Guide for Nuclear Operator's EPR plan

C11 NRA EPR Plan

Question 1.24

Are there regulatory requirements regarding plans and procedures for licensees?

Answer

Yes

Finding

There are regulatory requirements regarding plans and procedures for licensees.

Response

-

Subsidiary Question 1.24.1

Are all applicable functional elements of GS-R-2 covered in the requirements?

Subsidiary Response

Nuclear facilities: All applicable functional elements of GS-R-2 have been covered in the requirements.

Under the framework of the Nuclear Emergency Act, licensees are required to develop Nuclear Operator's EPR plan and to have an NRA approval. The relevant ordinance stipulates the items to be included in that plan. The Guide for Nuclear Operator's EPR plan further provides detailed criteria.

Radiation facilities: The Radiation Hazards Prevention Act requires each authorized operator to report the theft or loss of a radioactive source and measures to be taken (emergency measures, notification, and reporting) in response to an emergency such as an earthquake and fire to the relevant organizations.

<Attachments>

Nuclear Emergency Act, Article 7, paragraphs (2)

Nuclear Emergency Act, Article 7, paragraphs (3)

Order for Nuclear Operator's EPR plan, Article 2

Order for Nuclear Operator's EPR plan, Article 3

Order for Nuclear Operator's EPR plan, Article 4

Radiation Hazards Prevention Act, Articles 32 and 33

Radiation Hazards Prevention Ordinance, Article 29

Subsidiary Attachments

C02 Nuclear Emergency Act

C09 Order for Nuclear Operator's EPR plan

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.25

Does the RB approve licensee emergency plans?

Answer

Yes

Finding

The RB approves licensee emergency plans.

Response

-

Subsidiary Question 1.25.1

How is the quality of plans and procedures verified (for example, are there criteria, templates, evaluation tools, etc.)?

Subsidiary Response

Nuclear facilities: Under the framework of the Nuclear Emergency Act, licensees are required to develop Nuclear Operator's EPR plan and to submit it to the NRA. The relevant ordinance stipulates the items to be included in that plan. The Guide for Nuclear Operator's EPR plan further provides detailed criteria. That Act also requires licensees to conduct emergency exercises and report the result to the NRA. The NRA verifies the effectiveness of Nuclear Operator's EPR plan and capability through participating in their exercise and reviewing the submitted reports on their exercise.

Radiation facilities: Items to be notified to the NRA in case of accidents or emergencies are provided for in the authorized operator's Radiation Hazards Prevention Program. The NRA confirms and verifies the contents of the Program.

<Attachments>

Nuclear Emergency Act, Article 7

Nuclear Emergency Act, Article 13-2

Order for Nuclear Operator's EPR plan, Article 2

Order for Nuclear Operator's EPR plan, Article 3

Order for Nuclear Operator's EPR plan, Article 4

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Radiation Hazards Prevention Act, Article 21

Radiation Hazards Prevention Ordinance, Article 21

Subsidiary Attachments

C02 Nuclear Emergency Act

C09 Order for Nuclear Operator's EPR plan

C10 Guide for Nuclear Operator's EPR plan

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.25.2

How does the RB ensure that the licensee emergency plans are adequately implemented, in accordance with GS-R-2 5.23?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires licensees to conduct emergency exercises and report the result to the NRA. The NRA verifies the effectiveness of Nuclear Operator's EPR plan and capability through participating in their exercise and reviewing the submitted reports on their exercise.

The NRA may order licensees to change Nuclear Operator's EPR plan or other measures.

Radiation facilities: When the NRA finds that an authorized operator's Radiation Hazards Prevention Program needs modification, it may order the authorized operator to implement modifications.

<Attachment>

Nuclear Emergency Act, Article 13-2

Radiation Hazards Prevention Act, Article 21

Subsidiary Attachments

C02 Nuclear Emergency Act

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.26

Does the RB have regulatory requirements on EPR logistics and facilities for the licensees?

Answer

Yes

Finding

The RB has regulatory requirements on EPR logistics and facilities for the licensees.

Response

-

Subsidiary Question 1.26.1

Do the requirements address all applicable infrastructure elements contained in GS-R-2?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act sets forth applicable infrastructure elements.

Under the framework of the Nuclear Emergency Act, licensees are required to develop Nuclear Operator's EPR plan and to submit it to the NRA. The relevant ordinance stipulates the items such as logistics arrangement or installation of necessary equipment to be included in that plan. The Guide for Nuclear Operator's EPR plan further provides detailed criteria.

Radiation facilities: There is no requirement in the Radiation Hazards Prevention Act and its Ordinances to address all applicable infrastructure elements contained in GS-R-2 on the basis of the graded approach.

<Attachments>

Nuclear Emergency Act, Article 7

Nuclear Emergency Act, Article 11, paragraph (2)

Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (v)

Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vi)

Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (xii)

Order for Nuclear Operator's EPR plan, Article 2, paragraph (2)

Order for Nuclear Operator's EPR plan, Article 4

Subsidiary Attachments

C02 Nuclear Emergency Act

C09 Order for Nuclear Operator's EPR plan

Subsidiary Question 1.26.2

How are the effectiveness and adequacy of the logistical support and facilities verified?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires licensees to conduct emergency exercises and report the result to the NRA. The NRA verifies the effectiveness of Nuclear Operator's EPR plan and capability through participating in their exercise and reviewing the submitted reports on their exercise.

Radiation facilities: There is no stipulation on such verification in the Radiation Hazards Prevention Act and its Ordinances on the basis of the graded approach.

<Attachments>

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Nuclear Emergency Act, Article 13-2

Subsidiary Attachments

C02 Nuclear Emergency Act

C10 Guide for Nuclear Operator's EPR plan

Question 1.27

Does the RB have regulatory requirements for training, drills and exercises in EPR by licensees?

Answer

Yes

Finding

The RB has regulatory requirements for training, drills and exercises in EPR by licensees.

Response

-

Subsidiary Question 1.27.1

What are the requirements?

Subsidiary Response

Nuclear facilities: Under the framework of the Nuclear Emergency Act, licensees are required to develop Nuclear Operator's EPR plan and to submit it to the NRA. The relevant ordinance stipulates the items such as training program or emergency exercises to be included in that emergency plan. The Guide for Nuclear Operator's EPR plan further provides detailed criteria.

Radiation facilities: The Radiation Hazards Prevention Act requires each authorized operator to provide radiation workers with the education and training necessary to prevent radiation hazards.

<Attachments>

Nuclear Emergency Act, Article 7

Nuclear Emergency Act, Article 13-2

Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (iv)

Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Radiation Hazards Prevention Act, Article 22

Radiation Hazards Prevention Ordinance, Article 21-2

Subsidiary Attachments

C02 Nuclear Emergency Act

C09 Order for Nuclear Operator's EPR plan

C10 Guide for Nuclear Operator's EPR plan

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.27.2

How does the RB evaluate licensee training and exercise programmes?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires licensees to conduct emergency exercises and report the result to the NRA. The NRA verifies the effectiveness of the Nuclear Operator's EPR plan and capability through participating in their exercise and reviewing the submitted reports on their exercise.

Radiation facilities: The Radiation Hazards Prevention Act and its Ordinances provide for the details, such as curricula and subjects, of periodic courses and training to be provided to Radiation Protection Supervisors, and education and training provided to radiation workers. Through periodic confirmation and on-site inspections, the NRA confirms whether Radiation Protection Supervisors have taken the relevant periodic courses and radiation workers have undergone appropriate education and training.

<Attachments>

Nuclear Emergency Act, Article 13-2

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Radiation Hazards Prevention Act, Articles 12-10, 22, 36-2 and 43-2

Subsidiary Attachments

C02 Nuclear Emergency Act

C10 Guide for Nuclear Operator's EPR plan

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.27.3

How does the RB evaluate emergency response exercises by the licensee?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires licensees to conduct emergency exercises and report the result to the NRA. The NRA verifies the effectiveness of Nuclear Operator's EPR plan and capability through participating in their exercise and reviewing the submitted reports on their exercise.

Radiation facilities: There is no stipulation on evaluation of emergency response exercises in the Radiation Hazards Prevention Act and its Ordinances on the basis of the graded approach.

<Attachments>

Nuclear Emergency Act, Article 13-2

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Subsidiary Attachments

C02 Nuclear Emergency Act

C10 Guide for Nuclear Operator's EPR plan

Subsidiary Question 1.27.4

Is the evaluation of exercises systematic, consistent and effective, and against established response objectives, in accordance with GS-R-2, para 5.36?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires licensees to conduct emergency exercises and report the result to the NRA. The NRA verifies the effectiveness of Nuclear Operator's EPR plan and capability through participating in their exercise and reviewing the submitted reports on their exercise.

Radiation facilities: There is no stipulation on evaluation of emergency response exercises in the Radiation Hazards Prevention Act and its Ordinances on the basis of the graded approach.

<Attachments>

Nuclear Emergency Act, Article 13-2

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Subsidiary Attachments

C02 Nuclear Emergency Act

C10 Guide for Nuclear Operator's EPR plan

Question 1.28

Does the RB have regulations regarding quality assurance in EPR?

Answer

Yes

Finding

The RB has regulations regarding quality assurance in EPR.

Response

-

Subsidiary Question 1.28.1

Do these regulations require periodic reviews and revisions of the plans and procedures, as well as continuous improvement of the licensee's EPR arrangements?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires the arrangements in question.

Radiation facilities: The Radiation Hazards Prevention Act and its Ordinances do not require the continuous review of EPR arrangements on the basis of the graded approach.

<Attachment>

Nuclear Emergency Act, Article 7, paragraph (1)

Subsidiary Attachments

C02 Nuclear Emergency Act

Subsidiary Question 1.28.2

How does the RB verify the effectiveness of the licensee's quality assurance programme?

Subsidiary Response

Nuclear facilities: Based on the Guide for Nuclear Operator's EPR plan, the NRA checks whether Nuclear Operator's EPR plan is continuously reviewed, and its manuals and procedures are periodically reviewed to verify their effectiveness through the exercises and the report of their results.

Radiation facilities: The Radiation Hazards Prevention Act and its Ordinances do not require the verification of the effectiveness of the quality assurance program on the basis of the graded approach.

<Attachments>

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (v)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vi)

Guide for Nuclear Operator's EPR plan - Order for Nuclear Operator's EPR plan, Article 2, paragraph (1), item (vii)

Nuclear Emergency Act, Article 13-2

Subsidiary Attachments

C02 Nuclear Emergency Act

C10 Guide for Nuclear Operator's EPR plan

Question 1.29

Does the RB have functions in responding to an actual nuclear or radiological emergency?

Answer

Yes

Finding

The RB has response functions in case of an actual radiation emergency.

Response

-

Subsidiary Question 1.29.1

What is the role of the RB in an emergency (note that, as a minimum, it should include providing advice)?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires the NRA to play the roles of providing advice, making adjustments, evaluating situation and analyzing impacts for licensees, to provide local governments with information, advice and instructions, and to support the Prime Minister's emergency response measures.

The NRA EPR plan also sets forth provisions concerning status evaluation, various coordination, impact analysis, and protective measure request.

Radiation facilities: The NRA may order authorized operators to modify the location of radioisotopes, etc., remove contamination, and take other necessary measures on the basis of Radiation Hazards Prevention Act. Moreover, the NRA provides technical advice and support for authorized operators and related organizations as necessary.

<Attachments>

Nuclear Emergency Act, Article 4, paragraph (3)

Nuclear Emergency Act, Article 15

NRA EPR Plan, Part 3, Chapter 2, Section 1

Radiation Hazards Prevention Act, Article 33

Subsidiary Attachments

C02 Nuclear Emergency Act

C11 NRA EPR Plan

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.29.2

Does the RB have plans and procedures addressing this role?

Subsidiary Response

Nuclear facilities and Radiation facilities: The plan and procedures on the NRA's role are described in the NRA EPR plan and the NRA nuclear disaster manual based on the Basic Plan for Disaster Preparedness, which provide required actions for the relevant ministries. The NRA first response manual also stipulates the procedures of the NRA response.

<Attachments>

NRA EPR Plan

Nuclear Emergency Response Manual, No. 2, Part 1, Chapter 4, Section 2-1

NRA Initial Response Manual

Subsidiary Attachments

C05 Nuclear Emergency Response Manual

C06 NRA Initial Response Manual

C11 NRA EPR Plan

Subsidiary Question 1.29.3

How does the RB coordinate with other national, regional and local organisations, if relevant?

Subsidiary Response

Nuclear facilities: The Nuclear Emergency Act requires the central government, local governments, licensees, designated public institutions and designated local public institutions to mutually coordinate and cooperate for smooth implementation of precautionary protective measures, emergency response measures and measures following the nuclear emergency. The Nuclear Emergency Act, Articles 16, 17 and 18, require the establishment of Nuclear Emergency Response Headquarters after the declaration of

General Emergency under which the central government, local governments and licensee perform coordination in all aspects. The Nuclear Emergency Act, Article 23, requires the establishment of Joint Council for Nuclear Emergency Response at the local site to enable information exchange and mutual cooperation.

Radiation facilities: After granting a permission or a change of permission, the NRA sends the copy of the related written application to the Fire and Disaster Management Agency, National Public Safety Commission (National Police Agency) and the Ministry of Health, Labour and Welfare, thereby maintaining coordination with them. Upon an inquiry from a related organization such as the police, coast guard officer, and local fire fighting organization, or upon notification from authorized operators, the NRA provides technical support and when necessary dispatches a radiation inspector, thereby maintaining coordination with them.

<Attachments>

Nuclear Emergency Act, Article 6,

Nuclear Emergency Act, Article 16

Nuclear Emergency Act, Article 17

Nuclear Emergency Act, Article 18

Nuclear Emergency Act, Article 23

Nuclear Emergency Response Manual, No. 2, Part 1, Chapter 2, Section 2-1

Nuclear Emergency Response Manual, No. 2, Part 1, Chapter 2, Section 2-5

Nuclear Emergency Response Manual, No. 2, Part 1, Chapter 3, Section 2-1

Nuclear Emergency Response Manual, No. 2, Part 1, Chapter 3, Section 2-6

Nuclear Emergency Response Manual, No. 2, Part 1, Chapter 4, Section 2-24

Nuclear Emergency Response Manual, No. 2, Part 1, Chapter 4, Section 2-25

Radiation Hazards Prevention Act, Article 47

Subsidiary Attachments

C02 Nuclear Emergency Act

C05 Nuclear Emergency Response Manual

Subsidiary Question 1.29.4

Does it have a quality assurance programme related to this role?

Subsidiary Response

Nuclear facilities and Radiation facilities: The NRA Management rules are in place for all NRA activities. The NRA EPR plan sets forth provisions for periodical check of that plan taking into account the changing of social and economic situations, lessons learned from past disasters, evaluation of exercise results and international and domestic research results, and for modifications to that plan when necessary.

<Attachments>

Nuclear Regulation Authority Management Rules, Article 4

NRA EPR Plan, Part 1 General Rules, Chapter 4

Subsidiary Attachments

C11 NRA EPR Plan

C13 Nuclear Regulation Authority Management Rules(For SARIS module3)

Subsidiary Question 1.29.5

Does it have a training, drills and exercise programme for this role?

Subsidiary Response

Nuclear facilities and Radiation facilities: The NRA participates in annual national emergency exercise from the planning stage. The NRA conducts its own exercise for emergency response. In conducting such exercises, the NRA tries to have as practical one as possible, and modifies its EPR plan reflecting the subsequent evaluation of the exercise, which are described in the NRA EPR plan. The NRA provides dedicated training programme for Senior Specialists for Nuclear Emergency Preparedness, for maintaining and improving their competences.

<Attachments>

Nuclear Emergency Act, Article 13

Nuclear Emergency Act, Article 13-2

NRA Organization Ordinance, Chapter 1, Section 2, Subsection 1, Article 6-4

NRA EPR Plan, Part 3, Chapter 1, Section 10

Subsidiary Attachments

C02 Nuclear Emergency Act

C11 NRA EPR Plan

C12 NRA Organization Ordinance(For SARIS module 3)

Subsidiary Question 1.29.6

Does it have the appropriate facilities, support and logistics for this role?

Subsidiary Response

Nuclear facilities and Radiation facilities: As required by Basic Plan for Disaster Preparedness, the NRA has an Emergency Response Centre within the NRA, which is equipped with TV conference systems, Emergency Response Support System (ERSS), display systems of necessary information such as monitoring results and sufficient space for

operations. The Nuclear Emergency Act and the NRA EPR Guide require the establishment and maintenance of off-site centre near the site of nuclear facilities.

<Attachments>

Basic Plan for Disaster Preparedness, Part 12, Chapter 1, Section 5-1(4)

Nuclear Emergency Act, Article 12, paragraph (1)

NRA EPR Guide, No. 2(9)

Off-Site Center (facility that serves as the center for emergency response measures) Manual

Subsidiary Attachments

C02 Nuclear Emergency Act

C03NRA EPR Guide

C04 Basic Plan for Disaster Preparedness

C07 Off-Site Center Manual

Subsidiary Question 1.29.7

How does it verify the effectiveness of its own arrangements?

Subsidiary Response

Nuclear facilities and Radiation facilities: The effectiveness is verified on the basis of the NRA EPR plan and the NRA Management Rules.

For nuclear facilities, the effectiveness of exercises participated by related government ministries and agencies, local governments, and the licensee, etc. is verified at the liaison meeting.

<Attachments>

NRA EPR Plan, Part 3, Chapter 1, Section 5-5

Nuclear Regulation Authority Management Rules, Chapter 6

Subsidiary Attachments

C11 NRA EPR Plan

C13 Nuclear Regulation Authority Management Rules(For SARIS module3)

OUTCOMES OF THE SELF-ASSESSMENT FOR PUBLIC AND ENVIRONMENTAL EXPOSURE CONTROL, WASTE MANAGEMENT AND DECOMMISSIONING

Module: Control of Radioactive Discharges and Materials for Clearance

Findings

Question 1.1

Before authorization of a new or modified practice, does the regulatory body establish or approve operational limits and conditions relating to public exposure, including authorized limits for discharges?

Answer

Yes

Finding

The regulatory body establishes or approves, before authorization of a new or modified practice, operational limits and conditions relating to public exposure, including authorized limits for discharges.

Response

[Regulations for licensees under the Reactor Regulation Act]

A person who intends to obtain a permit for the establishment of commercial reactors, etc. indicates the structure and equipment of the predisposal facility of radioactive waste in the application forms. The NRA specifies the following design requirements for the predisposal facility: it has processing capacity that can sufficiently reduce the concentration of radioactive material in the air, etc. outside the surrounding monitored area; it can prevent leakage of liquid radioactive material; and it can prevent solid radioactive material from being dispersed. Furthermore, when granting a permit, the NRA examines whether the facility can achieve the dose target value of 50 uSv/year. It also reviews whether the

operational safety programs specified by the licensee include the following matters: a release management method to achieve the control targets and the reference value of radioactive waste; and measurement of the concentration of radioactive waste and its frequency.

The NRA specifies the following operational requirements, etc. for the facility pursuant to the requirements: the facility must be operated under the supervision of a person with necessary knowledge of predisposal and radiation protection concerning predisposal; and the concentrations of radioactive material in the outside air and water must not exceed the concentration limit prescribed by the NRA during ventilation or discharge. Pursuant to the Dose Limit Notices, the concentration of radioactive material should not exceed 1mSv/ year.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Upon the application for permission of use of radioisotopes or to manage radioactive wastes, and change of its practice under the Radiation Hazards Prevention Act, the applicant is required to keep the dose at the boundary of the site or the concentrations of radioisotopes in discharge water or ventilation air within the limit specified by the NRA.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 3, paragraph (1), item (ii)(g), Article 90

Fuel Fabrication Ordinance, Article 2, paragraph (1), item (i)(e)

Research Reactors Ordinance, Article 1-3, paragraph (1), item (ii)(g), Article 14

Research Power Reactors Ordinance, Article 3, paragraph (1), item (ii)(g), Article 85

Spent Fuel Storage Ordinance, Article 2, Article 35

Reprocessing Ordinance, Article 1-2, paragraph (1), item (ii)(g)

Category 1 Waste Disposal Ordinance, Article 3, Article 61

Category 2 Waste Disposal Ordinance, Article 2, Article 19

Waste Storage Ordinance, Article 2, Article 33

Nuclear Fuel Materials Use Permit Ordinance, Article 24

Commercial Reactor Establishment Permit Guide, Article 27

Fuel Fabrication Permit Ordinance, Article 17

Research Reactors Establishment Permit Ordinance., Article 22

Spent Fuel Storage Permit Ordinance, Article 18

Reprocessing Permit Ordinance, Article 21

Category 2 Waste Disposal Permit Ordinance, Article 12

Waste Storage Permit Ordinance, Article 17

Commercial Reactors Dose Limit Notice, Article 9

Fuel Fabrication Dose Limit Notice, Article 9

Research Reactors Dose Limit Notice., Article 9

Commercial Reactors Operational Safety Program Standards, Article 92, paragraph(1), item(xviii)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Amount of RI notice, Article 14

Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 1.1.1

Please describe the mechanism used by the regulatory body in establishing or approving the operational limits of discharges.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

A person who intends to obtain a license for the establishment of commercial reactors, etc. indicates the structure and equipment of the radioactive waste predisposal facility in the application forms. The NRA specifies the following design requirements for the predisposal facility: it has processing capacity that can sufficiently reduce the concentration of radioactive material in the air, etc. outside the surrounding monitored area; it can prevent leakage of liquid radioactive material; and it can prevent solid radioactive material from being dispersed. Furthermore, when granting a license, the NRA examines whether the facility can achieve the dose target value of 50 uSv / year. Moreover, the NRA checks whether the facility is constructed according to the application forms upon approval of the construction plan and a pre-service inspection.

The licensee will specify operational safety programs as operational safety measures and obtain the approval of the NRA.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Upon the application for permission of use of radioisotopes or to manage radioactive wastes, and change of its practice, under the Radiation Hazards Prevention Act, the applicant shall ensure that the facility has the ability to keep the dose at the boundary of the site or the exposure due to radioisotopes in discharge water or ventilation air within the dose limit specified by the NRA. A licensee is obligated to ensure that the facility concerned satisfies the above-mentioned requirement. Upon receiving an application for permission or changing permission from an applicant, the NRA reviews the application form and grants permission after confirming that the standards for permission is satisfied.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 16-2, Article 16-3, Article 22, Article 27, Article 28, Article 37, Article 43-3-9, Article 43-3-11, Article 43-3-24, Article 45, Article 46, Article 50, Article 55-2, Article 56-3

Commercial Reactors Ordinance, Article 3, paragraph (1), item (ii)(g), Article 90,
Fuel Fabrication Ordinance, Article 2, paragraph (1), item (i)(e), Article 8
Research Reactors Ordinance, Article 1-3, paragraph (1), item (ii)(g), Article 14
Research Power Reactors Ordinance, Article 3, paragraph (1), item (ii)(g), Article 85
Spent Fuel Storage Ordinance, Article 2, Article 35
Reprocessing Ordinance, Article 1-2, paragraph (1), item (ii)(g), Article 17
Category 1 Waste Disposal Ordinance, Article 3, Article 61
Category 2 Waste Disposal Ordinance, Article 2, Article 19
Nuclear Fuel Materials Use Ordinance, Article 1-2, Article 2-12
Waste Storage Ordinance, Article 2, Article 33
Commercial Reactor Establishment Permit Guide, Article 27
Fuel Fabrication Permit Ordinance, Article 17
Research Reactors Establishment Permit Ordinance., Article 22
Spent Fuel Storage Permit Ordinance, Article 18
Reprocessing Permit Ordinance, Article 21
Category 2 Waste Disposal Permit Ordinance, Article 12
Waste Storage Permit Ordinance, Article 17
Nuclear Fuel Materials Use Permit Ordinance, Article 24

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 6 item (3), Article 7, Article 19, and Article 20 paragraph 1

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) and (5), Article 14-7 paragraph 1 item (3), Article 19 paragraph 1, and Article 20 paragraph 1

Amount of RI Notice, Article 14

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K07The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Facilities using Nuclear Fuel Materials

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 1.1.2

Is it requested that in applying for an authorization for discharges, the registrants and licensees determine the characteristics and activity of the material to be discharged, and the possible points and methods of discharge? Indicate or attach the relevant regulation.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

A person who intends to obtain a license for the establishment of coimmercial reactors, etc. indicates the structure and equipment of the radioactive waste predisposal facility in the application forms. Specifically, the licensee indicates the structure of equipment, equipment function, processing capacity of gas, liquid, and solid materials, and the location of discharge ports. These forms are examined by the NRA. Furthermore, the NRA reviews whether the operational safety programs specified by the licensee include the following matters: a release management method to achieve the control targets and the reference value of radioactive waste; and measurement of the concentration of radioactive waste and its frequency.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

The applicant shall demonstrate in the application form for permission or changing permission that the facility concerned is capable of keeping the dose at the boundary of the site or the exposure due to radioisotopes in discharge water or ventilation air within the dose limit specified by the NRA. The NRA reviews the application form and grants permission.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 3, paragraph (1), item (ii)(g), article 92

Fuel Fabrication Ordinance, Article 2, paragraph (1), item (i)(e), Article 8

Research Reactors Ordinance, Article 1-3, paragraph (1), item (ii)(g), Article 14

Research Power Reactors Ordinance, Article 3, paragraph (1), item (ii)(g), Article 85

Spent Fuel Storage Ordinance, Article 2, Article 37

Reprocessing Ordinance, Article 1-2, paragraph (1), item (ii)(g), Article 17

Category 1 Waste Disposal Ordinance, Article 3, Article 63

Category 2 Waste Disposal Ordinance, Article 2, Article 20

Waste Storage Ordinance, Article 2, Article 34

Nuclear Fuel Materials Use Ordinance, Article 1-2, Article 2-12

Fuel Fabrication Permit Ordinance, Article 17

Reprocessing Permit Ordinance, Article 21

Nuclear Fuel Materials Use Permit Ordinance, Article 24

Commercial Reactors Operational Safety Program Standards, Article 92, paragraph (1), item (xviii)

Spent Fuel Storage Operational Safety Program Standards, Article 37, paragraph (1), item (ix)

Category 2 Waste Disposal Operational Safety Program Standards, Article 20, paragraph (1), item (ix)

Waste Storage Operational Safety Program Standards, Article 34, paragraph (1), item (ix)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20 paragraph 1

Radiation Hazards Prevention Ordinance, Article 20 paragraph 1, Article 14-11 paragraph 1 item (4) and (5), and Article 14-7 paragraph 1 item (3)

Amount of RI Notice, Article 14

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G08The Standard Review Plan on Approval of Operational Safety Program of Spent Fuel Interim Storage Facilities

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K07The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Facilities using Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 1.1.3

Is it requested that in applying for an authorization for discharges, the registrants and licensees determine by an appropriate pre-operational study all significant exposure pathways by which discharged radionuclides could give rise to exposure of members of the public? Indicate or attach the relevant regulation?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

A person who intends to obtain a license assesses the following effective doses upon the calculation of dose: effective doses resulting from gamma rays dispersed from a radioactive noble gas; effective doses resulting from internal exposure through the ingestion of marine products contaminated with radioactive materials in liquid waste; and effective doses resulting from internal exposure through the inhalation of iodine in gaseous waste and the ingestion of vegetables and milk.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

The licensee handling unsealed sources is obligated to monitor the concentrations of radioisotopes in discharge water and ventilation air from the facility concerned and to ensure keeping the exposure within the dose limit specified by the NRA. When receiving an application form for permission or changing permission from an applicant, the NRA reviews whether the facility has the prescribed capacity.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities, V. Calculation of Radiation Doses

Fuel Fabrication Ordinance, Article 2

Research Reactors Ordinance, Article 1-3, paragraph (1), item (ii)(g)

Research Power Reactors Ordinance, Article 3, paragraph (1), item (ii)(g)

Reprocessing Ordinance, Article 1-2

Nuclear Fuel Materials Use Ordinance, Article 1-2

Fuel Fabrication Permit Guide, Article 17

Research Reactors Technical Standards Ordinance., Article 33

Spent Fuel Storage Permit Guide, Article 18

Reprocessing Permit Guide, Article 21

Category 2 Waste Disposal Permit Guide, Article 12

Waste Storage Permit Guide, Article 17

Nuclear Fuel Materials Use Permit Guide, Article 24

Fuel Fabrication Dose Limit Notice Material, Article 9

Research Reactors Dose Limit Notice., Article 9

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 6 item (3), Article 7, Article 19, and Article 20 paragraph 1

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) and (5), Article 14-7 paragraph 1 item (3), Article 19 paragraph 1, and Article 20 paragraph 1

Amount of RI Notice, Article 14

Subsidiary Attachments

F03 Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F05 Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

G06 The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G09 The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

G11 The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

H26 Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16 Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01 The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02 The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03 The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K05 The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06 The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K07 The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Facilities using Nuclear Fuel Materials

M01 The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M05 The NRA Ordinance on Technical Standards for the Capabilities of Nuclear Research and Test Reactors etc.

Subsidiary Question 1.1.4

Is it requested that in applying for an authorization for discharges, the registrants and licensees assess the doses to the representative person due to the planned discharges? Indicate or attach the relevant regulation.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Upon application, a person who intends to obtain a license assesses the dose of the residents of the area surrounding the nuclear facility who are subject to the maximum exposure from the dose emitted by the licensee pursuant to the guidelines for dose assessment. When examining the license, the NRA checks whether the nuclear facility has the capacity to dispose of radioactive waste that enables sufficient reduction of the concentration of radioactive material in the air outside the surrounding monitored area and in the water at the outer boundary of the surrounding monitored area.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

A licensee handling unsealed sources is obligated to monitor the concentrations of radioisotopes in discharge water and ventilation air and to ensure that the concentrations are kept under the prescribed limits. When receiving an application form for permission or changing permission from an applicant, the NRA reviews whether the facility is capable of controlling the concentrations in discharge water and ventilation air within the prescribed limits, and grants permission after confirmation.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactor Establishment Permit Ordinance, Article 27

Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities, II-1.

Fuel Fabrication Permit Ordinance, Article 17

Research Reactors Establishment Permit Ordinance., Article 22

Spent Fuel Storage Permit Ordinance, Article 18

Reprocessing Permit Ordinance, Article 21

Waste Storage Permit Ordinance, Article 17

Category 2 Waste Disposal Permit Ordinance, Article 12

Nuclear Fuel Materials Use Permit Ordinance, Article 24

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 6 item (3), Article 7, Article 19, and Article 20 paragraph 1,

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) and (5), Article 14-7 paragraph 1 item (3), Article 19 paragraph 1, and Article 20 paragraph 1

Amount of RI Notice, Article 14

Subsidiary Attachments

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

H26Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K07The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Facilities using Nuclear Fuel Materials

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

Subsidiary Question 1.1.5

Is it requested that in applying for an authorization for discharges, the registrants and licensees consider the radiological environmental impacts in an integrated manner with features of the system of protection and safety, as required by the regulatory body? Please indicate or attach the relevant regulation.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA only controls discharge pursuant to the Dose Limit Notices. Specifically, the NRA requires that a person who intends to obtain a license, etc. assess the dose of residents living near a nuclear reactor under normal operation and that of the area surrounding the site at the time of an accident and indicate the results thereof in the application forms.

[Regulations for licensees under the Radiation Hazards Prevention Act]

A licensee handling unsealed sources is obligated to monitor the concentrations of radioisotopes in discharge water and ventilation air and to ensure that the concentrations are kept under the prescribed limits. When receiving an application form for permission or changing permission from an applicant, the NRA reviews whether the facility is capable of controlling the concentrations in discharge water and ventilation air within the prescribed limits, and grants permission after confirmation.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 3, paragraph (2), item (ix)

Fuel Fabrication Ordinance, Article 2, paragraph (2), item (vi)

Research Reactors Ordinance, Article 1-3, paragraph (2), item (ix)

Research Power Reactors Ordinance, Article 3, paragraph (2), item (ix)

Spent Fuel Storage Ordinance, Article 2, paragraph (2), item (vii)

Reprocessing Ordinance, Article 1-2, paragraph (2), item (vii)

Category 1 Waste Disposal Ordinance, Article 3, paragraph (2), item (vi)

Category 2 Waste Disposal Ordinance, Article 2, paragraph (2), item (vi)

Waste Storage Ordinance, Article 2, paragraph (2), item (vi)

Nuclear Fuel Materials Use Ordinance of Nuclear Fuel Material

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 6 item (3), Article 7, Article 19, and Article 20 paragraph 1

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) and (5), Article 14-7 paragraph 1 item (3), Article 19 paragraph 1, and Article 20 paragraph 1

Amount of RI Notice, Article 14

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 1.1.6

Is it requested that in applying for an authorization for discharges, the registrants and licensees submit the findings of the studies mentioned above to the regulatory body as an input to the establishment by the regulatory body, of authorized limits on discharges and conditions for their implementation? Indicate or attach the relevant regulation.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The NRA requires that a person who intends to obtain a license submit the results of assessment stated in the replies of SQID1.2~1.4 and confirms them during the review process.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

For permission or changing permission, an applicant shall submit to the NRA the application form ensuring that the facility concerned is equipped with the drainage and ventilation equipment capable of keeping the concentrations of radioisotopes in discharge water and ventilation air within the prescribed limits.

Subsidiary Question 1.1.7

Has the regulatory body established or approved operational limits and conditions relating to public exposure, including authorized limits for discharges? Please indicate or attach the relevant regulations?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

A person who intends to obtain a license for the establishment of commercial reactors, etc. indicates the structure and equipment of the radioactive waste predisposal facility in the application forms. The NRA specifies the following design requirements for the predisposal facility: it has processing capacity that can sufficiently reduce the concentration of radioactive material in the air, etc. outside the surrounding monitored area; it can prevent leakage of liquid radioactive material; and it can prevent solid radioactive material from being dispersed. Furthermore, when granting a license, the NRA examines whether the facility can achieve the dose target value of 50 uSv/ year. It also reviews whether the operational safety programs specified by the licensee include the following matters: a release management method to achieve the control targets and the reference value of radioactive waste; and measurement of the concentration of radioactive waste and its frequency.

The NRA specifies the following operational requirements, etc. for the facility pursuant to the requirements: the facility must be operated under the supervision of a person with necessary knowledge of predisposal and radiation protection concerning predisposal; and the concentrations of radioactive material in the outside air and water must not exceed the limit prescribed by the Nuclear Regulation Authority during ventilation or discharge.

Pursuant to the Dose Notification, the concentration of radioactive material should not exceed 1mSv a year.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

For permission of use of radioisotopes or radioactive waste management, and change of its permission, under the Radiation Hazards Prevention Act, the applicant is required to ensure that the facility is capable of keeping the dose at the boundary of the site or exposure due to radioisotopes in discharge water or ventilation air within the dose limit specified by the NRA. A licensee is obligated to ensure that the facility satisfies the above-described requirement. Upon receiving an application form for permission or changing permission from an applicant, the NRA reviews the application and grants permission after confirming that the above-described standard for permission is satisfied.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 3, paragraph (1), item (ii)(g), Article 90

Fuel Fabrication Ordinance, Article 2, paragraph (1), item (i)(e)

Research Reactors Ordinance, Article 1-3, paragraph (1), item (ii)(g), Article 14

Research Power Reactors Ordinance, Article 3, paragraph (1), item (ii)(g), Article 85

Spent Fuel Storage Ordinance, Article 2, Article 35

Reprocessing Ordinance, Article 1-2, paragraph (1), item (ii)(g)

Category 1 Waste Disposal Ordinance, Article 3, Article 61

Category 2 Waste Disposal Ordinance, Article 2, Article 19

Waste Storage Ordinance, Article 2, Article 33

Nuclear Fuel Materials Use Permit Ordinance, Article 24

Commercial Reactor Establishment Permit Guide, Article 27

Fuel Fabrication Permit Ordinance, Article 17

Research Reactors Establishment Permit Ordinance., Article 22

Spent Fuel Storage Permit Ordinance, Article 18

Reprocessing Permit Ordinance, Article 21

Category 2 Waste Disposal Permit Ordinance, Article 12

Waste Storage Permit Ordinance, Article 17

Commercial Reactors Dose Limit Notice, Article 9

Fuel Fabrication Dose Limit Notice, Article 9

Research Reactors Dose Limit Notice., Article 9

Commercial Reactors Operational Safety Program Standards, Article 92, paragraph(1), item(xviii)

Research Reactors Operational Safety Program Standards, Article 15, paragraph(1), item(xiv)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 6 item (3), Article 7, Article 19, Article 20 paragraph 1, and Article 13

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) and (5), Article 14-7 paragraph 1 item (3), Article 19 paragraph 1, Article 20 paragraph 1

Amount of RI Notice, Article 14

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 1.1.8

Are the operational (discharge) limits and conditions used by registrants and licensees as the criteria for demonstration of compliance after the commencement of operation of a source? Please refer to relevant document.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Pursuant to the Reactor Regulation Act and related ordinances and notices, the licensee indicates the matters related to the monitoring of the dose and the concentrations of radioactive material, etc. in the operational safety programs and complies with these matters. The licensee records the concentrations of radioactive material contained in radioactive waste in the ventilation ports or ventilation/discharge monitoring equipment and reports the results thereof to the NRA on a regular basis.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

A licensee is obligated to measure the concentrations of radioisotopes in discharge water and ventilation air from the facility concerned and, on each occasion, to confirm whether the concentrations are within the prescribed standard values, and to keep these records for a period of five years. The NRA confirms the licensee's compliance with this requirement through on-site inspections and periodic confirmations.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xiv), Article 67, paragraph (1), item (v)(b), Article 136

Fuel Fabrication Ordinance, Article 8, paragraph (2), paragraph (11), Article 7, paragraph (1), item (ii)(a), Article 10

Research Reactors Ordinance, Article 15, paragraph (1), item (viii), Article 6, paragraph (1), item (iv)(b), Article 18

Research Power Reactors Ordinance, Article 87, paragraph (1), item (xiv), Article 62, paragraph (1), item (v)(b), Article 131

Spent Fuel Storage Ordinance, Article 37, Article 27, Article 48

Reprocessing Ordinance, Article 17, paragraph (2), item (xiii), Article 8, paragraph (1), item (ii)(b), Article 21

Category 1 Waste Disposal Ordinance, Article 63, Article 44, Article 91

Category 2 Waste Disposal Ordinance, Article 20, Article 13, Article 27

Waste Storage Ordinance, Article 34, Article 26, Article 40

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (v), Article 2-11, paragraph (1), item (ii)(b), Article 7

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20 paragraph 1, Article 19, Article 43-2 and Article 12-10

Radiation Hazards Prevention Ordinance, Article 20 paragraph 1 and 4, and Article 19 paragraph 1

Amount of RI Notice, Article 14

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 1.1.9

Do the operational limits and conditions correspond to doses below the dose limits with account taken of the results of optimization of protection and safety? Please refer to relevant document.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The licensee specifies operational safety programs. The NRA checks whether the licensee sets the basic policy for operational safety is in line with the ARALA principle, etc., and then approves the operational safety programs. The NRA also inspects compliance with these programs on a regular basis.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

Licensees handling unsealed sources are obligated to monitor the concentrations of radioisotopes in discharge water and ventilation air and to ensure that the dose resulting from continuous ingestion of discharge water or inhalation of the ventilation air with such concentrations does not exceed the dose limit specified by the NRA. Furthermore, the NRA implements inspections, etc. so as to ensure radiation management based on the spirit of ARALA.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 18, Article 22, Article 37, Article 43-3-24, Article 43-20, Article 50, Article 51-18, Article 56-3

Commercial Reactor Establishment Permit Guide, Article 27

Fuel Fabrication Permit Ordinance, Article 17

Research Reactors Establishment Permit Ordinance., Article 22

Spent Fuel Storage Permit Ordinance, Article 18

Reprocessing Permit Ordinance, Article 21

Category 2 Waste Disposal Permit Ordinance, Article 12

Waste Storage Permit Ordinance, Article 17

Nuclear Fuel Materials Use Permit Ordinance, Article 24

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 6 item (3), Article 7, Article 19, Article 20 paragraph 1, and Article 13

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) and (5), Article 14-7 paragraph 1 item (3), Article 19 paragraph 1, Article 20 paragraph 1

Amount of RI Notice, Article 14

Subsidiary Attachments

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K07The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Facilities using Nuclear Fuel Materials

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

Subsidiary Question 1.1.10

Do the operational limits and conditions take into account good practice in the operation of similar sources? Please refer to relevant regulatory document.

Subsidiary Response

No.

Subsidiary Question 1.1.11

Are the registrants and licensees put under the obligation to review and modify their discharge control measures, as appropriate and in agreement with the regulatory body, taking into account: (a) operating experience; (b) any changes in exposure pathways or in the composition of the of the that could affect the assessment of doses due to the discharges. If so, please indicate or attached the relevant regulation.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Pursuant to the Reactor Regulation Act, the licensee conducts of safety assessment of continuous improvement for commercial reactors, fuel fabrication facilities, and reprocessing facilities on a regular basis in order to improve the safety of these facilities (including the predisposal of radioactive waste) and publishes the results thereof. The licensee is also required to investigate the latest knowledge, etc. in domestic and oversea to prepare a safety improvement plan, etc.

For other nuclear facilities, the licensee performs periodic safety reviews on the performance of operational safety activities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

The discharge control measures may be reviewed and modified, as required under the Radiation Hazards Prevention Act or as guided by the voluntary efforts of the industrial associations. The NRA provides support for seminars, and others on radiation safety that is voluntarily organized by industrial associations. Staff members of the NRA also provide seminars and lectures in such occasions on a regular basis to inform the participants of the current status of radiation-related regulations, and give a progress report on troubles and causes of and countermeasures against these troubles. These seminars are held on a continuous basis.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 22-7-2, Article 35, Article 43-3-29, Article 43-18, Article 50-4-2, Article 51-16

Research Reactors Ordinance, Article 14-2, Article 15

Spent Fuel Storage Ordinance, Article 35-2

Category 1 Waste Disposal Ordinance, Article 58

Category 2 Waste Disposal Ordinance, Article 19-2

Waste Storage Ordinance, Article 33-2

The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 43-2, Article 12-9, Article 13, Article 14, Article 10 paragraph 2, and Article 3

Subsidiary Attachments

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 1.2

If there are situations where discharges of radioactive substances to the environment could cause exposure to members of the public in another country, does the Regulatory Body ensure that the associated doses are optimised according the requirements of GSR PART 3?

Answer

Yes

Finding

In situations where discharges of radioactive substances to the environment could cause exposure to members of the public in another country, the Regulatory Body ensures that the associated doses are optimised according the requirements of GSR PART 3.

Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

The licensee performs controlled discharge of radioactive waste in compliance with laws and ordinances in Japan in order to not affect the public at off-site locations. This requirement ensures the prevention of any influence of the discharge outside Japan.

Subsidiary Question 1.2.1

Indicate the relevant provisions and describe how the Regulatory Body ensures this.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

See our replies to QID1 SQID1.1 to 1.12.

Question 1.3

Has the regulatory body decided which sources, including materials and objects, within notified or authorized practices could be cleared from further regulatory control?

Answer

Yes

Finding

The regulatory body has decided which sources, including materials and objects, within notified or authorized practices could be cleared from further regulatory control.

Response

-

Subsidiary Question 1.3.1

Specify the materials that according to regulations can be candidate for clearance. Indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Pursuant to the Refining Radioactivity Concentrations Confirmation Ordinance and the Research Reactors Radioactivity Concentrations Confirmation Ordinance, the following materials, etc. generated through the operation, dismantling, etc. of the nuclear facilities are subject to clearance in Japan: scrap metals, concrete and glass debris (limited to rock wool and glass wool). Their scope is defined according to the types of business and facility.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Pursuant to the Amount of RI Notice, the following materials are designated as materials subject to clearance.

Metals, concrete debris, glass debris, cinders, and dusts contaminated by radioisotopes.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 61-2

Refining Radioactivity Concentrations Confirmation Ordinance, Article 2, paragraph (2)

Research Reactors Radioactivity Concentrations Confirmation Ordinance, appended table (related to Article 2), column 1

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 33-2

Radiation Hazards Prevention Ordinance, Article 20-3, and Articles 29-2 through 29-7

Amount of RI notice, Article 27, and appended Table 7

Subsidiary Attachments

G14The NRA Ordinance on Confirmation of Radioactive Concentrations of Material used in Activities of Refining Nuclear Source or Nuclear Fuel Materials, etc.

G15The NRA Ordinance on Confirmation, etc of Radioactive Concentrations of Material used in Nuclear Research and Test Reactors, etc.

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Question 1.4

Are the general clearance criteria approved by the regulatory body the following:

a) Radiation risks arising from the cleared material are sufficiently low as not to warrant regulatory control, with no appreciable likelihood of occurrence for scenarios that could lead to a failure to meet the general criterion for clearance; or b) continued regulatory control of the material would yield no net benefit, in that no reasonable control measures would achieve a worthwhile return in terms of reduction of individual doses or of health risks?

Answer

Yes

Finding

The general clearance criteria approved by the regulatory body are the followings a) Radiation risks arising from the cleared material are sufficiently low as not to warrant regulatory control, with no appreciable likelihood of occurrence for scenarios that could lead to a failure to meet the general criterion for clearance; or b) continued regulatory control of the material would yield no net benefit, in that no reasonable control measures would achieve a worthwhile return in terms of reduction of individual doses or of health risks.

Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

The following are basic idea of criteria for the radioactive concentration when confirming that no measures for the prevention of radiation hazards are needed for the radioactive concentrations of radioactive materials contained in waste generated through the operation, dismantling, etc. of the nuclear facility and radiation facility:

- The radioactive concentration is sufficiently low, even compared to the natural background (a)*
- The risk to the human health is regarded as negligible (b)*

Subsidiary Question 1.4.1

Please indicate or attach the relevant regulation.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

- Reactor Regulation Act, Article 61-2*

- *Refining Radioactivity Concentrations Confirmation Ordinance*
- *Research Reactors Radioactivity Concentrations Confirmation Ordinance*

[Regulations for licensees under the Radiation Hazards Prevention Act]

- *Radiation Hazards Prevention Act, Article 33-2*
- *Radiation Hazards Prevention Cabinet Order, Article 20-3*
- *Radiation Hazards Prevention Ordinance, Articles 29-2 through 29-7*
- *Amount of RI Notice, Article 27, appended Table 7*

Question 1.5

Are the clearance criteria in terms of dose provided in the regulations as follows: Material may be cleared without further consideration provided that in all reasonably foreseeable situations the effective dose expected to be incurred by any member of the public due to the cleared material is of the order of 10 μ Sv or less in a year.

Answer

Yes

Finding

The clearance criteria in terms of dose are as follows: Material may be cleared without further consideration provided that in all reasonably foreseeable situations the effective dose expected to be incurred by any member of the public due to the cleared material is of the order of 10 μ Sv or less in a year.

Response

-

Subsidiary Question 1.5.1

Please indicate or attach the relevant regulation.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

- *Refining Radioactivity Concentrations Confirmation Ordinance*
- *Research Reactors Radioactivity Concentrations Confirmation Ordinance*

[Regulations for licensees under the Radiation Hazards Prevention Act]

- *Radiation Hazards Prevention Act, Article 33-2*
- *Radiation Hazards Prevention Cabinet Order, Article 20-3*
- *Radiation Hazards Prevention Ordinance, Articles 29-2 through 29-7*
- *Amount of RI notice, Article 27, appended table 7*

Subsidiary Question 1.5.2

Have the regulatory body approved clearance levels in terms of radionuclide concentrations for radioactive material within a notified practice or an authorized practice to be used in releasing such material from regulatory control without further consideration? Attach the relevant document.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

It is specified that facilities and materials subject to clearance and the reference level of radioactive concentration for clearance of each radionuclide in Japan.

The NRA approves the measurement and evaluation method of radioactive concentration. The licensee measures and evaluates the concentration using the approved method. After the NRA confirms that the requirements for the radioactive concentration review (clearance) under the Ordinance are satisfied, the relevant objects are exempted from regulatory control.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The NRA specifies the reference value of the radioactivity concentrations subject to clearance.

The NRA approves the measurement and assessment method of radioactivity concentrations. When the licensee measures and assesses the concentration according to the approved method and it is confirmed that the concentration is under the reference value for clearance, the relevant objects are exempted from regulatory control.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Refining Radioactivity Concentrations Confirmation Ordinance

Research Reactors Radioactivity Concentrations Confirmation Ordinance

[Regulations for licensees under the Radiation Hazards Prevention Act]

-Radiation Hazards Prevention Ordinance, Article 29-6, Article 29-7, and Article 29-2

-Amount of RI Notice, Article 27, appended Table 7

Subsidiary Attachments

G14The NRA Ordinance on Confirmation of Radioactive Concentrations of Material used in Activities of Refining Nuclear Source or Nuclear Fuel Materials, etc.

G15The NRA Ordinance on Confirmation, etc of Radioactive Concentrations of Material used in Nuclear Research and Test Reactors, etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Subsidiary Question 1.5.3

Is it provided in the regulations that clearance may be granted for specific situations, subject to conditions specified by the regulatory body, with account taken of the physical or chemical form of the radioactive material, and its use or the means of its disposal? Please indicate or attach the relevant regulations.

Subsidiary Response

No.

Subsidiary Question 1.5.4

Is it provided in the regulations that in case of clearance of radioactive material containing more than one radionuclide of artificial origin, the condition for clearance is that the sum of the individual radionuclide activity concentrations is less than the derived clearance level for the mixture (X_m), obtained by the equation given in paragraph 4.7. of RS-G-1.7?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

In Japan, it is required that the radioactive concentration is assessed according to the equation given in paragraph 4.7. of RS-G-1.7.

Subsidiary Question 1.5.5

Is it provided by the regulations that in case of clearance of bulk quantities of material containing a mixture of radionuclides of natural origin and radionuclides of artificial origin, the conditions given in paragraphs 4.6 and 4.7 of RS-G-1.7 have to be satisfied?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

There is no provision in law, etc. in Japan that regulates radionuclides of natural origin.

Module: Environmental Monitoring Associated with Authorized Practices for Public Radiation Protection Purposes

Findings

Question 2.1

Do the regulations provide that the regulatory body and relevant parties have the responsibility to ensure that programmes for source monitoring and environmental monitoring are in place and that the results from the monitoring are recorded and are made available?

Answer

Yes

Finding

The regulations provide that the regulatory body and relevant parties have the responsibility to ensure that programmes for source monitoring and environmental monitoring are in place and that the results from the monitoring are recorded and are made available.

Response

[Regulations for licensees in the Reactor Regulation Act]

In principle, the Act requires the licensees to perform monitoring on site. The Nuclear Regulation Authority (NRA) has inherited and taken jurisdiction over the items defined as regulations in the Act for Nuclear Reactor Regulations and other relevant ordinances and notices such as the the Commercial Reactors Ordinance, the Dose Limit Notices etc. and the “Regulatory Guide ; Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities” defined in September 1976 (final-revised in March 2001). These documents specify the responsibilities of regulatory bodies and relevant parties in implementing source monitoring and environmental monitoring programs and in keeping and disclosing these monitoring records.

For off-site monitoring, the Basic Disaster Prevention Plan defines that local governments should perform regular monitoring under the technical support from the State.

[Regulations for licensees in the Radiation Hazards Prevention Act]

For on-site, the Act requires the licensees (i.e. permitted users and permitted waste management operators, hereafter same) to perform monitoring. The Act and its Ordinances stipulate that the licensee shall perform source monitoring, record its results, and report to the NRA. The NRA has responsibility to ensure these programs.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Articles 21-2, 34, 43-3-22, 43-18, 48, 51-16, and 67

Commercial Reactors Ordinance Articles 67, 90, and 92, paragraph(1), items (xii) to (xv), (xvii), (xviii), (xxiv), and (xxvii), as well as Article 136

Fuel Fabrication Ordinance Articles 7, 7-8, and 8, paragraph(1), items (viii) to (x), (xiii), (xiv), (xix), and (xxii), and Article 10

Research Reactors Ordinance Articles 6, 14, and 15, paragraph(1), items (ix), (x), (xiii), (xiv), and (xix), and Article 18

Spent Fuel Storage Ordinance Articles 27, 35, and 37, paragraph(1), items (viii) to (xi), (xiv), (xv), (xvii), and (xx), and Article 48

Reprocessing Ordinance Articles 8, 16, and 17, paragraph(1), items (ix) to (xii), (xv), (xvi), (xxii), and (xxv), and Article 21

Category 1 Waste Disposal Ordinance Articles 44, 61, and 63, paragraph(1), items (viii) to (xi), (xiv), (xvi), (xix), and Article 91

Category 2 Waste Disposal Ordinance Articles 13, 19, and 20, paragraph(1), items (viii) to (x), (xii), (xiv), (xvi), and (xix), and Article 27

Waste Storage Ordinance Articles 26, 33, and 34, paragraph(1), items (viii) to (xi), (xiv), (xvi), and (xix), Article 40

Nuclear Fuel Materials Use Ordinance Articles 2-11, 4, and 2-12, paragraph(1), items (iv) to (vii), (ix), (x), and (xii), and Article 7

Commercial Reactors Dose Limit Notice

Fuel Fabrication Dose Limit Notice

Regulatory Guide ; Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) (c) and item (5) (a), Article 19 paragraph 1 items (2) and (5), Article 20 paragraph 1 items (2) and (4), and Article 39 paragraph 1

Amount of RI Notice, Article 14

Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H26Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 2.1.1

Is the regulatory body responsible, as appropriate, for review and approval of monitoring programmes of registrants and licensees, in order to ensure that they are sufficient for

a) verifying compliance with the requirements of GSR PART 3 in respect of public exposure from practices and

b) assessing doses from public exposure? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act]

Yes.

The NRA approves operational safety programs defined by the licensee as required in the Reactor Regulation Act and other relevant ordinances and notices such the NRA Ordinances for Respective Operations, and the Dose Limit Notices. In that approval, the NRA confirms that public exposure caused by operations of the licensee meet the requirements defined in GSR part 3 and that the licensee be capable of assessing the dose of public exposure and keep it 1 mSv/year or lower outside of the surrounding monitored area.

[Regulations for licensees in the Radiation Hazards Prevention Act]

In the Radiation Hazards Prevention Act, its Cabinet Order, Ordinance and related Notifications (hereinafter, referred to as "the Radiation Hazards Prevention Act and its Ordinances"), the NRA requires that public exposure caused by operations of licensees meets the requirements defined in GSR part 3 and that the dose of public exposure not exceed 1 mSv/year outside of the facility boundary. Then, the NRA confirms that these requirements are met during a review for granting permission to a facility.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Article 13, paragraph 2, item 5, Article 23, 43-3-5, paragraph 2, item 9, Articles 43-18, Article 44, paragraph (2), item (vii), and Article 51-16,

Commercial Reactors Ordinance Article 3, paragraph (1), item (vi)(c), Article 92, paragraph (1), items (xii) to (xv), (xvii), (xviii), (xxiv), and (xxvii)

Fuel Fabrication Ordinance Article 2, paragraph (1), item (iv)(c), Article 8, paragraph (1), items (viii) to (x), (xiii), (xiv), (xix), and (xxii)

Research Reactors Ordinance Article 15, paragraph (1), items (ix), (x), (xiii), (xiv), and (xix)

Spent Fuel Storage Ordinance Article 2, paragraph 2, item 7, and Article 37, paragraph (1), items (viii) to (xi), (xiv), (xv), (vvii), and (xx)

Reprocessing Ordinance Article 1-2, paragraph (1), item (vi)(c), and Article 17, paragraph (1), items (ix) to (xii), (xv), (xvi), (xxii), and (xxv)

Category 1 Waste Disposal Ordinance Article 3, paragraph (2), item (vi), and Article 63, paragraph (1), items (viii) to (xi), (xiv), (xvi), and (xix)

Category 2 Waste Disposal Ordinance Article 2, paragraph (2), item (vi), and Article 20, paragraph (1), items (viii) to (x), (xii), (xiv), (xvi), and (xix)

Waste Storage Ordinance Article 2, paragraph (2), item (vi), and Article 34, paragraph (1), items (viii) to (xi), (xiv), (xvi), and (xix)

Nuclear Fuel Materials Use Ordinance Article 2-12, paragraph (1), items (iv) to (vii), (ix), (x), and (xii)

Commercial Reactors Dose Limit Notice

Fuel Fabrication Dose Limit Notice

Regulatory Guide ; Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) (c) and item (5) (a), and Article 19 paragraph 1 items (2) and (5)

Amount of RI Notice, Article 14

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H26Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 2.1.2

Is the regulatory body responsible for review of periodic reports on public exposure (including results of monitoring programmes and dose assessments) submitted by registrants and licensees? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act]

Yes.

The NRA requires the licensee to keep public exposure 1 mSv/year or lower outside of the surrounding monitored area, based on the Reactor Regulation Act and other relevant Ordinances and notices (e.g. the NRA Ordinances for Respective Operations, and the Dose Limit Notices). In addition, the operational safety program defines a management target of the radioactive waste discharge in order to satisfy the dose criteria for outside of the surrounding monitored area. Therefore, radioactive waste management is confirmed in operational safety inspections. Furthermore, regarding the discharge amount, the NRA ordinances and notices are developed for each type of nuclear facility and activity, and these ordinances and notice require the licensee to report it the discharge amount.

[Regulations for licensees in the Radiation Hazards Prevention Act]

Yes.

The Radiation Hazards Prevention Act and its Ordinances require the licensees to keep the concentration of radioisotopes in ventilation air and discharged water within the limit so that the annual effective dose is kept 1 mSv or lower at a site boundary and to store the records of the measurement results. The NRA assesses and confirms that the facilities of the licensees are able to achieve it before granting permission. The NRA also confirms their results at a prescribed interval and receives reports as required.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Article 10, Article 13, paragraph (2), item (v), Articles 21, 23, and 34, Article 43-3-5, paragraph (2), item (ix), Article 43-18, Article 44, paragraph (2), item (vii), and Article 51-16

Commercial Reactors Ordinance Article 3, paragraph (1), item (vi)(c), Article 92, paragraph (1), items (xii) to (xv), (xvii), (xviii), (xxiv), and (xxvii)

Fuel Fabrication Ordinance Article 2, paragraph (1), item (iv)(c), Article 8, paragraph (1), items (viii) to (x), (xiii), (xiv), (xix), and (xxii)

Research Reactors Ordinance Article 6 (Recording) and Article 15 (Operational Safety Program)

Spent Fuel Storage Ordinance Article 2, paragraph (2), item (vii), and Article 37, paragraph (1), items (viii) to (xi), (xiv), (xv), (xvii), and (xx)

Reprocessing Ordinance Article 1-2, paragraph (1), item (vi)(c), and Article 17, paragraph (1), items (ix) to (xii), (xv), (xvi), (xxii), and (xxv)

Category 1 Waste Disposal Ordinance Article 3, paragraph (2), item (vi), and Article 63, paragraph (1), items (viii) to (xi), (xiv), (xvi), and (xix)

Category 2 Waste Disposal Ordinance Article 2, paragraph (2), item (vi), and Article 20, paragraph (1), items (viii) to (x), (xii), (xiv), (xvi), and (xix)

Waste Storage Ordinance Article 2, paragraph (2), item (vi), and Article 34, paragraph (1), items (viii) to (xi), (xiv), (xvi), and (xix)

Nuclear Fuel Materials Use Ordinance Article 2-12, paragraph (1), items (iv) to (vii), (ix), (x), and (xii), and Article 7

Commercial Reactors Dose Limit Notice

Fuel Fabrication Dose Limit Notice

Regulatory Guide ; Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-10, 20, and 43-2

Radiation Hazards Prevention Cabinet Order, Article 15

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) (c) and item (5) (a), Article 19 paragraph 1 items (2) and (5), Article 20 paragraph 1 items (2) and (4), and Article 39 paragraph 1 items (2) and (3)

Amount of RI Notice, Article 14

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H26Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 2.1.3

Is the regulatory body responsible for making provision for an independent monitoring programme? Please indicate or attach the relevant regulations.

Subsidiary Response

Yes.

[Regulations for licensees in the Reactor Regulation Act and the Radiation Hazards Prevention Act]

The NRA does not define regulations regarding environmental radiation monitoring outside of nuclear facility sites, which is performed by the licensees. However, the NRA monitors the concentration of radiation and radioactive materials all over the nation, in pursuit of the safe use of nuclear power, and provides technical support for regular monitoring performed by the local government to contribute to the assessment of the effects of radioactive materials or radiation released from nuclear facilities on the surrounding environment in an emergency, which is defined in Disaster Management Plan.

Licensees are required to perform on-site monitoring.

<Attachments>

Disaster Management Plan Part 12, Chapter 1, Section 5, 1 (10) (defined in the Basic Act on Disaster Control Measures, Article 11, paragraph 2, item 1)

Subsidiary Attachments

C04 Basic Plan for Disaster Preparedness

Subsidiary Question 2.1.4

Is the regulatory body responsible for assessment of the total public exposure from authorized sources and practices in the State on the basis of monitoring data provided by registrants and licensees and with the use of data from independent monitoring and assessments? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act]

No.

However, the licensees are required to keep the radioactive concentration in exhaust air and discharged water below the limit so that the dose is kept 1 mSv or lower outside of the surrounding monitored area. Since the NRA receives reports regarding the measurement

values of the radioactive material concentration in exhaust air and discharged water from the licensees on a regular basis, the NRA posts the values on its Web site along with a summary in both Japanese and English, and also presents it in the Convention on Nuclear Safety and the Convention on Radioactive Waste of the IAEA. In addition, the NRA presents a dose target of 50 uSv/year and confirms compliance with the value.

Based on this information, the NRA confirms that public exposure is actually kept low enough.

[Regulations for licensees in the Radiation Hazards Prevention Act]

No.

The NRA is not responsible for assessment of total dose of public exposure. However, since the licensees are required to monitor the radioactive concentration in ventilation air and discharged water so that the dose at a site boundary is kept 1 mSv or lower, the NRA confirms the records at a predefined interval and also receives reports as required.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Article 67, paragraph (1)

Commercial Reactors Ordinance Article 136, paragraph (1) (Form 2)

Fuel Fabrication Ordinance Article 10, paragraph (1) (Form 1)

Research Reactors Ordinance Article 18 (Form 2)

Spent Fuel Storage Ordinance Article 48, paragraph (1) (Form 2)

Reprocessing Ordinance Article 21, paragraph (1) (Form 2)

Category 1 Waste Disposal Ordinance Article 91, paragraph (1) (Form 2)

Category 2 Waste Disposal Ordinance Article 27, paragraph (1) (Form 2)

Waste Storage Ordinance Article 40, paragraph (1) (Form 1)

Nuclear Fuel Materials Use Ordinance Article 7, paragraph (1) (Form 1)

Report on Dose, etc. of Radiation Worker (dated April 2002, notification by the former NISA)

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-10, 20, and 43-2

Radiation Hazards Prevention Cabinet Order, Article 15

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) (c) and item (5) (a), Article 19 paragraph 1 items (2) and (5), Article 20 paragraph 1 items (2) and (4), and Article 39 paragraph 1 items (2) and (3)

Amount of RI Notice, Article 14

Subsidiary Attachments

F01Report on Dose, etc. of Radiation Worker

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

Subsidiary Question 2.1.5

Is the regulatory body responsible for making provision for maintaining records of discharges, results of monitoring programmes and results of assessments of public exposure? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act and the Act for Radiation Hazard Prevention]

The NRA Ordinances for stipulated for each type of nuclear or radiation facility require the licensees to measure and record the radioactive concentration in ventilation air and discharged water.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Articles 43-3-21, 43-7, 51-15, and 67

Commercial Reactors Ordinance Articles 67 and 136

Fuel Fabrication Ordinance Article 20

Research Reactors Ordinance Articles 6 and 18

Spent Fuel Storage Ordinance Articles 27 and 48

Reprocessing Ordinance Article 21

Category 1 Waste Disposal Ordinance Articles 44 and 91

Category 2 Waste Disposal Ordinance Articles 13 and 27

Waste Storage Ordinance Articles 26 and 40

Nuclear Fuel Materials Use Ordinance Article 7

Report on Dose, etc. of Radiation Worker (dated April 2002, notification by the former NISA)

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) (c) and item (5) (a), Article 19 paragraph 1 items (2) and (5), Article 20 paragraph 1 items (2) and (4), and Article 39 paragraph 1 items (2) and (3)

Amount of RI Notice, Article 14

Subsidiary Attachments

F01Report on Dose, etc. of Radiation Worker

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 2.1.6

Is the regulatory body responsible for verification of compliance of an authorized practice with the requirements of

GSR PART 3 for the control of public exposure? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act and the Radiation Hazards Prevention Act]

When operators intend to obtain authorization for nuclear facilities based on the Reactor Regulations Act and other relevant Ordinances, or radiation facilities based on the Radiation Hazards Prevention Act and its Ordinances, these acts and ordinances require them to submit drawings of ventilation equipment and water discharge equipment, and confirms that the radioactive concentration is less than the stipulated standards. In this way, the NRA carries out their responsibility of complying with the requirements of GSR part 3 for public exposure management.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Article 13, paragraph (2), item (v), Article 22, Article 43-3-5, paragraph (2), item (ix), Article 44, paragraph (2), item (vii), Article 50, and Article 56-3

Commercial Reactor Establishment Permit Ordinance, Article 27

Spent Fuel Storage Ordinance Article 2, paragraph (1), item (ii) and paragraph (2), item (vii)

Category 1 Waste Disposal Ordinance Article 3, paragraph (1), item (ii) (i) and paragraph (2), item (vi)

Category 2 Waste Disposal Ordinance Article 2, paragraph (1), item (ii) (g) and paragraph (2), item (vi)

Waste Storage Ordinance Article 2, paragraph (1), item (ii) (g) and paragraph (2), item (vi)

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) (c) and item (5) (a), and Article 19 paragraph 1 items (2) and (5)

Amount of RI Notice, Article 14

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 2.1.7

Is the regulatory body required to publish or make available on request, as appropriate, results from source monitoring and environmental monitoring programmes and assessments of doses from public exposure?

Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act]

There are no special regulations. However, since the NRA receives quarterly, semi-annual, and annual reports regarding the radioactivity concentration in exhaust air and discharged water, etc. from the licensees, the NRA posts that data on their Web site along with a summary in both Japanese and English, and also presents it in the Convention on Nuclear Safety and the Convention on Radioactive Waste of the IAEA.

[Regulations for licensees in the Radiation Hazards Prevention Act]

Based on the Radiation Hazards Prevention Act and its Ordinances, the NRA requires the licensees to measure and record the concentrations of radioisotopes in ventilation air and discharged water. The NRA confirms their results at a prescribed interval and receives reports as necessary.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Article 67, paragraph (1)

Commercial Reactors Ordinance Article 136, paragraph (1) (Form 2)

Fuel Fabrication Ordinance Article 20

Research Reactors Ordinance Article 18

Spent Fuel Storage Ordinance Article 48, paragraph (1) (Form 2)

Reprocessing Ordinance Article 21

Category 1 Waste Disposal Ordinance Article 91, paragraph (1) (Form 2)

Category 2 Waste Disposal Ordinance Article 27, paragraph (1)(Form 2)

Waste Storage Ordinance Article 40, paragraph (1) (Form 1)

Nuclear Fuel Materials Use Ordinance Article 7

Report on Dose, etc. of Radiation Worker (dated April 2002, notification by the former NISA)

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20,12-10, and 43-2

Radiation Hazards Prevention Cabinet Order, Article 15

Radiation Hazards Prevention Ordinance, Article 20 paragraph 1 items (2) and (4), Article 39 paragraph 1 items (2) and (3)

Amount of RI Notice, Article 14

Subsidiary Attachments

F01Report on Dose, etc. of Radiation Worker

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 2.1.8

Do the regulations require that the registrants and licensees, as appropriate, establish and implement monitoring programmes to ensure that public exposure due to sources under their responsibility is adequately assessed and that the assessment is sufficient to verify and demonstrate compliance with the authorization? These programmes shall include monitoring of the following, as appropriate: a) external exposure from such sources; b) discharges; c) radioactivity in the environment; d) other parameters important for the assessment of public exposure. Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Act for Reactor Regulations and the Radiation Hazards Prevention Act]

The Reactor Regulations Act and other relevant Ordinances, and Radiation Hazards Prevention Act and its Ordinances require the licensees to measure and record the radioactive concentration in ventilation air and discharged water.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Article 13, paragraph (2), item (v), Article 23, Article 43-3-21, Article 43-17, Article 44, paragraph (2), item (vii), Article 51-15, and Article 67

Commercial Reactors Ordinance Articles 67 and 136

Fuel Fabrication Ordinance Article 2, paragraph (1), item (iv) (c), Article 8, paragraph (1), item (xiv), and Article 10

Research Reactors Ordinance Articles 1-3, 18, and 15

Spent Fuel Storage Ordinance Articles 27 and 48

Reprocessing Ordinance Article 1-2, paragraph (1), item (vi) (c), Article 17, paragraph (1), item (xvi), and Article 21

Category 1 Waste Disposal Ordinance Articles 44 and 91

Category 2 Waste Disposal Ordinance Articles 13 and 27

Waste Storage Ordinance Articles 26 and 40

Nuclear Fuel Materials Use Ordinance Article 2-12, paragraph (1), item (x), and Article 7

Report on Dose, etc. of Radiation Worker (dated April 2002, notification by the former NISA)

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20 paragraph 1 items (2) and (4)

Amount of RI Notice, Article 14

Subsidiary Attachments

F01Report on Dose, etc. of Radiation Worker

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 2.1.9

Do the regulations require that the registrants and licensees, as appropriate, maintain appropriate records of the results of the monitoring programmes and estimated doses to members of the public? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Act for Reactor Regulations and the Radiation Hazards Prevention Act]

The Reactor Regulations Act and other relevant Ordinances, and Radiation Hazards Prevention Act and its Ordinances require the licensees to record the radioactive concentration in ventilation air and discharged water.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Articles 21, 37, 43-3-21, 43-17, 47, 51-15, 56-2 and 67

Commercial Reactors Ordinance Articles 67 and 136

Fuel Fabrication Ordinance Articles 7 and 10

Research Reactors Ordinance Articles 6 and 18

Spent Fuel Storage Ordinance Articles 27 and 48

Reprocessing Ordinance Articles 8 and 21

Category 1 Waste Disposal Ordinance Articles 44 and 91

Category 2 Waste Disposal Ordinance Articles 13 and 27

Waste Storage Ordinance Articles 26 and 40

Nuclear Fuel Materials Use Ordinance Articles 2-11 and 7

Report on Dose, etc. of Radiation Worker (dated April 2002, notification by the former NISA)

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20 paragraph 1 items (2) and (4)

Amount of RI Notice, Article 14

Subsidiary Attachments

F01Report on Dose, etc. of Radiation Worker

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 2.1.10

Do the regulations require that the registrants and licensees, as appropriate, report or make available the results of the monitoring programme to the regulatory body at approved intervals, including, as applicable, the levels and composition of discharges, dose rates at the site boundary and in premises open to members of the public, results of environmental monitoring and retrospective assessments of doses to representative person? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act]

Since the NRA receives quarterly, semi-annual, and annual reports regarding the concentration in exhaust air and discharged water, etc. from the licensees, the NRA posts that data on its Web site along with a summary in both Japanese and English, and also presents it in the Convention on Nuclear Safety and Convention on Radioactive Waste of the IAEA.

[Regulations for licensees in the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances requires the licensees to measure and record the concentrations of radioisotopes in ventilation air and discharged water. The NRA confirms their results at a prescribed interval and receives reports as necessary.

<Attachment>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Article 67, paragraph (1)

Commercial Reactors Ordinance Article 136, paragraph (1) (Form 2)

Research Reactors Ordinance Article 18

Reprocessing Ordinance Article 21

Fuel Fabrication Ordinance Article 10

Nuclear Fuel Materials Use Ordinance Article 7

Spent Fuel Storage Ordinance Article 48, paragraph (1) (Form 2)

Category 1 Waste Disposal Ordinance Article 91, paragraph (1) (Form 2)

Category 2 Waste Disposal Ordinance Article 27, paragraph (1) (Form 2)

Waste Storage Ordinance Article 40, paragraph (1) (Form 1)

Report on Dose, etc. of Radiation Worker (dated April 2002, notification by the former NISA)

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20,12-10, and 43-2

Radiation Hazards Prevention Cabinet Order, Article 15

Radiation Hazards Prevention Ordinance, Article 20 paragraph 1 items (2) and (4), Article 39 paragraph 1 items (2) and (3)

Amount of RI Notice, Article 14

Subsidiary Attachments

F01Report on Dose, etc. of Radiation Worker

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 2.1.11

Do the regulations require that the registrants and licensees, as appropriate, report promptly to the regulatory body any levels exceeding the operational limits and conditions relating to public exposure, including authorized limits on discharges, in accordance with

reporting criteria established by the regulatory body? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act and the Act for Radiation Hazard Prevention]

The Reactor Regulation Act and other relevant Ordinances and the Radiation Hazards Prevention Act and its Ordinances require that when the radioactive concentration in ventilation air or discharge water output by the licensees exceeds a predefined concentration limit or dose limit, the licensees have an obligation to report it immediately, and then report to the NRA within 10 days on the situation and actions taken.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Articles 62-3 and 134

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 39 paragraph 1 items (2) and (3)

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 2.1.12

Do the regulations require that the registrants and licensees, as appropriate, report promptly to the regulatory body any significant increase in dose rate or concentrations of

radionuclides in the environment that could be attributed to the authorized practice, in accordance with reporting criteria established by the regulatory body? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act]

The Radiation Hazards Prevention Act and its Ordinances and the Reactor Regulation Act and other relevant Ordinances define that when the radioactive concentration in exhaust air or discharged water output by the licensees exceeds a predefined concentration limit or dose limit, the licensees have an obligation to report it immediately, and then report to the NRA within 10 days on the situation and actions taken.

[Regulations for licensees in the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances requires the licensees, when any abnormal radiation value of radiation dose or concentration of radioisotopes is detected in a site or at a site boundary, to confirm and report the fact immediately, and then report to the NRA within 10 days on the situation and measures taken.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Articles 62-3 and 134

Research Reactors Ordinance Article 16-14 (Report on Accidents, Failures, and so on)

Reprocessing Ordinance Article 19-16 (Report on Accidents, Failures, and so on)

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 39 paragraph 1 items (2) and (3)

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 2.1.13

Do the regulations require that the registrants and licensees, as appropriate, establish and maintain a capability to carry out monitoring in an emergency, in the event of unexpected increases in radiation levels or concentrations of radionuclides in the environment due to accidents or other unusual events attributed to the authorized source or facility? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act and the Act for Radiation Hazard Prevention]

Even in an emergency, the licensees are required to measure radiation dose as usual.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Article 64, paragraph 3

Commercial Reactors Ordinance Articles 78 and 79

Spent Fuel Storage Ordinance Articles 29 and 30

Category 1 Waste Disposal Ordinance Articles 53 and 54

Category 2 Waste Disposal Ordinance Articles 14 and 15

Waste Storage Ordinance Articles 27 and 28

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 33

Radiation Hazards Prevention Ordinance, Article 20 paragraph 1, Article 21 paragraph 1 item (4), Article 29, and Article 39 paragraph 1 items (2) and (3)

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 2.1.14

Do the regulations require that the registrants and licensees, as appropriate, verify the adequacy of the assumptions made for the assessment of public exposure and radiological environmental impacts? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act]

At the time of licensing, the NRA verifies the adequacy of the conditions for and results of calculation of the effective dose for the outside of surrounding monitored area. In addition, for the actual measurement values, the NRA receives descriptions of their adequacy (assumed situation, etc.), when they receive quarterly, semi-annual, and annual reports on the concentration limit in exhaust air and discharged water, etc. from the licensees.

[Regulations for licensees in the Radiation Hazards Prevention Act]

The licensees are required to keep the concentration of radioisotopes in ventilation air and discharged water within the limit so that the exposure dose is kept at 1 mSv or lower at the site boundary and to record such measurement results. The NRA confirms their results at a prescribed interval and receives reports as necessary.

<Attachments>

[Regulations for licensees in the Reactor Regulation Act]

Reactor Regulation Act Article 13, paragraph (2), item (v), Article 43-3-5, paragraph (2), item (ix), Article 44, paragraph (2), item (vii)

Commercial Reactors Ordinance Article 3, paragraph (1), item (vi) (c)

Fuel Fabrication Ordinance Article 2, paragraph (1), item (iv) (c)

Spent Fuel Storage Ordinance Article 2, paragraph (2), item (vii)

Reprocessing Ordinance Article 1-2, paragraph (1), item (vi) (c)

Category 1 Waste Disposal Ordinance Article 3, paragraph (2), item (vi)

Category 2 Waste Disposal Ordinance Article 2, paragraph (2), item (vi)

Waste Storage Ordinance Article 2, paragraph (2), item (vi)

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-10, 20, and 43-2

Radiation Hazards Prevention Cabinet Order, Article 15

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) (c) and item (5) (a), Article 19 paragraph 1 items (2) and (5), Article 20 paragraph 1 items (2) and (4), and Article 39 paragraph 1 items (2) and (3)

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

Subsidiary Question 2.1.15

Do the regulations require that the registrants and licensees publish or make available on request, as appropriate, results from source monitoring and environmental monitoring programmes and assessments of doses from public exposure? Please indicate or attach the relevant regulations.

Subsidiary Response

[Regulations for licensees in the Reactor Regulation Act]

According to Article 67 of the Commercial Reactors Ordinance, etc., the licensees monitor measure concentrations of radioactive materials. Though no special regulations to make the results public are established, since the NRA receives quarterly, semi-annual, and annual reports regarding the concentration limit in exhaust air and discharged water, etc. from the licensees, the NRA posts that data on their Web site along with a summary in both Japanese and English, and also presents it in the Convention on Nuclear Safety and Convention on Waste of the IAEA.

[Regulations for licensees in the Radiation Hazards Prevention Act]

The licensees are required to keep the concentrations of radioisotopes in ventilation air and discharged water within the limit so that the exposure dose is kept 1 mSv or lower at the site boundary and to store the records of such measurement results. The NRA confirms their results at a prescribed interval and receives reports as necessary.

<Attachments>

[Regulations for licensees in the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-10, 20, and 43-2

Radiation Hazards Prevention Cabinet Order, Article 15

Radiation Hazards Prevention Ordinance, Article 14-11 paragraph 1 item (4) (c) and item (5) (a), Article 19 paragraph 1 items (2) and (5), Article 20 paragraph 1 items (2) and (4), and Article 39 paragraph 1 items (2) and (3)

Amount of RI Notice, Article 14

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Module: Safety Requirements for Disposal of Radioactive Waste

Findings

Question 5.1

Is it in place an appropriate governmental, legal and regulatory framework for safety within which responsibilities are clearly allocated for disposal facilities for radioactive waste to be sited, designed, constructed, operated and closed.

Answer

Yes

Finding

The government establishes and maintains an appropriate governmental, legal and regulatory framework for safety within which responsibilities are clearly allocated for disposal facilities for radioactive waste to be sited, designed, constructed, operated and closed.

Response

The METI formulates policies on disposal of radioactive waste generated by commercial nuclear facilities, and the MEXT formulates policies on disposal of radioactive waste generated by research institutions, universities, medical institutions, and private organizations, and the NRA shall formulate policies on safety regulations for disposal of radioactive waste. They shall take responsibility for ensuring the implementation of the assigned policy is implemented.

The safety regulations for near surface disposal of Category 2 waste disposal have already been provided in the legal framework. Under this legal framework, the licensee is primarily liable for all operational safety matters occurring during establishment and operation of its waste disposal facility until the completion of decommissioned of such facility.

<Attachments>

Reactor Regulation Act

All provisions of Chapter 5-2

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.2

Does the regulatory body establish regulatory requirements for the development of different types of disposal facility for radioactive waste and set out the procedures for meeting the requirements for the various stages of the licensing process?

Answer

Yes

Finding

The regulatory body establishes regulatory requirements for the development of different types of disposal facility for radioactive waste and set out the procedures for meeting the requirements for the various stages of the licensing process.

Response

The requirements and procedures of authorization for waste management facilities are basically the same as those for nuclear power plants, but the requirements in terms of contents and levels differ based on a graded approach.

At present, for buried disposals, only near surface disposals (disposals in a trench or pit) are implemented in Japan, and the NRA regulates these facilities and activities. With regard to radioactive waste originating from nuclear power plants but is not suitable for near surface disposals, and waste from facilities other than nuclear power plants (e.g. research facilities), currently there are no projects for such disposals foreseen in the near future. Therefore, the NRA has not developed any regulatory criteria for the disposal of these wastes. However, since the number of decommissioned plants is expected to increase and certain waste will not be allow for near surface disposal because of exceeding the limit of radioactivity concentration designated for that disposal, the NRA is developing regulatory requirements for intermediate depth disposal. The NRA needs to start deliberations on the regulatory criteria for the disposal of radioactive waste coming from research institutes etc., as the JAEA is advancing its programme to build such disposal facilities.

<Attachments>

Reactor Regulation Act

All provisions of Chapter 5-2

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.2.1

Does the regulatory body engage in dialogue with waste producers, the operators of the disposal facility and interested parties to ensure that the regulatory requirements are appropriate and practicable?

Subsidiary Response

The NRA prepares regulatory requirements after holding discussions with interested parties. For example, when the NRA prepared new regulatory requirements for waste interim storage/treatment facilities and waste disposal facilities related to the Reactor Regulation Act, the NRA heard the opinions of licensees at meetings of the Study Team of the New Regulatory Requirements for Nuclear Fuel Facilities and gathered opinions from the general public by soliciting public comments.

Question 5.3

Does the regulatory body set conditions for the development, operation and closure of each individual disposal facility and carry out such activities as are necessary to ensure that the conditions are met?

Answer

Yes

Finding

The regulatory body set conditions for the development, operation and closure of each individual disposal facility and carry out such activities as are necessary to ensure that the conditions are met.

Response

Applicants who obtain a permit for near surface disposal (Category 2 waste disposal) perform final disposal of radioactive waste by burial. Pursuant to the Reactor Regulation Act, applicants shall apply to obtain a permit for their operations, operational safety programs, and decommissioning plans. The NRA stipulates criteria which serve as the requirements for such permits, and verifies whether applicants' applications conform to them.

Furthermore, when actually disposing of radioactive waste, licensees shall obtain confirmation from the NRA as to whether waste disposal facilities, the waste packages to be disposed of, and operational safety measures related thereto conform to technical standards.

<Attachments>

Reactor Regulation Act

Articles 51- 2, 51-6, 51-18, and 51-25

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.4

Do the regulations clearly establish the primary responsibility of the operator for the safety of predisposal radioactive waste management facilities or activities?

Answer

Yes

Finding

The regulations clearly establish the primary responsibility of the operator for the safety of predisposal radioactive waste management facilities or activities.

Response

In order to prevent disasters due to nuclear source materials, nuclear fuel materials, and reactors, pursuant to the Reactor Regulation Act, licensees are responsible for installing equipment and devices that can enhance the safety of nuclear facilities, for improving

education regarding operational safety, and for taking other necessary measures based on the latest knowledge about safety in nuclear facilities.

<Attachments>

Reactor Regulation Act

Article 57-9

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.5

Does the operator is required to carry out safety assessment and develop and maintain a safety case, and to carry out all the necessary activities for site selection and evaluation, design, construction, operation, closure and, if necessary, surveillance after closure, in accordance with national strategy, in compliance with the regulatory requirements and within the legal and regulatory infrastructure?

Answer

Yes

Finding

The operator is required to carry out safety assessment and develop and maintain a safety case, and to carry out all the necessary activities for site selection and evaluation, design, construction, operation, closure and, if necessary, surveillance after closure, in accordance with national strategy, in compliance with the regulatory requirements and within the legal and regulatory infrastructure.

Response

-

Subsidiary Question 5.5.1

Does the operator is required to conduct or commission the research and development work necessary to ensure that the planned technical operations can be practically and safely accomplished, and to demonstrate this?

Subsidiary Response

Yes.

There is no requirement as stated in the question about the Reactor Regulation Act. However, a party that intends to carry out disposal shall obtain a permit pursuant to the Reactor Regulation Act. Furthermore, the NRA employs various authorizations and inspections to confirm that the various technical operations planned by the licensee can be implemented practically and safely.

Subsidiary Question 5.5.2

Does the operator has to establish technical specifications that are justified by safety assessment, to ensure that the disposal facility is developed in accordance with the safety case?

Subsidiary Response

Yes.

Pursuant to the Reactor Regulation Act, an applicant for a permit (or amendment to a permit) shall describe matters related to the locations, structures, and equipment used in

the waste disposal facility as well as the disposal method on the application forms submitted to the NRA as part of the application for a permit (or amendment to a permit). The NRA reviews the technical specifications given by applicants according to the procedure on the permit.

<Attachments>

Category 2 Waste Disposal Ordinance

Article 2

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.5.3

Has the operator to retain all the information relevant to the safety case and the supporting safety assessment for the disposal facility, and has to retain the inspection records that demonstrate compliance with regulatory requirements and with the operator's own specification?

Subsidiary Response

Yes.

Pursuant to the Reactor Regulation Act, licensees shall record items specified in the Category 2 Waste Disposal Ordinance regarding implementation of waste disposal, including maintenance and checking, and keep such records at the place of activity. Furthermore, pursuant to the Reactor Regulation Act, licensees shall assess exposure control of radiation from nuclear fuel materials, etc. for the disposal site based on the latest technical knowledge at time intervals not exceeding 10 years, and keep the results of such assessments, etc.

<Attachments>

Reactor Regulation Act

Article 51-15

Category 2 Waste Disposal Ordinance

Articles 13 and 19-2

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.5.4

Is the operator required to cooperate with the regulatory body and has to supply all the information that the regulatory body may request?

Subsidiary Response

The NRA requires that applicants submit all necessary information as safety cases for the licensing examination.

The NRA may also request that licensees submit reports about their activities within the range necessary for enforcing the Reactor Regulation Act.

Furthermore, within the range necessary for enforcing the Reactor Regulation Act, the NRA staff may enter plants and offices; inspect books, documents, and other necessary materials; question persons concerned; and make licensees submit nuclear source materials, nuclear fuel materials, and other necessary materials (though limited to the minimum amount necessary for testing).

<Attachments>

Reactor Regulation Act

Articles 67 and 68

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.6

Does the operator is required to develop an understanding of the relevance and the implications for safety of the available options for the facility throughout the process of development and operation of a disposal facility for radioactive waste?

Answer

Yes

Finding

The operator is required to develop an understanding of the relevance and the implications for safety of the available options for the facility throughout the process of development and operation of a disposal facility for radioactive waste.

Response

-

Subsidiary Question 5.6.1

How the regulatory body require that at each major decision point, the implications for safety of the available design options and operational options for the disposal facility have to be considered and taken into account?

Subsidiary Response

Pursuant to the Reactor Regulation Act, licensees shall perform periodic safety review of waste disposal facilities in order to reflect the latest knowledge. Furthermore, when any change in design options or operational options is deemed necessary in relation to important safety matters subject to the permit under the Reactor Regulation Act after operation has started, licensees shall follow the procedure for the necessary modification of the permit.

<Attachments>

Category 2 Waste Disposal Ordinance

Article 19-2

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.6.2

Does the regulation consider the need to locate the facility away from significant known mineral resources, geothermal water and other valuable resources underground?

Subsidiary Response

The only waste disposal facilities currently in operation in Japan are near surface disposal facilities (Category 2 waste disposal). For this reason, Japan's current regulatory framework does not specify the requirement noted in the question as requirements. In practice, licensees avoid such places when choosing facility locations.

Question 5.7

Does the regulatory body require that the disposal facility is sited, designed, constructed, operated and closed in such a way that safety is ensured by passive means to the extent possible and that the need for actions to be taken after the closure of the facility is minimized?

Answer

Yes

Finding

The regulatory body requires that the disposal facility is sited, designed, constructed, operated and closed in such a way that safety is ensured by passive means to the extent possible and that the need for actions to be taken after the closure of the facility is minimized.

Response

Pursuant to the Reactor Regulation Act, the facilities for near surface disposal (Category 2 waste disposal) are required to satisfy the following technical requirements to obtain a permit: they shall have functions to prevent abnormal leakage of radioactive materials outside the waste disposal site, and they shall not cause any radiation hazard to the general public in the vicinity even if any abnormality is found in the facility for a period lasting from the start date of acceptance of radioactive waste to be disposed of to the start date of decommissioning.

<Attachments>

*Category 2 Waste Disposal Permit Ordinance and Category 2 Waste Disposal Permit Guide
Articles 9 and 10*

Attachments

*G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and
Equipment of Category 2 Waste Disposal Facilities*

Question 5.8

Does the regulation require the operator of a disposal facility to develop an adequate understanding of the features of the facility and its host environment and of the factors that influence its safety after closure over suitably long time periods, so that a sufficient level of confidence in safety can be achieved?

Answer

Yes

Finding

The regulation requires the operator of a disposal facility to develop an adequate understanding of the features of the facility and its host environment and of the factors that influence its safety after closure over suitably long time periods, so that a sufficient level of confidence in safety can be achieved.

Response

-

Subsidiary Question 5.8.1

How the regulations consider the uncertainty inherent in modelling complex environmental systems in establishing these regulatory requirements?

Subsidiary Response

The Category 2 Waste Disposal Permit Ordinance specifies the design requirements for a permit of activity (or amendment to a permit). That applicant shall evaluate the possible environmental effects of radioactive materials that are expected to be generated due to disposed radioactive waste. In conducting this evaluation, the applicant shall select scenarios taking into account the functions of engineered and natural barriers, natural phenomena which may affect exposure pathways, etc., and human activity due to land use. Specifically, applicants are required to select and assess basic scenarios (conditions with the highest scientific probability), variant scenarios (the severest conditions within scientifically reasonable probability), and other natural/human event scenarios.

<Attachments>

*Category 2 Waste Disposal Permit Ordinance and Category 2 Waste Disposal Permit Guide
Article 9*

Subsidiary Attachments

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

Question 5.9

Does the regulatory body require that the host environment is selected and the engineered components of the facility designed and the facility will be operated so as to ensure that post-closure safety is provided by means of multiple safety functions?

Answer

Yes

Finding

The regulatory body requires that the host environment is selected and the engineered components of the facility designed and the facility will be operated so as to ensure that post-closure safety is provided by means of multiple safety functions.

Response

-

Subsidiary Question 5.9.1

Do the regulations require that the capability of the individual barriers and active controls together with that of the overall disposal system as assumed in the safety case need to be demonstrated?

Subsidiary Response

The Reactor Regulation Act specifies the technical requirements for facilities of near surface disposal (Category 2 waste disposal) that are currently in operation in Japan. It requires applicants to have functions to prevent abnormal leakage of radioactive materials outside the waste disposal site. Furthermore, pursuant to the provisions of that Act, applicants shall give explanations about exposure control of radiation from nuclear fuel materials, etc. and radioactive waste disposal in the application for a permit (or amendment to a permit), and the NRA reviews such application. Pursuant to the Reactor Regulation Act, licensees shall specify measures for preservation of waste disposal sites (e.g., monitoring and access control) in their operational safety programs in order to ensure the function as described in

the permit (or amendment to the permit). Furthermore, the NRA performs operational safety inspections to check the appropriateness of implementation of these measures.

<Attachments>

Reactor Regulation Act

Article 51-18, Paragraph 5

Category 2 Waste Disposal Ordinance

Articles 2 and 20

Category 2 Waste Disposal Permit Ordinance and Category 2 Waste Disposal Permit Guide

Article 10

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.9.2

Does the regulatory framework requires that the safety case has to explain and justify the functions performed by each physical element and other features as well as to identify the time periods over which physical components and other features are expected to perform their various safety functions, and also the alternative or additional safety functions that are available if a physical element does not fully perform or another safety function is not fulfilled?

Subsidiary Response

Yes.

The Reactor Regulation Act specifies the following technical requirements for obtaining a permit of facilities for near surface disposal (Category 2 waste disposal) that are currently in operation in Japan, in its standards for locations, structures, and equipment. These standards require to prevent abnormal leakage of radioactive materials outside the waste disposal site, and not to cause any radiation hazard to the general public in the vicinity even if any abnormality is found in the facility for a period lasting from the start date of acceptance of radioactive waste to be disposed of to the day before the start of decommissioning.

The aforementioned period is roughly about 300 to 400 years after the closure of disposal facility in the case of pit disposal, and about 50 years after the closure of disposal facility in the case of trench disposal.

Furthermore, the Reactor Regulation Act and its ordinance require to maintain the necessary functions, by assuming the degradation of natural and engineered barriers and conservative safety assessments, in evaluating the possibility of accidents and abnormalities.

After obtaining a permit (or amendment to a permit, licensees shall perform periodic safety review based on the latest knowledge and take necessary measures to preserve their facilities based on the assessment results.

<Attachments>

Category 2 Waste Disposal Ordinance

Article 19-2

Category 2 Waste Disposal Permit Ordinance and Category 2 Waste Disposal Permit Guide

Articles 9 and 10

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Question 5.10

Does the regulatory body require that the engineered barriers, including the waste form and packaging, are designed, and the host environment selected, so as to provide containment of the radionuclides associated with the waste during the period when radioactive decay has not yet significantly reduced the hazard posed by the waste and in the case of heat generating waste when the waste produces heat energy in amounts that could adversely affect the disposal environment?

Answer

Yes

Finding

The regulatory body requires that the engineered barriers, including the waste form and packaging, are designed, and the host environment selected, so as to provide containment of the radionuclides associated with the waste during the period when radioactive decay has not yet significantly reduced the hazard posed by the waste and in the case of heat generating waste when the waste produces heat energy in amounts that could adversely affect the disposal environment.

Response

The Reactor Regulation Act specifies technical standards for waste disposal facilities and each waste package for near surface disposal (Category 2 waste disposal) that are currently in operation in Japan involved. Through these standards, the Act requires facilities to provide a radionuclide containment function.

There are no special technical requirements related to environmental effects by heat, since heat generation caused by radioactive waste in near surface disposal has a low radioactivity concentration.

<Attachments>

Category 2 Waste Disposal Ordinance

Articles 6 and 8

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.10.1

Does the regulation require that the releases of small amounts of gaseous radionuclides and of small fractions of other highly mobile species from radioactive waste of some types may be demonstrated to be acceptable by means of safety assessment?

Subsidiary Response

Yes.

There is no regulatory requirement specific to gaseous radionuclides in the Reactor Regulation Act. However, applicants for a permit (or amendment to a permit) consider gas migration scenario in the comprehensive dose evaluation.

<Attachments>

Category 2 Waste Disposal Permit Ordinance and Category 2 Waste Disposal Permit Guide

Article 9

Subsidiary Attachments

Subsidiary Question 5.10.2

Does the regulation require providing assurance over the corresponding timescales of the integrity of containment features of disposal facilities for radioactive waste from mining and mineral processing which include radionuclides with very long half-lives?

Subsidiary Response

Slags containing radioactive materials are not currently disposed of as radioactive waste in Japan. When the slags containing radioactive materials are generated in refining activities by the authorized parties, such slags are regulated as the use of nuclear source materials under the Reactor Regulation Act.

Subsidiary Question 5.10.3

Does the regulation require that the containment capability of the waste package has to be demonstrated by means of safety assessment to be appropriate for the waste type and the overall disposal system?

Subsidiary Response

The Reactor Regulation Act specifies the enclosing and solidification methods for waste packages according to waste type as the technical standards for facilities of near surface disposal (Category 2 waste disposal) that are currently in operation in Japan. Thus, if the radioactive waste for near surface disposal satisfies these standards, the containment capability is appropriate for the waste type and overall disposal system.

<Attachments>

Category 2 Waste Disposal Ordinance

Article 8

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Question 5.11

Does the regulation require that the disposal facility shall be sited, designed and operated to provide features that are aimed at isolation of the radioactive waste from people and from the accessible biosphere, in so doing, are consideration requested to be given to both the natural evolution of the disposal system and events causing disturbance of the facility?

Answer

Yes

Finding

Regulation requires that the disposal facility shall be sited, designed and operated to provide features that are aimed at isolation of the radioactive waste from people and from the accessible biosphere, and in so doing, are requesting consideration to be given to both the natural evolution of the disposal system and events causing disturbance of the facility.

Response

-

Subsidiary Question 5.11.1

Does the regulation require that the disposal facility has to be located away from known areas of significant underground mineral resources or other valuable resources?

Subsidiary Response

The Reactor Regulation Act does not specifically require the facilities of near surface disposal (Category 2 waste disposal) that are currently in operation in Japan to be sited away from known significant mineral resources or other valuable resources. Applicants shall attach a written explanation of conditions in terms of weather, ground condition, surface water hydrology, earthquakes, and the social environment, etc. of the site in the application for a permit of activity (or amendment to a permit).

<Attachments>

Category 2 Waste Disposal Ordinance

Article 2

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.11.2

Does the regulation require that the possibility of human intrusion has to be evaluated in determining the degree of isolation provided in cases when it may not be possible to provide sufficient assurance of separation from the accessible biosphere owing to phenomena such as uplift, erosion and glaciation?

Subsidiary Response

Pursuant to the Reactor Regulation Act, the facilities of near surface disposal (Category 2 waste disposal) that are currently in operation in Japan shall have a preservation from the closure of the facilities to the start date of decommissioning, which lasts from approximately several decades to several hundred years. The Act does not require assessment of uplift and erosion, etc. beyond that preservation period. However, upon the start of decommissioning, the conditions should be such that there is no need to take any further preservation. Considering the above. Therefore the Act does not specifically require any assessment that takes into account uplift or erosion, etc.

<Attachments>

Category 2 Waste Disposal Ordinance

Article 22-10

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.11.3

Are indicators of safety other than estimates of dose or individual risk required and their use considered for long time periods after closure?

Subsidiary Response

Pursuant to the Reactor Regulation Act, facilities of near surface disposal (Category 2 waste disposal) that are currently in operation in Japan shall have a preservation period as the necessary period to take measures after closure. Thus, there is no requirement as stated in the question.

Question 5.12

Is an appropriate level of surveillance and control applied in order to protect and preserve the passive safety barriers to the extent that this is needed in order to fulfil the functions that they are assigned in the post closure safety case?

Answer

Yes

Finding

An appropriate level of surveillance and control is applied in order to protect and preserve the passive safety barriers to the extent that this is needed in order to fulfil the functions that they are assigned in the post closure safety case.

Response

-

Subsidiary Question 5.12.1

What are the provisions for surveillance and control for disposal facilities?

Subsidiary Response

Pursuant to the Reactor Regulation Act, licensees shall take measures to preserve their waste disposal facilities.

Specifically, the following measures shall be taken:

- Designate controlled areas and surrounding monitored area, and take necessary measures (e.g., placement of signs and implementation of access control) in each area.*
- Perform inspections and checking of waste disposal facilities at least once a week.*

- Preserve waste disposal sites by monitoring for any leakage of radioactive materials outside such sites and designating disposal conservation areas, etc.

<Attachments>

Reactor Regulation Act

Article 51-16

Category 2 Waste Disposal Ordinance

Articles 14, 16 and 17

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.13

Does regulatory body require that disposal facilities are developed, operated and closed in a series of steps, each supported, as necessary, by iterative evaluations of the site, of the options for design, construction, operation and management, and of the performance and safety of the disposal system?

Answer

Yes

Finding

The regulatory body requires that disposal facilities are developed, operated and closed in a series of steps, each supported, as necessary, by iterative evaluations of the site, of the options for design, construction, operation and management, and of the performance and safety of the disposal system.

Response

-

Subsidiary Question 5.13.1

Explain how is the step by step approach to the development of a disposal facility implemented for your facilities.

Subsidiary Response

Applicants for a permit (or amendment to a permit) for facilities of near surface disposal (Category 2 waste disposal) that are currently in operation in Japan shall conform to the technical requirements, etc. under the Reactor Regulation Act. The NRA reviews the conformity to such requirements. Furthermore, licensees shall obtain confirmation from the NRA regarding facilities' conformity to technical standards at each important milestone during construction of waste disposal facilities. Licensees shall regularly perform assessment of exposure control of radiation from nuclear fuel materials, etc. based on the latest technical knowledge as well as take necessary measures for preservation of waste disposal facilities based on the assessment results until they have obtained an approval for decommissioning.

<Attachments>

Reactor Regulation Act

Articles 51-2, 51-3 and 51-6

Category 2 Waste Disposal Ordinance

Article 19-2

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.14

Does regulatory body require the operator to prepare and update a safety case and supporting safety assessment, as necessary, at each step in the development, operation and closure of a disposal facility in compliance with legal and regulatory requirements and to be submitted to the regulatory body for approval?

Answer

Yes

Finding

Regulatory body requires the operator to prepare and update a safety case and supporting safety assessment, as necessary, at each step in the development, operation and closure of a disposal facility in compliance with legal and regulatory requirements and to be submitted to the regulatory body for approval.

Response

Licensees for near surface disposal (Category 2 waste disposal) perform final disposal of radioactive waste by burial. Pursuant to the Reactor Regulation Act, licenses shall apply to obtain a permit of the activity, and approval of operational safety programs and decommissioning plans. The NRA Ordinance stipulates requirements for the authorizations,

and verifies the conformity of licensees' applications to these requirements. Furthermore, when actually disposing of radioactive waste, licensees shall obtain the NRA's confirmation for the conformity of the waste disposal facilities, the waste packages, and operational safety measures to the relevant technical standards. Licensees shall perform periodic safety review of exposure control of radiation from nuclear fuel materials, etc. based on the latest technical knowledge, and take necessary measures for preservation of waste disposal facilities based on the assessment results until the approval of the decommissioning plan.

<Attachments>

Reactor Regulation Act

Articles 51-2, 51-6, 51-18 and 51-25

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.15

Does the regulatory body require that the safety case for a disposal facility describes all the safety relevant aspects of the site, the design of the facility, and the managerial control measures and regulatory controls?

Answer

Yes

Finding

The regulatory body requires that the safety case for a disposal facility describes all the safety relevant aspects of the site, the design of the facility, and the managerial control measures and regulatory controls.

Response

<Attachments>

All regulations pertaining to disposal business (Category 2 radioactive waste disposal) stipulated in Reactor Regulation act and ordinances under this Act

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.15.1

How regulations cover considerations that have to be given to both occupational exposure and public exposure resulting from conditions of normal operation and anticipated operational occurrences over the operating lifetime of the disposal facility?

Subsidiary Response

Pursuant to the Reactor Regulation Act, applicants for a permit (or amendment to a permit) for Category 2 waste disposal shall attach an "Explanation on Exposure Control of Radiation from Nuclear Fuel Materials, etc. and Radioactive Waste Disposal" to their application, and the NRA examines the content of such explanations. Furthermore, pursuant to the Reactor Regulation Act, licensees shall ensure exposure control during operation by taking measures to preserve waste disposal sites (e.g., monitoring and access control).

<Attachments>

Category 2 Waste Disposal Ordinance

Articles 2, 14, 15, 17 and 20

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.15.2

How relevant considerations in the optimization of measures for protection in the operational phase are considered in the regulations and requirements for the development of the safety case and safety assessment?

Subsidiary Response

Pursuant to the Reactor Regulation Act, licensees shall take shielding and other appropriate measures so that the dose around waste disposal facilities does not merely fall below the required dose limit but also is kept as low as reasonably achievable based on the ALARA principle.

<Attachments>

Category 2 Waste Disposal Permit Ordinance and Category 2 Waste Disposal Permit Guide

Article 8

Subsidiary Attachments

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

Subsidiary Question 5.15.3

How are accidents of a lesser frequency but with significant radiological consequences considered with regard to both their likelihood of occurrence and the magnitude of possible radiation doses?

Subsidiary Response

The Reactor Regulation Act specifies the requirements as technical standards. The licensees are required to examine the possibility of occurrence of accidents and abnormalities at waste disposal facilities and to ensure that any such occurrences will not cause any radiation hazard to the general public in the vicinity of the place of activity (the dose to the public shall not exceed 5 mSv for each accident or abnormality). Although such accidents are very unlikely to occur, licensees shall monitor and check facilities at necessary intervals and specify emergency measures to take in advance pursuant to the Reactor Regulation Act.

<Attachments>

*Category 2 Waste Disposal Permit Ordinance and Category 2 Waste Disposal Permit Guide
Article 9*

Subsidiary Attachments

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

Subsidiary Question 5.15.4

How the expected range of possible developments affecting the disposal system and the events that might affect its performance, including those of low probability, have to be considered in the safety case and supporting assessment?

Subsidiary Response

See the answer to SQID 8.1

Subsidiary Question 5.15.5

Which are the safety criteria for the protection of people and the environment after closure of a disposal facility established in the regulation?

Subsidiary Response

As shown in SQID 15.4, in the design of waste disposal facilities, pursuant to the Reactor Regulation Act, Category 2 waste disposal, licensees shall comprehensively and exhaustively select and evaluate scenarios while taking into account barrier functions, effects of natural phenomena, and human activity based on the latest scientific and technical knowledge.

Specifically, assessments of each type of scenario must satisfy the following criteria:

- The dose to the general public must be highly likely to be under 10 $\mu\text{Sv}/\text{year}$ for basic scenarios.*
- The dose to the general public shall not exceed 300 $\mu\text{Sv}/\text{year}$ based on the dose constraint limit recommended by the ICRP Pub. 103, etc., for variant scenarios.*
- The dose to the general public must not exceed 1 mSv/year for natural/human event scenarios other than the aforementioned two types of scenarios.*

<Attachments>

Category 2 Waste Disposal Permit Ordinance and Category 2 Waste Disposal Permit Guide

Article 9, Paragraph 3

Subsidiary Attachments

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

Question 5.16

Do the safety case and supporting safety assessment are required to demonstrate the level of protection of people and the environment provided and to provide assurance to the regulatory body and other interested parties that safety requirements will be met?

Answer

Yes

Finding

The safety case and supporting safety assessment are required to demonstrate the level of protection of people and the environment provided and to provide assurance to the regulatory body and other interested parties that safety requirements will be met.

Response

-

Subsidiary Question 5.16.1

How the regulatory framework considers the results from detailed models for safety assessment purposes in the far future?

Subsidiary Response

Pursuant to the Reactor Regulation Act, decommissioning of facilities of near surface disposal (Category 2 waste disposal) that are currently in operation in Japan is expected to start within roughly 300 to 400 years after the closure of disposal facility in the case of pit disposal, and within 50 years after the closure of disposal facility in the case of trench disposal. The Act requires licensees to perform assessment as described in SQID 15.5.

<Attachments>

Category 2 Waste Disposal Permit Ordinance and Category 2 Waste Disposal Permit Guide

Article 9

Subsidiary Attachments

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

Question 5.17

Does the regulatory body require that the safety case and its supporting safety assessments are documented to a level of detail and quality sufficient to inform and support the decision to be made at each step and to allow for their independent review?

Answer

Yes

Finding

The regulatory body requires that the safety case and its supporting safety assessments are documented to a level of detail and quality sufficient to inform and support the decision to be made at each step and to allow for their independent review.

Response

-

Subsidiary Question 5.17.1

How important considerations in documenting the safety case and supporting safety assessment as justification, traceability and clarity are considered in the regulations?

Subsidiary Response

Pursuant to the Reactor Regulation Act, parties that intend to carry out near surface disposal (Category 2 waste disposal) in Japan shall obtain a permit for activity. Applicants shall ensure that the locations, structures, and equipment of the waste disposal facilities conform to the technical requirements specified by the NRA. The NRA confirms such conformity to the technical requirements during its review for authorization.

In principle, the NRA makes the applicants' documents publically available. These documents shall be kept in accordance with the NRA's directive for document management.

<Attachments>

Reactor Regulation Act

Articles 51-2 and 51-3

Category 2 Waste Disposal Ordinance

Article 2

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.18

Do the regulations require the site for a disposal facility to be characterized at a level of detail sufficient to support both a general understanding of the characteristics of the site, including its present condition, its probable natural evolution, possible natural events and also human plans and actions that may affect the facility or its vicinity over the period of interest with regard to safety, and a specific understanding of the impact on safety of features, events and processes associated with the site and the facility?

Answer

Yes

Finding

The regulations require the site for a disposal facility to be characterized at a level of detail sufficient to support both a general understanding of the characteristics of the site, including its present condition, its probable natural evolution, possible natural events and also human plans and actions that may affect the facility or its vicinity over the period of interest with regard to safety, and a specific understanding of the impact on safety of features, events and processes associated with the site and the facility.

Response

<Attachments>

Reactor Regulation Act

Article 51-2

Category 2 Waste Disposal Permit Ordinance

Articles 3, 4, 5, 6, and 13

Attachments

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.18.1

Which requirements for the investigations and characterization of the site and how are they included in the regulations?

Subsidiary Response

Pursuant to the Reactor Regulation Act, parties that intend to carry out near surface disposal (Category 2 waste disposal) shall obtain a permit for activity. The requirements specifically for siting are as follows: the ground for facilities, effects of earthquakes and tsunamis, other anticipated natural phenomena which may cause damage as external events (e.g., floods, wind (typhoons), tornadoes, freezing, rainfall, snowing, lightning, landslides, volcanic activity, geographical/inland water changes, biological events, and forest fires) and the water level of groundwater. Applicants are required to explain about weather, the ground condition, surface water hydrology, earthquakes, and the social environment, etc. Pursuant to the Reactor Regulation Act, applicants shall describe how their facilities meet the siting requirements in the application forms and attachments thereto. The NRA confirms that the conformity of applications to the requirements.

<Attachments>

Reactor Regulation Act

Articles 51-2 and 51-3

Category 2 Waste Disposal Ordinance

Article 2

Category 2 Waste Disposal Permit Ordinance

Articles 3, 4, 5, 6, and 13

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.19

Does the regulatory body require that the disposal facility and its engineered barriers are designed to contain the waste with its associated hazard, to be physically and chemically compatible with the host geological and/or surface environment, and to provide operational and post-closure safety features that complement those afforded by the host environment?

Answer

Yes

Finding

The regulatory body does require that the disposal facility and its engineered barriers are designed to contain the waste with its associated hazard, to be physically and chemically compatible with the host geological and/or surface environment, and to provide post-closure safety features that complement those afforded by the host environment.

Response

Pursuant to the Category 2 Waste Disposal Permit Ordinance under the Reactor Regulation Act, the applicant for the permit of activity (or amendment to the permit) of Category 2 waste disposal shall conform to the technical requirements for the ground of the waste disposal facility. Specifically, the waste disposal facility shall be established on the ground that satisfies the following conditions:

- The ground can sufficiently bear seismic force.*
- The ground can ensure safety of the facility even in the case of any tilt or deflection of the supporting soil due to the crustal change accompanied by the earthquake, or change of surrounding grounds accompanied by the earthquake (including uneven settlement of buildings and structures, liquefaction and shaking-down settlement).*
- The ground does not have any risk of displacement due to the possible movement of a fault in the future.*

In addition, the safety of the waste disposal site shall not be impaired due to chemical substances contained in radioactive waste disposed or other chemical substances.

Pursuant to the Reactor Regulation Act, the decommissioning will be expected to start roughly within about 300 to 400 years after the closure of disposal facility in the case of the pit disposal, and within about 50 years after the closure of disposal facility in the case of the trench disposal. Pursuant to the Act, the applicant for the permit (or amendment to the permit) shall evaluate at the designing stage that the facility will not cause any radiation hazard to the general public in the vicinity of the place of activity during that period, even when any abnormality is found in the facility.

<Attachments>

*Category 2 Waste Disposal Permit Ordinance and Category 2 Waste Disposal Permit Guide
Articles 3, 9 and 10*

Attachments

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

Question 5.20

Do the regulations require a disposal facility to be constructed in accordance with the design as described in the approved safety case and safety assessments?

Answer

Yes

Finding

The regulations require a disposal facility to be constructed in accordance with the design as described in the approved safety case and safety assessments.

Response

Pursuant to the Reactor Regulation Act, parties that intend to carry out near surface disposal (Category 2 waste disposal) shall obtain a permit. The NRA examines the conformity of the locations, structures, and equipment of waste disposal facilities to the technical requirements. Furthermore, the NRA confirms the conformity of operational safety measures to technical standards specified by NRA. In this process, NRA reviews the conformity of the locations, structures, and equipment of waste disposal facilities to the permitted applications for activity. However, since the standard review plans for the permit of activity is not sufficiently clear, and the NRA's requirements for the approval of design and construction plan have not been updated for a long time and remain to require detailed technical specifications.

<Attachments>

Reactor Regulation Act

Articles 51-2, 51-3 and 51-6

Category 2 Waste Disposal Ordinance

Articles 2, 4, 5 and 6

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.21

Do the regulations require a disposal facility to be constructed in such a way as to preserve the post-closure safety functions of the host environment that have been shown by the safety case to be important for safety after closure?

Answer

Yes

Finding

The regulations require a disposal facility to be constructed in such a way as to preserve the post-closure safety functions of the host environment that have been shown by the safety case to be important for safety after closure.

Response

Pursuant to the Reactor Regulation Act, applicants for a permit for carrying out near surface disposal (Category 2 waste disposal) shall explain the conditions related to weather, the ground, surface water hydrology, earthquakes, and the social environment, etc. of that site.

<Attachments>

Category 2 Waste Disposal Ordinance

Article 2

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Question 5.22

Do the regulations require the construction activities to be carried out in such a way to ensure safety during the operational period?

Answer

Yes

Finding

The regulations require the construction activities to be carried out in such a way to ensure safety during the operational period.

Response

Pursuant to the Reactor Regulation Act, at each construction and operation stage of the facility, the NRA confirms that the facilities under construction and the associated construction work as well as facilities in operation and associated operation work are not to affect each other.

<Attachments>

Reactor Regulation Act

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.23

Does the regulatory body require a disposal facility to be operated in accordance with the conditions of the licence and the relevant regulatory requirements so as to maintain safety during the operational period, and in such a manner as to preserve the safety functions assumed in the safety case that are important to safety after closure?

Answer

Yes

Finding

The regulatory body requires a disposal facility to be operated in accordance with the conditions of the licence and the relevant regulatory requirements so as to maintain safety during the operational period, and in such a manner as to preserve the safety functions assumed in the safety case that are important to safety after closure.

Response

<Attachments>

Category 2 Waste Disposal Ordinance

Articles 17 and 19-2

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.23.1

How the regulatory body requires and controls that all operations and activities important to the safety of a disposal facility have to be subjected to conditions, limitations and controls and emergency plans have to be put in place? Are additional, facility specific criteria established by the regulatory body or by the operator?

Subsidiary Response

Pursuant to the Reactor Regulation Act, licensees shall provide operational safety programs specific to each equipment and system that they must observe, and obtain the NRA's approval. In such programs, licensees shall include matters related to the handling of radioactive waste and emergency measures in accordance with the provisions of the Ordinance. Furthermore, licensees shall undergo the NRA inspections on a quarterly basis to ensure they are complying with their operational safety programs.

<Attachments>

Reactor Regulation Act

Article 51-18

Category 2 Waste Disposal Ordinance

Articles 20 and 20-2

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.23.2

How is it required that the safety case has to address and justify both the design and operational management arrangements that are used to ensure that the safety objective and criteria are met?

Subsidiary Response

Pursuant to the Reactor Regulation Act, parties that intend to carry out near surface disposal (Category 2 waste disposal) shall obtain a permit for activity. The NRA examines the conformity of the locations, structures, and equipment of waste disposal facilities to the technical requirements. Furthermore, pursuant to the Reactor Regulation Act, licensees shall specify operational safety matters related to operations and management in their operational safety programs, and obtain the NRA's approval for these.

<Attachments>

Reactor Regulation Act

Articles 51-2, 51-3 and 51-18

Category 2 Waste Disposal Ordinance

Articles 2 and 20

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.23.3

How is it required that the safety case has to demonstrate that hazards and other radiation risks to workers and members of the public under conditions of normal operation and anticipated operational occurrences have been reduced as low as reasonably achievable?

Subsidiary Response

The Reactor Regulation Act specifies requirements for waste disposal sites and radiation management facilities (e.g., radiation shielding, prevention of radiation hazards in the case of an abnormality.) as necessary technical requirements for obtaining a permit of near surface disposal (Category 2 waste disposal), for preventing radiation hazards on the general public, etc. Pursuant to the Act, applicants shall take measures to reduce the effects of radiation on the general public and radiation workers as much as possible during normal operation as well as in the event any abnormality occurs. In addition, licensees shall perform monitoring and surveillance of facilities on a regular basis in order to detect and take measures against any signs of an abnormality or accident.

<Attachments>

Reactor Regulation Act

Article 51-3

Category 2 Waste Disposal Ordinance

Articles 16 and 17

Category 2 Waste Disposal Permit Ordinance

Articles 8, 9, 10, and 11

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.23.4

How long is it required that the active control of safety in the disposal facility has to be maintained?

Subsidiary Response

Pursuant to the Reactor Regulation Act, decommissioning of facilities of near surface disposal (Category 2 waste disposal) that are currently in operation in Japan is expected to start roughly about 300 to 400 years after the closure of disposal facility in the case of pit disposal, and about 50 years after the closure of disposal facility in the case of trench disposal. During these periods, licensees shall check the safety of waste disposal facilities by monitoring ventilation and discharge as well as carrying out other types of monitoring, inspection, and checking.

<Attachments>

Category 2 Waste Disposal Ordinance

Articles 16 and 17

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.23.5

How long is it required that the active control of safety has to be maintained?

Subsidiary Response

See the answer to SQID 23.4

Subsidiary Question 5.23.6

How regulations address the management of fissile material in the disposal facility?

Subsidiary Response

Although one cannot exclude the possibility that a miniscule amount of fissile materials may be included in waste to be disposed, such materials are not contained in waste in practice. Therefore, the Reactor Regulation Act does not require licensees currently authorized to carry out near surface disposal (Category 2 waste disposal) to manage fissile materials. Pursuant to the Reactor Regulation Act, licensees shall ensure that waste to be disposed of and operational safety measures conform to technical standards. One standard is to ensure that the radioactivity concentration of waste packages does not exceed the limit approved under the permit (or amendment to the permit).

<Attachments>

Category 2 Waste Disposal Ordinance

Article 8, Paragraph 2, Item 2

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Question 5.24

Do the regulations require a disposal facility to be closed in such a way that provides for the safety functions shown by the safety case to be important for the post-closure period?

Answer

Yes

Finding

The regulations require a disposal facility to be closed in such a way that provides for the safety functions shown by the safety case to be important for the post-closure period.

Response

Pursuant to the Reactor Regulation Act, parties that intend to carry out near surface disposal (Category 2 waste disposal) shall obtain a permit for activity from the NRA, including during the period after closure of disposal facility. The NRA examines the conformity of the locations, structures and equipment of waste disposal facilities to the technical requirement.

The NRA reviews the conformance of operational safety measures of waste disposal facilities to the technical standard specified by NRA. In this review process, the NRA confirms that waste disposal facilities have been closed in accordance with their approved permit

However, the standard for the closure of waste disposal facility have not been specified yet.

<Attachments>

Reactor Regulation Act

Articles 51-2 and 51-6

Category 2 Waste Disposal Ordinance

Articles 2, 5 and 6

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.24.1

How does the regulatory body require the disposal facility has to be closed and are considerations given to any changes in responsibility that may occur at this stage?

Subsidiary Response

The Reactor Regulation Act does not specify any regulatory provisions that may give rise to any changes in responsibility before the start closure of disposal facility for near surface disposal (Category 2 waste disposal) currently is being carried out in Japan. If a licensee dissolves, its heir will succeed it and inherit its status. If there is no heir, the liquidator, etc. shall be deemed to act as the licensee and is responsible for that activity until decommissioning.

<Attachments>

Reactor Regulation Act

Articles 51-12, 51-13 and 51-26

Subsidiary Attachments

Question 5.25

Is it required by the Regulatory Body that plans for closure, including the transition from active management of the facility, are well defined and practicable, so that closure can be carried out safely at an appropriate time?

Answer

Yes

Finding

The Regulatory Body requires that plans for closure, including the transition from active management of the facility, are well defined and practicable, so that closure can be carried out safely at an appropriate time.

Response

Pursuant to the Reactor Regulation Act, licensees that currently carry out near surface disposal (Category 2 waste disposal) shall obtain a permit for the activity, including during the period after closure of disposal facility. Furthermore, after closure of disposal facility, licensees shall perform necessary inspections and checking based on their operational safety programs.

Besides, licensees shall modify the operational safety program since the measures to be taken for operational safety after the closure of disposal facility are different from before the closure. But the evaluation criteria for the modification of operational safety program after closure have not been specified yet.

<Attachments>

Reactor Regulation Act

Article 51-2

Category 2 Waste Disposal Ordinance

Article 20

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.25.1

How does the regulatory body require demonstration of availability of the necessary technical and financial resources to achieve closure?

Subsidiary Response

Pursuant to the Reactor Regulation Act, one criterion for the permit is that applicants have sufficient technical competence and financial basis to properly implement such activity.

Besides, licensees shall modify the operational safety program, since the measures to be taken for operational safety after the closure of disposal facility are different from before the closure. But the evaluation criteria for the modification of operational safety program after closure have not been specified yet.

<Attachments>

Reactor Regulation Act

Article 51-3, Item 1

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.26

Do the regulations require that waste packages and unpackaged waste accepted for emplacement in a disposal facility conform to criteria fully consistent with and derived from the safety case for the operational and post-closure safety of the disposal facility?

Answer

Yes

Finding

The regulations require that waste packages and unpackaged waste accepted for emplacement in a disposal facility conform to criteria fully consistent with and derived from the safety case for the operational and post-closure safety of the disposal facility.

Response

The Reactor Regulation Act stipulates the technical standards for each type of disposal methods (trench or pit) and for related operational safety measures for facilities of near surface disposal (Category 2 waste disposal) currently in operation in Japan. When disposing of waste, licensees shall obtain confirmation from the NRA that such disposal conforms to the technical standards. In accordance with such standards, licensees shall ensure that the level of radioactivity concentration contained in waste does not exceed the approved limit in their permit. But, among these technical standards, the standards for method of enclosure and solidification to packages, surface contamination limits and strength of containers are defined in the NRA ordinance and its notice as detailed technical specifications, and remains

unchanged for a long time, which does not allow the licensees' measures based on their safety case.

<Attachments>

Reactor Regulation Act

Article 51-6, Paragraph 2

Category 2 Waste Disposal Ordinance

Article 8

Category 2 Waste Disposal Technical Notice

Article 4

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G19Notification on Technical Details for Category 2 Waste Disposal Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.26.1

How and what kind of waste acceptance criteria (physical, chemical and biological properties) are derived from the safety case and safety assessment for the disposal facility?

Subsidiary Response

See the answer to QID 26.

Subsidiary Question 5.26.2

What arrangements are in place to ensure that waste meets specified waste acceptance criteria?

Subsidiary Response

Pursuant to the Reactor Regulation Act, when disposing of waste, licensees shall obtain confirmation from the NRA as to whether the radioactive waste and related operational safety measures conform to technical standards specified by the NRA. When checking waste packages upon acceptance, the NRA shall confirm whether such waste packages do not exceed the maximum radioactivity concentration stated in the application for confirmation submitted by the licensee and meet the criteria specified in Ordinances and Notices under the Reactor Regulation Act. This confirmation is carried out by checking records or performing on-site checking at waste disposal sites.

<Attachments>

Reactor Regulation Act

Article 51-6, Paragraph 2

Category 2 Waste Disposal Ordinance

Articles 7 to 9

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.27

Does the regulations require that a programme of monitoring need to be carried out prior to and during the construction and operation of a disposal facility, and after its closure, if this is part of the safety case?

Answer

Yes

Finding

The regulations require that a programme of monitoring need to be carried out prior to and during the construction and operation of a disposal facility, and after its closure, if this is part of the safety case.

Response

Pursuant to the Reactor Regulation Act, licensees currently authorized to carry out near surface disposal (Category 2 waste disposal) shall monitor leakage of radioactive materials outside their waste disposal sites to preserve these sites.

Furthermore, after starting operation, licensees shall monitor, inspect, and check waste disposal sites and their vicinities based on the operational safety programs specified by licensees themselves.

The Reactor Regulation Act does not require licensees to perform monitoring before operation. However, as applicants must collect necessary information to apply to carry out activity, in practice they perform monitoring.

The NRA shall check the measurement of monitoring and surveillance after closure during the evaluation of modification of operational safety program, but the evaluation criteria have not been specified yet.

<Attachments>

Category 2 Waste Disposal Ordinance

Articles 17 and 20

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Question 5.28

Does the monitoring programme is required to be designed to collect and update information necessary for the purposes of protection and safety and to obtain information confirming the conditions necessary for the safety of workers and members of the public and protection of the environment during the period of operation of the facility as well as to confirm the absence of any conditions that could affect the safety of the facility after closure?

Answer

Yes

Finding

The monitoring programme is required to be designed to collect and update information necessary for the purposes of protection and safety and to obtain information confirming the conditions necessary for the safety of workers, members of the public and protection of the environment during the period of operation of the facility as well as to confirm the absence of any conditions that could affect the safety of the facility after closure.

Response

Pursuant to the Reactor Regulation Act, licensees currently authorized to carry out near surface disposal (Category 2 waste disposal) in Japan shall collect and retain records on radiation management. Specifically, the following records are to be collected:

- The dose equivalent of external radiation and average concentration of radioactive materials in the air, etc. in the controlled area.*
- The dose equivalent of external radiation and concentration of radioactive materials in groundwater in the surrounding monitored area.*

Licensees shall define the matters related to dose monitoring, radiation measurement, inspection and checking of waste disposal facilities, etc. in the operational safety program and be required to comply their program, including the period after the closure of waste disposal site. Besides, licensees shall modify the operational safety program since the measures to be taken for operational safety after the closure of disposal facility are different from before the closure. But the evaluation criteria for the modification of operational safety program after closure have not been specified yet.

<Attachments>

Category 2 Waste Disposal Ordinance

Articles 13 and 20

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Question 5.29

Does the regulation require that plans are prepared for the post-closure period to address institutional control and the arrangements for maintaining the availability of information on the disposal facility?

Answer

Yes

Finding

The regulation requires that plans are prepared for the post-closure period to address institutional control and the arrangements for maintaining the availability of information on the disposal facility.

Response

Pursuant to the Reactor Regulation Act, licensees currently authorized to carry out near surface disposal (Category 2 waste disposal) in Japan shall control waste disposal sites according to the radiation level until the radiation level of radioactive waste disposed of is gradually reduced over time and they shall confirm that the effects of radioactive materials on living environments no longer impair safety.

Furthermore, licensees shall perform inspections and checking of disposal facility at least once a week in accordance with their operational safety programs.

Pursuant to the Reactor Regulation Act, licensees shall keep records on necessary actions taken to control their waste disposal facilities as described above until the completion of decommissioning of such facilities.

<Attachments>

Category 2 Waste Disposal Ordinance

Articles 13, 16 and 17

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Question 5.30

Do the regulations require that plans for the post-closure period will be consistent with passive safety features and that form part of the safety case on which authorization to close the facility is granted?

Answer

Yes

Finding

The regulations require that plans for the post-closure period will be consistent with passive safety features and that form part of the safety case on which authorization to close the facility is granted.

Response

Near surface disposal (Category 2 waste disposal) facilities currently operated in Japan shall be provided institutional control until completion of decommissioning.

Subsidiary Question 5.30.1

How is required the institutional control to be designed for near surface disposal facilities including those for waste from mining and mineral processing?

Subsidiary Response

The NRA requires licensees for Category 2 waste disposal to control waste disposal sites according to the radiation level until the radiation level of radioactive waste disposed of is gradually reduced over time and they shall confirm that the effects of radioactive materials on living environments no longer impair safety.

Furthermore, licensees shall perform inspections and checking of disposal facility at least once a week in accordance with their operational safety programs, which have been approved by the NRA.

See the answer to SQID 10.2 for information on radioactive waste disposal of slugs containing radioactive materials.

<Attachments>

Category 2 Waste Disposal Ordinance

Articles 16 and 17

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.30.2

How is required the institutional control to be designed for geological disposal facilities?

Subsidiary Response

At present, Japan has no Category 1 waste disposal facility (geological waste disposal facility). Regulations for Category 1 waste disposal facilities will be discussed in the future, taking into account the progress of disposal site selection by implementing body.

Subsidiary Question 5.30.3

Describe how the risk of intrusion into a disposal facility for radioactive waste is regulated.

Subsidiary Response

The NRA requires that near surface (pit and trench) disposal facilities (Category 2 waste disposal) currently in operation in Japan should designate a disposal conservation area and control access to this area after closure of disposal facility (the preservation stage).

No measures are required with respect to preserving waste disposal sites after completion of decommissioning.

<Attachments>

Category 2 Waste Disposal Ordinance

Articles 17, 20 and 22-12

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.30.4

How does the regulation require that institutional control programme be reviewed?

Subsidiary Response

The NRA requires licensees to perform the following as part of institutional controls: access control of controlled areas; monitoring of radioactive material leakage; inspections and checking of facilities; preparation of records on operational safety; and retention of records regarding operational safety programs. The NRA shall check these activities through operational safety inspections.

<Attachments>

Category 2 Waste Disposal Ordinance

Article 20 and 20-2

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Subsidiary Question 5.30.5

Are arrangements required to be made to be able to pass on information about the disposal facility and its contents to future generations to enable any future decisions on the disposal facility and its safety to be made.?

Subsidiary Response

The Category 2 Waste Disposal Ordinance specifies matters to be recorded by licensees and the retention period for such records. Licensees shall keep these records at each place of activity. Furthermore, licensees shall keep records of waste disposal facilities and waste disposed of at facilities until completion of decommissioning.

<Attachments>

Reactor Regulation Act

Article 51-15

Category 2 Waste Disposal Ordinance

Article 13

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.31

Do the regulations require in the design and operation of disposal facilities subject to agreements on accounting for, and control of, nuclear material that considerations be given to ensuring that safety is not compromised by the measures required under the system of accounting for, and control of, nuclear material?

Answer

Yes

Finding

The regulations require in the design and operation of disposal facilities subject to agreements on accounting for, and control of, nuclear material, shall give consideration to ensuring that safety is not compromised by the measures required under the system of accounting for, and control of, nuclear material.

Response

The NRA is in charge of both safety and the system of accounting for and control of nuclear materials. Adjustment and coordination are performed as necessary in order to ensure the activities of each party are not hindered.

Question 5.32

Do the regulations require an integrated approach for the implementation of safety measures and nuclear security measures in the disposal of radioactive waste?

Answer

Yes

Finding

The regulations require an integrated approach to be in place for the implementation of safety measures and nuclear security measures in the disposal of radioactive waste.

Response

The NRA is in charge of both safety and nuclear security; it mandates coordination of safety and nuclear security by regulatory organizations in the Action Guidelines Regarding Nuclear Security Culture of January 2015 (internal NRA regulations) and the Declaration on Nuclear Safety Culture of April 2015.

Regulatory organizations shall make efforts to coordinate regarding matters of safety and nuclear security as well as take appropriate organizational measures in the event any discrepancy occurs between safety and security. Furthermore, effective coordination to balance both safety and nuclear security is stated among the mid-term goals for the NRA's first period (April 2015 to March 2020).

Question 5.33

Do the regulations require management systems to be applied to provide for the assurance of quality to all safety related activities, systems and components throughout all the steps of the development and operation of a disposal facility and that the level of assurance for each element need to be commensurate with its importance to safety?

Answer

Yes

Finding

The regulations require management systems to be applied to provide for the assurance of quality to all safety related activities, systems and components throughout all the steps of the development and operation of a disposal facility and that the level of assurance for each element need to be commensurate with its importance to safety.

Response

However, pursuant to the Reactor Regulation Act, Category 2 Waste disposal facility is not required any quality assurance during the designing stage (before obtaining a license).

<Attachments>

Reactor Regulation Act

Article 51-18

Category 2 Waste Disposal Ordinance

Articles 13-3 and 20

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.33.1

How does the regulation require the preparation and retention of documentary evidence to illustrate that the necessary quality of data has been achieved; that components have been supplied and used in accordance with the relevant specifications; that the waste packages and unpackaged waste comply with established requirements and criteria; and that they have been properly emplaced in the disposal facility?

Subsidiary Response

Licensees currently authorized to carry out near surface disposal business (Category 2 waste disposal) in Japan shall specify matters related to quality assurance of such facilities based on operational safety programs approved by the NRA.

Furthermore, licensees are required to record and keep records of matters related to waste and disposal facilities, etc.

<Attachments>

Reactor Regulation Act

Articles 51-15 and 51-18

Category 2 Waste Disposal Ordinance

Articles 13, 13-3 and 20

Subsidiary Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.34

Does the safety of existing disposal facilities is requested to be assessed periodically until termination of the licence or when a safety significant modification is planned or in the event of changes with regard to the conditions of the authorization?

Answer

Yes

Finding

The safety of existing disposal facilities is requested to be assessed periodically until termination of the licence or when a safety significant modification is planned or in the event of changes with regard to the conditions of the authorization.

Response

Licensees currently authorized to carry out near surface disposal (Category 2 waste disposal) in Japan shall perform periodic safety review of waste disposal sites based on the latest technical knowledge at time intervals not exceeding 10 years from the start date of operation, and take necessary measures to preserve facilities based on the assessment results. Licensees shall perform the same review and take the same measures when changing the measures taken to preserve waste disposal facilities in accordance with the decay of radioactivity.

<Attachments>

Reactor Regulation Act

Article 51-16, Paragraph 2

Category 2 Waste Disposal Ordinance

Article 19-2

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G10The Guideline for Periodic Safety Review etc. for Category 2 Waste Disposal Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.35

Does the legislation or regulation require the operator when new requirements are set down or are not met to take measures to upgrade the safety of the facility, economic and social factors being taken into account?

Answer

Yes

Finding

The legislation or regulation requires the operator when new requirements are set down or are not met to take measures to upgrade the safety of the facility, economic and social factors being taken into account.

Response

However, economic factors are not taken into account.

Licensees currently authorized to carry out near surface disposal (Category 2 waste disposal) in Japan shall perform periodic safety review of waste disposal sites based on the latest technical knowledge at time intervals not exceeding 10 years from the start date of operation, and take necessary measures to preserve facilities based on the assessment results. Furthermore, based on their operational safety programs, which are approved by the NRA, each licensee shall specify a quality assurance plan as well as formulate, implement, evaluate, and improve operational safety activities in accordance with that plan, thereby continuously enhancing the quality assurance plan.

<Attachments>

Category 2 Waste Disposal Ordinance

Articles 13-3, 19-2 and 20

Attachments

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Module: Safety Requirements for Predisposal Management of Radioactive Waste

Findings

Question 6.1

Does the regulatory body ensure that potential effects of the management of radioactive waste beyond national borders are taken into account?

Answer

Yes

Finding

The Regulatory Body ensures that potential effects of the management of radioactive waste beyond national borders are taken into account.

Response

(Note) Japan's basic policy is to promote a nuclear fuel cycle in which spent fuel is reprocessed and then efficient use is made of recovered plutonium, etc. This is done to effectively utilize resources and reduce the volume of and hazards from high-level radioactive waste. Though spent fuel is not considered to be waste, an answer on regulations for spent fuel storage business was prepared as part of the answer to Module 4-6 (QID11-16) according to the summary of GSR Part-5.

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

Controlled release of radioactive waste is performed in compliance with Japan's laws so that the general public is not affected; thus, there should be no effects on people overseas, either.

Subsidiary Question 6.1.1

How is this ensured and which of the relevant regulations ensure this?

Subsidiary Response

The NRA ensures based on the Reactor Regulation Act and the Radiation Hazards Prevention Act.

Question 6.2

Do the regulations clearly establish the primary responsibility of the operator for the safety of predisposal radioactive waste management facilities or activities?

Answer

Yes

Finding

The regulations clearly establish the primary responsibility of the operator for the safety of predisposal radioactive waste management facilities or activities

Response

[Regulations for licensees under the Reactor Regulation Act]

Article 57-9 of the Reactor Regulation Act obliges licensees to install equipment and devices that contribute to improving the level of safety of nuclear facilities, enrich education on operational safety, and take any other necessary measures.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances oblige persons intending to use of radioisotopes or to manage radioactive wastes and others, to conform to the technical standards for facilities and practices. Therefore, primary responsibility is placed upon licensees (i.e. permitted users and permitted waste management operators, hereafter same).

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 57-9

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 7, 15, 16, and 19

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 6.3

Does the regulation require the operator to carry out safety assessments and to develop a safety case, and to ensure that the necessary activities for siting, design, construction, commissioning, operation, shutdown and decommissioning will carried out in compliance with legal and regulatory requirements?

Answer

Yes

Finding

The regulation requires the operator to carry out safety assessments and to develop a safety case, and to ensure that the necessary activities for siting, design, construction, commissioning, operation, shutdown and decommissioning will carried out in compliance with legal and regulatory requirements.

Response

[Regulations for licensees under the Reactor Regulation Act]

Based on the Reactor Regulation Act, the NRA review the application submitted by a person who intends to obtain a permit for the establishment of commercial reactors, etc. After

starting operation, the Reactor Regulation Act requires licensees to conduct periodic safety assessment of continuous improvement or periodic safety reviews.

In addition, based on said Act, before decommissioning, licensees shall prepare a decommissioning plan and submit to the NRA's for approval.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Predisposal business of radioactive wastes is performed by the licensee itself and an entrusted permitted waste management operator. In advance of commencement of waste management business, the NRA may grant permission to the applicant after assessing and confirming safety by reviewing an application form submitted to the NRA and implementing facility inspections. After the permitted waste management operator starts the business, the NRA performs on-site inspections, periodic inspections, and periodic confirmations to ensure the safety of its activity.

In addition, with respect to decommissioning, all licensees must set forth their decommissioning plans and submit them to the NRA. The NRA may order licensees to take necessary measures to prevent radiation hazards when the NRA deems measures taken by licensees to be inappropriate.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 13, 16-2, 22, 22-8, 23, 27, 37, 43-3-2, 43-3-5, 43-3-9, 43-3-24, 43-3-29, 43-3-33, 44, 45, 50, 50-5, 51-2, 51-7, 51-18, 51-25, 52, 56-3, and 57-6

Research Reactors Ordinance, Articles 14-2 and 15

Waste Storage Ordinance, Article 33-2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 4-2, 7, 12-8, 12-9, 28, and 43-2

Radiation Hazards Prevention Cabinet Order, Article 7

Radiation Hazards Prevention Ordinance, Articles 7, 14-8, 14-10, 14-11, 14-12, 19, and 26

Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 6.3.1

How the operator is required to establish and maintain a mechanism to provide and ensure adequate financial resources to discharge its responsibilities and to ensure an adequate level of protection and safety?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act].

The Reactor Regulation Act doesn't stipulate that licensees of commercial reactors or test or research reactors ensure their financial resources for safety operation and decommissioning are adequate.

For licensees of fuel cycle facilities, the Reactor Regulation Act stipulates the permit standards and requires that licensees have a financial basis sufficient to carry out business aptly.

The detail of requirement for adequate financial resources for decommissioning and disposal can be found in SQID 3.17 of SARIS Module 1-1.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances require licensees to ensure sufficient protection and safety at their own responsibilities. However, there are no clear stipulations on financial resources for that purpose.

The Radiation Hazards Prevention Act and its Ordinance stipulate the measures for safety control and management of radioactive wastes as the licensees' obligation, therefore the provisioning of appropriate financial resources is also attributed to the licensees' responsibility. There are, however, no clear provisions on appropriate financial resources in the Act and its Ordinances (except for radioactive waste disposal provided for in Article 7 paragraph 3 item (4) of the Ordinance). In case where responsible operators are not identified, the NRA coordinates relevant ministries and agencies and other organizations so as to ensure the safety management, such as transfer and storage of radioactive wastes.

Subsidiary Question 6.3.2

How the operator is required to establish and maintain a strong safety culture by means of an effective management system and a demonstrated commitment to safety on the part of senior management?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require licensees to specify items concerning management system for promoting safety culture in their operational safety programs. In addition, the NRA approves such operational safety programs based on the Reactor Regulation Act; when reviewing such a program, it confirms that the program defines a basic policy of implementing operational safety activities informed by safety culture.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The NRA continuously endeavors to develop and improve safety culture associated with ensuring safety in utilization of radiation by, for example, issuing reminder documents addressed to licensees and releasing information on cases of trouble on the NRA website. In addition, licensees endeavor to promote radiation safety and safety culture by providing education and training to their employees and holding voluntary lecture meetings, and other means.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, and 50; Article 51-18, paragraph (4); and Article 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1), item (ii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (ii)

Research Reactors Ordinance, Article 15

Reprocessing Ordinance, Article 17, paragraph (1), item (ii)

Waste Storage Ordinance, Article 34, paragraph (1), item (ii)

Commercial Reactors Operational Safety Program Standards, Article 92, paragraph (1), item (ii)

Research Reactors Operational Safety Program Standards, Article 15, paragraphs (1) and (2)

Nuclear Fuel Materials Use Operational Safety Program Standards, Article 2-12, paragraph (1), item (ii)

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H02The Act for Establishment of the Nuclear Regulation Authority

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

Subsidiary Question 6.3.3

How the operator is required to establish and maintain emergency preparedness and response plans commensurate with the hazards associated with the radioactive waste facilities and activities, and reports incidents significant to safety in a timely manner to the regulatory body and other interested parties, as appropriate?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require licensees to specify items concerning measures to take in emergencies, etc. and on records and reports related to safety (including incidents) in their operational safety programs. The NRA confirms licensees' compliance with their operational safety programs periodically.

When an accident occurs in a nuclear facility, the licensee must report on the situation regarding the accident to the competent minister without delay.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Licensees are obligated to stipulate items concerning the measures to take when an earthquake, fire and other disaster occurs as well as the measures to take in emergencies in their Radiation Hazards Prevention Programs, in which are stipulated matters regarding communication with and notification to the NRA, emergency works, emergency measures, and others. The Radiation Hazards Prevention Act and its Ordinances also require licensees to notify of such accidents to the NRA and other relevant organizations, such as police and fire departments.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 62-3

Commercial Reactors Ordinance, Article 92, paragraph (1), items (xix) to (xxiv)

Fuel Fabrication Ordinance, Article 8, paragraph (1), items (xv) to (xix)

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87, paragraph (1), items (xix) to (xxiv)

Reprocessing Ordinance, Article 17, paragraph (1), items (xviii) to (xxii)

Waste Storage Ordinance, Article 34, paragraph (1), items (xv) and (xvi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xi)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 21, 32, 33, and 42

Radiation Hazards Prevention Ordinance, Article 21, 29, and 39 paragraph 1

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.3.4

How the operator is required to retain overall responsibility and control when the operator is delegating work associated with his responsibilities to other organizations?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require licensees to stipulate quality assurance in their operational safety programs. Based on such rules, licensees are required to define how to appropriately manage any goods or services they procure externally. The NRA confirms licensees' compliance with their operational safety programs periodically.

[Regulations for licensees under the Radiation Hazards Prevention Act]

When a licensee entrusts work for which it is responsible to another organization, workers of that organization are considered to be personnel under the responsibility or supervision of the licensee concerned when performing such work.

As for the waste management of disused radiation sources, sources shall be stored in a facility of the licensee itself, or transferred from the licensee to a permitted waste management operator, then stored in the permitted waste management operator.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 50, 56-3, and 51-18

Commercial Reactors Ordinance, Article 72, and Article 92, paragraph (1), item (iii)

Fuel Fabrication Ordinance, Article 7-2-5 and Article 8, paragraph (1), item (iii)

Research Reactors QMS Ordinance, Article 36

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 67 and Article 87, paragraph (1), item (iii)

Reprocessing Ordinance, Article 8-6 and Article 17, paragraph (1), item (iii)

Waste Storage Ordinance, Articles 26-6 and 34

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xiv)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 19, and 29

Radiation Hazards Prevention Ordinance, Article 19

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M06The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Research and Test Reactors for Licensee of Research and Test Reactor and System for their Inspection

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.3.5

Do the regulations require the operator to be responsible for establishing and implementing measures to ensure an appropriate level of security?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The Reactor Regulation Act stipulates that licensees must take protective measures when handling specified nuclear materials. Specifically, licensees shall prepare a physical protection program, and submit to the NRA for approval, and then comply with the program.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

Licensees are obliged to close and lock the radiation-activated material storage equipment in waste repacking facilities, waste storage facilities, and storage equipment in waste management facilities, as well as to install physical closure equipment, etc. at the boundaries of controlled areas, thereby ensuring security. Before granting permission of waste management business, the NRA confirms that security is ensured through such measures.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 21-2, paragraph (2); Articles 22-6, 35, and 43-2; Article 43-3-22, paragraph (2); Article 43-3-27; Article 48, paragraph (2); Article 50-3, Article 51-16, paragraph (4); Article 51-23, Article 57, paragraph (2); and Article 57-2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 7

Radiation Hazards Prevention Ordinance, Article 14-7 paragraph 1 items (7)-2 and (8), Article 14-8, Article 14-9 items (5) and (6), Article 14-10, and Article 14-11 paragraph 1 items (8) (b) and (9)

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.3.6

Do the regulations require the operator to be responsible for establishing and implementing the overall strategy for the management of the waste that it generates, and for providing the required financial securities, taking into account interdependences among all steps in waste management, the available options and the national radioactive waste management policy?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The NRA ordinances for each type of facilities and activities stipulate requirements for ensuring safety when licensees transport and store radioactive waste. According to these

ordinances, licensees must keep records of the types and quantities, etc. of radioactive waste stored. The Reactor Regulation Act and the NRA ordinances for each type of facilities and activities require licensees to specify items concerning predisposal management of radioactive waste in their operational safety programs and to comply with those programs.

The Reactor Regulation Act does not specifically require the responsibility of ensuring licensees' financial security.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

Wastes generated in facilities using radiation sources shall be stored in the facilities concerned or shall be transferred to a permitted waste management operator. Therefore, when granting permission of use of radiation sources or radioactive waste management business, the NRA confirms that waste management facilities conform to technical standards and can process generated wastes appropriately.

The Radiation Hazards Prevention Act and its Ordinance stipulate the measures for safety control and management of radioactive wastes as the licensees' obligation, therefore the financial security is also attributed to the licensees' responsibility. There are, however, no clear provisions on financial security in the Act and its Ordinances (except for radioactive waste disposal provided for in Article 7 paragraph 3 item (4) of the Ordinance). In case where responsible operators are not identified, the NRA coordinates relevant ministries and agencies and other organizations so as to ensure the safety management, such as transfer and storage of radioactive wastes.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 50, 51-18, and 56-3

Commercial Reactors Ordinance, Articles 88, 90, and Article 67, paragraph (1), item (v) (h) and (i)

Fuel Fabrication Ordinance, Articles 7-6, 7-8, and Article 7, paragraph (1), item (ii) (g)

Research Reactors Ordinance, Articles 12, 14, and Article 6, paragraph (1), item (iv) (h) and (i)

Research Power Reactors Ordinance, Articles 83, 85, and Article 62, paragraph (1), item (v) (h) and (i)

Reprocessing Ordinance, Articles 14, 16, and Article 8, paragraph (1), item (ii) (j)

Waste Storage Ordinance, Articles 32, 33, and Article 26, paragraph (1), items (ii) (h) and (i)

Nuclear Fuel Materials Use Ordinance, Articles 5, 4, and Article 2-11, paragraph (1), item (ii) (h)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 7, and 19

Radiation Hazards Prevention Ordinance, Articles 7 paragraph 3 item (3), Articles 14-8, 14-10, 14-11, and 19

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.3.7

Does the regulation require the operator to inform the regulatory body about changes of ownership of waste or about changes in the relationship between owner and licensee?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

No.

The NRA ordinances for each type of facilities and activities require licensees to keep records of the types and quantities, etc. of radioactive waste stored in waste storage facilities. Moreover, the Off - Site Disposal Ordinance requires licensees to issue copies of records on radioactive waste to be stored in off-site.

[Regulations for licensees under the Radiation Hazards Prevention Act]

No.

However, licensees are obligated to keep records of issues on use, storage, and waste management of radioisotopes and others. Although upon transferring or receiving radioisotopes, licensees are not required to report such facts to the NRA, constrained conditions for transfer and receipt are stipulated. Licensees are also obligated to submit radiation management status reports, which describe the inventory quantity of radiation sources they possess, including radiation sources that have been transferred at the end of each fiscal year, to the NRA.

The NRA confirms the actual status of the management status during on-site inspections, and other means.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v) (h)

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii) (g)

Research Reactors Ordinance, Article 6, paragraph (1), item (iv) (h)

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v) (h)

Reprocessing Ordinance, Article 8, paragraph (1), item (ii) (j)

Waste Storage Ordinance, Article 26, paragraph (1), item (ii) (h)

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii) (h)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-10, 25, 29, and 43-2

Radiation Hazards Prevention Ordinance, Articles 24, and Article 39 paragraph 3

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 6.4

Are measures implemented to ensure an integrated approach to safety and security in the predisposal management of radioactive waste?

Answer

Yes

Finding

Measures are implemented to ensure an integrated approach to safety and security in the predisposal management of radioactive waste.

Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

The NRA governs both safety and nuclear security. The Action Guidelines for Nuclear Security Culture (a bylaw of the NRA), which was developed in January 2015, and the Statement on Nuclear Safety Culture, which was developed in May that same year, describe a situation in which the regulator realizes harmony with respect to safety and nuclear security.

The NRA shall make all possible efforts for the harmonization of both measures and senior management shall be responsible for providing the most appropriate solution in cases of conflicts. Also, in the medium-term goals for the first period (from April 2015 to March 2020) of the NRA, effective cooperation to realize both safety and nuclear security was listed.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

The NRA Establishment Act, Article 4, paragraph (1), items (i) to (iii) and (ix)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 7, and 19

Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10, 14-11, and 19

Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 6.5

Does the regulatory body ensure that interdependencies among all steps in the predisposal management of radioactive waste, as well as the impact of the anticipated disposal option, are appropriately taken into account?

Answer

Yes

Finding

The regulatory body ensures that interdependencies among all steps in the predisposal management of radioactive waste, as well as the impact of the anticipated disposal option, are appropriately taken into account.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities stipulate requirements for ensuring safety in transport and storage of radioactive waste and also requires licensees to keep records of the types and quantities, etc. of radioactive waste stored. Also, these ordinances require licensees to specify items concerning predisposal management of radioactive waste in their operational safety programs, and the NRA confirms that licensees comply with those programs periodically.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Regarding waste management of radiation sources by licensees (permitted users and permitted waste management operators), the NRA stipulates technical standards for facilities and practices. Based on these standards, licensees shall adequately consider interdependencies at all stages (transport, storage, and waste management) during the predisposal of radioactive wastes.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 50, 51-18, and 56-3

Commercial Reactors Ordinance, Articles 88, 90, and Article 67, paragraph (1), items (v) (h) and (i)

Fuel Fabrication Ordinance, Articles 7-6, 7-8, and Article 7, paragraph (1), items (ii) (g) and (h)

Research Reactors Ordinance, Articles 12, 14, and Article 6, paragraph (1), items (iv) (h) and (i)

Research Power Reactors Ordinance, Articles 83, 85, and Article 62, paragraph (1), item (v) (h) and (i)

Reprocessing Ordinance, Articles 14, 16, and Article 8, paragraph (1), items (ii) (j) and (k)

Waste Storage Ordinance, Article 26, paragraph (1), items (ii) (h) and (i), and Articles 32 and 33

Nuclear Fuel Materials Use Ordinance, Articles 5, 4, and Article 2-11, paragraph (1), items (ii) (h) and (i)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 7, and 19

Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10, 14-11, and 19

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.5.1

How it is ensured that components of the predisposal management process from the generation of radioactive waste up to its disposal, including processing, are seen as parts of a larger entity, and the management elements of each step are selected so as to be compatible with the other steps?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities stipulate requirements for ensuring safety in transport and storage of radioactive waste and also requires licensees to keep records of the types and quantities, etc. of radioactive waste disposed of. Also, these ordinances require licensees to specify items concerning predisposal management of

radioactive waste in their operational safety programs, and the NRA confirms that licensees comply with those programs periodically.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances stipulate the technical standards and others for the management of radioactive wastes, according to the characteristics of the wastes. When granting permission of waste management business, the NRA confirms that such activities conform to technical standards at each facility stage (repack, storage, and waste management) and guarantees that radioactive waste is processed appropriately. In addition, the NRA obliges licensees to stipulate items concerning acceptance, transfer, storage, waste management of radiation sources in their Radiation Hazards Prevention Programs, and confirms the status of implementation by on-site inspections or other means.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 50, 56-3, and 51-18

Commercial Reactors Ordinance, Articles 88, 90, and Article 67, paragraph (1), items (v) (h) and (i)

Fuel Fabrication Ordinance, Articles 7-6, 7-8, and Article 7, paragraph (1), items (ii) (g) and (h)

Research Reactors Ordinance, Articles 12, 14, and Article 6, paragraph (1), items (iv) (h) and (i)

Research Power Reactors Ordinance, Articles 83, 85, and Article 62, paragraph (1), items (v) (h) and (i)

Reprocessing Ordinance, Articles 14, 16, and Article 8, paragraph (1), items (ii) (j) and (k)

Waste Storage Ordinance, Article 26, paragraph (1), items (ii) (h) and (i), and Articles 32 and 33

Nuclear Fuel Materials Use Ordinance, Articles 5, 4, and Article 2-11, paragraph (1), items (ii) (h) and (i)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 7, 12-9, 12-10, 19, 21 and 43-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.5.2

How are established or considered acceptance criteria for disposal of the waste or criteria that are anticipated for the most probable disposal option in the different steps of the predisposal management of waste?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

The technical standards, etc. for each type of facilities, activities and waste management inside plants, etc. are stipulated.

Subsidiary Question 6.5.3

When considering inter-dependencies, how do persons responsible for a particular step in the predisposal management of radioactive waste or for an operation in which waste is generated adequately recognize these interactions and relationships (e. g. identification of waste streams, characterization of waste, implications of transporting and disposing) so that the safety and the effectiveness of the predisposal management of radioactive waste may be considered in an integrated manner?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Regarding waste management inside facilities, the Reactor Regulation Act require licensees to specify items concerning a management system for ensuring compliance with their operational safety programs as well as relevant Acts (including involvement of executive officers) in their operational safety programs. In addition, the NRA requires licensees to assign chief engineers of nuclear power reactors, who supervise operational safety.

When the owner of waste changes, the NRA approves the facilities and activities at each stage and confirms that the new owner is handling the waste appropriately by approval of the operational safety program and inspections of compliance with such program.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Licensees are obligated to assign Radiation Protection Supervisors who supervise measures for preventing radiation hazards in facilities; provide education and training to workers to improve their understanding of safety at work and radiation protection; and ensure compliance with the Radiation Hazards Prevention Program.

Under this system, licensees are obligated to carry out work in compliance with each of the technical standards for use, storage, and transport of radiation sources, and waste management; the NRA (or registered inspection body) confirms such compliance by performing periodic inspections.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 22-2, 37, 40, 43-3-24, 43-3-26, 50, 50-2, 51-18, 51-20, 51-21, and 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1)

Fuel Fabrication Ordinance, Articles 8, paragraph (1)

Research Reactors Ordinance, Articles 15

Research Power Reactors Ordinance, Article 87

Reprocessing Ordinance, Articles 17, paragraph (1)

Waste Storage Ordinance, Article 34, paragraph (1) and Article 34-2

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, 21, 22, 34, and 43-2

Radiation Hazards Prevention Ordinance, Articles 15, 17, 18, 19, 21, and 21-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.5.4

How the issues of compatibility (i.e. taking actions that facilitate other steps and avoiding taking decisions in one step that detrimentally affect the options available in another step) and optimization (i.e. assessing the overall options for waste management with all the inter-dependencies taken into account) are considered?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Regarding waste management inside facilities, The NRA ordinances for each type of facilities and activities require licensees to specify items concerning a management system for ensuring compliance with their operational safety programs as well as relevant Acts (including involvement of executive officers). In addition, the Reactor Regulation Act requires licensees to assign chief engineers of nuclear power reactors, who supervise operational safety.

When the owner of waste changes, the NRA approves the facilities and activities at each stage and confirms that the new owner is handling the waste appropriately by approval of the operational safety program and inspection of compliance with such program.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Licensees are obligated to assign Radiation Protection Supervisors who supervise measures for preventing radiation hazards in facilities; provide education and training to workers to improve their understanding of safety at work and radiation protection; and ensure compliance with the Radiation Hazards Prevention Program.

Under this system, licensees are obliged to carry out work in compliance with each of the technical standards for use, storage and transport of radiation sources, and waste

management; the NRA (or registered inspection body) confirms such compliance by performing periodic inspections.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 22-2, 37, 40, 43-3-24, 43-3-26, 50, 50-2, 51-18, 51-20, 51-21, and 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1)

Fuel Fabrication Ordinance, Article 8, paragraph (1)

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87

Reprocessing Ordinance, Articles 17, paragraph (1)

Waste Storage Ordinance, Article 34, paragraph (1)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, 21, 22, 34, and 43-2

Radiation Hazards Prevention Ordinance, Articles 15, 17, 18, 19, 21, and 21-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 6.6

Does a management system is applied for all steps and elements of the predisposal management of radioactive waste?

Answer

Yes

Finding

A management system is applied for all steps and elements of the predisposal management of radioactive waste.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require licensees to specify items concerning quality assurance, etc. (including management of radioactive waste) in their operational safety programs. The NRA approves such operational safety programs based on the Reactor Regulation Act.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances stipulate technical standards for use, storage and transport of radiation sources, and waste management, oblige licensees to conform to such technical standards, thereby ensuring appropriate predisposal management of radioactive waste.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (iii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (iii)

Research Reactors Ordinance, Article 15, paragraph (1), item (xviii)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (iii)

Reprocessing Ordinance, Article 17, paragraph (1), item (iii)

Waste Storage Ordinance, Article 26-3 and Article 34, paragraph (1), item (iii)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xiv)

Commercial Reactors Operational Safety Program Standards, Article 92, paragraph (1), item (iii)

Research Reactors Operational Safety Program Standards, Article 15, paragraph (1), item (xviii)

Research Power Reactors Operational Safety Program Standards, Article 87, paragraph (1), item (iii)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, 16, 17, and 19

Radiation Hazards Prevention Ordinance, Articles 15, 17, 18, and 19

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

M08 The Standard Review Plan on Approval of Operational Safety Program of Power Reactor Facilities at the Research and Development Stage

Question 6.7

Does the Regulatory Body require that all radioactive waste is identified, controlled and kept to the minimum practicable?

Answer

No

Finding

The Regulatory Body does not require that all radioactive waste is identified, controlled and kept to the minimum practicable.

Response

[Regulations for licensees under the Reactor Regulation Act]

Under Japanese law, the Commercial Reactors Dose Limit Notice, etc. defines concentration limits for surrounding monitored areas, etc. but does not require licensees to reduce radioactive waste volumes. However, regarding radioactive waste, the Reactor Regulation Act requires licensees to control it strictly and safely, and licensees are voluntarily making efforts to minimize generation of radioactive waste, which decreases the resources required for such control.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Note that the following measures are taken.

Facilities handling radiation sources are obligated to identify, record, and manage the types and quantities, and others of all radiation sources involved in waste management. It is also stipulated that, when discharging radiation sources through drainage and ventilation out of facilities, radioactive sources should be removed through drainage and ventilation equipment to be of lower concentration than the limits specified by the NRA. During each control activity, licensees are making efforts to control the volume of radioactive waste (e.g., by identifying a generation source origin or determining waste volume), by their own consideration.

<Attachments>

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 33-2 paragraph 1

Radiation Hazards Prevention Ordinance, Articles 19, 24, 29-2 and 29-4

Amount of RI Notice, Articles 14, 16-3, and 27

Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Question 6.8

Does the regulatory body require the establishment or its approval of a system to characterize and classify radioactive waste at various steps in their predisposal management?

Answer

Yes

Finding

The regulatory body requires the establishment or its approval of a system to characterize and classify radioactive waste at various steps in their predisposal management.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA requires licensees to describe their waste predisposal facilities with respect to each radioactive waste characteristic when applying for permit and the NRA confirms such descriptions by review. The NRA ordinances for each type of facilities and activities require licensees to specify items concerning operation of waste predisposal facilities in their operational safety programs and to comply with such programs. Based on the Reactor Regulation Act, the NRA approves operational safety programs and confirms licensees' compliance with them. In addition, as stated in the notification by the former NISA, the NRA

requires licensees to report the generated volume and stored volume of radioactive waste for each radiation level, form, and other waste characteristics.

[Regulations for licensees under the Radiation Hazards Prevention Act]

When establishing a waste management facility for radiation sources, licensees shall describe the category of wastes (gas, liquid, or solid) and management methods for each category carried out in their application forms for permission. The NRA reviews and confirms that such descriptions conform to the technical standards.

Disused radiation sources are stored in licensees' waste storage facilities and then transferred to waste management facilities. Technical standards for storage and transfer activity are stipulated for such facilities, and licensees are obliged to storage and manage wastes according to those standards.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 50, 51-18, and 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1), items (xvii) and (xviii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), items (xiii) and (xiv)

Research Reactors Establishment Permit Ordinance, Articles 22 and 23

Research Reactors Ordinance, Article 15, paragraph (1), items (xiii) and (xiv)

Research Power Reactors Ordinance, Article 87, paragraph (1), items (xvii) and (xviii)

Reprocessing Ordinance, Article 17, paragraph (1), items (xv) and (xvi)

Waste Storage Ordinance, Article 2 and Article 34, paragraph (1), item (xiv)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), items (ix) and (x)

Report on Dose, etc. of Radiation Worker (dated April 2002, notification by the former NISA)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 14-9, 14-10, 14-11, and 19

Attachments

F01Report on Dose, etc. of Radiation Worker

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.8.1

Describe the radioactive waste classification and/or categorization system applied and how it corresponds with the requirements established or approved by the Regulatory Body.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA require licensees to describe the structure and disposal capacity of their waste predisposal facilities for each form (gas, liquid, or solid) of waste when applying for a permit.

In addition, as for notifications, licensees must report on the generated volume and stored volume of radioactive waste for each radiation level, form, and other waste characteristics.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Technical standards for waste storage and waste management are stipulated for each physical form (gas, liquid, or solid) of radiation sources.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Report on Dose, etc. of Radiation Worker (dated April 2002, notification by the former NISA)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 17, and 19

Subsidiary Attachments

F01Report on Dose, etc. of Radiation Worker

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.8.2

What characteristics of the waste are recorded at different steps of waste management and how is this information used in the further management steps?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Licensees must keep records on the volume of waste stored in each facility for each radiation level, form, and other waste characteristics. This data is reported to the NRA once a year and then summarized and released by the NRA.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act obliges licensees to record and keep information on issues on use, storage, and waste management of radiation sources. This information is reported to the NRA.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Report on Dose, etc. of Radiation Worker (dated April 2002, notification by the former NISA)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 25, and 42

Radiation Hazards Prevention Ordinance, Articles 24, and Article 39 paragraph 3

Subsidiary Attachments

F01Report on Dose, etc. of Radiation Worker

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 6.9

Is it required by the regulations that radioactive material for which no further use is foreseen and with characteristics that make it unsuitable for authorized discharge, authorized use or clearance from regulatory control is processed as radioactive waste?

Answer

Yes

Finding

Regulations require that radioactive material for which no further use is foreseen and with characteristics that make it unsuitable for authorized discharge, authorized use or clearance from regulatory control is processed as radioactive waste.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities define “radioactive waste” as nuclear fuel materials or substances contaminated by nuclear fuel materials to be disposed of. These ordinances define measures for radiation protection that must be taken during predisposal management of radioactive waste inside plants.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Though there are no requirements in the Radiation Hazards Prevention Act and its Ordinances that radiation sources unlikely to be used again in the future shall be considered to be radioactive waste, licensees are obligated to control disused radiation sources appropriately in their facilities. Further, to the termination of radiation sources, licensees are obligated to transfer them to a permitted waste management operator (generally, the Japan Radioisotope Association assumes this role) in order to place them under the operator’s control and take necessary measures to prevent radiation hazards.

In addition, reusable radiation sources are transferred to a licensee (the Japan Radioisotope Association or a registered dealer assumes this role in practice) and then returned (exported) to their overseas manufacturers.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 2, paragraph (2), item (ii) and Article 90

Fuel Fabrication Ordinance, Article 1, paragraph (2), item (v) and Article 7-8

Research Reactors Ordinance, Article 1-2, paragraph (2), item (ii) and Article 14

Research Power Reactors Ordinance, Article 2, paragraph (2), item (ii) and Article 85

Reprocessing Ordinance, Article 1, paragraph (1), item (vi) and Article 16

Waste Storage Ordinance, Article 1, paragraph (2), item (ii) and Article 33

Nuclear Fuel Materials Use Ordinance, Article 1, paragraph (2), item (v) and Article 4

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 4-2, 16, 19, and 29

Radiation Hazards Prevention Ordinance, Articles 17, and 19

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 6.10

Does the regulatory body require that the processing of radioactive waste is based on appropriate consideration of the characteristics of the waste and of the demands imposed by the different steps in its management (pre-treatment, treatment, conditioning, transport, storage and disposal)?

Answer

Yes

Finding

The regulatory body requires that the processing of radioactive waste is based on appropriate consideration of the characteristics of the waste and of the demands imposed by the different steps in its management (pre-treatment, treatment, conditioning, transport, storage and disposal).

Response

[Regulations for licensees under the Reactor Regulation Act]

The Reactor Regulation Act and the NRA ordinances for each type of facilities and activities require licensees to take operational safety measures for predisposal management of radioactive waste; to describe such measures in their operational safety programs; and to comply with such programs.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act obliges licensees to manage radioactive wastes based on the technical standards for each activity (storage in storage facilities, transport to waste management facilities, and management in waste management facilities).

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 50, 51-18, and 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1)

Fuel Fabrication Ordinance, Article 8, paragraph (1)

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87

Reprocessing Ordinance, Articles 17, paragraph (1)

Waste Storage Ordinance, Article 34

Nuclear Fuel Materials Use Ordinance, Article 2-2, paragraph (1)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 15, 17, 18, and 19

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 6.11

Is it required by the regulations that the waste packages shall be designed and produced so that the radioactive material is appropriately contained during both normal operation and in accident conditions that could occur in the handling, storage, transport and disposal of waste?

Answer

Yes

Finding

Regulations require that the waste packages shall be designed and produced so that the radioactive material is appropriately contained during both normal operation and in accident conditions that could occur in the handling, storage, transport and disposal of waste

Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities associated with nuclear facilities>

The NRA requires that containers, etc. used for transport and storage inside plants must not be at risk of cracking or damage, and the lids of such containers must not be able to be easily removed.

<Waste storage facilities>

The NRA defines appropriate containment functions for waste storage facilities in the Waste Storage Ordinance and the Waste Storage Permit Ordinance.

<Spent fuel interim storage facilities>

The NRA requires appropriate containment functions for metal casks in spent fuel interim storage facilities in the Spent Fuel Storage Permit Ordinance and the Spent Fuel Storage Design Construction Ordinance. The NRA also confirms that manufactured casks satisfy such criteria with pre-service inspections.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances stipulate requirements for containers that should be satisfied during each stage (storage, waste management, and transport of radiation sources (including radioactive wastes)). For example, it is stipulated that containers used for liquid radiation sources shall have a structure that prevents spills and be made of materials which it is hard for liquid to penetrate as well as that containers used for liquid or solid radiation sources at risk of being ruptured or damaged shall be equipped with a tray or absorbent.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 43-9

Commercial Reactors Ordinance, Article 90, paragraph (1), items (ix) to (xi)

Fuel Fabrication Ordinance, Article 7-8, paragraph (1), items (ix) to (xi)

Research Reactors Ordinance, Article 14, paragraph (1), items (ix) to (xi)

Research Power Reactors Ordinance, Article 87, paragraph (1), items (ix) to (xi)

Spent Fuel Storage Permit Ordinance, Article 5

Spent Fuel Storage Design Construction Ordinance, Article 8

Reprocessing Ordinance, Article 16, paragraph (1), items (ix) to (xi)

Waste Storage Ordinance, Articles 32 and 33

Waste Storage Permit Ordinance, Article 3

Nuclear Fuel Materials Use Ordinance, Article 4, paragraph (1), items (ix) to (xi)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 14-9 item (4), Article 14-11 paragraph 1 item (8) (c), and Article 18 paragraph 1 item (2)

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G05The NRA Ordinance on Technical Standards for the Design and Construction Methods of Spent Fuel Interim Storage Facilities

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.11.1

How is it demonstrated that the processing options are consistent with the type of waste, possible needs for storage, the disposal options contemplated, and requirements resulting from the safety case?

Subsidiary Response

** In this module, answers are provided as safety cases that organize “all information related to regulations,” namely establishment (change) permit, construction plan, operational safety program, periodic safety assessment of continuous improvement /PSR, and decommissioning plan.*

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Before starting operation, the NRA confirms during approval of construction plans and pre-service inspections that their applications conform to technical standards. After facilities are put into operation, the NRA confirms during operational safety inspections that licensees operate their facilities based on their operational safety programs.

[Regulations for licensees under the Radiation Hazards Prevention Act]

When a person intending to handle radiation sources submits an application for permission, the NRA confirms during a review whether the facility of use, storage, waste repacking, waste storage, or waste management, and the details of the business is conform to the technical standards and other requirements. After confirming the conformance to that, the NRA grants permission.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 16-3, 22, 27, 28, 37, 43-3-11, 24, 43-9, 43-20, 46, 50, 55-2, and 56-3

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 4-2, 6, and 7

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, and 14-11

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.11.2

How is it ensured that the waste form produced, packaged or unpackaged, fulfils the acceptance criteria for safe handling, transport, storage and disposal of the waste?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

For predisposal management of radioactive waste inside plants, the NRA confirms that applications submitted by licensees conform to technical standards. In addition, the NRA approves licensees' operational safety programs and confirms that they comply with these programs.

For predisposal outside plants, the NRA defines technical standards for transport and requires licensees to take necessary operational safety measures in accordance with those standards.

<Waste storage facilities>

The Waste Storage Ordinance, the NRA defines how to treat radioactive waste in the waste storage facilities based on characteristics of waste.

<Spent fuel interim storage facilities>

The Spent Fuel Storage Permit Ordinance stipulates that spent fuel interim storage facilities must be equipped with metal casks and ensure the integrity of spent fuel by taking into consideration aging of metal casks and spent fuel. Besides, spent fuel that is not packaged in metal casks, as mentioned in the question, is not accepted.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Regarding waste management of radiation sources, the NRA confirms on the application form for permission that the facilities of use, storage, waste repacking, waste storage, and waste management conform to technical standards. After granting permission, the NRA periodically confirms that such facilities actually conform to the technical standards for waste management (Article 19 of the Radiation Hazards Prevention Ordinance) by on-site inspections and other means.

Regarding transport of radiation sources, licensees are obligated to package radiation sources in containers that the NRA has confirmed. In addition, the Ministry of Land, Infrastructure and Transport also regulates transportation of radiation sources.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 50, and 56-3

Commercial Reactor Technical Standards Ordinance, Articles 39 and 40

Commercial Reactors Ordinance, Articles 88 and 90

Fuel Fabrication Facilities Technical Standard Ordinance, Article 21

Off - Site Transportation Ordinance, Articles 3 to 15

Fuel Fabrication Ordinance, Articles 7-6 and 7-8

Research Reactors Establishment Permit Ordinance, Articles 22 and 23

Research Reactors Ordinance, Articles 12 and 14

Research Power Reactors Ordinance, Articles 83 and 85

Spent Fuel Storage Permit Ordinance, Article 15

Reprocessing Technical Standards Ordinance, Articles 25 and 26

Reprocessing Ordinance, Articles 14 and 16

Waste Storage Ordinance, Article 33

Nuclear Fuel Materials Use Ordinance, Articles 5 and 4

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, and 43-2

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11, 17, 18, and 19

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G20The NRA Ordinance on Off-Site Transportation of Nuclear Fuel Materials etc.

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K09The NRA Ordinance on Technical Standards for the Capabilities of Fuel Fabrication Facilities

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.11.3

How the regulation consider that the processing is consistent with the type of waste, the possible need for its storage, the anticipated disposal option, and the limits, conditions and controls established in the safety case and in the assessment of environmental impacts?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

The NRA performs periodic inspections to confirm licensees' compliance with their operational safety programs. In addition, the NRA ordinances for each type of facilities and activities require licensees to report the three-month average and highest concentration values of radioactive waste measured at discharge points every six months.

<Waste storage facilities>

During the permit stage, licensees perform impact assessments on the environment during normal operation and at the accident, such as exposure assessment for residents in the vicinity. During the operation stage, NRA carry out operational safety inspections periodically and conducts checks pursuant to the Reactor Regulation Act so that radioactive waste that exceeds the permitted amount of radioactivity is not stored (e.g., check of vitrified waste). In addition, licensees must assess the implementation status of their operational safety activities as well as that the latest technical knowledge is reflected into their operational safety activities on a periodic basis.

<Spent fuel interim storage facilities>

During the permit stage, licensees perform impact assessments on the environment during normal operation and at the accident (exposure assessment for residents in the vicinity). During the operation stage, the NRA performs operational safety inspections to confirm compliance with their operational safety programs (including periodic safety reviews performed by licensees) and periodic facility inspections on facility integrity.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The NRA confirms during on-site inspections that licensees maintain their facilities conforming to technical standards, compliance to the Radiation Hazards Prevention Program, and keep records of their activities appropriately.

Also, the NRA stipulates the limits of concentrations of radioisotopes in ventilation air and discharged water and requires licensees to monitor radioactivity concentrations at ventilation ports and draining points as well as to notify to the NRA if such limits are exceeded.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, and 43-11; Article 43-20, paragraph (5); Articles 50 and 51-9-2; Article 51-18, paragraph (5); and Article 56-3

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v) (b) and Article 136

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii) (a) and Article 10

Research Reactors Ordinance, Article 6, paragraph (1), item (iv) (b) and Article 18

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v) (b) and Article 131

Spent Fuel Storage Permit Ordinance, Article 4

Reprocessing Ordinance, Article 8, paragraph (1), item (ii) (b) and Article 21

Waste Storage Permit Ordinance, Article 2

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii) (b) and Article 7

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, 20, 25, and 43-2

Radiation Hazards Prevention Ordinance, Articles 20 paragraph 1, Article 24, and Article 39 paragraph 1

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.11.4

How the regulatory body consider if the operator identify suitable options of waste processing and how the operator assessed the appropriateness of their application with account taken of the quantities, activity and physical and/or chemical nature of the radioactive waste to be treated, the technologies available, the storage capacity and the availability of a disposal facility.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Regarding authorization applications, the Reactor Regulation Act and the NRA ordinances for each type of facilities and activities require that radioactive waste predisposal facilities conform to technical standards and confirms this during reviews. More specifically, under the ALARA principle, the NRA confirms that facilities have sufficient capability to process radioactive waste generated within them so as to reduce the concentration of radioactive materials in the air outside of surrounding monitored areas and in the water at the boundaries of such areas, and are also capable of storing a sufficient amount of radioactive waste in consideration of the generated and carried-out volumes of radioactive waste that will be generated at such facilities in the future.

<Waste storage facilities>

The Reactor Regulation Act requires licensees to establish a period, location and method for processing and storage of radioactive waste in accordance with their characteristics (radioactivity concentration, nuclides, and so on), for treatment of waste. Licensees can select the suitable method to processing and storage of radioactive waste by themselves within the range that satisfies the requirements stipulated in the NRA Ordinances. The NRA checks whether the methods selected by licensees are optimal and whether such methods pose any problems for safety design.

<Spent fuel interim storage facilities>

Licensees can select the suitable method to predisposal of radioactive waste by themselves within the range that satisfies the requirements stipulated in the NRA Ordinances. The NRA checks whether the methods selected by licensees are optimal and whether such methods pose any problems for safety design.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Though permitted waste management operators of radiation sources are not required to identify the optimal selection for waste management, they are obligated to submit to the NRA the application forms for permission of waste management business with attached evidence indicating that their facilities of use, storage, waste repacking, waste storage, or waste management, are conform to technical standards. The NRA then reviews and confirms the application, thereby ensuring that waste management of radiation sources is implemented appropriately.

After granting permission, the NRA performs on-site inspections, and other means to confirm that the technical standards for waste management activities (Article 19 of the Radiation Hazards Prevention Ordinance) are conformed.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactor Establishment Permit Guide, Articles 27 and 28

Fuel Fabrication Permit Ordinance, Article 17

Research Reactors Establishment Permit Guide, Articles 22 and 23

Spent Fuel Storage Ordinance, Article 2

Reprocessing Permit Ordinance, Articles 21 and 22

Waste Storage Ordinance, Article 2

Nuclear Fuel Materials Use Permit Ordinance, Article 24

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, and 43-2

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11, 17, 18, and 19

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K07The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Facilities using Nuclear Fuel Materials

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

Subsidiary Question 6.11.5

Describe the technologies used for processing the different radioactive waste streams indicating the quantities, activities and physical/chemical nature of the radioactive waste to be treated, commenting on the adequacy of the technologies available.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

The NRA develops technical standards, etc. related to facility performance. Licensees select the specific technologies they use.

<Waste storage facilities>

The Reactor Regulation Act stipulates management of radioactive material based on its characteristics.

<Spent fuel storage facilities>

Licensees can choose an appropriate method to store spent fuel. The NRA establishes standards based on the assumption that spent fuel is stored in metal dry casks.

[Regulations for licensees under the Radiation Hazards Prevention Act]

In the Radiation Hazards Prevention Act and its Ordinances, technical standards developed by the regulatory body relate to waste management methods that differ depending on the facility performance and the physical state (gas, liquid, or solid) of the material to be managed. Licensees themselves select the specific technologies they use.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Waste storage facilities>

Reactor Regulation Act, Article 51-2 and Article 51-16, item (iii)

Waste Storage Ordinance, Article 33

<Spent fuel storage facilities>

Reactor Regulation Act, Article 43-4

Spent Fuel Storage Permit Ordinance, Article 1

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 19 paragraph 1 items (1) through (17)

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.11.6

How the regulator ensure that provisions will be established by the operator for identifying, assessing and dealing with waste and/or waste packages that do not meet process specifications and requirements for its and/or their safe handling, transport, storage and/or disposal?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

The NRA ordinances for each type of facilities and activities require licensees to specify nonconformity management methods on implementation of operational safety activities prescribed in their quality assurance programs. The ordinances also require licensees to specify items concerning operation of facilities, information disclosure if nonconformity occurs, and so on in their operational safety programs. The NRA confirms licensees' compliance with these programs periodically.

<Waste storage facilities>

Licensees shall accept only waste that satisfies the requirement in accordance with their permit.

<Spent fuel storage facilities>

Since the Spent Fuel Storage Permit Ordinance stipulates that only integral spent fuel may be stored in metal casks. Therefore, spent fuel that does not satisfy the acceptance criteria, as mentioned in the question, will never be stored in spent fuel interim storage facilities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Regarding safe usage, storage, and waste management of radiation sources, the Radiation Hazards Prevention Act and its Ordinances stipulate technical standards for those activities and oblige licensees to conform to those technical standards. Therefore, it is prohibited to handle waste that does not satisfy the processing specifications and requirements for management.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Commercial Reactors Ordinance, Article 73, item (v) and Article 92, paragraph (1), items (ix) and (xxvii)

Fuel Fabrication Ordinance, Article 7-2-6, paragraph (1), item (v) and Article 8, paragraph (1), items (vii) and (xxii)

Research Reactors Ordinance, Article 15, paragraph (1), item (xviii)

Research Reactors Operational Safety Program Standards, Article 15, paragraph (1), item (xviii)

Research Power Reactors Ordinance, Article 68, item (v) and Article 87, paragraph (1), items (ix) and (xxvii)

Reprocessing Ordinance, Article 8-7, paragraph (1), item (v) and Article 17, paragraph (1), items (vii) and (xxv)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xiv)

<Waste storage facilities>

Waste Storage Ordinance, Article 2

<Spent fuel storage facilities>

Spent Fuel Storage Ordinance, Article 2

Spent Fuel Storage Permit Ordinance, Article 2, paragraph (2), item (i)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 15, 17, and 19

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.11.7

How the regulator ensures that consideration will be given to the consequences of dealing with any secondary waste (both radioactive and non-radioactive) that is created in processing?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Applicants make assessments of waste, including the volume of secondary waste, generated during the processing process, and the NRA reviews that the facilities have sufficient processing capacity based on such assessment results.

In addition, when approving licensees' operational safety programs, the NRA also confirms how non-radioactive waste will be handled based on the review standards.

<Waste storage facilities>

The NRA confirms assessments of radioactive waste generated during processing, including the volume of secondary waste, and in cases in which such waste will be stored in a facility, the NRA also confirms that the relevant facility is able to store such waste safely during permit review.

<Spent fuel storage facilities>

Licensees shall handle spent fuel that is stored only in metal casks at spent fuel interim storage facilities. Therefore, no secondary waste is generated.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Licensees are required to store and manage radioactive secondary waste generated during the course of the waste management process (including discharge, solidification, and others) for radiation sources. Only the waste with concentration confirmation is excluded from the regulations for radioactive waste (clearance). Non-radioactive secondary waste is appropriately processed as normal industrial waste under Ministry of Environment regulations.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Commercial Reactor Technical Standards Ordinance, Articles 39 and 40

Commercial Reactors Operational Safety Program Standards, Article 92, paragraph (1), item (xviii)

Fuel Fabrication Facilities Technical Standard Ordinance, Article 21

Research Reactors Establishment Permit Ordinance, Articles 22 and 23

Research Power Reactors Operational Safety Program Standards, Article 87, paragraph (1), item (xviii)

Reprocessing Technical Standards Ordinance, Articles 25 and 26

<Waste storage business>

Waste Storage Ordinance, Article 2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Amount of RI Notice, Article 27

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K09The NRA Ordinance on Technical Standards for the Capabilities of Fuel Fabrication Facilities

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M08 The Standard Review Plan on Approval of Operational Safety Program of Power Reactor Facilities at the Research and Development Stage

Question 6.12

Does regulatory body require that the waste is stored in such a manner that it can be inspected, monitored, retrieved and preserved in a condition suitable for its subsequent management?

Answer

Yes

Finding

Regulatory Body requires that the waste is stored in such a manner that it can be inspected, monitored, retrieved and preserved in a condition suitable for its subsequent management.

Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

When reviewing authorization applications, the NRA also reviews waste storage equipment and fuel storage equipment, etc. based on technical standards.

<Waste storage facilities>

The permit standards for predisposal management of radioactive waste at the waste storage facility, including those for containers to store waste, are stipulated. Based on these standards, the NRA determines whether appropriate management can be continued and ensures to meet the standards by granting a permit if appropriate management can be continued.

<Spent fuel storage facilities>

Refer to the answer for waste storage facilities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances stipulate technical standards for storage of radiation sources to which each licensee is obligated to conform. Technical

standards are separately stipulated for waste repacking facilities, waste storage facilities, and waste management facilities of permitted waste management operators. When granting permission of waste management business, the NRA confirms that the relevant standards are satisfied during reviews.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Commercial Reactor Technical Standards Ordinance, Articles 40 and 26

Fuel Fabrication Facilities Technical Standard Ordinance, Article 20 and 21

Research Reactors Establishment Permit Ordinance, Articles 16, 22 and 23

Reprocessing Technical Standards Ordinance, Articles 21 and 26

<Waste storage facilities>

Waste Storage Ordinance, Article 2

<Spent fuel storage facilities>

Spent Fuel Storage Ordinance, Article 2

Spent Fuel Storage Permit Ordinance, Article 15

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 7, and 13

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11, and 17

Attachments

G01 The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02 The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K09The NRA Ordinance on Technical Standards for the Capabilities of Fuel Fabrication Facilities

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

Subsidiary Question 6.12.1

How are regulated and controlled any arrangements for storage of radioactive waste, before processing, during and following processing, including to await the decay of radionuclides prior to clearance or authorized discharge; or to hold waste generated in emergency situations pending decisions on its future management?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

The NRA ordinances for each type of facilities and activities require licensees, when storing waste inside plants, to store radioactive waste in gaseous waste storage tanks, etc. that have hazard prevention effects. When storing radioactive waste by enclosing it in containers, licensees must take measures to prevent the spread of pollution if such containers become cracked or damaged. These ordinances also require licensees to store nuclear fuel materials in storage facilities when storing them inside plants, and to always carry out storage activities such that there is no risk that nuclear fuel materials may reach criticality.

In addition, the Reactor Regulation Act and the NRA ordinances for each type of facilities and activities require licensees to specify items concerning predisposal management of radioactive waste and storage of nuclear fuel materials, etc. in their operational safety programs and to comply with such programs. The NRA approves operational safety

programs and conducts inspections to ensure licensees comply with their programs periodically.

<Waste storage facilities>

For waste storage facilities, refer to the answer on predisposal facilities attached to nuclear facilities.

<Spent fuel storage facilities>

Licensees shall handle spent fuel that is stored only in metal casks at fuel interim storage facilities. Therefore, generation of waste subject to clearance or approved release of waste cannot occur.

[Regulations for licensees under the Radiation Hazards Prevention Act]

When storing radioactive waste in facilities where radiation sources are handled, licensees shall store such waste in containers, carry out storage activities within a storage room or storage box, and take measures to prevent the spread of contamination if a container becomes cracked or damaged. For discharge of ventilation air and drainage water, licensees shall carry out decontamination of emissions with ventilation/drainage equipment so as to conform to the concentration limits specified by the NRA.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Commercial Reactors Ordinance, Articles 89, 90, and 92, paragraph (1), items (xvii) and (xviii)

Fuel Fabrication Ordinance, Articles 7-7, 7-8, and 8, paragraph (1), items (xiii) and (xiv)

Research Reactors Ordinance, Articles 13, 14, and 15, paragraph (1), items (xiii) and (xiv)

Research Power Reactors Ordinance, Articles 84, 85, and 97, paragraph (1), items (xvii) and (xviii)

Reprocessing Ordinance, Articles 15, 16, and 17, paragraph (1), items (xv) and (xvi)

Nuclear Fuel Materials Use Ordinance, Articles 3-2, 4, and 2-12, paragraph (1), items (ix) and (x)

<Waste storage facilities>

Waste Storage Technical Standards Ordinance, Article 15, paragraph (2)

Waste Storage Ordinance, Article 34

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 17, and 19

Amount of RI Notice, Articles 16-3, and 27

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G17The NRA Ordinance on Technical Standards for the Capabilities for Specific Waste Disposal Facility or Specific Waste Interim Storage and Treatment Facility

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.12.2

How does the regulation require that the design of storage facility reflect the type of radioactive waste stored its characteristics and associated hazards, the radioactive inventory and the anticipated period of storage?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

As technical standards for waste storage facility, etc., the NRA requires licensees to determine the stored volume of waste in consideration of the generated volume and processing capacity, etc. as well as to take necessary measures to prevent the spread of pollution due to radioactive waste in their facilities. Fuel storage facility, etc., must have a structure that has no risk of the fuel assemblies reaching criticality and prevents the fuel assemblies from melting due to decay heat.

<Waste storage facilities>

Same as the answer to SQID 11.4.

<Spent fuel storage facilities>

Same as the answer to SQID 11.4.

[Regulations for licensees under the Radiation Hazards Prevention Act]

As technical standards for storage facilities where radiation sources are stored, waste storage facilities, and waste management facilities, the Radiation Hazards Prevention Act and its Ordinances stipulate that a storage room or storage box shall be set up, and containers used for liquid radiation sources shall have a structure that prevents spilling and be made from materials which liquid cannot easily penetrate, and that containers used to store liquid or solid radiation sources that have a risk of being ruptured or damaged shall be equipped with a tray or absorbent.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Commercial Reactors Technical Standard Guide , Articles 40 and 26

Fuel Fabrication Facilities Technical Standard Ordinance, Article 20 and 21

Research Reactors Design Construction Ordinance, Articles 15, 16, 25, and 26

Reprocessing Technical Standards Ordinance, Articles 21 and 26

<Waste storage facilities>

Same as SQID 11.4

<Spent fuel storage facilities>

Same as SQID 11.4

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 14-9 item (4), and Article 14-11 paragraph 1 item (8) (c)

Subsidiary Attachments

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K09The NRA Ordinance on Technical Standards for the Capabilities of Fuel Fabrication Facilities

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

M04The NRA Ordinance on Technical Standards for the Design and Construction Methods of Research and Test Reactors

Question 6.13

Do the regulations require that due account is taken of the expected period of storage, and to the extent possible passive safety features shall be applied?

Answer

Yes

Finding

The regulations require that due account is taken of the expected period of storage, and to the extent possible passive safety features shall be applied.

Response

-

Subsidiary Question 6.13.1

How to the regulatory body ensure that passive safety features are used in the design of the storage facilities?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

As technical standards for waste storage facility, etc., the NRA requires licensees to determine the stored volume of waste in consideration of the generated volume and processing capacity, etc. as well as to take necessary measures to prevent the spread of pollution due to radioactive waste in their facilities. Fuel storage facility, etc., must have a structure that has no risk of the fuel assemblies reaching criticality and prevents the fuel assemblies from melting due to decay heat.

<Waste storage facilities>

The Waste Storage Permit Ordinance requires licensees to take time periods into account. Also, though the standards do not specifically require that safety features be passive, those of licensees' currently operating facilities are in fact passive.

<Spent fuel storage facilities>

The Spent Fuel Storage Permit Ordinance requires licensees to take aging of metal casks into account and stipulates that spent fuel interim storage facilities should be able to appropriately remove decay heat from spent fuel without power. The conformity of requirements is confirmed by the NRA during reviews of permit applications and design and construction methods applications, etc.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances require licensees to maintain the functions and performances of waste storage facilities and waste management facilities so that they conform to technical standards.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Commercial Reactors Technical Standard Guide , Articles 40 and 26

Fuel Fabrication Facilities Technical Standard Ordinance, Article 20 and 21

Research Reactors Design Construction Ordinance, Articles 15, 16, 25, and 26

Reprocessing Technical Standards Ordinance, Articles 21 and 26

<Waste storage facilities>

Waste Storage Permit Ordinance, Article 14

Waste Storage Design Construction Ordinance, Article 10, paragraph (2)

Waste Storage Technical Standards Ordinance, Article 15, paragraph (2)

<Spent fuel storage facilities>

Spent Fuel Storage Permit Ordinance, Articles 6 and 15

Spent Fuel Storage Design Construction Ordinance, Article 7

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 14-9, 14-10, and Article 19 paragraph 1 items (9), (13), and (15)

Subsidiary Attachments

G05The NRA Ordinance on Technical Standards for the Design and Construction Methods of Spent Fuel Interim Storage Facilities

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

G16The NRA Ordinance on Technical Standards for the Design and Construction Methods for Specific Waste Disposal Facility or Specific Waste Interim Storage and Treatment Facility

G17The NRA Ordinance on Technical Standards for the Capabilities for Specific Waste Disposal Facility or Specific Waste Interim Storage and Treatment Facility

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K09The NRA Ordinance on Technical Standards for the Capabilities of Fuel Fabrication Facilities

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

M04The NRA Ordinance on Technical Standards for the Design and Construction Methods of Research and Test Reactors

Question 6.14

For long term storage in particular, does the regulatory body require to take measures to prevent the degradation of the waste containment?

Answer

Yes

Finding

The Regulatory Body requires in particular for long term storage to take measures to prevent the degradation of the waste containment.

Response

-

Subsidiary Question 6.14.1

What is considered under the term long term storage of radioactive waste?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

As technical standards for waste storage facilities, etc., the NRA requires licensees to have waste storage equipment that can withstand decay heat and heat generated by irradiation as well as which does not markedly corrode due to the effects of chemicals included in radioactive waste or other loads. Fuel storage facilities are required to have a structure that has no risk of spent fuel, etc. reaching criticality and prevents fuel assemblies from melting due to decay heat.

Regarding radioactive waste management inside plants, the NRA ordinances for each type of facilities and activities require licensees to, when storing radioactive waste in a facility that has hazard prevention effects, take measures to prevent the spread of pollution if a container becomes cracked or damaged. These ordinances also requires licensees to store nuclear fuel materials in storage facilities when storing such materials inside plants as well as to always carry out storage activities such that there is no risk that nuclear fuel materials may reach criticality.

<Waste storage facilities>

Not only does the Reactor Regulation Act requires that licensees maintain the performance of specified waste storage facilities so as to conform to technical standards, but also the Waste Storage Ordinance requires licensees to keep records on radiation control and monitor for leakage caused by deteriorated containment of waste at all times, thereby ensuring that no waste leakage occurs. In addition, the Reactor Regulation Act requires licensees to conduct technical assessments on aging on a periodic basis and to develop operational safety measures based on the results of such assessments.

<Spent fuel interim storage facilities>

The Reactor Regulation Act requires licensees to ensure the integrity of spent fuel by taking into account the aging of materials making up the metal casks and spent fuel. The Reactor Regulation Act also requires licensees to maintain the performance of spent fuel interim storage facilities so as to conform to technical standards and, the Spent Fuel Storage Ordinance requires them to patrol and inspect for facilities, and keep records on the appearances of metal casks, etc.

[Regulations for licensees under the Radiation Hazards Prevention Act]

As technical standards for storage of radioactive wastes, the Radiation Hazards Prevention Act and its Ordinances stipulate that liquid and solid waste shall be unified by enclosing them in containers and solidifying them with concrete, and others. Also, the containers shall be of a fireproof structure that prevents spilling and be made from materials which liquid cannot easily penetrate. Licensees also are obligated to conduct periodic monitoring inside and at the boundaries of their facilities.

With these measures, wastes are ensured not to leak into the environment.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Commercial Reactors Ordinance, Articles 89 and 90

Commercial Reactor Technical Standards Ordinance, Articles 40 and 26

Fuel Fabrication Ordinance, Articles 7-7 and 7-8

Fuel Fabrication Facilities Technical Standard Ordinance, Article 20 and 21

Research Reactors Ordinance, Articles 13 and 14

Research Reactors Design Construction Ordinance, Articles 15, 16, 25, and 26

Research Power Reactors Ordinance, Articles 84 and 85

Reprocessing Ordinance, Articles 15 and 16

Reprocessing Technical Standards Ordinance, Articles 21 and 26

Nuclear Fuel Materials Use Ordinance, Articles 3-2 and 4

<Waste storage facilities>

Waste Storage Ordinance, Articles 2, 33, and 33-2, paragraph (2)

<Spent fuel storage facilities>

Reactor Regulation Act, Article 43-10-2

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (iii) and Article 31

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 14-9 item (4), Article 14-11 paragraph 1 item (8), Article 19 paragraph 1 items (9), (13), and (15), and Article 20 paragraph 1

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K09The NRA Ordinance on Technical Standards for the Capabilities of Fuel Fabrication Facilities

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M04The NRA Ordinance on Technical Standards for the Design and Construction Methods of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.14.2

How the regulations are requiring for provisions to be made for the regular monitoring, inspection and maintenance of the waste and the storage facility to ensure their continued integrity.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Yes.

The Reactor Regulation Act requires licensees to themselves check facilities on a periodic basis as well as to keep and store records of the results. In addition, the NRA ordinances for each type of facilities and activities require licensees to develop policies and objectives for maintenance and management activities, such as inspections and tests conducted to maintain facilities, and then assess these policies and objectives on a periodic basis. In addition, the Reactor Regulation Act requires licensees to specify items concerning predisposal management of radioactive waste and storage of nuclear fuel materials, etc. in their operational safety programs and to comply with such rules. The NRA approves operational safety programs and conducts inspections to ensure licensees comply with their programs on a periodic basis.

<Waste storage facilities>

Not only does the Reactor Regulation Act require that licensees maintain the performance of specified waste storage facilities so as to conform to technical standards, but also the Waste Storage Ordinance requires licensees to keep records on radiation control and monitor for leakage caused by deteriorated containment of waste at all times, thereby ensuring that no leakage of radionuclide occurs.

<Spent fuel storage facilities>

Same as the answer for the waste storage facilities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

The Radiation Hazards Prevention Act and its Ordinances require licensees to maintain the functions and performance of waste storage facilities and waste management facilities so as to conform to technical standards as well as to measure the status of doses and contamination inside these facilities and at the boundaries of controlled areas and others, and to monitor radioactivity concentrations in ventilation air and discharged water from their facilities.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Reactor Regulation Act, Articles 35 and 43-3-16

Commercial Reactors Ordinance, Articles 81 and 92, paragraph (1), items (xvii) and (xviii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), items (xii), (xiii), and (xiv)

Research Reactors Ordinance, Articles 9 and 15, paragraph (1), items (xiii) and (xiv)

Research Power Reactors Ordinance, Articles 76 and 87, paragraph (1), items (xvii) and (xviii)

Reprocessing Ordinance, Article 17, paragraph (1), items (xiv), (xv), and (xvi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), items (ix), (x), and (xiii)

<Waste storage facilities>

Reactor Regulation Act, Article 51-9-2

Waste Storage Ordinance, Article 26, paragraph (1), item (ii) and Article 29

<Spent fuel storage facilities>

Reactor Regulation Act, Article 43-10-2

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (iii) and Article 31

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 13, and 20

Radiation Hazards Prevention Ordinance, Articles 14-9, 14-10, 14-11, and Article 20 paragraph 1, and paragraph 4 item (1)

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 6.14.3

How the regulations are requiring that the adequacy of the storage capacity is periodically reviewed, with account taken of the predicted waste arising, both for normal operation and for possible incidents, the expected lifetime of the storage facility and the availability of disposal options?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

During review of authorization applications, the NRA confirms that radioactive waste storage facility and fuel storage facility, etc. conform to technical standards. In addition, based on notifications, the NRA confirms the storage status of radioactive waste, etc. in each facility by referring to reports from licensees about the generated volume, stored volume, and so on of radioactive waste for each radiation level and waste form, etc.

In addition, the Reactor Regulation Act requires licensees to specify items concerning predisposal management of radioactive waste and storage of nuclear fuel materials, etc. in their operational safety programs and to comply with such rules. The NRA approves operational safety programs and conducts inspections to ensure licensees comply with their programs on a periodic basis.

<Waste storage facilities>

When first granting a permit, the NRA confirms the capacity of waste storage facility. To change the capacity of facility, the licensee must obtain approval for modification of permit.

<Spent fuel storage facilities>

During review for permit, the NRA confirms the maximum storage capacities of spent fuel interim storage facilities. The amount of spent fuel stored must fall within the permitted capacity.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances require licensees to maintain the function and performance of waste storage facilities and waste management facilities so as to conform to technical standards, to keep records on the storage of radiation sources and retain such records for five years, and to report on the storing inventory quantity of radiation sources to the NRA at the end of each fiscal year.

The NRA confirms that the technical standards for facilities are satisfied and records are kept appropriately by performing on-site inspections and others on a periodic basis. Through this process, the NRA reviews the validity of the storage capacity and modifies it as necessary.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Commercial Reactors Ordinance, Article 92, paragraph (1), items (xvii) and (xviii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), items (xiii) and (xiv)

Research Reactors Ordinance, Article 15, paragraph (1), items (xiii) and (xiv)

Research Power Reactors Ordinance, Article 87, paragraph (1), items (xvii) and (xviii)

Reprocessing Ordinance, Article 17, items (xv) and (xvi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), items (ix) and (x)

<Waste storage facilities>

Waste Storage Ordinance, Article 2

<Spent fuel storage facilities>

Spent Fuel Storage Ordinance, Article 2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, 13, and 43-2

Radiation Hazards Prevention Ordinance, Articles 14-9, 14-10, 14-11, Article 23 paragraphs 1 item (3), and paragraph 3, and Article 39

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.14.4

Is consideration given to the protection of present and future generations in accordance with the fundamental safety principles (Principle 7 of SF-1) when it is proposed to store radioactive waste for a long period of time?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Yes.

During reviews for authorization, the NRA confirms based on the technical standards for waste storage facilities, etc. that waste storage facilities can withstand decay heat and heat

generated by irradiation and do not markedly corrode due to the effects of chemicals included in radioactive waste or other loads.

Based on the latest knowledge, the Reactor Regulation Act also requires licensees to conduct assessments for improving the safety of their facilities or periodic assessments of the implementation statuses of their operational safety activities.

Furthermore, the NRA defines dose limits outside of surrounding monitored areas by notice and requires licensees to report such doses to the NRA on a periodic basis.

<Waste storage facilities>

Yes.

The Waste Storage Permit Ordinance requires licensees to maintain the integrity of their waste storage facilities during the waste storage period specified by licensees.

<Spent fuel storage facilities>

Yes.

The Spent Fuel Storage Permit Ordinance, the Spent Fuel Storage Design Construction Ordinance, and so on require licensees to maintain the integrity of spent fuel interim storage facilities during the spent fuel storage period specified by licensees. In addition, the expenses required for interim storage shall be divided appropriately on a timely basis based on a mutual agreement between the licensee and electric utility company.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

As technical standards for storage of radioactive waste, the Radiation Hazards Prevention Act and its Ordinances stipulate that liquid and solid wastes shall be unified by enclosing them in containers and solidifying them with concrete, and others. Also, the containers shall be of a fireproof structure that prevents spilling and be made from materials which liquid cannot easily penetrate. The licensees are also obligated to conduct periodic monitoring inside and at the boundaries of their facilities.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Reactor Regulation Act, Articles 22-7-2, 43-3-29, and 50-4-2

Commercial Reactor Technical Standards Ordinance, Article 40

Fuel Fabrication Facilities Technical Standard Ordinance, Article 20

Research Reactors Ordinance, Article 14-2

Research Reactors Design Construction Ordinance, Article 26

Reprocessing Technical Standards Ordinance, Article 26

Nuclear Fuel Materials Use Permit Ordinance, Article 24, paragraph (2), item (iii)

Commercial Reactors Dose Limit Notice, Article 9

Fuel Fabrication Dose Limit Notice, Article 9

Research Reactors Dose Limit Notice, Article 9

<Waste storage facilities>

Waste Storage Permit Ordinance, Article 3

<Spent fuel storage facilities>

Spent Fuel Storage Permit Ordinance, Articles 5 and 15

Spent Fuel Storage Design Construction Ordinance, Article 8

Spent Fuel Storage Technical Standards Ordinance, Article 13

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 14-9 item (4), Article 14-11 paragraph 1 item (8), Article 19 paragraph 1 items (9), (13), and (15), and Article 20 paragraph 1

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05 Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

G05 The NRA Ordinance on Technical Standards for the Design and Construction Methods of Spent Fuel Interim Storage Facilities

G06 The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G07 The NRA Ordinance on Technical Standards for the Capabilities of Spent Fuel Interim Storage Facilities

G11 The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K07 The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Facilities using Nuclear Fuel Materials

K09 The NRA Ordinance on Technical Standards for the Capabilities of Fuel Fabrication Facilities

K15 The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

L02 The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

M01 The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M04 The NRA Ordinance on Technical Standards for the Design and Construction Methods of Research and Test Reactors

Question 6.15

Is it required by the regulatory body that waste packages and unpackaged waste that are accepted for processing, storage and/or disposal conform to criteria that are consistent with the safety case?

Answer

Yes

Finding

The regulatory body requires that waste packages and unpackaged waste that are accepted for processing, storage and/or disposal conform to criteria that are consistent with the safety case.

Response

-

Subsidiary Question 6.15.1

How is the waste acceptance criteria derived from the safety case for the waste predisposal facilities?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Regarding operation of radioactive waste storage facilities inside plants, since the owner does not change in any stage (from waste generation to predisposal), waste acceptance criteria do not need to be developed as regulatory requirements.

Note that details of designs and operations of facilities, including storage facilities, are described in applications submitted by licensees and their operational safety programs.

<Waste storage facilities>

Regarding waste storage facilities, the Reactor Regulation Act does not stipulate standards concerning scientific characteristics, such as form or radioactivity concentration, for waste to be accepted.

However, licensees may define acceptance criteria based on radiological, mechanical, physical, or chemical characteristics and perspectives for each process (such as waste disposal, storage, or other processing) within the scope of their permit, and then conclude an agreement between themselves and a licensee that generates waste in order to ensure the acceptance criteria are fulfilled.

<Spent fuel storage facilities>

For spent fuel interim storage facilities, the Spent Fuel Storage Permit Ordinance stipulates that the integrity of spent fuel must be ensured before storing in metal casks.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Permitted waste management operators accept only radioactive waste that is conformed to the technical standards for their facilities of waste repacking, waste storage, or waste management. These technical standards are not only stipulated in the Radiation Hazards Prevention Act and its Ordinances but also described in application forms for permission submitted by permitted waste management operators, which are reviewed by the NRA prior to granting permission of waste management business. According to such technical standards, permitted waste management operators define radioactive waste acceptance criteria.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Reactor Regulation Act, Articles 13, 22, 23, 37, 43-3-5, 43-3-24, 44, 50, 52, and 56-3

Commercial Reactors Ordinance, Article 3, paragraph (1), item (ii) (g) and Article 92, paragraph (1), items (xvii) and (xviii)

Fuel Fabrication Ordinance, Article 2, paragraph (1), item (ii) (e) and Article 8, paragraph (1), items (xiii) and (xiv)

Research Reactors Ordinance, Article 1-3, paragraph (1), item (ii) (g) and Article 15, paragraph (1), items (xiii) and (xiv)

Research Power Reactors Ordinance, Article 3, paragraph (1), item (ii) (g) and Article 87, paragraph (1), items (xvii) and (xviii)

Spent Fuel Storage Permit Ordinance, Article 2, paragraph (2), item (i)

Reprocessing Ordinance, Article 1-2 (g) and Article 17, paragraph (1), items (xv) and (xvi)

Nuclear Fuel Materials Use Ordinance, Article 2-5, paragraph (1), item (xxviii) and Article 2-12, paragraph (1), items (ix) and (x)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 4-2, and 7

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11, and 19

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.15.2

How do the waste acceptance criteria address the radiological, mechanical, physical, chemical and biological properties of waste packages and unpackaged waste that are to be processed, stored or disposed of?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

The Reactor Regulation Act does not stipulate acceptance criteria for each scientific characteristic, such as form or concentration of waste.

The NRA stipulates technical standards regarding with measures to take during predisposal management inside plants in the NRA ordinances for each type of facilities and activities, as well as doses of surrounding monitored areas by notice.

Also, based on these ordinances, licensees are required to specify items concerning predisposal management of radioactive waste in their operational safety programs. The NRA confirms licensees' compliance with such programs on a periodic basis.

<Waste storage facilities>

Regarding waste storage facilities, the Reactor Regulation Act does not stipulate standards concerning characteristics, such as form or radioactivity concentration, for waste to be accepted.

However, licensees of waste storage facilities may define acceptance criteria based on radiological, mechanical, physical, or chemical characteristics and perspectives for each process (such as waste disposal, storage, or other processing) within the scope of their permit, and then conclude an agreement between themselves and a licensee that generates waste in order to ensure the acceptance criteria are fulfilled.

<Spent fuel storage facilities>

For spent fuel interim storage facilities, Spent Fuel Storage Permit Ordinance stipulates that the integrity of spent fuel must be ensured before storing in metal casks.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances stipulate predisposal methods for liquid and solid radioactive waste separately; both liquid and solid wastes shall be incinerated or solidified with concrete, and others. The measures are also stipulated that

shall be taken to prevent wastes from leaking or spreading when incinerating or solidifying them.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Commercial Reactors Ordinance, Articles 79 and 90

Fuel Fabrication Ordinance, Articles 7-3 and 7-8

Research Reactors Ordinance, Articles 8 and 14

Research Power Reactors Ordinance, Articles 74 and 85

Spent Fuel Storage Permit Ordinance, Article 2, paragraph (2), item (i)

Reprocessing Ordinance, Articles 10 and 16

Nuclear Fuel Materials Use Ordinance, Article 3, paragraph (1), item (vii) and Article 4

Commercial Reactors Dose Limit Notice, Article 9

Fuel Fabrication Dose Limit Notice, Article 9

Research Reactors Dose Limit Notice, Article 9

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 4-2, and 7

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11, and 19

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05 Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

F07 The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G06 The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01 The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02 The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03 The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01 The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07 The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.15.3

What regulatory arrangements are in place to ensure that packaged and unpackaged waste meets specified waste acceptance criteria to comply with requirements on safe handling and storage during normal operation and safety during possible accident conditions, and for the long term safety of the subsequent disposal of the waste?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Before waste storage facilities inside plants start operation, through approval of construction plans and pre-service inspections, the NRA confirms that licensees' facilities conform to the approved application for establishment based on the Reactor Regulation Act. The NRA also reviews and approves licensees' operational safety programs.

After facilities start operation, based on the Reactor Regulation Act, the NRA confirms that licensees are operating their facilities in accordance with their operational safety programs by performing operational safety inspections, etc.

<Waste storage facilities>

The NRA confirms during reviews of permit applications that the method for ensuring safety when handling waste during operation and in the event of an accident as well as the method for long-term waste storage, etc. are appropriate.

In addition, the NRA conducts reviews of application documents for approval of operational safety programs submitted by licensees, and confirms during operational safety inspections that licensees ensure safety in their facilities in accordance with their operational safety programs.

<Spent fuel storage facilities>

The Reactor Regulation Act requires licensees to perform safety assessments regarding possible accidents that may occur in spent fuel interim storage facilities during the design stage, and then confirms the results of such assessments during permit application reviews. For spent fuel assemblies to be stored in metal casks during normal operation, the Commercial Reactors Ordinance requires licensees of power stations and the Spent Fuel Storage requires licensees of spent fuel interim storage facilities to store records of their content. When accepting spent fuel, the records of content are checked, and spent fuel that does not satisfy the criteria (for which integrity cannot be ensured) shall not be brought into spent fuel interim storage facilities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances stipulate technical standards for storage and management of radioactive waste and oblige licensees to handle such wastes in compliance with those technical standards. In addition, the Act and its Ordinances require that Radiation Hazards Prevention Program, which serves to prevent hazards from radiation, shall be established and sufficient education and training shall be provided to workers.

When granting business permission, the NRA confirms that facilities conform to technical standards by reviewing licensees' applications and performing facility inspections. After business starts, the NRA confirms during on-site inspections, and others that facilities are being operated in accordance with the technical standards for waste storage and waste management.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Predisposal facilities attached to nuclear facilities>

Reactor Regulation Act, Articles 16-2, 16-3, 22, 27, 28, 37, 43-3-10, 43-3-11, 43-3-24, 45, 46, 50, 55-2, and 56-3

<Waste storage facilities>

Reactor Regulation Act, Articles 51-2 and 51-18

Waste Storage Ordinance, Articles 2 and 34

<Spent fuel storage facilities>

Commercial Reactors Ordinance, Article 67, paragraph (1), item (iv)

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (ii)

Spent Fuel Storage Permit Ordinance, Article 14

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 4-2, 7, 12-9, 12-10, 16, 19, 21, 22, and 43-2

Radiation Hazards Prevention Cabinet Order, Article 7

Radiation Hazards Prevention Ordinance, Articles 7, 14-8, 14-10, 14-11, 17, 19, 21, and 21-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.15.4

How the regulatory body require that provisions are made for safely managing such waste that fails to meet the acceptance criteria?

Subsidiary Response

None in particular.

Question 6.16

Does regulatory body require the operator to prepare a safety case and a supporting safety assessment in compliance with legal and regulatory requirements?

Answer

Yes

Finding

Regulatory body requires the operator to prepare a safety case and a supporting safety assessment in compliance with legal and regulatory requirements.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require description of waste predisposal facilities for radioactive waste in applications for permit. When applying for permit, the NRA obliges applicants to conduct assessments assuming that a design basis accident or severe accident occurs and describe the results in their applications.

In addition, based on the Reactor Regulation Act, the NRA requires licensees to maintain their nuclear facilities after operation starts so that such facilities conform to the technical standards defined in NRA ordinances, as well as to conduct periodic safety assessment of continuous improvement by themselves for assessment of safety of such facilities in accordance with the potential risk to the facilities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

When applying for permission, applicants shall submit materials that demonstrate the safety of the relevant facilities to the NRA.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 16-4-2, 22-7-2, 28-3, 43-3-14, 43-3-29, 46-2-2, 50-4-2; Article 51-2, paragraph (2); and Article 51-9-2

Commercial Reactors Ordinance, Article 3, paragraph (1), item (vii)

Fuel Fabrication Ordinance, Article 2, paragraph (1), item (vii)

Research Reactors Ordinance, Articles 14-2 and 15

Research Power Reactors Ordinance, Article 3, paragraph (1), item (vii)

Reprocessing Ordinance, Article 1-2, paragraph (1), item (vii)

Waste Storage Ordinance, Article 2, paragraph (2), items (v), (vi), and (vii) and Article 33-2

Nuclear Fuel Materials Use Ordinance, Article 2, paragraph (2), item (ii)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 4-2, 6, and 7

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.16.1

Describe how this mechanism is provided in the national legal and organizational framework and mention the relevant documents.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Refer to QID 16 for the answer.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Any person intending to use radioisotopes and others are required to submit applications for business permission to the NRA before starting their business. The NRA confirms that facilities of use, storage, waste repacking, waste storage, or waste management conform to technical standards before granting permission.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

<Related documentation>

Reactor Regulation Act, Articles 28-3, 43-3-14, 43-3-29, 46-2-2, 50-4-2, ; Article 51-2, paragraph (2); and Article 51-9-2

Commercial Reactors Ordinance, Article 3, paragraph (1), item (vii)

Research Reactors Ordinance, Articles 14-2 and 15

Research Power Reactors Ordinance, Article 3, paragraph (1), item (vii)

Reprocessing Ordinance, Article 1-2, paragraph (1), item (vii)

Waste Storage Ordinance, Article 2, paragraph (2), items (v), (vi), and (vii) and Article 33-2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 4-2, 6, and 7

Radiation Hazards Prevention Ordinance, Articles 2, 7, 14-7, 14-8, 14-9, 14-10, 14-11, 17, 19, and Forms 1, and 7

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 6.17

Does the regulation require in the case of a step by step development, or in the event of the modification of the facility or activity, that the safety case and its supporting safety assessment shall be reviewed and updated as necessary?

Answer

Yes

Finding

The regulation requires in the case of a step by step development, or in the event of the modification of the facility or activity, that the safety case and its supporting safety assessment shall be reviewed and updated as necessary.

Response

-

Subsidiary Question 6.17.1

How is required that the safety case is prepared by the operator early in the development of a facility as a basis for the process of regulatory decision making and approval?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

To establish radioactive waste predisposal facilities, submission of permit applications to the NRA is required. Before providing permits, the NRA conducts reviews to confirm that such facilities conform to technical standards. Licensees must also obtain approval of construction plans and operational safety programs from NRA.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Any person intending to use radioisotopes and others are required to submit applications for business permission to the NRA before starting their business. The NRA confirms that their facilities conform to technical standards before granting permission.

Also, all licensees and registered users are required to report their Radiation Hazards Prevention Program to the NRA.

Before granting business permission, the NRA confirms that relevant facilities of use, storage, waste repacking, waste storage, and waste management conform to technical standards.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 13, 14, 16-2, 22, 23, 24, 27, 37, 43-3-5, 43-3-6, 43-3-9, 43-3-24, 44, 44-2, 45, 50, 51-2, 51-3, 51-7, 51-18, 52, 53, and 56-3

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 3-2, 4-2, 6, 7, and 12-8

Radiation Hazards Prevention Cabinet Order, Article 13

Radiation Hazards Prevention Ordinance, Articles 2, 3, 7, 14-7, 14-8, 14-9, 14-10, 14-11, 14-14, 14-15, 21, and Forms 1, and 7

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.17.2

What arrangements are in place for reviewing and updating the safety case and safety assessment as the project proceeds and what is the frequency of such reviews and updates?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

After the start of facility operation, the Reactor Regulation Act requires licensees to conduct periodic safety assessment of continuous improvement or periodic evaluation of operational safety activities implementation with the latest knowledge.

NRA Ordinances stipulate that periodic safety assessment of continuous improvement must be performed within six months after the date periodic facility inspections are completed.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

Licensees are required to undergo on-site inspections, periodic inspections, and periodic confirmations. Based on communication during these occasions and based on comments about problems, licensees review their safety procedures and safety assessments on a regular basis. In addition, they also gather knowledge for independent reviews in safety management lecture sessions organized by industrial associations.

When making changes to their operations, licensees shall submit applications for permission of such changes to the NRA. If requested by facility operators, the NRA conducts reviews to confirm that relevant facilities of use, storage, waste repacking, waste storage, or waste management conform to technical standards.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22-7-2, 43-3-29, 50-4-2, and Article 51-16, paragraph (3)

Commercial Reactors Ordinance, Article 99-3

Fuel Fabrication Ordinance, Article 9-3-2

Research Reactors Ordinance, Articles 14-2 and 15

Research Power Reactors Ordinance, Article 94

Reprocessing Ordinance, Article 19-3-2

Waste Storage Ordinance, Article 33-2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 4-2, 6, 7, 10, 11, 12-9, 12-10, and 43-2

Radiation Hazards Prevention Cabinet Order, Articles 14, 15

Radiation Hazards Prevention Ordinance, Articles 8, 9, 9-3, 10, 14-7, 14-8, 14-9, 14-10, 14-11, and Forms 8, and 9

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.17.3

How is required is it ensure that the step by step approach provides for the collection, analysis and interpretation of the relevant technical data, the development of plans for design and operation, and the development of the safety case for operational safety?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The Reactor Regulation Act requires licensees to prepare safety cases as follows.

- (Siting and design) Application for Permit for Establishment*
- (After permit and before the start of facility operation) Construction plans and operational safety programs*
- (During facility operation) periodic safety assessment of continuous improvement/periodic assessments of operational safety activities*
- (Decommissioning) Decommissioning plans*

[Regulations for licensees under the Radiation Hazards Prevention Act]

Based on the Radiation Hazards Prevention Act and its Ordinances, the NRA requires licensees to prepare the following safety cases at different stages according to the levels of risk of radiation sources which they may handle.

(See separately attached table)

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 13, 14, 16-2, 22, 23, 24, 27, 37, 43-3-5, 43-3-6, 43-3-9, 43-3-24, 43-3-29, 44, 44-2, 45, 50, 51-2, 51-3, 51-7, 51-18, 52, 53, and 56-3

The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors, Chapter 2

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities, Chapter 2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 3-2, 4-2, 6, 7, 12-8, and 21

Radiation Hazards Prevention Cabinet Order, Article 13

Radiation Hazards Prevention Ordinance, Articles 2, 3, 7, 14-14, 14-15, 21, and Forms 1, and 7

Separately attached Table

Subsidiary Attachments

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J28Table for SARIS Module 4-6 SQID 17.3

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Question 6.17.4

Does the regulation require the operator to compile the safety assessment as part of the safety case in accordance with the requirements of the regulatory body?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Before providing permission, the Reactor Regulation Act requires applicants to assess damage etc. of radioactive gaseous waste processing facilities based on Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

When applying for permission, applicants shall submit applications to the NRA. Before granting permission, the NRA confirms that their facilities conform to technical standards.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

The Regulatory Guide for Reviewing Safety Design of Water-cooled Test Reactor Facilities

Reactor Regulation Act, Article 14, 44-2, 51-2, 53

Waste Storage Ordinance, Article 2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 3-2, 4-2, 6, 7, and 12-8

Radiation Hazards Prevention Cabinet Order, Article 13

Radiation Hazards Prevention Ordinance, Articles 2, 3, 7, 14-7, 14-8, 14-9, 14-10, 14-11, 14-14, 14-15, 21, and Forms 1, and 7

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H24Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

M11TheRegulatory Guide for Reviewing Safety Design of Water-cooled Test Reactor Facilities

Question 6.18

Does the safety case for a predisposal radioactive waste management facility include a description of how all the safety aspects of the site, the design, operation, shutdown and decommissioning of the facility and the managerial controls satisfy the regulatory requirements?

Answer

Yes

Finding

The safety case for a predisposal radioactive waste management facility includes a description of how all the safety aspects of the site, the design, operation, shutdown and decommissioning of the facility and the managerial controls satisfy the regulatory requirements.

Response

<Attachments>

Reactor Regulation Act, Articles 13, 14, 22, 22-8, 23, 24, 37, 43-3-5, 43-3-6, 43-3-24, 43-3-33, 44, 44-2, 50, 50-5, 52, 53, 56-3, and 57-6

Waste Storage Ordinance, Articles 2, 4, 34, and 35-6

Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.18.1

How does the safety case address the design of the facility, the arrangements for operational management and the systems and processes that are used, including: the identification of waste arising and the establishment of an optimal programme of waste

management to minimize the amount of waste generated and to determine the design basis and operational basis for the treatment of effluents, the control of discharges and clearance procedures?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Japan's laws and regulations do not require licensees to minimize the amount of waste. However, the Reactor Regulation Act requires licensees to specify items concerning facility design and operation management in their permit applications, construction plans, and operational safety programs. The NRA reviews these documents and provides authorization.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances do not require licensees to minimize the amount of waste. The NRA requires licensees to specify details of siting, design and operation of facilities in their application forms for permission and changes to facilities. Before granting permission, the NRA confirms that facilities conform to technical standards.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 13, 14, 16-2, 22, 23, 24, 27, 37, 43-3-5, 43-3-6, 43-3-9, 43-3-24, 44, 44-2, 45, 50, 51-2, 51-7, 51-18, 52, 53, and 56-3

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 4-2, 6, 7, 11, 15, 16, 17, 18, 25 and 29

Radiation Hazards Prevention Cabinet Order, Articles 8, and 10

Radiation Hazards Prevention Ordinance, Articles 2, 7, 9, 9-3, 14-7, 14-8, 14-9, 14-10, 14-11, 15, 17, 18, 19, 24, 26, and Forms 1, 7, 8, and 9

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 6.19

Do the safety case and its supporting safety assessment demonstrate the level of protection provided and do they provide assurance to the regulatory body that safety requirements will be met?

Answer

Yes

Finding

The safety case and its supporting safety assessment demonstrate the level of protection provided. They provide assurance to the regulatory body that safety requirements will be met.

Response

-

Subsidiary Question 6.19.1

How the regulatory body ensure that the safety case for the facilities address operational safety and all safety aspects of the facility and activities and includes considerations for reducing hazards posed to workers, members of the public and the environment during normal operation and in possible accident conditions?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The Reactor Regulation Act and the NRA ordinances for each type of facilities and activities require applicants to describe their radioactive waste predisposal facilities in their permit applications. The Reactor Regulation Act and the NRA ordinances for each type of facilities and activities

also require applicants to assess facility safety in the event a design basis accident or beyond design basis accident occurs depending on the potential hazards for facilities based on a graded approach as well as to describe the results of such assessments in their permit applications. The NRA reviews the content of their applications to confirm that facilities conform to technical standards.

In addition, the Reactor Regulation Act and the NRA ordinances for each type of facilities and activities also requires licensees to describe, in their operational safety programs, procedures for properly maintaining and reporting records on monitoring the concentration of radioactivity during facility operation (including incidents and accidents). The NRA reviews and approves licensee's operational safety programs, and conducts inspections to ensure licensees comply with their programs periodically.

The dismantling plan of the authorized SSCs is not supposed to be reviewed when that dismantling work may result in releasing nuclear materials with possible exposure beyond the dose limit to the public (1 mSv/year) outside of the surrounding monitored area.

[Regulations for licensees under the Radiation Hazards Prevention Act]

When granting permission of business concerning radiation sources, the NRA confirms that facilities where applicants may handle radioactive waste and other materials conform to technical standards. Applicants are also required to fulfill the following obligations: to establish and report Radiation Hazards Prevention Program to the NRA, to conform to technical standards when operating facilities, to provide education and training to radiation workers, and to report to the relevant authorities and take emergency works and measures in an emergency or an accident. The NRA conducts on-site inspections and others to confirm that these obligations are being conformed.

Subsidiary Question 6.19.2

What approach is adopted in the safety case and safety assessment to ensure that their extent and detail are commensurate with the complexity of the operations and the magnitude of the hazards associated with the radioactive waste management facilities and activities?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The Reactor Regulation Act and the NRA ordinances for each type of facilities and activities stipulate items concerning the reviews, inspections, and safety assessments for each type of facility, including commercial power reactors, fuel fabrication facilities, nuclear research and test reactors and so on. Based on the Reactor Regulation Act, the NRA provides permission for establishment of facilities and approval of construction plans at the design and construction stages. And the NRA also provides approval of operational safety programs and inspects how such operational safety programs are implemented during the stage of facility operation.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances stipulate the standards to be conformed for facility of use, storage, waste repack, waste storage, or waste management. Applications for business permission shall show that their facilities conform to technical standards in the applications for permission they submit to the NRA. Based on a review of such applications, the NRA confirms that wastes will be properly processed before granting permission. After the commencement of facility operation, the NRA conducts inspections or other means on a regular basis to confirm that operations are being appropriately conducted.

Question 6.20

Does the regulatory body require that the safety case and its supporting safety assessment are documented at a level of detail and to a quality sufficient to demonstrate safety, to support the decision at each stage and to allow for the independent review and approval of the safety case and safety assessment?

Answer

Yes

Finding

The regulatory body requires that the safety case and its supporting safety assessment are documented at a level of detail and to a quality sufficient to demonstrate safety, to support the decision at each stage and to allow for the independent review and approval of the safety case and safety assessment.

Response

<Attachments>

Reactor Regulation Act, Articles 13, 14, 22, 23, 27, 37, 43-3-5, 43-3-9, 43-3-24, 44-2, 45, 50, 51-2, 51-7, 51-18, 52, 53, and 56-3

Commercial Reactors Ordinance, Articles 9 and 92

Fuel Fabrication Ordinance, Articles 3-2 and 8

Research Power Reactors Ordinance, Articles 9 and 87

Reprocessing Ordinance, Articles 2 and 17

Waste Storage Ordinance, Articles 2, 4, and 34

Nuclear Fuel Materials Use Ordinance, Articles 2-2 and 2-12

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.20.1

*What approach is taken to the documentation of the safety case and safety assessment?
How are the different waste management facilities and activities addressed?*

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Applicants are required to submit written applications to obtain permission for establishment of facilities. An application must be submitted for each facility, including waste predisposal facilities. Therefore, inspections are conducted for each facility and activity depending on the nature and properties of the waste generated.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Any person intending to obtain permission shall submit an application form for permission to the NRA before the commencement of facility operation, along with evidences indicating that the safety of the facility concerned has been ensured. The NRA reviews such applications and attached materials before granting permission.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 43-3-5

Commercial Reactors Ordinance, Article 3

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 4-2, 6, and 7

Radiation Hazards Prevention Ordinance, Articles 2, 7, 14-7, 14-8, 14-9, 14-10, 14-11, 17, 19, and Forms 1, and 7

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.20.2

For the purposes of both justification and traceability, how does the regulatory body ensure that a well-documented record is taken of the decisions and assumptions that were made in the development and operation of the facility, and of the models and data used in the safety assessment to obtain the set of results?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Before the start of facility operation, the NRA ordinances for each type of facilities and activities require applicants to attach materials to their permit applications in order to explain how their facilities conform to technical standards.

In addition, the NRA ordinances for each type of facilities and activities also stipulate items to be recorded after the start of facility operation as well as the period for preserving records.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The NRA maintains records of applications for permission, applications for changes of permission, decommissioning plans, and licensees' reports submitted as attached documents.

In addition, the NRA also specifies items to be recorded and the preservation period of records concerning workers' exposure doses, measurement of radiation doses or contaminated situation in work environments, during facility operation. These records are preserved by licensees in written documents or computerized form for some situation. Licensees are required to report to the NRA on their management of radiation sources at the end of each fiscal year.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (1), item (ii)

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (iii)

Research Reactors Ordinance, Article 6, paragraph (1), item (ii)

Research Power Reactors Ordinance, Article 62, paragraph (1), item (ii)

Reprocessing Ordinance, Article 8, paragraph (1), item (iii)

Waste Storage Ordinance, Articles 2 and 26

Nuclear Fuel Materials Use Ordinance, Article 2-11

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20, and 25

Radiation Hazards Prevention Ordinance, Articles 20, 20-2, 24, 24-2, and Article 39 paragraph 3

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 6.21

Does regulatory body require that the documentation is clearly written and it includes arguments justifying the approaches taken in the safety case on the basis of information that is traceable?

Answer

Yes

Finding

The regulatory body requires that the documentation is clearly written and it includes arguments justifying the approaches taken in the safety case on the basis of information that is traceable.

Response

[Regulations for licensees under the Reactor Regulation Act]

Applications for authorization for permit, construction plans, and operational safety programs must be submitted in written form to the NRA. To justify their approaches, licensees must attach documents showing that their facilities conform to technical standards.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Applicants for permission are required to submit documents that explicitly show how safety will be ensured for facilities, and to be reviewed by the NRA when applying for permission, as well as to notify their Radiation Hazards Prevention Program to the NRA.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 13, 23, 27, 37, 43-3-5, 44, and 52

Commercial Reactors Ordinance, Articles 9 and 92

Fuel Fabrication Ordinance, Articles 3-2 and 8

Research Reactors Ordinance, Articles 3 and 15

Research Power Reactors Ordinance, Articles 9 and 87

Reprocessing Ordinance, Articles 2 and 17

Waste Storage Ordinance, Articles 2, 4, and 34

Nuclear Fuel Materials Use Ordinance, Articles 2-2 and 2-12

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 3-2, 4-2, 6, 7, and 21

Radiation Hazards Prevention Cabinet Order, Article 3

Radiation Hazards Prevention Ordinance, Articles 2, 7, 21, and Forms 1, and 7

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.21.1

How does the regulatory body require and control the good traceability of the presented safety case and safety assessment for the purposes of technical and regulatory review and for building public confidence?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

On its official website, the NRA makes available all applications and documents submitted by licensees, including applications for permit, other than confidential information.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Items to be recorded and preserved by licensees based on the Radiation Hazards Prevention Act and its Ordinances are kept in written form to ensure traceability. In addition, the NRA properly manages records submitted by licensees, including application documents, reports on facility operation, and on-site inspection records as administrative documents. The NRA also provides an overview of the status of licensees on its official website.

<Attachments>

NRA website

<http://www.nsr.go.jp/>

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, 15, 16, 19, 20, 25, and 43-2

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11, 17, 19, 20, 20-2, and 24

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 6.22

Does regulatory body require the operator to carry out periodic safety reviews and any safety upgrades following these reviews?

Answer

Yes

Finding

The regulatory body requires the operator to carry out periodic safety reviews and any safety upgrades following this reviews.

Response

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22-7-2, 43-3-29, and 50-4-2

Research Reactors Ordinance, Articles 14-2 and 15

Waste Storage Ordinance, Article 33-2

Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 6.22.1

What is the frequency for carrying periodic safety review separate from those associated with modifications and changes?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Periodic safety assessment of continuous improvement shall be performed within six months after completion of a periodic facility inspection and are in fact performed about once per year. In particular, if safety improvement measures implemented by licensees (e.g., large-scale construction work) are likely to change the results of probabilistic risk assessments or safety margin assessments, the licensees conduct surveys, analyses, and comprehensive assessments of such measures. That said, comprehensive assessments are normally performed once every five years even if there have been no major changes since the results of the last periodic safety assessment of continuous improvement.

Periodic safety review shall be conducted at intervals not exceeding ten years.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances specify that periodic inspections and confirmations of permitted waste management operators shall be conducted once within every three years, and also on-site inspections shall be conducted as necessary.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 99-3

The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors, Chapter 1

Fuel Fabrication Ordinance, Article 9-3-2

Research Reactors Ordinance, Articles 14-2 and 15

Research Power Reactors Ordinance, Article 94-2

Reprocessing Ordinance, Article 19-3-2

Waste Storage Ordinance, Article 33-2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, and 43-2

Radiation Hazards Prevention Cabinet Order, Articles 14, and 15

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.22.2

Describe the arrangements in place for carrying out periodic safety review to confirm that any input assumptions that need to be complied with remain adequately controlled within the overall safety management controls.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

(Power reactors and fabrication/reprocessing facilities)

Licensees are required by the Reactor Regulation Act to perform periodic safety assessment of continuous improvement for self-assessments of safety of their facilities.

(Nuclear facilities other than power reactors and fabrication/reprocessing facilities)

Licensees are required by the Reactor Regulation Act to perform periodic assessments of their operational safety activities and how they have reflected the latest technical knowledge in their facilities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Periodic inspections are conducted to confirm that facilities specified in the Radiation Hazards Prevention Act and its Ordinances conform to technical standards.

Periodic confirmation are conducted to verify that records on radiation dose measurements and books concerned with items on the use of radioisotopes and others are properly maintained.

On-site inspections are conducted to review whether facilities conform to technical standards; whether measurements and records are kept properly; whether the handling of radioisotopes and others conform to technical standards; and whether medical checkup, education and training are properly provided to radiation workers.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22-7-2, 43-3-29 and 50-4-2

Research Reactors Ordinance, Articles 14-2 and 15

Waste Storage Ordinance, Article 33-2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, and 43-2

Radiation Hazards Prevention Cabinet Order, Articles 14, and 15

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 6.23

Are the results of the periodic safety review reflected in the updated version of the safety case for the facility?

Answer

Yes

Finding

The results of the periodic safety review are reflected in the updated version of the safety case for the facility.

Response

-

Subsidiary Question 6.23.1

What approach is taken to update a safety case for a predisposal waste management facility based on the results of the periodic safety review?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Safety cases are updated with periodic safety assessment of continuous improvement and periodic safety reviews.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Licensees update their safety cases through the safety reviews required for applications for permission of changes to operations and facilities, on-site inspections, periodic inspections, and periodic confirmation; through independent reviews conducted based on knowledge acquired through safety management lectures held by industrial associations; and through safety improvement measures implemented as necessary.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22-7-2, 43-3-29, and 50-4-2

Research Reactors Ordinance, Articles 14-2 and 15

Waste Storage Ordinance, Article 33-2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, 20, 25, and 43-2

Radiation Hazards Prevention Ordinance, Articles 20, 24, and 39

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 6.23.2

What is the process undertaken to make safety upgrades if the result of a periodic safety review indicates this to be necessary? Please provide examples.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

When operating facilities, licensees are required to maintain such facilities to meet the technical standards specified in the NRA ordinances. Based on the Reactor Regulation Act, for facilities that are deemed not to meet such technical standards, the NRA may order licensees to suspend use of such facilities, reconstruct, repair, or relocate such facilities, specify the method of facility operation, or implement other operational required safety measures.

In addition, individual facility operators are required to take measures to improve the level of safety, such as implementing PDCA cycles based on quality assurance plans developed by licensees in their operational safety programs.

[Regulations for licensees under the Radiation Hazards Prevention Act]

If the NRA point out necessary to improve the level of safety as a result of a periodic inspection, periodic confirmation, or on-site inspection, or if a safety review by licensee itself identifies problems for correction, licensees scrutinize the matters and submit applications for changes to their permission as necessary.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 16-4-2, 16-5, 20, 28-3, 29, 33, 37, 43-3-14, 43-3-15, 43-3-23, 43-3-24, 46-2-2, 46-2-3, 46-7, 50, 51-9-2, 51-10, 51-14, 51-18, 57, 57-4, and 56

Waste Storage Ordinance, Articles 26-3, 26-4, and 34

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, and 43-2

Radiation Hazards Prevention Ordinance, Article 39 paragraph 3, and Form 55

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.23.3

When in addition to predefined periodic reviews, is the safety assessment reviewed and updated?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

When making changes to the establishment/operation of facilities or acquiring new knowledge, licensees are required to review safety assessments.

[Regulations for licensees under the Radiation Hazards Prevention Act]

When the NRA orders any indications as a result of a periodic inspection, periodic confirmation, or on-site inspection, licensees shall conduct necessary reviews. In addition, when making changes to their facilities, licensees are also required to conduct review of safety assessments and submit applications for changes to their permission.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 16, 26, 43-3-8, 44-4, 51-5, and 55

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 10, 11, 12-9, 12-10, and 43-2

Radiation Hazards Prevention Cabinet Order, Articles 8, and 10

Radiation Hazards Prevention Ordinance, Articles 9, and 9-3, and Forms 8, and 9

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 6.24

Does regulatory body require that predisposal radioactive waste management facilities are located and designed so as to ensure safety for the expected operating lifetime under both normal and possible accident conditions, and for their decommissioning?

Answer

Yes

Finding

The regulatory body requires that predisposal radioactive waste management facilities are located and designed so as to ensure safety for the expected operating lifetime under both normal and possible accident conditions, and for their decommissioning.

Response

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 22-8, 43-3-2, 43-3-33, 50-5 and 57-6

Commercial Reactor Technical Standards Ordinance, Article 39

Fuel Fabrication Facilities Technical Standard Ordinance, Article 21

Reprocessing Technical Standards Ordinance, Article 25

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K09The NRA Ordinance on Technical Standards for the Capabilities of Fuel Fabrication Facilities

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Subsidiary Question 6.24.1

Is it in place any regulation for siting of predisposal management facilities and if yes what approach is used and what criteria are applied in the selection of sites for waste management facilities?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Preprocessing facilities and waste storage facilities attached to nuclear facilities>

The NRA ordinances for each type of facilities and activities require that measures be taken to ensure facility safety is not jeopardized, whether on facility premises or in the surrounding area, by any of the following: (1) landslides, earthquakes, tsunamis, and other predictable natural phenomena (floods, winds (typhoons), tornadoes, snowfall, volcanic activity, and forest fires) or (2) artificial phenomena that may jeopardize the safety of facilities (flying objects, fires at nearby factories, toxic gases, etc.).

[Regulations for licensees under the Radiation Hazards Prevention Act]

In technical standards, the NRA obligates permitted waste management operators that their facilities of waste repacking, waste storage, or waste management shall be constructed in locations where there is little risk of landslides and floods. The NRA conducts reviews to confirm that this requirement is fulfilled.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactor Establishment Permit Guide, Articles 3 to 6

Fuel Fabrication Permit Ordinance, Articles 6 to 9

Research Reactors Establishment Permit Ordinance, Articles 4 to 9

Reprocessing Permit Ordinance, Articles 6, 7, 8, and 9

Waste Storage Ordinance, Article 2

Waste Storage Permit Ordinance, Articles 5 to 8

Nuclear Fuel Materials Use Permit Ordinance, Articles 6 and 8 to 11

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, and 14-11

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K07The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Facilities using Nuclear Fuel Materials

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

Subsidiary Question 6.24.2

How do the properties, total inventory and potential radiological and non-radiological hazards associated with the radioactive waste that is to be managed and on the requirements of the regulatory body are considered in the location and design of predisposal facilities?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Pre-processing facilities attached to nuclear facilities>

As stipulated in the Permit Ordinances for Respective Operations, Etc., potential hazards due to facilities' locations are considered at permit stage, and those due to design are considered when designing facilities prior to starting construction.

<Waste storage facilities>

As stipulated in the Waste Storage QMS Ordinance and in the Waste Storage Permit Ordinance, potential hazards due to facilities' locations are considered when licensing facilities' business operation, and hazards with respect to facility design are considered when starting construction of facilities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Regarding facility locations, same as the answer to SQID 24.1.

Regarding facility design, there are standards for waste storage facilities and waste management facilities.

Licensees are also required to process wastes in compliance with the technical standards for waste storage and waste management.

The management of non-radiological hazards is not required in regard to regulation for preventing radiation hazards.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactor Establishment Permit Ordinance, Articles 27 and 28

Commercial Reactors QMS Ordinance, Article 34

Fuel Fabrication Permit Ordinance, Article 17

Research Reactors Establishment Permit Ordinance, Articles 22 and 23

Research Reactors Ordinance, Article 15, paragraph (1), item (xvi)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (i)

Reprocessing Permit Ordinance, Articles 21 and 22

Reprocessing QMS Ordinance, Article 34

Waste Storage Ordinance, Articles 2 and 4

Waste Storage Permit Ordinance, Article 12

Nuclear Fuel Materials Use Permit Ordinance, Article 24

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 14-8, 14-9, 14-10, 14-11, 17, and 19

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K07The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Facilities using Nuclear Fuel Materials

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.24.3

Is the need for operational maintenance, testing, examination and inspection addressed from the conceptual design stage onwards?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

<Waste disposal facilities attached to nuclear facilities>

The permit ordinances for each facilities require licensees of waste predisposal facilities and other safety facilities to be available for testing or inspections intended to check integrity and performance.

<Waste storage facilities>

In the Waste Storage Permit Ordinance, the NRA requires licensees to conduct inspections or tests to check waste storage facilities' safety functions as well as perform maintenance and repairs to ensure such safety functions. Safety functions are also checked by the NRA in pre-service inspections, welding inspections, operational safety program reviews, and

periodic facility inspections as well as by licensees in their independent periodic facility inspections.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

For applications for permission of waste management business, permitted waste management operators (applicants) submit documents to the NRA showing that facilities of waste repacking, waste storage, and waste management conform to technical standards. The NRA reviews such documents and conducts facility inspections before granting permission. After the commencement of facility operation, the NRA conducts periodic inspections to confirm that the facilities maintain to conform to technical standards. The NRA also requires licensees to submit radiation management status reports at the end of each fiscal year.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactor Establishment Permit Ordinance, Article 12

Fuel Fabrication Permit Ordinance, Article 14

Research Reactors Establishment Permit Ordinance, Article 12

Reprocessing Permit Ordinance, Article 15

Waste Storage Ordinance, Articles 7, 12, 19, 30, and 34

Waste Storage Permit Ordinance, Article 11

Nuclear Fuel Materials Use Permit Ordinance, Article 18

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-8, 12-9, 13, 20, 25, and 43-2

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11, 20, 24, and Article 39 paragraph 3, and Form 55

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K07The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Facilities using Nuclear Fuel Materials

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

Question 6.25

Are predisposal radioactive waste management facilities constructed in accordance with the design as described in the safety case and approved by the regulatory body?

Answer

Yes

Finding

Predisposal radioactive waste management facilities are constructed in accordance with the design as described in the safety case and approved by the regulatory body.

Response

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 14, 16-2, 16-5, 24, 27, 29, 43-3-6, 43-3-9, 43-3-15, 44-2, 45, 46-2-3, 53, and 55-2

Waste Storage Ordinance, Articles 4, 7, and 10

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 4-2, 7, 12-8, and 13

Radiation Hazards Prevention Ordinance, Articles 7, 14-7, 14-8, 14-9, 14-10, and 14-11, and Form 7

Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.25.1

What arrangements are used to ensure that waste management facilities and activities are constructed by the operator according to the design approved by the Regulatory Body and as described in the approved safety case and safety assessments?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Descriptions of radioactive waste predisposal facilities are provided in applications for facilities' establishment and operation as well as in construction plans prepared by licensees. The NRA reviews such descriptions before providing authorization. The NRA also conducts pre-service inspections to confirm that facilities are constructed in accordance with their applications and construction plans.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Permitted waste management operators are required to design and construct facilities to meet the technical standards specified in the Radiation Hazards Prevention Act. Before starting waste management business, an operator concerned shall submit an application form for permission to the NRA along with documents showing that facilities conform to technical standards after construction is complete. The NRA reviews these documents and conducts facility inspections to confirm whether the facilities actually conform to the technical standards before granting permission.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 14, 16-2, 16-5, 24, 27, 29, 43-3-6, 43-3-9, 43-3-15, 44-2, 45, 46-2-3, 53, and 55-2

Waste Storage Ordinance, Articles 4, 7, and 10

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 4-2, 7, 12-8, and 13

Radiation Hazards Prevention Ordinance, Articles 7, 14-7, 14-8, 14-9, 14-10, and 14-11, and Form 7

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.25.2

How does the regulatory body require that arrangements are in place to carry out independent tests and verifications by the operator organization and how does the regulatory body oversight of these activities for construction and verification?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

When constructing facilities, licensees must check and verify the development designs and confirm the validity thereof as well as conduct inspections and tests of facilities based on the QMS Ordinances for Respective Operations, Etc.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The NRA reviews application documents for permission submitted by applicants and conducts facility inspections to confirm whether facilities conform to technical standards.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors QMS Ordinance, Articles 32 to 34 and 50

Reprocessing QMS Ordinance, Articles 32 to 34 and 50

Waste Storage Ordinance, Article 4

Waste Storage QMS Ordinance, Article 3

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 4-2, 7, 12-8, and 13

Radiation Hazards Prevention Ordinance, Articles 7, 14-7, 14-8, 14-9, 14-10, and 14-11, and Form 7

Subsidiary Attachments

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

Question 6.26

Is it required by the regulatory body that the commissioning of the facility is carried out to verify that the equipment, structures, systems and components, and the facility as a whole perform as planned?

Answer

Yes

Finding

Regulatory body requires that the commissioning of the facility is carried out to verify that the equipment, structures, systems and components, and the facility as a whole perform as planned.

Response

[Regulations for licensees under the Reactor Regulation Act]

Licensees are required to carry out commissioning in pre-service inspections.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Before the commencement of facility operation, permitted waste management operators (applicants) shall undergo facility inspections, and it (commissioning) is performed during the inspections as necessary.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 16-3, 28, 43-3-11, 46, and 55

Commercial Reactors Ordinance, Article 16 item (v)

Fuel Fabrication Ordinance, Article 3-6, paragraph (1), item (iv)

Research Reactors Ordinance, Article 3-4

Research Power Reactors Ordinance, Article 16, item (v)

Reprocessing Ordinance, Article 6, paragraph (1), item (iv)

Waste Storage Ordinance, Article 7

Nuclear Fuel Materials Use Ordinance, Article 2-3, paragraph (1), item (ii)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 12-8

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.26.1

Is the commissioning carried out in several stages subject to the review and approval of the regulatory body?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The Reactor Regulation Act and the NRA ordinances for each type of facilities and activities stipulate that the NRA conducts pre-service inspections at different stages. For example, the Commercial Reactors Ordinance stipulates that inspections must be conducted at each stage of construction, including upon insertion of fuel assemblies, and upon completion of construction work, etc.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

Before the commencement of facility operation, permitted waste management operators (applicants) shall undergo facility inspections, and it (commissioning) is performed during the inspections as necessary.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 16

Fuel Fabrication Ordinance, Article 3-6

Research Reactors Ordinance, Article 3-4

Research Power Reactors Ordinance, Article 16

Reprocessing Ordinance, Article 6

Waste Storage Ordinance, Article 8

Nuclear Fuel Materials Use Ordinance, Article 2-3

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 12-8

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.26.2

Does the regulatory body require that a final commissioning report of the waste predisposal management facilities is produced by the operator?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

No.

Because final commissioning (pre-service inspections) is carried out by the NRA, licensees do not prepare final commissioning reports.

However, according to the QMS Ordinances for Respective Operations, Etc., licensees must prepare and maintain records.

[Regulations for licensees under the Radiation Hazards Prevention Act]

No

The facilities inspections are performed with initiative of the NRA or the registered inspection body, the licensees do not prepare final commissioning reports.

However, the NRA is able to receive the reports of the result of the commissioning as necessary.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors QMS Ordinance, Article 7

Reprocessing QMS Ordinance, Article 7

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (i)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 12-8

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

Subsidiary Question 6.26.3

Does the required final commissioning report of the waste predisposal management facilities should describe all the testing and provides evidence of the successful completion of testing and of any modifications made to the facility or to procedures in commissioning, and does this report provide assurance that all the conditions of the authorization have been satisfied?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Before issuing certificates to licensees, the NRA conducts pre-service inspections and records the results of that in order to confirm that requirements for operation are fulfilled.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

Before the commencement of facility operation, permitted waste management operators (applicants) are required to undergo facility inspections. In these inspections, corrections are made as necessary; if a correction is made, the application documents shall be also modified. Permitted waste management operators are obligated to conform to the technical standards, and the NRA may order the operators concerned to conform to the technical standards.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 16-3, 28, 43-3-11, 46, 51-8, and 55-2

Commercial Reactors Ordinance, Article 21

Fuel Fabrication Ordinance, Article 3-7

Research Reactors Ordinance, Article 3-6

Research Power Reactors Ordinance, Article 21

Reprocessing Ordinance, Article 7

Waste Storage Ordinance, Articles 7 and 10

Nuclear Fuel Materials Use Ordinance, Article 2-4

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-8, 13, and 14

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.26.4

Does the regulatory body require that the safety case is updated, as necessary, to reflect the as-built status of the facility and the conclusions of the commissioning report?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Licensees are not required by regulation to directly update their application documents for permit. However, based on the Reactor Regulation Act, they must perform periodic safety assessment of continuous improvement and report the results to the NRA. Licensees are required to perform their first periodic safety assessment of continuous improvement to evaluate operational conditions when they pass their pre-service inspections.

For facilities other than commercial power reactors and fabrication/reprocessing facilities, licensees must perform periodic assessments of operational safety activities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

Before the commencement of facility operation, permitted waste management operators (applicants) are required to undergo facility inspections. In these inspections, corrections are made as necessary. Permitted waste management operators are obligated to conform to the technical standards, and the NRA may order the operators concerned to conform to the technical standards.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22-7-2, 43-3-29, and 50-4-2

The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors, Chapter 1

Research Reactors Ordinance, Articles 14-2 and 15

Waste Storage Ordinance, Article 33-2

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-8, 13, and 14

Subsidiary Attachments

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 6.27

Are predisposal radioactive waste management facilities operated in accordance with national regulations and with the conditions imposed by the regulatory body?

Answer

Yes

Finding

Predisposal radioactive waste management facilities are operated in accordance with national regulations and with the conditions imposed by the regulatory body.

Response

-

Subsidiary Question 6.27.1

What arrangements are in place to ensure that the operation of waste management facilities takes place in accordance with national regulations and conditions of the license imposed by the regulatory body?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

When reviewing applications for permit, the NRA confirms that such applications conform to the technical standards it has specified. The Reactor Regulation Act also requires licensees to maintain their facilities after the start of operation to meet the technical standards as

well as to observe operational safety programs. To this end, it conducts periodic facility inspections and operational safety inspections to confirm these requirements are being fulfilled.

[Regulations for licensees under the Radiation Hazards Prevention Act]

When granting business permission, the NRA confirms that concerned applications for permission conform to the technical standards stipulated by the NRA. The NRA also requires licensees to maintain their facilities and operations after the commencement of facility operation so as to conform to the technical standards, as well as for licensees to conform to Radiation Hazards Prevention Program. The NRA confirms by inspections and other means on a regular basis whether licensees are fulfilling their obligations.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 14, 16-4-2, 16-5, 22, 24, 28-3, 29, 37, 43-3-6, 43-3-14, 43-3-15, 43-3-24, 44-2, 46-2-2, 46-2-3, 50, 51-2, 51-9-2, 51-10, 51-18, 53, and 56-3

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, 13, 14, 16, 19, and 43-2

Radiation Hazards Prevention Cabinet Order, Articles 14, and 15

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11, 17, 19, and Article 39 paragraph 3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 6.27.2

Do all operations and activities important to safety are subjected to documented limits, conditions and controls, and are carried out by trained, qualified and competent personnel, and how does the regulatory body specify these operational limits, conditions and controls?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Licensees are required to prepare manuals, operational procedures, and other documents for operational safety based on their operational safety programs and to observe the procedures specified in those documents. The NRA reviews these operational safety programs to confirm that relevant activities meet the requirements. These regulations specify restrictions, requirements, etc. for facility operation.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Yes.

Permitted waste management operators are required to establish their Radiation Hazards Prevention Program and notify it to the NRA. They are also required to appoint Radiation Protection Supervisors who supervise operations to prevent radiation hazards, to provide workers with education and training, to ensure safe operations at business facilities, and others.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 50, 51-18, and 56-3

Commercial Reactors Ordinance, Article 92

Fuel Fabrication Ordinance, Article 8

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87

Reprocessing Ordinance, Article 17

Waste Storage Ordinance, Article 34

Nuclear Fuel Materials Use Ordinance, Article 2-12

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 21, 22, and 34

Radiation Hazards Prevention Ordinance, Articles 21, 21-2, and 30

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 6.28

Is it required by the regulatory body that operations are based on documented procedures?

Answer

Yes

Finding

Regulatory Body requires that operations are based on documented procedures.

Response

[Regulations for licensees under the Reactor Regulation Act]

Licensees are required to prepare operational safety programs based on the Reactor Regulation Act, and to specify operational procedures in such programs, and to observe those procedures.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Licensees operate their facilities based on the Radiation Hazards Prevention Program (including its sub-rules) they have established and notified to the NRA, as well as based on technical standards for operations (use, storage, transportation, and waste management) stipulated in the Radiation Hazards Prevention Act and its Ordinances.

<Attachments>

Reactor Regulation Act]

Commercial Reactors Ordinance, Article 76

Fuel Fabrication Ordinance, Article 7-2-8-2

Research Reactors Ordinance, Articles 11 and 15

Research Power Reactors Ordinance, Article 71

Reprocessing Ordinance, Article 8-10

Waste Storage Ordinance, Article 34

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 21

Radiation Hazards Prevention Ordinance, Articles 15, 17, 18, 19, and 21

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.28.1

Are all facility specific, safety related criteria and documented operating procedures required by the regulatory body (such as programme of periodic maintenance, testing and inspection of systems) submitted to the regulatory body for approval?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Licensees are required to specify items concerning operational safety reviews and facility maintenance and management in their operational safety programs and to have the programs approved by the NRA.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Licensees operate their facilities based on the Radiation Hazards Prevention Program (including its sub-rules) they have established and notified to the NRA, as well as based on technical standards for operations (use, storage, transportation, and waste management) stipulated in the Radiation Hazards Prevention Act and its Ordinances.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), items (xi) and (xxv)

Fuel Fabrication Ordinance, Article 8, paragraph (1), items (vii) and (xix)

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87, paragraph (1), items (xi) and (xxv)

Reprocessing Ordinance, Article 17, paragraph (1), items (viii) and (xxiv)

Waste Storage Ordinance, Article 34

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), items (iii) and (xii)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 21

Radiation Hazards Prevention Ordinance, Articles 15, 17, 18, 19, and 21

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 6.29

Is it required by the regulatory body that due consideration is given to the maintenance of the facility to ensure its safe performance?

Answer

Yes

Finding

The regulatory body requires that due consideration is given to the maintenance of the facility to ensure its safe performance.

Response

[Regulations for licensees under the Reactor Regulation Act]

Licensees are required to maintain their facilities to meet technical standards after the start of operation and to observe operational safety programs for facility maintenance and management. The NRA conducts periodic facility inspections and also reviews how operational safety programs are being observed to confirm that licensees are meeting these requirements.

[Regulations for licensees under the Radiation Hazards Prevention Act]

After the commencement of facility operation, licensees are required to maintain compliance with technical standards on facilities and operations specified in the Radiation Hazards Prevention Act and its Ordinances and to comply with their Radiation Hazards Prevention Programs. The NRA conducts inspections and other means on a regular basis to confirm that these requirements are fulfilled.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 14, 16-4-2, 16-5, 22, 28-3, 29, 37, 43-3-14, 43-3-15, 43-3-24, 44-2, 46-2-2, 46-2-3, 50, 51-9-2, 51-9-10, 51-9-18, 53, and 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xxv)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (xix)

Reprocessing Ordinance, Article 17, paragraph (1), item (xxiv)

Waste Storage Ordinance, Article 34

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xii)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, 13, 14, 21, and 43-2

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11, 15, 17, 18, 19, and 21

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

Subsidiary Question 6.29.1

What arrangements are in place to deal with deviations from operating procedures or failure to meet operational limits controls and conditions?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Licensees are required to prepare and observe operational safety programs, though such programs do not specifically focus on waste predisposal facilities. More specifically, licensees are required to determine methods for nonconformity management regarding the implementation of safety activities specified in their quality assurance plans. They are also

required to specify (in their operational safety programs) rules for facility operation as well as procedures for releasing information to the public if nonconformity occurs, and they must observe these rules and procedures.

[Regulations for licensees under the Radiation Hazards Prevention Act]

If the NRA recognizes that a waste management operator's operations do not conform to the technical standards for operations of storage or waste management, the NRA may order the operator concerned to implement necessary measures. The NRA conducts on-site inspections and other means to confirm whether these technical standards are being fulfilled. Waste management operators are required to notify the NRA in case of any deviations, such as an irregular discharge from the facilities or leakage inside controlled areas.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 73, item (v), Article 92, paragraph (1), items (ix) and (xxvii)

Fuel Fabrication Ordinance, Article 7-2-6, paragraph (1), item (v), Article 8, paragraph (1), items (vii) and (xxii)

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 68, item (v), Article 87, paragraph (1), items (ix) and (xxvii)

Reprocessing Ordinance, Article 8-7, item (v), Article 17, paragraph (1), item (vii) and Article 17, paragraph (1), item (xxv)

Waste Storage Ordinance, Article 34

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xiv)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, 16, 19, and 43-2

Radiation Hazards Prevention Ordinance, Article 39 paragraph 1

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 6.29.2

What arrangements are in place to take account of operational experience and feedback from other waste management operations?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

In their operational safety programs, licensees are required to specify items concerning sharing (with other nuclear facility licensees) technical information on safety obtained from operators that have conducted maintenance or inspections and to observe such rules (excluding in the case of test and research reactors). Licensees are also required to study how the latest knowledge is reflected in facility operation in Japan and overseas when performing periodic safety assessment of continuous improvement or assessments of operational safety activities.

The NRA organizes technical information review meetings, etc. through the Secretariat of the NRA and seeks outside experts' opinions to review how operational experience is reflected in regulations in Japan and overseas.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The NRA provides the public on its website with summaries of case studies on accidents that have occurred at licensees' facilities in Japan, along with the causes of such accidents and measures taken to prevent recurrence. Based on such information, the NRA reviews to feedback these experiences in regulatory framework on a regular basis.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xxvi)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (xxi)

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87, paragraph (1), item (xxvi)

Reprocessing Ordinance, Article 17, paragraph (1), item (xxiv)

Waste Storage Ordinance, Article 33-2 and Article 34, paragraph (1), item (xviii)

[Regulations for licensees under the Radiation Hazards Prevention Act]

(1) ---

(2) ---

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 6.30

Does the regulation require for facilities subject to agreements on nuclear material accounting, that in the design and operation of predisposal radioactive waste management facilities the system of accounting for and control of nuclear material shall be implemented in such a way so as not to compromise the safety of the facility?

Answer

Yes

Finding

The regulation requires for facilities subject to agreements on nuclear material accounting, that in the design and operation of predisposal radioactive waste management facilities the system of accounting for and control of nuclear material shall be implemented in such a way so as not to compromise the safety of the facility.

Response

[Regulations for licensees under the Reactor Regulation Act]

The same regulatory body regulates safety and accounting for nuclear materials. Related organizational units make adjustments as the need arises to avoid inhibiting the activities of other units.

[Regulations for licensees under the Radiation Hazards Prevention Act]

(Nuclear materials are not handled under authorization in the Radiation Hazards Prevention Act and its Ordinances.)

<Attachments>

The NRA Establishment Act, Article 4, paragraph (1), items (i) to (iv)

Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Question 6.31

Does the regulation requires that the safety at existing facilities shall be reviewed to verify compliance with new issued safety requirements and in line with national policies and as required by the regulatory body?

Answer

Yes

Finding

The regulation requires that the safety at existing facilities shall be reviewed to verify compliance with new issued safety requirements and in line with national policies and as required by the regulatory body.

Response

[Regulations for licensees under the Reactor Regulation Act]

The Reactor Regulation Act requires licensees to maintain in-service facilities so as to meet the technical standards specified by the NRA Ordinances. If in-service facilities do not meet these technical standards, the NRA may order licensees to take necessary measures to ensure safety, including suspending use of facilities.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Licensees are required to conform to safety requirements when revisions to the Radiation Hazards Prevention Act and its Ordinances are established.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 16-4-2, 21-3, 28-3, 36, 43-3-14, 43-3-23, 46-2-2, 49, 51-9-2, 51-14, and 56

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Module: Safety requirements for Existing (Chronic) Exposure and RADON

Findings

Question 7.1

Has the government identified any existing exposure situations in the country that are of concern from the point of view of radiation protection?

Answer

No

Finding

The government has not identified existing exposure situations in the country that are of concern from the point of view of radiation protection.

Response

No response is required as this is out of IRRS's scope.

Subsidiary Question 7.1.5

Indicate measures planned, if any, or proposed to identify any existing exposure situations

Subsidiary Response

out of scope

Question 7.2

Does the Government (through the regulatory body or other relevant authority) provide information on exposure due to radon and the associated health risks, including the increased risks due to smoking?

Answer

No

Finding

The Government does not provide information on exposure due to radon and the associated health risks.

Response

No response is required as this is out of IRRS's scope.

Subsidiary Question 7.2.4

If there is no data on radon levels in the State, describe, if any, plans or proposals to carry out measurements of indoor radon.

Subsidiary Response

out of scope

Question 7.3

Where the radon levels are of concern for public health, has the Government (through the regulatory body or other relevant authority) established an action plan to control public exposure due to radon indoors?

Answer

No

Finding

The Government has not established an action plan to control public exposure due to radon indoors where the radon levels are of concern for public health.

Response

No response is required as this is out of IRRS's scope.

Subsidiary Question 7.3.20

Are there any plans or proposals to develop an action plan to control public exposure to Rn-222?

Subsidiary Response

out of scope

Question 7.4

Has the regulatory body (or other relevant authority) established reference levels for radionuclides in commodities, such as construction materials, food, drinking water?

Answer

No

Finding

The regulatory body has not established reference levels for radionuclides in commodities

Response

No response is required as this is out of IRRS's scope.

Subsidiary Question 7.4.8

Are there any plans or proposals to establish reference levels for radionuclides in commodities other than construction materials, food and drinking water?

Subsidiary Response

out of scope

Module: Remediation Safety Requirements for Regulatory Authorities**Findings****Question 8.1**

Does the legal framework identify the situations that are included in its scope, sets objectives and principles for remediation measures and assigns responsibilities?

Answer

Yes

Finding

The legal framework does identify the situations that are included in its scope, sets objectives and principles for remediation measures and assigns responsibilities.

Response

The answers to the questions of SARIS module only cover the situation where contamination is found in the site of the regulated nuclear and radiation facilities, excluding the site of TEPCO Fukushima Dai-ichi nuclear power plant, as defined in the scope of the IRRS Mission.

Subsidiary Question 8.1.1

Identify the legal documents that identify the remediation situations and that defines the scope, sets objectives and principles for remediation measures and assigns responsibilities. Provide a copy of such documents.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The Reactor Regulation Act requires that licensees implement operational safety measures. To be specific, licensees are required to implement appropriate control of controlled areas by the ordinances for each activity and to implement corrective measures such as measures to prevent the expansion of contamination or remove contamination in cases where contamination from radioactive material is found inside or outside a controlled area.

In addition, Article 64, paragraph (1) of the Reactor Regulation Act imposes an obligation on licensees, etc. (including persons entrusted with shipments from licensees of nuclear energy activities, etc.) to perform emergency measures. As a specific example concerning nuclear power reactor facilities, Article 135, paragraph (4) of the NRA Ordinance on Commercial Reactors requires that prevention of the expansion of contamination and the removal of contamination be performed immediately in cases where contamination from a nuclear fuel material occurs.

When the need for remediation of contaminated areas arises due to activities or accidents, remediation must be performed during the stage of operation for each incident. Concerning cases where a special need for appropriate control suitable to the situation of the facility is acknowledged, the Reactor Regulation Act stipulates that such a facility be designated as a Specified Nuclear Facility by the NRA and be handled as such.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Articles 15 and 16, etc. of the Radiation Hazards Prevention Act require that licensees (i.e. permitted users and permitted waste management operators, hereafter same) shall implement measures necessary for the prevention of radiation hazards, and Articles 15 and 17, etc. of the Radiation Hazards Prevention Ordinance provide specific technical standards to ensure appropriate management of controlled areas. In addition, Article 21 paragraph 1 of the Ordinance requires that licensees shall prepare Radiation Hazards Prevention Programs, which stipulate items concerning maintenance and management, inspection and use of the facilities, and concerning measurement and records. Article 15 paragraph 3 of the Ordinance also requires that licensees shall remove contamination caused by the use of a radiation source following the completion of the work. Article 29 paragraph 1 of the Ordinance requires that licensees shall perform prevention of the expansion of contamination and removal of contamination as measures during emergency.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

The Reactor Regulation Act, Article 21-2

The Reactor Regulation Act; Article 35, Article 43-3-22; Article 48; Article 43-18; Article 51-16; Article 64, paragraph (1); Article 64-2; Article 64-3; Article 64-4

The Commercial Reactors Ordinance, Article 78

The Commercial Reactors Ordinance, Article 135, item (iv)

The Research Reactors Ordinance, Article 7

The Research Reactors Ordinance, Article 17

The Reprocessing Ordinance; Article 9; Article 20, paragraph (1), item (iv)

The Fuel Fabrication Ordinance; Article 7-2-9; Article 9-17

The Nuclear Fuel Materials Use Ordinance; Article 2-12, paragraph (1), item (iv); Article 8

The Spent Fuel Storage Ordinance; Article 29; Article 44, item (iv)

The Category 1 Waste Disposal Ordinance; Article 53; Article 90, item (iv)

The Category 2 Waste Disposal Ordinance; Article 14; Article 23, item (iv)

The Waste Storage Ordinance; Article 27; Article 36, item (iv)

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act, Articles 15, 16, 20, and 33

The Radiation Hazards Prevention Ordinance, Articles 15, 17, 21, and 29

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.2

Is there an adequate legal and regulatory framework in place so that workers, public and the environment are protected when remediation programmes are undertaken?

Answer

Yes

Finding

There is an adequate legal and regulatory framework in place so that workers, public and the environment are protected when remediation programmes are undertaken.

Response

-

Subsidiary Question 8.2.1

Reference the appropriate legal and regulatory documents that pertain to remediation and provide a copy.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The ordinances for each activity require that licensees establish and implement procedures concerning corrective measures, and they are to establish necessary plans and procedures and perform necessary work as corrective measures in cases where contamination from radioactive material is found outside controlled areas. In addition, they are also required to perform zone control and radiation management.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Article 42 of the Radiation Hazards Prevention Act and Article 39 paragraph 1 of the Radiation Hazards Prevention Ordinance require that, in cases where contamination due to radioactive material is found outside controlled areas, licensees shall report the contamination situation and measures taken in response to the NRA within 10 days.

Additionally, Articles 15 and 16, etc. of the Act require that licensees shall implement measures necessary for the prevention of radiation hazards. Licensees are also required to implement zone control and radiation management in Article 15 paragraph 1 and Article 17 of the Ordinance, to perform appropriate measurements in Article 20 of the Ordinance, and to remove the contamination caused by usage of radiation sources following the completion of the work in Article 15 paragraph 3 of the Ordinance.

Moreover, Article 21 paragraph 1 of the Ordinance requires that licensees shall formulate Radiarion Hazards Prevention Program that stipulate items concerning maintenance, management, checkup, usage, measurement, records, and others of the facilities.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

The Commercial Reactors Ordinance; Article 75; Article 78; Article 79

The Research Reactors Ordinance; Article 7; Article 8; Article 15; Article 16-14

The Commercial Reactors Ordinance; Article 75, Article 78, Article 79

The Reprocessing Ordinance; Article 8-9; Article 9; Article 10

The Fuel Fabrication Ordinance; Article 7-2-8; Article 7-2-9; Article 7-3

The Nuclear Fuel Materials Use Ordinance, Article 3, paragraph (1), item (vi)

The Spent Fuel Storage Ordinance; Article 28-7; Article 29; Article 30

The Category 1 Waste Disposal Ordinance; Article 52; Article 53; Article 54

The Category 2 Waste Disposal Ordinance; Article 13-9; Article 14; Article 15

The Waste Storage Ordinance; Article 29-9; Article 27; Article 28

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, 16, 20, 21, and 42

Radiation Hazards Prevention Ordinance, Articles 15, 17, 20, 21, and 39

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 8.2.2

Identify the organization that is responsible for ensuring the regulatory and legal requirements are met for all remediation activities.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

As mentioned in the answer to SQID 2.1, licensees have these responsibilities.

In addition, the NRA checks the corrective measures implemented by licensees through operational safety inspections (on-site inspections as necessary).

[Regulations for licensees under the Radiation Hazards Prevention Act]

As mentioned in the answer to SQID 2.1, licensees have these responsibilities.

In addition, the NRA confirms the implementation of the measures taken by licensees through on-site inspections or other means.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

The Commercial Reactors Ordinance; Article 75; Article 78; Article 79

The Research Reactors Ordinance; Article 7; Article 8; Article 15; Article 16-14

The Commercial Reactors Ordinance; Article 75; Article 78; Article 79

The Reprocessing Ordinance; Article 8-9; Article 9; Article 10

The Fuel Fabrication Ordinance Article; 7-2-8; Article 7-2-9; Article 7-3

The Nuclear Fuel Materials Use Ordinance, Article 3, paragraph (1), item (vi)

The Spent Fuel Storage Ordinance; Article 28-7; Article 29; Article 30

The Category 1 Waste Disposal Ordinance; Article 52; Article 53; Article 54

The Category 2 Waste Disposal Ordinance; Article 13-9; Article 14; Article 15

The Waste Storage Ordinance; Article 29-9; Article 27; Article 28

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, and 43-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.3

Has a national strategy been formulated to evaluate, prioritize and manage remediation situations?

Answer

No

Finding

A national strategy has not been formulated to specify, prioritize and manage remediation situations.

Response

(No nuclear facilities that require large-scale remediation exist in Japan, except TEPCO Fukushima Dai-ichi nuclear power plant, which is excluded from the scope of this IRRS mission.)

Subsidiary Question 8.3.2

Since there is no national strategy for identifying, prioritizing or managing remediation situations, describe how these actions are performed and who is responsible for performing them.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

In cases of on-site remediation, the Reactor Regulation Act requires that operational safety measures be implemented. To be specific, the ordinances for each activity require that licensees implement appropriate control of controlled areas and that they implement corrective measures such as prevention of the expansion of contamination and removal of contamination in cases where contamination from radioactive material is found inside or outside controlled areas. In addition, Article 64, paragraph (1) of the Reactor Regulation Act imposes an obligation upon licensees to implement emergency measures. To be specific, Article 135, item 4 of the NRA Ordinance on Commercial Reactors, for example, requires that prevention of the expansion of contamination and removal of contamination be performed immediately in cases where contamination from a nuclear fuel material occurs in a nuclear power reactor facility.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances require that licensees shall implement necessary measures for the prevention of radiation hazards.

Licensees are also required to implement zone control and radiation management in Articles 15 and 17 of the Ordinance and to perform appropriate measurements in Article 20 of the Ordinance, as well as to remove contamination caused by the use of radiation sources following the completion of the work in Article 15 of the Act and Article 15 paragraph 3 of the Ordinance.

As measures implemented in emergencies, Article 33 of the Act requires that licensees shall implement emergency measures, and Article 29 paragraph 1 of the Ordinance requires that they shall prevent the expansion of contamination and remove contamination.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act; Article 21-2; Article 35; Article 43-3-22; Article 43-18; Article 48; Article 51-16; Article 64, paragraph (1)

The Commercial Reactors Ordinance, Article 78

The Commercial Reactors Ordinance, Article 135, item (iv)

The Research Reactors Ordinance, Article 7

The Research Reactors Ordinance, Article 17, paragraph (1), item (iv)

The Reprocessing Ordinance; Article 9; Article 20, paragraph (1), item (iv)

The Fuel Fabrication Ordinance; Article 7-2-9; Article 9-17

The Nuclear Fuel Materials Use Ordinance; Article 2-12, paragraph (1), item (iv); Article 8

The Spent Fuel Storage Ordinance; Article 29; Article 44, item (iv)

The Category 1 Waste Disposal Ordinance; Article 53; Article 90, item (iv)

The Category 2 Waste Disposal Ordinance; Article 14; Article 23, item (iv)

The Waste Storage Ordinance; Article 27; Article 36, item (iv)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, 16, 20, and 33

Radiation Hazards Prevention Ordinance, Articles 15, 17, 20, and 29

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.4

Does the regulatory body perform regulatory inspections of remediation activities?

Answer

Yes

Finding

The regulatory body performs regulatory inspections of remediation activities.

Response

-

Subsidiary Question 8.4.1

Describe the regulatory body inspection program for the remediation activities.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

As mentioned in the answer to SQID 2.1, remediation is performed as corrective measures implemented by licensees, and the NRA checks the implementation of the corrective measures through operational safety inspections (on-site inspections as necessary).

[Regulations for licensees under the Radiation Hazards Prevention Act]

As mentioned in the answer to SQID 2.1, remediation is performed as corrective measures implemented by licensees, and the NRA confirms the implementation of the corrective measures through on-site inspections or other means.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

The Commercial Reactors Ordinance; Article 75; Article 78; Article 79

The Research Reactors Ordinance; Article 7; Article 8; Article 15; Article 16-14

The Reprocessing Ordinance; Article 9; Article 10; Article 17

The Fuel Fabrication Ordinance; Article 7-2-9; Article 7-3; Article 8

The Nuclear Fuel Materials Use Ordinance; Article 3; Article 2-12

The Spent Fuel Storage Ordinance; Article 28-7; Article 29; Article 30

The Category 1 Waste Disposal Ordinance; Article 52; Article 53; Article 54

The Category 2 Waste Disposal Ordinance; Article 13-9; Article 14; Article 15

The Waste Storage Ordinance; Article 29-9; Article 27; Article 28

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act Articles 12-9, 12-10, and 43-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.5

Does the regulatory body have the authority to take enforcement actions if the remediation activities are not in accordance with the remediation plan and the safety criteria?

Answer

Yes

Finding

The regulatory body has the authority to take enforcement actions if the remediation activities are not in accordance with the remediation plan and the safety criteria.

Response

-

Subsidiary Question 8.5.1

Describe the regulatory body's enforcement policy and actions if the remediation activities are not in accordance with the remediation plan and safety requirements.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Orders for measures for operational safety and penal regulations for violation of the operational safety program based on the Reactor Regulation Act will be applied.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Orders for corrective measures will be issued, and, in the case of violation, penal regulations based on the Radiation Hazards Prevention Act will be applied.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act; Article 43-3-23; Article 43-3-24; Article 36, paragraph (1); Article 37, paragraph (3); Article 49; Article 50; Article 21-3; Article 22; Article 56, paragraph (1), item (ii); Article 56-3; Article 43-19; Article 43-20; Article 51-17; Article 57-18

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, 33, and 52

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 8.6

Are interested parties involved in the decision making process that define, implement and verify remediation programmes?

Answer

No

Finding

Interested parties are not involved in the decision making process that defines, implements and verifies remediation programmes.

Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

As mentioned in the answer to SQID 2.1, remediation is set to be performed by licensees, and we therefore believe that the requirements of the IAEA Safety Standards do not apply to this question.

Subsidiary Question 8.6.2

Explain why interested parties are not involved in the remediation decision making process.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

As mentioned in the answer to SQID 2.1, remediation is performed by licensees, and we therefore believe that the requirements of the IAEA Safety Standards do not apply to this question.

Question 8.7

Has the regulatory body established safety criteria for the remediation of contaminated areas, including conditions on the end points for remediation?

Answer

Yes

Finding

The regulatory body does established safety criteria for the remediation of contaminated areas, including conditions on the end points for remediation.

Response

-

Subsidiary Question 8.7.1

*Identify the safety criteria that are established for the remediation of contaminated areas.
Provide a copy of the criteria.*

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

The Reactor Regulation Act and the Radiation Hazards Prevention Act require that licensees implement measures for operational safety and the prevention of radiation hazards. To be specific, appropriate control of controlled areas is required by the related ordinances of the Reactor Regulation Act and the Radiation Hazards Prevention Act. Standards for controlled areas are provided in the Notification on Doses, or other notifications.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act; Article 21-2; Article 35; Article 43-3-22; Article 43-18; Article 48; Article 51-16; Article 64, paragraph (1)

The Commercial Reactors Ordinance, Article 78

The Commercial Reactors Dose Limit Notice

The Research Reactors Ordinance, Article 7

The Research Reactors Dose Limit Notice

The Commercial Reactors Ordinance, Article 78

The Fuel Fabrication Dose Limit Notice

The Reprocessing Ordinance, Article 9

The Fuel Fabrication Ordinance, Article 7-2-9

The Nuclear Fuel Materials Use Ordinance, Article 2-12, item (iv)

The Spent Fuel Storage Ordinance; Article 29; Article 44, item (iv)

The Category 1 Waste Disposal Ordinance; Article 53; Article 90, item (iv)

The Category 2 Waste Disposal Ordinance; Article 14; Article 23, item (iv)

The Waste Storage Ordinance; Article 27; Article 36, item (iv)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, and 16

Radiation Hazards Prevention Ordinance, Articles 15, and 17

Amount of RI Notice

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.8

Is the required level of remediation established on a site specific basis?

Answer

Yes

Finding

The required level of remediation is established on a site specific basis.

Response

-

Subsidiary Question 8.8.1

Describe the process that is used to determine what level of remediation is required for a particular site given its characteristics.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

In the case of on-site remediation, the Reactor Regulation Act and the Radiation Hazards Prevention Act require that licensees implement measures for operational safety and the prevention of radiation hazards. To be specific, appropriate control of controlled areas is required by the related ordinances of the Reactor Regulation Act and the Radiation Hazards Prevention Act. Standards for controlled areas are provided in the Notification on Doses, or other notifications.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act; Article 21-2; Article 35; Article 43-3-22; Article 43-18; Article 48; Article 51-16; Article 64, paragraph (1)

The Commercial Reactors Ordinance, Article 78, item (i)-(c)

The Commercial Reactors Dose Limit Notice, Article 2

The Research Reactors Ordinance, Article 7, paragraph (1)-(c)

The Research Reactors Dose Limit Notice, Article 2

The Fuel Fabrication Dose Limit Notice, Article 2

The Reprocessing Ordinance, Article 9, paragraph (1), item (i)-(c)

The Fuel Fabrication Ordinance, Article 7-2-9, paragraph (1), item (i)-(c)

The Nuclear Fuel Materials Use Ordinance, Article 2-12, item (v)

The Spent Fuel Storage Ordinance; Article 29; Article 44, item (iv)

The Category 1 Waste Disposal Ordinance; Article 53; Article 90, item (iv)

The Category 2 Waste Disposal Ordinance; Article 14; Article 23, item (iv)

The Waste Storage Ordinance; Article 27; Article 36, item (iv)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, and 16

Radiation Hazards Prevention Ordinance, Articles 15, and 17

Amount of RI Notice

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.9

Does the legal framework ensure that adequate funding mechanisms are available and that responsibilities are assigned for the financing of remediation measures?

Answer

No

Finding

The legal framework does not ensure that adequate funding mechanisms are available and that responsibilities are assigned for the financing of remediation measures.

Response

-

Subsidiary Question 8.9.3

Explain how adequate funding is assured when they will be needed to implement the remediation programmes

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

As mentioned in the answer to SQID 2.1, remediation is set to be performed by licensees. There are no requirements concerning securing of funding within the scope of the Reactor Regulation Act and the Radiation Hazards Prevention Act.

Subsidiary Question 8.9.4

Explain how the responsible party is identified and define their responsibilities.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

As mentioned in the answer to SQID 2.1, remediation is set to be performed by licensees.

Subsidiary Question 8.9.5

Explain coverage of the funding; does the funding cover post remediation management?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

As mentioned in the answer to SQID 2.1, remediation is set to be performed by licensees. There are no requirements concerning securing of funding within the scope of the Reactor Regulation Act and the Radiation Hazards Prevention Act.

Question 8.10

Does the legal framework provide the basis for establishing any restrictions that may be placed upon the use of or access to the area before, during and, if necessary, after remediation?

Answer

Yes

Finding

The legal framework does provide the basis for establishing any restrictions that may be placed upon the use of or access to the area before, during and, if necessary, after remediation.

Response

-

Subsidiary Question 8.10.1

Identify the document that provides the basis for establishing any restrictions that may be placed upon the use of or access to the area before, during and after remediation has been performed. Provide a copy of the document.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

The Reactor Regulation Act and the Radiation Hazards Prevention Act require that licensees implement measures for operational safety and the prevention of radiation hazards. To be

specific, appropriate control of controlled areas and measures concerning matters including doses of radiation workers are required by the related ordinances of the Reactor Regulation Act and the Radiation Hazards Prevention Act, and entrance/exit control, dose control, etc. are performed based on the operational safety program or the Radiation Hazards Prevention Program established by the licensees.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act; Article 21-2; Article 35; Article 43-3-22; Article 48; Article 43-18; Article 51-16

The Commercial Reactors Ordinance; Article 78; Article 79

The Research Reactors Ordinance, Article 7

The Reprocessing Ordinance; Article 9; Article 10

The Fuel Fabrication Ordinance; Article 7-2-9; Article 7-3

The Nuclear Fuel Materials Use Ordinance, Article 2-12, item (iv)

The Spent Fuel Storage Ordinance; Article 28-7; Article 29; Article 30

The Category 1 Waste Disposal Ordinance; Article 52; Article 53; Article 54

The Category 2 Waste Disposal Ordinance; Article 13-9; Article 14; Article 15

The Waste Storage Ordinance; Article 29-9; Article 27; Article 28

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act Articles 15, 16, 20 and 21

Radiation Hazards Prevention Ordinance, Articles 15, 17, 20 and 21

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.11

Has appropriate record keeping requirements been identified that covers the nature and extent of contamination, the decisions made prior to and during implementation of remediation measures, decisions made after remediation and information on verification of activities performed?

Answer

Yes

Finding

Appropriate record keeping requirements have been identified that cover the nature and extent of contamination, the decisions made prior to and during implementation of

remediation measures, decisions made after remediation and information on verification of activities performed.

Response

-

Subsidiary Question 8.11.1

Explain the record keeping requirements associated with all remediation activities from the initial planning to final verification of the activities performed.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The Reactor Regulation Act imposes the obligation of recordkeeping on licensees, and the ordinances for each activity require them to keep and preserve a record of radiation control and accidents. To be specific, when a licensee prevents the expansion of contamination and removes contamination from a radioactive material, the licensee is required to record the situation and the name of the person in charge and preserve that record for one year.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Article 39 paragraph 1 of the Radiation Hazards Prevention Ordinance stipulates that, in cases where leakage of radioisotopes, or other irregular incidences, occurs inside or outside a facility, licensees must report the fact to the NRA. Moreover, Article 29 of the Ordinance requires that licensees shall take immediate action to prevent expansion and to remove the contamination as emergency measures and report the measures to the NRA in cases where contamination occurs. Licensees are required by the Radiation Hazards Prevention Act and its Ordinances to preserve such records.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act; Article 21; Article 34; Article 43-3-21; Article 47; Article 56-2; Article 43-17; Article 51-15

The Commercial Reactors Ordinance, Article 67

The Research Reactors Ordinance, Article 6, paragraph (1), item (iv)

The Reprocessing Ordinance, Article 8

The Fuel Fabrication Ordinance, Article 7

The Nuclear Fuel Materials Use Ordinance, Article 2-11

The Spent Fuel Storage Ordinance, Article 27

The Category 1 Waste Disposal Ordinance, Article 44

The Category 2 Waste Disposal Ordinance, Article 13

The Waste Storage Ordinance, Article 26

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 33, and 42

Radiation Hazards Prevention Ordinance, Articles 29, and 39

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.12

Has an appropriate waste management strategy been established that is capable of dealing with the waste arising from the remediation activities?

Answer

Yes

Finding

An appropriate waste management strategy has been established that is capable of dealing with the waste arising from the remediation activities.

Response

-

Subsidiary Question 8.12.1

Describe the strategy that has been selected that will be capable of dealing with the remediation waste. Provide a reference to the document that defines this strategy.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

Appropriate storage of radioactive waste is performed by licensees for waste generated by on-site remediation, based on the related ordinances of the Reactor Regulation Act and the Radiation Hazards Prevention Act.

Question 8.13

Does the regulatory body require a remediation plan to be developed?

Answer

Yes

Finding

The regulatory body requires a remediation plan to be developed.

Response

-

Subsidiary Question 8.13.1

Describe the contents of the remediation plan and the timing for submittal to the regulatory body.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The ordinances for each activity require that licensees establish and implement procedures concerning corrective measures, and they are to establish necessary plans and procedures and perform necessary work as corrective measures in cases where contamination from radioactive material is found outside controlled areas. Therefore, the timing for submittal is not stipulated.

Licensees are also required to establish provisions concerning the removal of contamination by radioactive materials in the operational safety program, which is approved by the NRA.

[Regulations for licensees under the Radiation Hazards Prevention Act]

In cases where contamination due to radioactive materials is found outside controlled areas, licensees are required to report the fact immediately and report the situation of the contamination and measures taken to the NRA within 10 days, based on Article 39 paragraph 1 of the Radiation Hazards Prevention Ordinance.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

The Commercial Reactors Ordinance, Article 75

The Research Reactors Ordinance; Article 15; Article 16-14

The Reprocessing Ordinance, Article 8-9

The Fuel Fabrication Ordinance, Article 7-2-8

The Nuclear Fuel Materials Use Ordinance; Article 2-12; Article 6-10

The Spent Fuel Storage Ordinance, Article 28-7

The Category 1 Waste Disposal Ordinance, Article 52

The Category 2 Waste Disposal Ordinance, Article 13-9

The Waste Storage Ordinance, Article 29-9

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 42

Radiation Hazards Prevention Ordinance, Article 39

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.14

Does the regulatory body approve the remediation plan prior to its implementation?

Answer

No

Finding

The regulatory body does not approve the remediation plan prior to its implementation.

Response

-

Subsidiary Question 8.14.2

Describe the process that is used to ensure that the remediation plan contains the appropriate safety requirements and describe how these requirements are implemented.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The ordinances for each activity require that licensees establish and implement procedures concerning corrective measures, and they are to establish necessary plans and procedures and perform necessary work as corrective measures in cases where contamination from radioactive material is found outside controlled areas. Therefore, the timing for submittal is not stipulated.

Licensees are also required to establish provisions concerning the removal of contamination by radioactive materials in the operational safety program, which is approved by the NRA.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Article 15 of the Radiation Hazards Prevention Act and Article 15 paragraph 3 of the Radiation Hazards Prevention Ordinance prescribe the removal of contamination caused by operations in the technical standard. In the case of leakage of radioisotopes, or other

irregular incidences, Article 39 paragraph 1 of the Ordinance requires that licensees shall report the contamination situation and measures taken to the NRA. When the NRA recognizes that the measures are not performed appropriately, it may issue an order to implement necessary measures based on Article 15 paragraph 2 of the Act.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

The Research Reactors Ordinance; Article 15; Article 16-14

The Commercial Reactors Ordinance; Article 75; Article 92

The Reprocessing Ordinance, Article 8-7

The Fuel Fabrication Ordinance, Article 7-2-6

The Spent Fuel Storage Ordinance; Article 28-7; Article 37

The Category 1 Waste Disposal Ordinance; Article 50; Article 63

The Category 2 Waste Disposal Ordinance; Article 13-9; Article 20

The Waste Storage Ordinance; Article 26-9; Article 34

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, 33, and 42

Radiation Hazards Prevention Ordinance, Articles 15, 29, and 39

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.15

If the approved project's remediation goals are not met, are any modifications to these goals approved by the regulatory body?

Answer

No

Finding

If the approved project's remediation goals are not met, any modification to these goals are not approved by the regulatory body.

Response

-

Subsidiary Question 8.15.2

Describe the process that is used to ensure that any remediation project goals that are not met by the project do not apply undue safety concerns on the public or the environment due to their lack of implementation. Show that any new goals provide the same degree of protection as the original goals.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The ordinances for each activity require that licensees establish and implement procedures concerning corrective measures, and they are to establish necessary plans and procedures and perform necessary work as corrective measures in cases where contamination from radioactive material is found outside controlled areas. If the corrective measures taken by licensees are inappropriate, an order for necessary operational safety measures will be issued based on the provision of the Reactor Regulation Act.

[Regulations for licensees under the Radiation Hazards Prevention Act]

Article 15 of the Radiation Hazards Prevention Act and Article 15 paragraph 3 of the Radiation Hazards Prevention Ordinance prescribe the removal of contamination caused by operations as a technical standard, and Article 29 of the Ordinance requires that licensees shall prevent the expansion of contamination and remove contamination when contamination occurs due to a disaster.

In addition, in the case of leakage, or other irregular incidences, Article 39 paragraph 1 of the Ordinance requires that licensees shall report the situation and measures implemented to the NRA. When the NRA recognizes that such measures are not implemented appropriately, it may issue an order for necessary measures based on Article 15 paragraph 2, or Article 33 paragraph 4 of the Act.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act; Article 21-3; Article 36; Article 43-3-23; Article 49; Article 43-19; Article 51-17; Article 56, paragraph (1), item (ii)

The Commercial Reactors Ordinance, Article 75

The Research Reactors Ordinance, Article 15

The Reprocessing Ordinance, Article 8-9

The Fuel Fabrication Ordinance, Article 7-2-8

The Spent Fuel Storage Ordinance, Article 28-7

The Category 1 Waste Disposal Ordinance, Article 52

The Category 2 Waste Disposal Ordinance, Article 13-9

The Waste Storage Ordinance, Article 29-9

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, 33, and 42

Radiation Hazards Prevention Ordinance, Articles 15, 29, and 39

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.16

Does the regulatory body ensure compliance with the criteria established in the remediation programme with regards to waste management and environmental discharges?

Answer

Yes

Finding

The regulatory body ensures compliance with the criteria established in the remediation programme with regards to waste management and environmental discharges.

Response

-

Subsidiary Question 8.16.1

Identify the waste management and environmental protection criteria that must be applied to every remediation project.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The Notification on Dose etc. prescribe the concentration limits outside the Environmental Monitored Area, dose, concentration, or density for controlled areas.

[Regulations for licensees under the Radiation Hazards Prevention Act]

The limits of the concentrations of radioisotopes in ventilation air and discharged water, radiation dose and the concentrations or densities of radioisotopes in air or on materials in controlled areas are prescribed in the Amount of RI Notice.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

The Commercial Reactors Dose Limit Notice

The Research Reactors Dose Limit Notice

The Fuel Fabrication Dose Limit Notice

[Regulations for licensees under the Radiation Hazards Prevention Act]

Amount of RI Notice

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Subsidiary Question 8.16.2

Explain the process that is used by the regulatory body to ensure compliance with the waste management and environmental protection requirements during the implementation of the remediation activities.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The ordinances for each activity require that licensees implement appropriate control of controlled areas. The implementation of zone control is checked by the NRA through operational safety inspections (on-site inspections as necessary).

[Regulations for licensees under the Radiation Hazards Prevention Act]

Articles 15 and 16 of the Radiation Hazards Prevention Act and others, require that licensees shall implement necessary measures for prevention of radiation hazards, and Articles 15 and 17 of the Radiation Hazards Prevention Ordinance, and others, provide specific technical standards. Licensees are also required to implement appropriate management of controlled areas, and the situation of zone control is confirmed by on-site inspections or other means.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 43-3-24

The Commercial Reactors Ordinance; Article 78; Article 92

The Research Reactors Ordinance; Article 7; Article 15

The Reprocessing Ordinance; Article 9; Article 17

The Fuel Fabrication Ordinance; Article 7-2-9, Article 8

The Nuclear Fuel Materials Use Ordinance, Article 2-12

The Spent Fuel Storage Ordinance; Article 29; Article 37

The Category 1 Waste Disposal Ordinance; Article 53; Article 63

The Category 2 Waste Disposal Ordinance; Article 14; Article 20

The Waste Storage Ordinance; Article 27; Article 34

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10, 15, 16, and 43-2

Radiation Hazards Prevention Ordinance, Articles 15, and 17

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.17

Is a final remediation report required to be submitted to the regulatory body for information?

Answer

Yes

Finding

A final remediation report is required to be submitted to the regulatory body for information.

Response

-

Subsidiary Question 8.17.1

Describe the contents of the final remediation report.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

In cases where leakage of nuclear fuel materials, and others, defined by the ordinances for each activity related to the Reactor Regulation Act and the Radiation Hazards Prevention Act occurs, licensees shall report it to the NRA. The cause of the relevant incident and the countermeasures shall also be reported.

<Attachments>

[Regulations for licensees under the Reactor Regulation Act]

The Commercial Reactors Ordinance; Article 134, paragraph (1), item (ix) and item (x)

The Research Reactors Ordinance; Article 16-14, paragraph (1), item (viii); Article 16-14, paragraph 1, item (ix)

The Reprocessing Ordinance; Article 19-16, paragraph (1), item (vii) and item (viii)

The Fuel Fabrication Ordinance; Article 9-16, paragraph (1), item (vii) and item (viii)

The Nuclear Fuel Materials Use Ordinance, Article 6-10, paragraph (1), item (vii) and item (viii)

The Spent Fuel Storage Ordinance, Article 43-13, paragraph (1), item (viii)

The Category 1 Waste Disposal Ordinance, Article 89, paragraph (1), item (viii)

The Category 2 Waste Disposal Ordinance, Article 22-17, paragraph (1), item (viii)

The Waste Storage Ordinance, Article 35-16, paragraph (1), item (viii)

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 33, and 42

Radiation Hazards Prevention Ordinance, Articles 29, and 39

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 8.18

Does the regulatory body approve the termination of the remediation project upon verification that termination criteria have been met?

Answer

Yes

Finding

The regulatory body approves the termination of the remediation project upon verification that termination criteria have been met.

Response

-

Subsidiary Question 8.18.1

Describe how the regulatory body verifies that the termination criteria have been met and how the project is terminated.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

As mentioned in the answer to SQID 2.1, since remediation is performed as corrective measures implemented by licensees, the NRA checks the implementation of the corrective measures through operational safety inspections (on-site inspections as necessary).

In addition, as mentioned in the answer to SQID 17.1, when a report of the cause and countermeasures is submitted by a licensee, the NRA will evaluate its validity.

However, if a contaminated area requiring remediation exists on the site at the decommissioning stage, the criteria for confirming the completion of decommissioning (site release) of nuclear facilities and method to confirm compliance with these criteria have not been established.

[Regulations for licensees under the Radiation Hazards Prevention Act]

As mentioned in the answer to SQID 2.1, remediation is performed as corrective measures implemented by licensees, and the NRA confirms the implementation of the measures by such means as on-site inspections.

In addition, as mentioned in the answer to SQID 17.1, when a report on the cause and countermeasures is submitted by a licensee, the NRA reviews its validity.

Question 8.19

Does the legal framework ensure that protective actions taken after remediation are proportionate, manageable and economically sustainable?

Answer

Yes

Finding

The legal framework does ensure that protective actions taken after remediation are proportionate, manageable and economically sustainable.

Response

-

Subsidiary Question 8.19.1

Identify the document that ensures that protective actions taken after remediation are proportionate, manageable and economically sustainable. Provide a copy of the document.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

As mentioned in the answer to SQID 2.2, since remediation is performed as corrective measures implemented by licensees, the NRA will check the implementation of the corrective measures through operational inspections. In addition, when the relevant corrective measures are completed, regular regulations will be applied.

[Regulations for licensees under the Radiation Hazards Prevention Act]

As mentioned in the answer to SQID 2.1, since remediation is performed by corrective measures implemented by licensees, the NRA will confirm the implementation of the measures through on-site inspections or other means. In addition, when the relevant corrective measures are completed, normal regulations will be applied.

<Attachments>

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-9, 12-10 and 43-2

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

OUTCOMES OF THE SELF-ASSESSMENT FOR SAFETY AND SECURITY OF RADIOACTIVE SOURCES

Module: CoC 2004 Questions

Findings

Question 1.1

Has the State submitted a written commitment to the IAEA to work toward the full implementation of the Code of Conduct?

Answer

Yes

Finding

The State has submitted to the IAEA a written commitment to work toward the full implementation of the Code of Conduct.

Response

.

Subsidiary Question 1.1.1

Append a copy of the written commitment or refer to the IAEA published list of States that have made such a commitment.

Subsidiary Response

As described in evidence.

<ATTACHMENTS>

List of States that have made a political commitment with regard to the Code of Conduct on the Safety and Security of Radioactive Sources and the Supplementary Guidance on the Import and Export of Radioactive Sources (6 May 2014)

Subsidiary Attachments

J26List of States that have made a political commitment with regard to the Code of Conduct on the Safety and Security of Radioactive Sources and the Supplementary Guidance on the Import and Export of Radioactive Sources (6 May 2014)

Question 1.2

Has the State expressed in a written commitment to the IAEA, its intention to implement the Supplementary Guidance on the Import and Export of Radioactive Sources?

Answer

Yes

Finding

The State has expressed in a written commitment to the IAEA, its intention to implement the Supplementary Guidance on the Import and Export of Radioactive Sources.

Response

Subsidiary Question 1.2.1

Append your State's responses to the Self-Assessment Questionnaire set out in Annex I of the Supplementary Guidance on the Import and Export of Radioactive Sources

Subsidiary Response

As described in evidence.

<ATTACHMENTS>

Answer to the State Self-Assessment Questionnaire (27 May 2010)

Subsidiary Attachments

J27Answer to the State Self-Assessment Questionnaire (27 May 2010)

Question 1.3

Has the State/regulatory body taken measures to ensure that radioactive sources within its territory, or under its jurisdiction or control, are safely managed and securely protected during their useful lives?

Answer

Yes

Finding

The State/regulatory body has taken measures to ensure that radioactive sources within its territory, or under its jurisdiction or control, are safely managed and securely protected during their useful lives.

Response

.

Subsidiary Question 1.3.1

Describe the measures taken to manage and protect sources during their useful lives.

Subsidiary Response

A regulatory body, the NRA, is established pursuant to the Atomic Energy Basic Act and the Act for Establishment of the NRA, and has instituted the Act on Prevention of Radiation Hazards due to Radioisotopes, etc. (hereinafter, referred to as "the Radiation Hazards Prevention Act" or simply "the Act") as the law under the jurisdiction of the NRA. The Government has instituted the Cabinet Order for Enforcement, and the NRA established the NRA Ordinance for Enforcement, and Notications and others (hereinafter, referred to as "the Radiation Hazards Prevention Act and its Ordinances" or simply "the Act and its Ordinances") as subordinate regulations of the Act to implement measures for the safe management and protection of radioactive sources.

For handling of radioactive sources, the Act and its Ordinances make it obligatory for permission to be obtained (or notification to be submitted, the same applying in what follows) from the NRA (Articles 3 and 3-2 of the Act). Persons without the permission of or the registration to the NRA are prohibited from possessing radioactive sources (Article 30 of the Act). Licensees and registrants (hereinafter, referred to as "authorized operators") are obliged to designate radiation protection supervisors as persons responsible for radioactive source management (Article 34 of the Act) to perform appropriate storage of radioactive sources in accordance with the permission conditions (Article 16 of the Act), safe use (Article 15 of the Act), and periodic provision of education and training for radiation workers (Article 22 of the Act), and others. Authorized operators are obliged to manage appropriately disused radioactive sources that have exceeded their useful life (Article 19 of the Act).

A chart is attached that illustrates the system of management, from permission of a usage facility for handling radioactive sources to its decommissioning.

<ATTACHMENTS>

The Radiation Hazards Prevention Act (hereinafter referred to as "the Act"), Articles 3, 3-2, 19, 22, 30 and 34

Chart of "Regulations for handling of radiation sources"

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J22Regulations for handling of radiation sources

Question 1.4

Has the State/regulatory body taken measures to ensure that radioactive sources within its territory, or under its jurisdiction or control, are safely managed and securely protected at the end of their useful lives?

Answer

Yes

Finding

The State/regulatory body has taken measures to ensure that radioactive sources within its territory, or under its jurisdiction or control, are safely managed and securely protected at the end of their useful lives.

Response

Subsidiary Question 1.4.1

Describe measures taken to manage and protect sources at the end of their useful lives.

Subsidiary Response

It is obligatory to place radioactive sources that have exceeded their useful life under appropriate management within facilities (Article 16 of the Act and Article 17 of the Ordinance for Enforcement of the Radiation Hazards Prevention Act (hereinafter referred to as "the Ordinance")).

For waste management of a radioactive source, transfer of the radioactive source (Article 29 of the Act) to a permitted waste management operator (Article 4-2 of the Act), that perform radioactive waste predisposal processing or storage operation (the role of accepting such radioactive sources mainly being performed by the Japan Radioisotope Association) and implementation of necessary actions for the prevention of radiation hazards under the management of the licensee are obligatory (Article 19 of the Act and Article 19 of the Ordinance).

When reusable, radioactive sources whose use has been completed are transferred as reusable sources to a licensee (Article 29 of the Act) (customarily, the role of accepting such radioactive sources mainly being performed by the Japan Radioisotope Association or a registered dealer) and returned (exported) to overseas manufacturers.

A chart is attached illustrating the channels of distribution of radioactive sources.

<ATTACHMENTS>

The Act, Articles 4-2, 16, 19 and 29

The Ordinance, Articles 17 and 19

Chart of "Major distribution channels of radioactive sources"

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J20Major distribution channels of radioactive sources

Question 1.5

Has the State/regulatory body taken measures to ensure the promotion of safety culture with respect to radioactive sources?

Answer

Yes

Finding

The State/regulatory body has taken measures to ensure the promotion of safety culture with respect to radioactive sources.

Response

.

Subsidiary Question 1.5.1

Describe the extent of the measures taken by the regulatory body to promote safety culture with respect to radioactive sources.

Subsidiary Response

Matters related to ensuring safety in the utilization of nuclear energy (Article 4 paragraph 1 item (1) of the Act for Establishment of the NRA) are placed under the jurisdiction of the NRA, and an appropriate safety culture is promoted and improved within the scope of those matters. In addition, substantive measures for disseminating and promoting radiation safety and safety culture are implemented within the scope of authorized operators' obligatory measures stipulated in the Act, and within the scope of short courses and others, provided voluntarily by industrial associations.

Authorized operators are obliged to define measures for the prevention of radiation hazards in their Radiation Hazards Prevention Program (Article 21 of the Act and Article 21 of the Ordinance) and to provide all their employees who handle radioactive sources with education and training for the prevention of radiation hazards (Article 22 of the Act and Article 21-2 of the Ordinance). These measures contribute to the dissemination of a safety culture amongst radiation workers.

Furthermore, in addition to issuing reminder/alert documents for the attention of authorized operators as required, the NRA also regularly publishes progress reports on problems and reports on problem causes and corrective measures on its website. These reminders/alerts are issued on a continual basis. The NRA implements these measures in order to prevent occurrence of the same types of hazards and problems, and promote a safety culture.

In addition, the NRA supports short courses and others on radiation safety held on their own initiative by public utility corporations and periodically sends officials with the relevant responsibilities to deliver talks and lectures. Participants are informed of the current situation regarding radiation regulations, progress reports on problem cases, and the problem causes and corrective measures. The NRA thereby enhances awareness of radiation safety and safety culture. These short courses and others are held on a continuing basis.

However, no explicit provisions on the promotion and improvement of safety culture with respect to radiation safety are stipulated in the Act and its Ordinances.

<ATTACHMENTS>

Act for Establishment of the NRA, Article 4 paragraph 1 item (1)

The Act, Articles 21 and 22

The Ordinance, Articles 21 and 21-2

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.5.2

Attach or provide references to documents that describe measures taken to promote safety culture.

Subsidiary Response

As described in evidence.

<ATTACHMENTS>

(1) ---

(2) ---

(3) Statement on Nuclear Safety Culture (NRA)

Subsidiary Attachments

E04Statement on Nuclear Safety Culture

Question 1.6

Has the State/regulatory body taken measures to ensure the promotion of a security culture with respect to radioactive sources?

Answer

Yes

Finding

The State/regulatory body has taken measures to ensure the promotion of security culture with respect to radioactive sources.

Response

Out of scope.

Subsidiary Question 1.6.1

Describe measures taken by the State/regulatory body to promote security culture.

Subsidiary Response

Out of scope.

Subsidiary Question 1.6.2

Attach or provide references to documents that describe measures taken to promote security culture

Subsidiary Response

Out of scope.

Question 1.7

Does the State/regulatory body have an effective national legislative and regulatory system of control over the management and protection of radioactive sources?

Answer

Yes

Finding

The State/regulatory body has an effective national legislative and regulatory system of control over the management and protection of radioactive sources.

Response

.

Subsidiary Question 1.7.1

Broadly describe the national legislative and regulatory system of control over the management and protection of radioactive sources. Append or provide references to documents that describe the national legislative and regulatory system.

Subsidiary Response

The Act and its Ordinances are established and provide for a system on appropriate radioactive source management. Persons who intend to use, sell, rent, or to manage wastes of radioactive sources are obliged to satisfy the conditions required by these laws prior to obtaining authorization for each relevant activity. The NRA conducts inspection and supervision to ensure that appropriate radioactive source management will be performed. A list is attached describing Japan's national laws to control the management and protection of radioactive sources and the types of authorization defined in the Act.

<ATTACHMENTS>

Chart of "National laws to control the management and protection of radioactive sources" and "Types of authorization defined in the Act on Prevention of Radiation Hazards due to Radioisotopes, etc."

Subsidiary Attachments

J10 National laws to control the management and protection of radioactive sources (major ones) SQID 7.1-related

Question 1.8

Does the legislative and regulatory system of control place prime responsibility for the safe management of radioactive sources on the persons being granted the relevant authorizations?

Answer

Yes

Finding

The legislative and regulatory system of control places the prime responsibility for the safe management of radioactive sources on the persons being granted the relevant authorizations.

Response

Subsidiary Question 1.8.1

Describe how the system of control places the prime responsibility for the safe management of radioactive sources on the persons being granted the authorizations.

Subsidiary Response

For the purpose of safe management of radioactive sources, authorized operators are obliged to be in charge of the principal responsibility for safety management through stipulation by the Act and its Ordinances as follows.

** Authorized operators shall maintain facilities so as to satisfy that they satisfy the technical standards stipulated in relevant laws (Articles 6 and 13 of the Act and Articles 14-7 to 14-12 of the Ordinance).*

** Authorized operators shall comply with standards regarding the use, storage, and waste management of radiation sources (Articles 15, 16, and 19 of the Act and Articles 15, 17, and 19 of the Ordinance).*

** Authorized operators shall designate a radiation protection supervisor to perform the safety management of radiation sources (Article 34 of the Act and Article 30 of the Ordinance).*

** Authorized operators shall establish the Radiation Hazards Prevention Program for protection from radioactive sources (Article 21 of the Act and Article 21 of the Ordinance).*

** Authorized operators shall measure the amount of radiation within the facilities, at boundaries, and in other locations (Article 20 of the Act and Article 20 of the Ordinance).*

** Authorized operators shall keep records of the use, storage, and waste management and others of radiation sources (Article 25 of the Act and Article 24 of the Ordinance).*

** Authorized operators shall report on the state of safety management of radiation sources to the NRA (Article 42 paragraph 1 of the Act and Article 39 paragraph 3 of the Ordinance).*

** Authorized operators shall designate a radiation protection supervisor to supervise the handling of radiation (Article 36 of the Act).*

These stipulations make it possible for authorized operators to analyze potential threat in their facilities and set up a safety program on their own responsibility, with conformation to technical standards in the Act, supervision by the Radiation Protection Supervisor, and modification of the Radiation Hazards Prevention Program.

<ATTACHMENTS>

The Act, Articles 6, 13, 15, 16, 19, 20, 21, 25, 34, 36 and 42 paragraph 1

The Ordinance, Articles 14-7 through 14-12, 15, 17, 19, 20, 21, 24, 30 and 39 paragraph 3

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.8.2

Append or provide references to regulatory documents or requirements that establish that the authorized person has the primary responsibility for safety

Subsidiary Response

Chapters 3 and 4 of the Act are attached.

<ATTACHMENTS>

The Act, Chapters 3 and 4

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.9

Have regulatory requirements been established that place the prime responsibility for the security of radioactive sources on the persons being granted the relevant authorizations?

Answer

Yes

Finding

Regulatory requirements have been established that place the prime responsibility for the security of radioactive sources on the persons being granted the relevant authorizations.

Response

Out of scope.

Subsidiary Question 1.9.1

Describe how the system of control places the prime responsibility for the security of radioactive sources on the persons being granted the relevant authorizations

Subsidiary Response

Out of scope.

Question 1.10

Does the State have in place an effective national legislative and regulatory system designed to minimize the likelihood of a loss of control?

Answer

Yes

Finding

The State has in place an effective national legislative and regulatory system designed to minimize the likelihood of a loss of control.

Response

.

Subsidiary Question 1.10.1

Describe the elements (and make reference to provisions) of the national legislative and regulatory system that are intended to minimize the likelihood of a loss of control.

Subsidiary Response

The Act obliges authorized operators to ensure that usage facilities and others are in conformity with the relevant technical standards (Article 13 of the Act). In order to ensure

the safety and conformity of usage facilities and others, the NRA, if it judges that a facility does not conform, may issue an order for conformity to standards (Article 14 of the Act). The Act and its Ordinances also stipulates standards for use, storage, transportation, and waste management, and others (Articles 15, 16, 17, and 19 of the Act) in order to ensure the safety of relevant activities. In addition, reporting and others of the reception and transfer, and others, of radioactive sources of Category 2 or higher and a part of sources of Category 3 within 15 days is obligatory (Articles 39-4 to 39-6 of the Ordinance). For the reception and transfer, and others of all radioactive sources, record-keeping (Article 25 of the Act and Article 24 of the Ordinance), annual reporting (Article 39 paragraph 3 of the Ordinance), and the reporting of theft or missing within 10 days (Article 39 paragraph 1 of the Ordinance) are also obligatory, and the suitability of management is reviewed by on-site inspection (Article 43-2 of the Act). In addition, the NRA has established a system capable of tracing Category 1 and 2 radioactive sources and a part of Category 3 radioactive sources through the operation of the Source Tracking System.

This regulatory system minimizes loss of management with respect to all aspects of facilities, radioactive sources, and usage.

<ATTACHMENTS>

The Act, Articles 13, 14, 15, 16, 17, 19, 25 and 43-2

The Ordinance, Articles 24 and 39

Notification to Stipulate Sealed Radioisotopes that may have a Serious Influence on Human Health

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J23Notification to Stipulate Sealed Radioisotopes that may have a Serious Influence on Human Health

Question 1.11

Does the national legislative and regulatory system include strategies for gaining or regaining control over orphan sources?

Answer

Yes

Finding

The national legislative and regulatory system includes strategies for gaining or regaining control over orphan sources.

Response

.

Subsidiary Question 1.11.1

Describe the arrangements in place for gaining or regaining control over orphan sources.

Subsidiary Response

If an orphan source is discovered, the NRA will request the manager of the site or facility where the source found to place the source under a safe conditions, and will give instructions for the purpose of achieving this. As required, official will be dispatched from the NRA or one of its cooperating organizations to confirm that appropriate action has been performed. The discovered orphan source will be managed under valid permission by its owner, or after undergoing measures implemented by the NRA will be collected by an operator authorized to use, store and manage wastes of radioactive sources (the Japan Radioisotope Association, or other appropriate operator) and placed under appropriate management.

Subsidiary Question 1.11.2

Append or provide references to documents that describe how the State/Regulator would gain or regain control over orphan sources

Subsidiary Response

"What to Do If You Find an Uncontrolled Radioactive Material" is attached.

<ATTACHMENTS>

"What to Do If You Find an Uncontrolled Radioactive Material"

Subsidiary Attachments

J05What to Do If You Find an Uncontrolled Radioactive Material

Question 1.12

Does the national legislative and regulatory system provide for rapid response for the purpose of regaining control over orphan sources?

Answer

Yes

Finding

The national legislative and regulatory system provides for rapid response for the purpose of regaining control over orphan sources.

Response

.

Subsidiary Question 1.12.1

Describe how rapid response would be implemented and the responsibilities of the organizations involved. Append or make reference to documentation that describes rapid response measures

Subsidiary Response

Causing an orphan source is prohibited (Article 3 of the Act on Punishment of Acts to Endanger Human Lives by Generating Radiation).

The NRA will request the manager of the site or facility where the source found to place the radioactive source under safe conditions, give instructions for the purpose of achieving this, and dispatch officials to confirm that appropriate action has been performed. In addition, the police agency that received the relevant report will immediately implement rapid initial action, declaring a no-entry zone and, as far as possible, measuring the radiation and investigating the situation.

The relevant provision and "What to Do If You Find an Uncontrolled Radioactive Material" are attached.

<ATTACHMENTS>

The Act, Articles 32, 33 and 43-2

Act on Punishment of Acts to Endanger Human Lives by Generating Radiation, Article 3

Reactor Regulation Act, Articles 63, 64 and 68

"What to Do If You Find an Uncontrolled Radioactive Material"

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J05What to Do If You Find an Uncontrolled Radioactive Material

Question 1.13

Does the national legislative and regulatory system foster ongoing communication between the regulatory body and users?

Answer

Yes

Finding

The national legislative and regulatory system fosters ongoing communication between the regulatory body and users.

Response

.

Subsidiary Question 1.13.1

Describe how the regulatory system fosters ongoing communication between the regulatory body and users

Subsidiary Response

The discussions in the meeting of the NRA, the Radiation Council, or relevant meetings are publicly opened through the internet. For the formulation of legislation, hearing from authorized operators and receiving public comment from the population are implemented.

In addition, The NRA continuously communicate with authorized operators both before and after permission (registration) for operation is granted.

Specifically, the NRA exchanges information through periodic inspections (Article 12-9 of the Act and Article 14 of the Cabinet Order for Enforcement of the Radiation Hazards Prevention Act (hereinafter referred to as "the Cabinet Order")) and periodic confirmations (Article 12-10 of the Act and Article 15 of the Cabinet Order) conducted on an obligatory basis with respect to specified permitted users every 3 or 5 years. The on-site inspections (Article 43-2 of the Act) and the annual submission of status reports of radiation management (Article 39 paragraph 3 of the Ordinance), which are obligatory for all authorized operators.

Cooperation with operators is promoted by communication through administrative liaison and others conducted by the NRA.

In order to enhance awareness of radiation safety, the NRA, through its website, also discloses information on exposure situations and trouble related to radioactive sources.

In addition, the NRA collects information on international trends in radiation protection and radioactive source management, and relevant issues, actively implements public information activities, and sends officials with relevant responsibilities as lecturers to lectures or training, and others held by related organizations, thereby sharing information on radiation safety and promoting reciprocal communication.

<ATTACHMENTS>

The Act, Articles 12-9, 12-10 and 43-2

The Cabinet Order for Enforcement of the Radiation Hazards Prevention Act (hereinafter referred to as "the Cabinet Order"), Articles 14 and 15

The Ordinance, Article 39 paragraph 3

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.13.2

Append or provide references to documents that describe how the national legislative and regulatory system fosters ongoing communication

Subsidiary Response

As described in evidence.

<ATTACHMENTS>

(1) ---

(2) ---

Question 1.14

Does the national legislative and regulatory system provide for measures to reduce the likelihood of malicious acts, including sabotage, consistent with the threat defined by the State?

Answer

Yes

Finding

The national legislative and regulatory system provides for measures to reduce the likelihood of malicious acts, including sabotage, consistent with the threat defined by the State.

Response

Out of scope.

Subsidiary Question 1.14.1

Describe the measures in place to reduce the likelihood of malicious acts. Append or provide reference to documents that describe these measures

Subsidiary Response

Out of scope.

Question 1.15

Does the national legislative and regulatory system have provisions in place to mitigate or minimize the radiological consequences of accidents or malicious acts involving radioactive sources?

Answer

Yes

Finding

The national legislative and regulatory system has provisions in place to mitigate or minimize the radiological consequences of accidents or malicious acts involving radioactive sources.

Response

Out of scope.

Subsidiary Question 1.15.1

Describe and provide references to provisions of the national legislative and regulatory system or programmes that are designed to mitigate or minimize the radiological consequences of accidents or malicious acts

Subsidiary Response

Out of scope.

Question 1.16

Does the national legislative and regulatory system have provisions in place to provide for its own continuous improvement?

Answer

Yes

Finding

The national legislative and regulatory system has provisions in place to provide for its own continuous improvement.

Response

.

Subsidiary Question 1.16.1

Describe (and append or provide references to documents) how the national legislative and regulatory system provides for its own continuous improvement.

Subsidiary Response

The NRA has defined Management Rules, and makes continual improvements across the whole range of its duties.

<ATTACHMENTS>

NRA Management Rules, Chapter 6

Subsidiary Attachments

E01Nuclear Regulation Authority Management Rules

Question 1.17

Does the State ensure that facilities and services for radiation protection, safety and security available to, and used by, persons authorized to manage radioactive sources, include those needed for searching for missing sources and securing found sources?

Answer

Yes

Finding

The State ensures that facilities and services for radiation protection, safety and security available to, and used by, persons authorized to manage radioactive sources, include those needed for searching for missing sources and securing found sources.

Response

.

Subsidiary Question 1.17.1

Describe facilities and services in place that are used to search for missing sources.

Subsidiary Response

The NRA has radiation inspectors with specialized expertise (Article 43 of the Act, and Article 30 of the Cabinet Order) and relevant measuring apparatus and others, and may dispatch these to search for missing radioactive sources as required.

The Government has a framework in place for implementing the action in response to loss of radioactive sources at the request of the NRA, this action being taken in cooperation with facilities closely related to the NRA and possessing sufficient capabilities for ensuring radiation safety, research institutes with expert personnel, or specialized agencies that

handle radioactive sources (the Japan Radioisotope Association and others). The NRA has capabilities for searching for missing radioactive sources and storing discovered radioactive sources through the use of the measuring apparatus, facilities, equipment, and services, and others possessed by the above organizations.

<ATTACHMENTS>

The Act, Article 43

The Cabinet Order, Article 30

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.17.2

Describe facilities and services used to secure found sources.

Subsidiary Response

The finder of a missing radioactive source reports it to the police and the NRA. The NRA dispatches radiation inspectors (Article 43 of the Act and Article 30 of the Cabinet Order) as required, and requests authorized specialized agencies that handle radioactive sources (the Japan Radioisotope Association, and others) to collect and store the radioactive source concerned. The NRA endeavors to prevent radiation hazards from occurring, and to collect the radioactive source safely.

The collected radioactive source is contained in a radioactive source container of the specialized agencies (the Japan Radioisotope Association, and others) and placed under storage and management at the agencies' management facility.

<ATTACHMENTS>

The Act, Article 43

The Cabinet Order, Article 30

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.18

Does the State ensure that facilities and services for radiation protection, safety and security available to, and used by, persons authorized to manage radioactive sources, include those needed to intervene in the event of an accident or malicious act involving a radioactive source?

Answer

Yes

Finding

The State ensures that facilities and services for radiation protection, safety and security available to, and used by, persons authorized to manage radioactive sources, include those needed to intervene in the event of an accident or malicious act involving a radioactive source.

Response

Out of scope.

Subsidiary Question 1.18.1

Describe relevant facilities and services used to intervene in the event of an accident or malicious act involving a radioactive source.

Subsidiary Response

Out of scope.

Question 1.19

Does the State ensure that facilities and services for radiation protection, safety and security available to, and used by, persons authorized to manage radioactive sources include those needed for personal dosimetry?

Answer

Yes

Finding

The State ensures that facilities and services for radiation protection, safety and security available to, and used by, persons authorized to manage radioactive sources include those needed for personal dosimetry.

Response

.

Subsidiary Question 1.19.1

Describe facilities and services that are available for personal dosimetry.

Subsidiary Response

The Act and its Ordinances obliges authorized operators for radioactive source management to perform personal dosimetry (Article 20 of the Act, and Article 20 of the Ordinance). The necessary equipment and services are provided by the authorized operators themselves, or by private contractors to which provision has been outsourced.

<ATTACHMENTS>

The Act, Article 20

The Ordinance, Article 20

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.20

Do facilities and services include those needed to perform environmental monitoring?

Answer

Yes

Finding

Facilities and services include those needed to perform environmental monitoring.

Response

.

Subsidiary Question 1.20.1

Describe the facilities and services that are available for environmental monitoring.

Subsidiary Response

The Act and its Ordinances makes it obligatory for periodic environmental monitoring to be performed in the controlled areas of facilities where radioactive sources are used, within the facilities, and at the facilities' boundaries (Article 20 of the Act, and Article 20 of the Ordinance). Authorized operators are obliged to keep the facilities, equipment, and services that enable the relevant measurements to be performed.

<ATTACHMENTS>

The Act, Article 20

The Ordinance, Article 20

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.21

Does the State ensure that facilities and services for radiation protection, safety and security available to, and used by, persons authorized to manage radioactive sources include those necessary for the calibration of radiation monitoring equipment?

Answer

Yes

Finding

The State ensures that facilities and services for radiation protection, safety and security available to, and used by, persons authorized to manage radioactive sources include those necessary for the calibration of radiation monitoring equipment.

Response

.

Subsidiary Question 1.21.1

Describe the facilities and services that are available for the calibration of radiation monitoring equipment.

Subsidiary Response

The national measurement standards for radiation are maintained by National Institute of Advanced Industrial Science and Technology under the jurisdiction of the Ministry of Economy, Trade and Industry. As a calibration service, a traceability service system (Japan Calibration Service System (JCSS)) is available pursuant to the Measurement Act under the jurisdiction of the Ministry of Economy, Trade and Industry. Calibration services compliant with and also without JCSS are provided for the purpose of quality assurance by companies such as manufacturers of the dosimeters or radiation meters, used for radiation protection.

Question 1.22

Are arrangements in place for the relevant training of the staff of law enforcement agencies?

Answer

Yes

Finding

Arrangements for relevant training of the staff of law enforcement agencies are in place.

Response

.

Subsidiary Question 1.22.1

Describe the training of the staff of law enforcement agencies, including its scope and adequacy.

Subsidiary Response

The following training courses on the handling of radioactive sources are provided for the official of the NRA.

**"Basic Training for Radiation Inspectors"*

This training is targeted at radiation inspectors. Participants acquire knowledge regarding radiation measurement and radiation management and others through classroom lectures and practice.

** "Technical Training for Radiation Measurement"*

This training is targeted mainly at Nuclear Emergency Preparedness Officers and Nuclear Safety Inspectors. Participants acquire knowledge regarding radiation measurement through various types of practice.

**"Basic Training for Education on Radiation Hazards"*

This training is a basic training lecture for newly hired official, Nuclear Emergency Preparedness Officers, and nuclear facility inspectors, and others. Participants acquire knowledge regarding radiation related laws, radiation management, and radiation protection and others, through classroom lectures and practice.

According to the results of questionnaires on the individual training courses and others, trainees are generally satisfied by the course content.

In addition to the training listed above, individual departments with responsibility for specific operations provide, as required, separate OJT that includes dispatch to external training organizations and others. The contents of training courses will continue to be improved on an ongoing basis.

Question 1.23

Are arrangements in place for training of the staff of emergency services organizations?

Answer

Yes

Finding

Arrangements for the training of the staff of emergency services organizations are in place.

Response

.

Subsidiary Question 1.23.1

Describe the training of the staff of emergency services organizations, including its scope and adequacy

Subsidiary Response

The description for training of NRA officials is the same as in the answer to SQID 22.1.

Question 1.24

Has the State established a national register of radioactive sources?

Answer

Yes

Finding

The State has established a national register of radioactive sources.

Response

Subsidiary Question 1.24.1

Does the register, as a minimum, include Category 1 and 2 radioactive sources as described in Annex 1 to the Code of Conduct?

Subsidiary Response

In the Source Tracking System, all Category 1 and 2 radioactive sources described in CoC Annex 1 and some Category 3 radioactive sources are registered.

Subsidiary Question 1.24.2

Describe how the information in the source registry is updated

Subsidiary Response

At places of activity related to the use, sale, and rent of radioactive sources of Category 2 or higher and some sources of Category 3, the Source Tracking System makes it obligatory to report reception, transfer and others to the NRA within 15 days (Article 39 paragraph 4 of the Ordinance). On receiving a report of the reception or transfer of a radioactive source at a place of activity from a licensee via the Internet, the Source Tracking System records the information, and then reports to the NRA. Whenever the NRA receives such a report, the official with relevant responsibility confirms consistencies of its content and then updates the corresponding information. In this manner, radioactive sources are identified and traced.

In addition, it is obligatory for an annual report to be submitted from the places of activity concerned regarding possession and others of radioactive sources of Category 2 or higher

*and some sources of Category 3 to the NRA (Article 39 paragraph 6 of the Ordinance).
Hence, storage status is confirmed periodically.*

<ATTACHMENTS>

The Ordinance, Article 39 paragraphs 4 and 6

Notification to Stipulate Sealed Radioisotopes that may have a Serious Influence on Human Health

Subsidiary Attachments

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J23Notification to Stipulate Sealed Radioisotopes that may have a Serious Influence on Human Health

Subsidiary Question 1.24.3

Describe how the information contained in the register is protected

Subsidiary Response

With respect to access to the Source Tracking System, which stores all the registered information on radioactive sources, the NRA has defined relevant access standards, and implements necessary measures for information security.

Subsidiary Question 1.24.4

Describe any measures taken by the Regulatory Body in discussion with other States to harmonize the format of its source register for the more efficient exchange of radioactive source information between States

Subsidiary Response

When constructing the Source Tracking System, similar systems operating overseas were investigated, and consideration was also given the requirements in the IAEA Guidance on the Import and Export of Radioactive Sources. It is stipulated that information on radioactive sources be exchanged between countries in an effective manner through the use of this system.

Subsidiary Question 1.24.5

Describe any processes the regulatory body has implemented to assure the quality of the information in the national source registry

Subsidiary Response

The Source Tracking System is established as the database accumulating information on the identification/possession, receipt/transfer and others of radioactive sources, according to each authorized operator's reports to the NRA via the Internet (Article 39 paragraph 4 of the Ordinance), of which the information is confirmed by the staff of relevant responsibility at the NRA.

Authorized operators shall also report annually on the storage status of radioactive sources at their facilities, this information being confirmed periodically by staff of the NRA.

The registered information on radioactive sources includes information on the owner, so that, in the case of a radioactive source being found, its owner can be identified.

The storage status of radioactive sources is confirmed, as required, based on the information in on-site inspections (Article 43-2 of the Act) conducted pursuant to the Act by radiation inspectors (Article 43 of the Act and Article 30 of the Cabinet Order).

<ATTACHMENTS>

The Act, Articles 43 and 43-2

The Cabinet Order, Article 30

The Ordinance, Article 39 paragraph 4

Notification to Stipulate Sealed Radioisotopes that may have a Serious Influence on Human Health

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J23Notification to Stipulate Sealed Radioisotopes that may have a Serious Influence on Human Health

Question 1.25

Does the State/regulatory body ensure that information concerning any loss of control over radioactive sources, or any incidents, with potential transboundary effects involving radioactive sources, is provided promptly to potentially

affected States through established IAEA or other mechanisms?

Answer

Yes

Finding

The State/regulatory body ensures that information concerning any loss of control over radioactive sources, or any incidents, with potential transboundary effects involving radioactive sources, is provided promptly to potentially

affected States through established IAEA or other mechanisms.

Response

.

Subsidiary Question 1.25.1

Describe how the State/regulatory body ensures that information concerning any loss of control over radioactive sources, or any incidents, with potential transboundary effects involving radioactive sources, is provided promptly to potentially affected States through established IAEA or other mechanisms.

Subsidiary Response

Japan participates in the IAEA Incident and Trafficking Database (ITDB) and, within its framework, provides information on the Theft, Loss, Missing, Misrouting and others of radioactive sources.

Question 1.26

Does the State/regulatory body encourage bodies and persons likely to encounter orphan sources during the course of their operations (such as scrap metal recyclers and customs posts) to implement monitoring programmes to detect such sources?

Answer

Yes

Finding

The State/regulatory body encourages bodies and persons likely to encounter orphan sources during the course of their operations to implement monitoring programmes to detect such sources.

Response

.

Subsidiary Question 1.26.1

Describe the mechanisms the State/regulatory body applies to encourage those likely to encounter orphan sources to implement monitoring programmes to detect orphan sources.

Subsidiary Response

Through the framework of closer cooperation regularly concerned personnel, the NRA can request other organizations to perform monitoring. As necessary, the NRA also dispatches its own staff for monitoring purposes.

In addition, radiation monitoring is conducted on containers at some ports and bays, etc. in accordance with guidelines provided by the Ministry of Land, Infrastructure, Transport and Tourism. Iron scrap companies also perform radiation monitoring on their own initiative in accordance with a manual prepared by an iron scrap association.

<ATTACHMENTS>

Guidelines for Radiation Measurement of Export Containers at Ports and Bays

Subsidiary Attachments

A14_Guidelines for Radiation Measurement in Export Containers at Ports and Bays

Question 1.27

Does the State/regulatory body encourage the reuse or recycling of radioactive sources, when practicable, consistent with considerations of safety and security?

Answer

No

Finding

The State/regulatory body does not encourage the reuse or recycling of radioactive sources.

Response

The NRA, as the regulatory body, does not encourage the reuse or recycling of radioactive sources, because promotion of utilization of radioactive sources is outside the jurisdiction of the NRA.

Subsidiary Question 1.27.2

Describe any plans by the State/regulatory body to encourage the reuse or recycling of radioactive sources

Subsidiary Response

The NRA does not intend to encourage the reuse or recycling of radioactive sources.

<ATTACHMENTS>

Chart of "Major distribution channels of radioactive sources"

Subsidiary Attachments

J20Major distribution channels of radioactive sources

Question 1.28

Does the State/regulatory body, in implementing the Code of Conduct, emphasize the responsibilities of designers for the safety and security of radioactive sources?

Answer

Yes

Finding

The State/regulatory body, in implementing the Code of Conduct, emphasizes the responsibilities of designers for the safety and security of radioactive sources.

Response

.

Subsidiary Question 1.28.1

Describe how the responsibilities for the safety and security of radioactive sources are emphasized to designers

Subsidiary Response

As technical standards with which authorized operators shall comply for the use of sealed radioactive sources, the Act and its Ordinances require that any danger of sealed radioactive sources being unsealed or destroyed in their normal state of use shall be prevented, and that radioisotopes shall not be dispersed through leakage, penetration or others.

The Ordinance and Notification based on the Act stipulate safety standards for the devices equipped with small quantity of sealed radioactive sources, by citing JIS Z 4821-1 (corresponding to ISO 2919) for sealed radioactive sources used in design certification devices and others.

By stating technical standards in the Act and its Ordinances, it is thereby emphasized that the responsibility for safety is attributed to designers (same as to manufacturers, suppliers).

<ATTACHMENTS>

The Act, Articles 12-2 and 12-3

The Ordinance, Articles 14-2, 14-3 and 15

Notification to Stipulate Detailed Technical Standards for Design Certification and others

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J17Notification to Stipulate Detailed Technical Standards for Design Certification etc.

Question 1.29

Does the State/regulatory body, in implementing this Code, emphasize the responsibilities of manufacturers for the safety and security of radioactive sources?

Answer

Yes

Finding

The State/regulatory body, in implementing the Code of Conduct, emphasizes the responsibilities of manufacturers for the safety and security of radioactive sources.

Response

.

Subsidiary Question 1.29.1

Describe how the responsibilities for the safety and security of radioactive sources are emphasized to manufacturers

Subsidiary Response

Same as the answer to SQID 28.1.

Question 1.30

Does the State/regulatory body, in implementing the Code of Conduct, emphasize the responsibilities of suppliers for the safety and security of radioactive sources?

Answer

Yes

Finding

The State/regulatory body, in implementing the Code of Conduct, emphasizes the responsibilities of suppliers for the safety and security of radioactive sources.

Response

.

Subsidiary Question 1.30.1

Describe how the responsibilities for the safety and security of radioactive sources are emphasized to suppliers

Subsidiary Response

Same as the answer to SQID 28.1.

Question 1.31

Does the State/regulatory body, in implementing the Code of Conduct, emphasize the responsibilities of users for the safety and security of radioactive sources?

Answer

Yes

Finding

The State/regulatory body, in implementing the Code of Conduct, emphasizes the responsibilities of users for the safety and security of radioactive sources.

Response

.

Subsidiary Question 1.31.1

Describe how the responsibilities for the safety and security of radioactive sources are emphasized to users

Subsidiary Response

With respect to authorized operators of activities involving the use, storage, transportation, waste management and others of radioactive sources, the Act and its Ordinances stipulate: obligation to comply with the standards for usage facilities, and others (Article 13 of the Act); order to comply with the standards for usage facilities, and others (Article 14 of the Act); obligation to safety compliance of relevant activities in accordance with standards for use (Article 15 of the Act), storage (Article 16 of the Act), transportation (Article 17 of the Act), and waste management (Article 19 of the Act), and others; formulation of Radiation Hazards Prevention Program stipulating measures to be implemented for prevention of radiation hazards in facilities and others (Article 21 of the Act), designation of a radiation protection supervisor (Article 34 of the Act) as a person who supervises radiation hazards prevention, and designation of his/her duties (Article 36 of the Act); and measures to be implemented in the case of an accident (Article 32 of the Act) or in emergency (Article 33 of the Act); and others. Hence, it is emphasized that authorized operators bear the primary responsibility for radiation hazards prevention.

<ATTACHMENTS>

The Act, Articles 13, 14, 15, 16, 17, 19, 21, 32, 33, 34 and 36

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.32

Does the State/regulatory body, in implementing the Code of Conduct, emphasize the responsibilities of those managing disused radioactive sources for their safety and security?

Answer

Yes

Finding

The State/regulatory body, in implementing the Code of Conduct, emphasizes the responsibilities of those managing disused radioactive sources for their safety and security.

Response

.

Subsidiary Question 1.32.1

Describe how the responsibilities for the safety and security of radioactive sources are emphasized to those managing disused sources

Subsidiary Response

The Act and its Ordinances require disused sources to be managed in the same manner until the waste management as during their period of usage. With regard to waste management of radioactive sources, technical standards requiring compliance (Article 19 of the Act and Article 19 of the Ordinance) are stipulated.

<ATTACHMENTS>

The Act, Article 19

The Ordinance, Article 19

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.33

Does the State define its domestic threat, and assess its vulnerability with respect to this threat for the variety of sources used within its territory, based on the potential for loss of control and malicious acts involving one or more radioactive sources?

Answer

Yes

Finding

The State defines its domestic threat, and assesses its vulnerability with respect to this threat for the variety of sources used within its territory, based on the potential for loss of control and malicious acts involving one or more radioactive sources.

Response

Out of scope.

Subsidiary Question 1.33.1

Describe how the State defines its domestic threat level and assess its vulnerability

Subsidiary Response

Out of scope.

Question 1.34

Does the State take measures consistent with its national law to protect the confidentiality of any information that it receives in confidence from another State or through participation in an activity carried out for the implementation of this Code of Conduct?

Answer

Yes

Finding

The State takes measures consistent with its national law to protect the confidentiality of any information that it receives in confidence from another State or through participation in an activity carried out for the implementation of the Code of Conduct.

Response

Subsidiary Question 1.34.1

Describe the measures in place to ensure confidentiality of information received in confidence from another State or through participation in an activity carried out for the implementation of the Code of Conduct.

Subsidiary Response

Pursuant to Article 100 of the Act for National Public Service, a duty of confidentiality is imposed on national officials. It is stipulated that necessary measures shall be implemented to ensure confidentiality, in accordance with the level of the confidentiality of the information received.

Operation ensuring the confidentiality of information at the NRA is stipulated in the Information Security Measures Manual (classified document), Ministry of the Environment.

In entrusting a business company with duties under contract, the NRA includes a provision regarding duty of confidentiality in the corresponding written contract. Business companies also stipulate duty of confidentiality in their office regulations. The confidentiality of information received in confidence is thereby ensured.

Moreover, the NRA administrative documents management rule and others on the basis of Public Records and Archives Management Act, the administrative documents which is necessary to keep confidential are appropriately managed.

<ATTACHMENTS>

Act for National Public Service, Article 100

Subsidiary Attachments

H15National Public Service Act

Question 1.35

Are provisions in place such that a State/regulatory body that has received information in confidence from another State will only forward this information to third parties with the consent of that other State?

Answer

Yes

Finding

There are provisions that ensure a State/regulatory body in receipt of information in confidence from another State will only forward the information to third parties with the consent of that other State.

Response

.

Subsidiary Question 1.35.1

Describe or provide references to the provisions that ensure a State/regulatory body in receipt of information in confidence from another State only forwards the information to third parties with the consent of that other State.

Subsidiary Response

It is stipulated that, upon obtaining information in confidence or receiving it from another country, the NRA shall rate its confidentiality in an appropriate manner and impose restrictions on its handling. If the confidentiality rating needs to be changed in order to relax

handling restrictions for the purpose of information sharing with a third party and others, consultation shall be conducted with the creator or obtainer of the information concerned, or with the official with relevant responsibility in the corresponding section.

As a general rule, highly confidential information is not transmitted to any third party, but if this becomes necessary, permission for such transmission is customarily required from the country that originally dispatched the information. Operation ensuring the confidentiality of information at the NRA is stipulated in the Information Security Measures Manual (classified document), Ministry of the Environment.

In entrusting a business company with duties under contract, the NRA includes a provision regarding duty of confidentiality in the corresponding written contract. Business companies also stipulate duty of confidentiality in their office regulations. The confidentiality of information received in confidence is thereby ensured.

<ATTACHMENTS>

National Public Service Act, Article 100

Subsidiary Attachments

H15National Public Service Act

Question 1.36

Does the State have in place legislation and regulations that provide for effective control of radioactive sources and of the devices in which sources are incorporated?

Answer

Yes

Finding

The State has in place legislation and regulations that provide for effective control of radioactive sources and of the devices in which sources are incorporated.

Response

.

Question 1.37

Does the State have in place legislation and regulations that specify the requirements for the safety and security of radioactive sources and of the devices in which sources are incorporated?

Answer

Yes

Finding

The State has in place legislation and regulations that specify the requirements for the safety and security of radioactive sources and of the devices in which sources are incorporated.

Response

.

Subsidiary Question 1.37.1

Describe how State legislation and regulations specify the requirements for the safety and security of radioactive sources and of the devices in which sources are incorporated

Subsidiary Response

As technical standards with which authorized operators shall comply for the use of sealed radioactive sources, the Act and its Ordinances require that any danger of sealed radioactive sources being unsealed or destroyed in their normal state of use shall be prevented, and that radioisotopes shall not be dispersed through leakage or penetration, and others.

<ATTACHMENTS>

The Ordinance, Article 15 paragraph 1 item (2)

Subsidiary Attachments

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.38

Does the State have in place legislation and regulations that prescribe and assign governmental responsibilities to assure the safety and security of radioactive sources and of the devices in which sources are incorporated?

Answer

Yes

Finding

The State does have legislation and regulations that prescribe and assign governmental responsibilities to assure the safety and security of radioactive sources and of the devices in which sources are incorporated.

Response

.

Question 1.39

Do State legislation and/or regulations provide for, in particular, the establishment of a regulatory body whose regulatory functions are effectively independent of other functions with respect to radioactive sources, such as the management of radioactive sources or the promotion of the use of radioactive sources?

Answer

Yes

Finding

State legislation and/or regulations provide for the establishment of a regulatory body whose regulatory functions are effectively independent of other functions with respect to radioactive sources, such as the management of radioactive sources or the promotion of the use of radioactive sources.

Response

.

Subsidiary Question 1.39.1

Identify the relevant legislation/regulation.

Subsidiary Response

Articles 1, 5, and 6 of the Act for Establishment of the NRA are attached.

<ATTACHMENTS>

Act for Establishment of the NRA, Articles 1, 5 and 6

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Question 1.40

Does the regulatory body have powers and characteristics listed in paragraphs 20 to 22 of the Code of Conduct?

Answer

Yes

Finding

The regulatory body has powers and characteristics listed in paragraphs 20 to 22 of the Code of Conduct.

Response

Subsidiary Question 1.40.1

Identify the relevant provisions in legislation that assign to the regulatory body the powers and characteristics listed in paragraphs 20 to 22 of the Code of Conduct.

Subsidiary Response

The Act = Radiation Hazards Prevention Act

The Ordinance = Radiation Hazards Prevention Ordinance

The Cabinet Order = Radiation Hazards Prevention Cabinet Order

para. 20.

(a)

<Establishment of regulations>

Act for Establishment of the Nuclear Regulation Authority, Article 26

<Issuing of guidance>

Act for Establishment of the Nuclear Regulation Authority,

Article 4 paragraph (1) items (i) and (iv)

(b)

The Act, Article 3

The Act, Article 6

The Ordinance, Article 2

The Act, Article 4-2

The Act, Article 7

The Ordinance, Article 7

The Ordinance, Article 14-7

The Ordinance, Article 14-9

The Ordinance, Article 14-11

The Act, Article 15; The Ordinance, Article 15

The Act, Article 16; The Ordinance, Article 17

The Act, Article 19; The Ordinance, Article 19

(c)

The Act, Article 3; The Ordinance, Article 2

The Act, Article 3-2; The Ordinance, Article 3

The Act, Article 4; The Ordinance, Article 6

The Act, Article 4-2; The Ordinance, Article 7

The Act, Article 21; The Ordinance, Article 21

The Act, Article 42; The Ordinance, Article 39

The Act, Article 10

The Act, Article 11

The Ordinance, Article 9

The Ordinance, Article 9-3

The Ordinance, Article 10-2

The Ordinance, Article 11

The Act, Articles 43-2 and 43-3

The Act, Article 12-8

The Act, Article 12-9

The Act, Article 12-10

(d)

The Act, Article 3; The Ordinance, Article 2

The Act, Article 3-2; The Ordinance, Article 3

The Act, Article 4; The Ordinance, Article 6

The Act, Article 4-2; The Ordinance, Article 7

The Act, Article 10

The Act, Article 11

The Ordinance, Article 9

The Ordinance, Article 9-3

The Ordinance, Article 10-2

The Ordinance, Article 11

The Act, Article 26

The Act, Article 28

(e)

(i) *Responsibility*

(ii) *The minimum competence required for operators*

The Act, Article 3

The Ordinance, Article 15

The Ordinance, Article 17

The Ordinance, Article 19

The Ordinance, Article 14-7

The Ordinance, Article 14-9

The Ordinance, Article 14-11

(iii)

(iv)

Z4821-1(Sealed Radioactive Sources - General Requirements and Classification), Japanese Industrial Standards

Z4560 (Industrial gamma-ray Apparatus for Radiography), Japanese Industrial Standards

Z4620 (Particular requirements for the safety of remote-controlled afterloading therapy equipment), Japanese Industrial Standards

The Act, Article 12-2

The Cabinet Order, Article 11

The Cabinet Order, Article 12

Notification to Stipulate Certification Requirements for Radioisotope-Equipped Devices with an Indicator that are regarded as Approved Devices with Certification Label

Notification to Stipulate Detailed Technical Standards for Design Certification, etc.

(v)

The Act, Article 32

The Act, Article 33; The Ordinance, Article 29

(vi)

The Act, Article 21; The Ordinance, Article 21

The Act, Article 22; The Ordinance, Article 21-2

(vii)

The Act, Article 16; The Ordinance, Article 17

The Act, Article 19; The Ordinance, Article 19

The Act, Article 29; The Ordinance, Article 27

The Act, Article 30; The Ordinance, Article 28

(viii)

The Act, Article 34

The Act, Article 12-9

The Act, Article 12-10

The Act, Article 43-2

(ix)

The Act, Article 39 paragraph 4

The Act, Article 41-9

National Public Service Act, Article 100

Information Security Measures Manual of the Ministry of the Environment

(f)

The Act, Article 3; The Ordinance, Article 2

The Act, Article 3-2; The Ordinance, Article 3

The Act, Article 4; The Ordinance, Article 6

The Act, Article 4-2; The Ordinance, Article 7

The Act, Article 21; The Ordinance, Article 21

The Act, Article 42; The Ordinance, Article 39

The Act, Article 10

The Act, Article 11

The Ordinance, Article 9

The Ordinance, Article 9-2

The Ordinance, Article 9-3

The Ordinance, Article 10

The Ordinance, Article 10-2

The Ordinance, Article 10-3

The Ordinance, Article 11

(g)

<Supply>

Z4821-1(Sealed Radioactive Sources - General Requirements and Classification), Japanese Industrial Standards

Z4560 (Industrial γ-ray Apparatus for Radiography), Japanese Industrial Standards

Z4620 (Particular requirements for the safety of remote-controlled after-loading therapy equipment), Japanese Industrial Standards

The Act, Article 12-2

The Act, Article 12-3; The Ordinance, Article 14-3

The Act, Article 12-4

The Cabinet Order, Article 11

The Cabinet Order, Article 12

Notification to Stipulate Detailed Technical Standards for Design Certification, etc.

<Transportation>

The Act, Article 17

The Act, Article 18

Notification on Technical Details for Off-site Transportation of Radioisotopes, etc.

(h)

The Ordinance, Article 39

The Act, Article 43-2

The Act, Article 12-8

The Act, Article 12-9

The Act, Article 12-10

(i)

The Act, Article 43-2

The Act, Article 12-8

The Act, Article 12-9

The Act, Article 12-10

The Act, Article 14

NRA's Core Values and Principles

First-period Mid-term Goals of the Nuclear Regulation Authority, 3. (2)

Fiscal 2015 Priority Policy Plan of the Nuclear Regulation Authority, II 2.

(j)

Authority to request monitoring is not defined in laws.

(k)

The Act, Article 13

The Act, Article 14

The Act, Article 33; The Ordinance, Article 29 paragraph 3

(l)

The Act, Article 33; The Ordinance, Article 29 paragraph 1 item (3)

Act for Establishment of the Nuclear Regulation Authority, Article 25

NRA's Core Values and Principles

First-period Mid-term Goals of the Nuclear Regulation Authority, 3. (1)

Fiscal 2015 Priority Policy Plan of the Nuclear Regulation Authority, I 1.

(m)

<Cooperation with other government agencies>

Act for Establishment of the Nuclear Regulation Authority, Article 4 paragraph (1) item (ix)

<Cooperation with non-governmental bodies>

The NRA has jurisdiction over the Japan Atomic Energy Agency and National Institute of Radiological Sciences (Articles 17 and 28 of the Act for Incorporated Administrative Agency the Japan Atomic Energy Agency and Articles 14 and 17 of the Act for Incorporated Administrative Agency the National Institute of Radiological Sciences) and maintains cooperation with them regarding scientific and technical matters.

The NRA designates non-governmental organizations as registered certification organizations etc. (Chapter 5 (Articles 39 to 41-40) of the The Act) and maintains cooperation with these organizations.

The NRA also maintains cooperation with permitted waste management operators (Articles 4-2 and 7 of the The Act) with regard to the management of orphan sources.

(n)

Act for Establishment of the Nuclear Regulation Authority, Article 4 paragraph (1) item (xi)

NRA's Core Values and Principles

First-period Mid-term Goals of the Nuclear Regulation Authority, 3. (1)

Fiscal 2015 Priority Policy Plan of the Nuclear Regulation Authority, I 3.

(o)

Provisions etc. regarding intervention in emergencies have not been established and are currently under consideration.

(p)

(Standards for facilities)

The Act, Article 6

The Ordinance, Article 14-9

The Act, Article 13

The Act, Article 14

(Standards for actions)

The Act, Article 16; The Ordinance, Article 17

(q)

The Act, Article 6

The Ordinance, Article 14-9

The Ordinance, Article 14-11

The Act, Article 13

The Act, Article 14

para. 21.

(a),(b),(c)

*Supplementary Provisions of the Act for Establishment of the Nuclear Regulation Authority,
Article 6*

First-period Mid-term Goals of the Nuclear Regulation Authority, 3. (4)

Fiscal 2015 Priority Policy Plan of the Nuclear Regulation Authority, IV

para.22.

(a)

The Act, Article 2

(b)

The Ordinance, Article 7

The Ordinance, Article 14-9

The Ordinance, Article 14-11

The Act, Article 19

The Ordinance, Article 19

The Act, Article 19-2

The Cabinet Order, Article 19

Administrative Execution by Proxy Act, Articles 1 to 6

(c)

The Act, Article 3

The Act, Article 3-2

The Act, Article 4

The Act, Article 4-2

The Ordinance, Article 39

The Act, Article 28

The Ordinance, Article 26

The Act, Article 29

(d)

Act for Establishment of the Nuclear Regulation Authority, Article 4 paragraph 1, item (i)

The Act, Article 21; The Ordinance, Article 21

The Act, Article 22; The Ordinance, Article 21-2

Statement on Nuclear Safety Culture

Action Guidelines for Culture of Nuclear Security

First-period Mid-term Goals of the Nuclear Regulation Authority, 3. (2) and 3. (5)

Fiscal 2015 Priority Policy Plan of the Nuclear Regulation Authority, I 1.

(e)

The Ordinance, Article 14-7

The Ordinance, Article 14-9

The Ordinance, Article 14-11

The Ordinance, Article 14-3

The Ordinance, Articles 18 to 18-13

Notification on Technical Details for On-site Transportation of Radioisotopes, etc., Article 6

Notification on Technical Details for Off-site Transportation of Radioisotopes, etc., Article 24

The Act, Article 12-8

The Act, Article 12-9

The Act, Article 43-2

The Act, Article 18

The Cabinet Order, Article 16

The Ordinance, Article 18-14

The Ordinance, Article 18-15

(f)

The Ordinance, Article 14-7

The Ordinance, Article 14-9

The Ordinance, Article 14-11

The Ordinance, Article 15

The Ordinance, Article 17

The Ordinance, Article 19

The Act, Article 12-8

The Act, Article 12-9

The Act, Article 43-2

(g)

The Ordinance, Article 39 paragraph 4

(h)

The Ordinance, Article 39

Notification to Stipulate Sealed Radioisotopes that may have a Serious Influence on Human Health

The Act, Article 12-10

The Cabinet Order, Article 15

The Act, Article 43-2

(i)

The Act, Article 12-9

The Cabinet Order, Article 14

The Act, Article 12-10

The Cabinet Order, Article 15

The Act, Article 43-2

First-period Mid-term Goals of the Nuclear Regulation Authority, 3. (2)

Fiscal 2015 Priority Policy Plan of the Nuclear Regulation Authority, II 2.

(j)

The Act, Article 14

The Act, Article 43-2

The Act, Article 33 paragraph 4

The Act, Article 21 paragraph 2

First-period Mid-term Goals of the Nuclear Regulation Authority, 3. (2)

Fiscal 2015 Priority Policy Plan of the Nuclear Regulation Authority, II 2.

(k)

The Act, Article 43-2

The Act, Article 12-10

The Ordinance, Article 39

The Ordinance, Article 29

Supplementary Provisions (Act No. 69 of June 2, 2004) of the Act, Article 2

Supplementary Provisions (Act No. 30 of May 10, 2010) of the Act, Article 6

(l)

The Act, Article 33; The Ordinance, Article 29

The Act, Article 32

The Ordinance, Article 39

(m)

Z4821-1(Sealed Radioactive Sources - General Requirements and Classification), Japanese Industrial Standards

Z4560 (Industrial gamma-ray Apparatus for Radiography), Japanese Industrial Standards

Z4620 (Particular requirements for the safety of remote-controlled after-loading therapy equipment), Japanese Industrial Standards

The Act, Article 15

The Act, Article 16

The Act, Article 19

The Act, Article 12-3

The Act, Article 12-4

The Ordinance, Article 14-7

The Ordinance, Article 14-8

The Ordinance, Article 14-9

The Ordinance, Article 14-10

The Ordinance, Article 15

The Ordinance, Article 17

The Ordinance, Article 14-3

The Act, Article 22; The Ordinance, Article 21-2

The Ordinance, Article 32

Notification to Stipulate Detailed Technical Standards for Design Certification, etc.

Notification to Stipulate the Number of Hours etc. of Training Course

(n)

There are no stipulations obliging licensees to formulate an emergency response plan. However, the following provisions are in force.

Formulation of radiation hazards prevention program: The Act, Article 21; The Ordinance, Article 21.

Actions to be implemented in response to theft of a radiation source or accidents involving loss of a radiation source etc.: The Act, Article 32.

Actions to be implemented at the time of earthquakes, fires, or other disasters: The Act, Article 33; The Ordinance, Article 29.

(o)

Provisions for recovery of appropriate control of orphan sources:

No direct provisions exist at this point. However, the NRA encourages notification and the implementation of appropriate protective measures in “What to do if you find an uncontrolled radioactive material”, available on its website.

Provisions on emergency responses related to radiation, appropriate emergency response plans, and appropriate emergency measures:

There are no provisions obliging licensees to formulate an emergency response plan. However, the following provisions are in force.

Formulation of radiation hazards prevention program: The Act, Article 21; The Ordinance, Article 21.

Actions to be implemented in response to theft of a radiation source or accidents involving loss of a radiation source etc.: The Act, Article 32.

Actions to be implemented at the time of earthquakes, fires, or other disasters: The Act, Article 33; The Ordinance, Article 29.

Emergency Preparedness Action Plan of the Nuclear Regulation Authority

(p)

The NRA provides technical information on measures to be implemented on discovery of an orphan source and contact information on support organizations in “What to do if you find an uncontrolled radioactive material” available on its website.

The Source Tracking System stipulated in Article 39 of the Ordinance allows the registration and tracing of information on identification and possession, and of information on reception and transfer, etc., of radiation sources of category 1 and 2, and some radiation sources of category 3.

<ATTACHMENTS>

NRA's Core Values and Principles

Statement on Nuclear Safety Culture

JIS concerning radiation sources

Subsidiary Attachments

E02Management Policy(NRA's Core Values and Principles)

E04Statement on Nuclear Safety Culture

J04JIS concerning radiation sources

Question 1.41

Do the legislation and/or regulations specify measures to protect individuals, society and the environment from the deleterious effects of ionizing radiation from radioactive sources?

Answer

Yes

Finding

The legislation and/or regulations do specify measures to protect individuals, society and the environment from the deleterious effects of ionizing radiation from radioactive sources.

Response

.

<ATTACHMENTS>

The Ordinance, Articles 14-11 and 19

Amount of RI Notice, Article 14

Attachments

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Question 1.42

Do the legislation and/or regulations provide for administrative requirements relating to the authorization of the management of radioactive sources?

Answer

Yes

Finding

The legislation and/or regulations do provide for administrative requirements relating to the authorization of the management of radioactive sources.

Response

.

Question 1.43

Does State legislation and/or regulations provide for provisions for exemption from the administrative requirements referred to in CoC paragraph 19(c)?

Answer

Yes

Finding

State legislation and/or regulations makes provision for exemption from the administrative requirements referred to in CoC paragraph 19(d).

Response

.

Subsidiary Question 1.43.1

Identify or append the relevant legislation/regulation making provision for exemption from the administrative requirements referred to in CoC paragraph 19(c).

Subsidiary Response

Related legislations are attached.

<ATTACHMENTS>

The Act, Article 12-2

The Cabinet Order, Articles 1, 11 and 12

Amount of RI Notice

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Question 1.44

Does State legislation and/or regulations provide for administrative requirements relating to notifications to the regulatory body of actions involved in the management of radioactive sources that may engender a significant risk to individuals, society or the environment?

Answer

Yes

Finding

The State legislation and/or regulations provide for administrative requirements relating to notifications to the regulatory body of actions involved in the management of radioactive sources that may engender a significant risk to individuals, society or the environment.

Response

.

Subsidiary Question 1.44.1

Append or provide reference to the relevant legislation/regulation providing for administrative requirements relating to notifications to the regulatory body of actions involved in the management of radioactive sources that may engender a significant risk to individuals, society or the environment.

Subsidiary Response

It is prohibited under the Whistleblower Protection Act that authorized operators take an adverse treatment on workers due to reporting of operators' violation of the Act to the regulatory body.

Stipulations are given regarding reports of accidents such as missing radioactive sources (Article 32 of the Act) and measures to be taken in cases where radiation hazards and others may occur (Article 33 of the Act). Specific stipulations are also given regarding the conditions under which the report of an accident and others is necessary, with the report of its occurrence being required immediately, and reports of the relevant situation and measures taken being required within 10 days (Article 39 paragraph 1 of the Ordinance).

It is also stipulated that notification in advance be made of the temporary transfer of radioactive sources or devices for the purpose of nondestructive inspection, and others (Article 10 paragraph 6 of the Act).

<ATTACHMENTS>

Overview of the Whistleblower Protection Act

The Act, Article 10 paragraph 6, Articles 32 and 33

The Ordinance, Article 39 paragraph 1

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J12Overview of the Whistleblower Protection Act

Question 1.45

Does State legislation and/or regulations provide for managerial requirements relating to the establishment of adequate policies, procedures and measures for the control of radioactive sources?

Answer

Yes

Finding

The State legislation and/or regulations provide for managerial requirements relating to the establishment of adequate policies, procedures and measures for the control of radioactive sources.

Response

.

Subsidiary Question 1.45.1

Identify and provide a reference to the relevant legislation/regulation that provides for managerial requirements relating to the establishment of adequate policies, procedures and measures for the control of radioactive sources.

Subsidiary Response

Stipulations are given regarding the measures required for handling radiation sources, such as: necessary permissions or notification and its procedures (Chapter 2 of the Act and Chapter 2 of the Ordinance), obligations of authorized operators (Chapter 3 of the Act), technical standards for facilities (Chapter 2-3 of the Ordinance), technical standards for handling (Chapter 3 of the Ordinance), and obligation to perform radiation measurement (Chapter 4 of the Ordinance), and others.

<ATTACHMENTS>

The Act, Chapters 2 and 3

The Ordinance, Chapters 2, 2-3, 3 and 4

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.46

Does State legislation and/or regulations provide for requirements for security measures to deter, detect and delay the unauthorized access to, or the theft, loss or unauthorized use or removal of radioactive sources during all stages of management?

Answer

Yes

Finding

State legislation and/or regulations provides for requirements for security measures to deter, detect and delay the unauthorized access to, or the theft, loss or unauthorized use or removal of radioactive sources during all stages of management.

Response

Out of scope.

Subsidiary Question 1.46.1

Identify and provide reference to the relevant legislation/regulation that provides for requirements for security measures to deter, detect and delay the unauthorized access to, or the theft, loss or unauthorized use or removal of radioactive sources during all stages of management.

Subsidiary Response

Out of scope.

Question 1.47

Does State legislation and/or regulations provide for requirements relating to the verification of the safety and security of radioactive sources, through safety assessments?

Answer

Yes

Finding

State legislation and/or regulations provides for requirements relating to the verification of the safety and security of radioactive sources, through safety assessments.

Response

Subsidiary Question 1.47.1

Identify and provide reference to the relevant legislation/regulation that provides for requirements relating to the verification of the safety and security of radioactive sources, through safety assessments.

Subsidiary Response

Regarding the safety of radiation sources, conformity to technical standards (standards for permission of use (Article 6 of the Act and Articles 14-7, 14-9, and 14-11 of the Ordinance), standards for permission of waste management business (Article 7 of the Act and Articles 14-8, 14-10, and 14-11 of the Ordinance), conformity to technical standards for usage facilities and others (Articles 13 and 14 of the Act), and standards for Radiation Hazards Prevention Program (Article 21 of the Act and Article 21 of the Ordinance), and others are stipulated as requirements, and conformity to technical standards is reviewed during the process of authorization.

A licensee intending to install a storage facility for sealed radioactive sources of 10 TBq or more (specified permitted user) is obliged to a pass facility inspection prior to commencement of operation (Article 12-8 of the Act and Article 13 of the Cabinet Order). After the start of use, the NRA conducts on-site inspections for all licensees and registrants (Article 43-2 of the Act), and conducts periodic inspections (Article 12-9 of the Act) and periodic confirmation (Article 12-10 of the Act) for specified permitted users.

In addition, all authorized operators (excluding registered users of approved devices with certification label) are obliged to establish a Radiation Hazards Prevention Program, and it is stipulated that the NRA may issue the order of modification when necessary (Article 21 of the Act and Article 21 of the Ordinance).

<ATTACHMENTS>

The Act, Articles 6, 7, 12-8, 12-9, 12-10, 13, 14, 21 and 43-2

The Cabinet Order, Article 13

The Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11 and 21

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.48

Does State legislation and/or regulations provide for requirements relating to the verification of the safety and security of radioactive sources, through security assessments?

Answer

Yes

Finding

State legislation and/or regulations provides for requirements relating to the verification of the safety and security of radioactive sources, through security assessments.

Response

Out of scope.

Subsidiary Question 1.48.1

Identify and provide reference to the relevant legislation/regulation that provides for requirements relating to the verification of the safety and security of radioactive sources, through security assessments.

Subsidiary Response

Out of scope.

Question 1.49

Does State legislation and/or regulations provide for requirements relating to the verification of the safety and security of radioactive sources, through monitoring and verification of compliance?

Answer

Yes

Finding

State legislation and/or regulations provides for requirements relating to the verification of the safety and security of radioactive sources, through monitoring and verification of compliance.

Response

.

Subsidiary Question 1.49.1

Identify and provide a reference to the relevant legislation/regulation that provides for requirements relating to the verification of the safety and security of radioactive sources, through monitoring and verification of compliance.

Subsidiary Response

With regard to handling of radiation sources, record keeping (Article 25 of the Act) and annual reporting (Article 39 paragraph 6 of the Ordinance) are obligatory, and on-site inspection (Article 43-2 of the Act) is conducted to confirm the adequacy of management. Specified permitted users of particularly large radioactive sources or radiation generation apparatus are obliged to undergo periodic inspection (Article 12-9 of the Act) and periodic confirmation (Article 12-10 of the Act).

<ATTACHMENTS>

The Act, Articles 12-9, 12-10, 25 and 43-2

The Ordinance, Article 39 paragraph 6

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.50

Does State legislation and/or regulations provide for requirements relating to the verification of the safety and security of radioactive sources, through maintenance of records?

Answer

Yes

Finding

State legislation and/or regulations provides for requirements relating to the verification of the safety and security of radioactive sources, through maintenance of records.

Response

.

Subsidiary Question 1.50.1

Provide a reference to the relevant regulation that provides for requirements relating to the verification of the safety and security of radioactive sources, through maintenance of records.

Subsidiary Response

Related legislations are attached.

<ATTACHMENTS>

The Act, Article 25

The Ordinance, Article 39

For Enforcement of the Prime Minister's Office Ordinance on Partial Revisions of the NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes, etc., and Related Notifications (Notice) 2.(2)

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J15For Enforcement of the Prime Minister’s Office Ordinance on Partial Revisions of the NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc. and Related Notifications (Notice)

Question 1.51

Does State legislation and/or regulations provide for the capacity to take enforcement actions?

Answer

Yes

Finding

State legislation and/or regulations provides for the capacity to take enforcement actions

Response

.

Subsidiary Question 1.51.1

Provide a reference to the relevant legislation/regulation that provides for the capacity to take enforcement actions.

Subsidiary Response

Infringements are dealt with using penal regulations.

<ATTACHMENTS>

The Act, Chapter 7

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.52

Does the regulatory body have the authority to require those who intend to manage radioactive sources to seek an authorization, and to submit a security plan or assessment for the source and/or the facility in which the source is to be managed?

Answer

Yes

Finding

The regulatory body has the authority to require those who intend to manage radioactive sources to seek an authorization, and to submit a security plan or assessment for the source and/or the facility in which the source is to be managed.

Response

Out of scope.

Subsidiary Question 1.52.1

Provide a reference to the relevant legislation which assigns authority to the regulatory body to require those who intend to manage radioactive sources to seek an authorization, and to submit a security plan or assessment for the source and/or the facility in which the source is to be managed.

Subsidiary Response

Out of scope.

Question 1.53

Does the regulatory body have the authority to obtain all relevant information from an applicant for an authorization?

Answer

Yes

Finding

The regulatory body has the authority to obtain all relevant information from an applicant for an authorization.

Response

Subsidiary Question 1.53.1

Provide reference to the relevant legislation authorizing the regulatory body to obtain all relevant information from an applicant for an authorization.

Subsidiary Response

As described in evidence.

<ATTACHMENTS>

The Act, Articles 3, 3-2, 4, 4-2, 10, 11, 12-8, 12-9, 12-10, 21, 42 and 43-2

The Ordinance, Articles 2, 3, 6, 7, 9, 9-3, 10-2, 11, 21 and 39

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.54

Does the regulatory body have the authority to obtain any relevant and necessary information from a person with an authorization, in particular if that is warranted by revised safety or security assessments?

Answer

Yes

Finding

The regulatory body has the authority to obtain any relevant and necessary information from a person with an authorization, in particular if that is warranted by revised safety or security assessments.

Response

.

Subsidiary Question 1.54.1

Provide reference to the relevant legislation which authorizes the regulatory body to obtain any relevant and necessary information from a person with an authorization, in particular if that is warranted by revised safety or security assessments.

Subsidiary Response

As described in evidence.

<ATTACHMENTS>

Provisions quoted in SQID 53.1

The Act, Articles 10 and 11

The Ordinance, Articles 9 through 11

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.55

Does the regulatory body have the authority to monitor, or request other authorized bodies to monitor, at checkpoints for the purpose of detecting orphan sources?

Answer

Yes

Finding

The regulatory body has the authority to monitor, or request other authorized bodies to monitor, at checkpoints for the purpose of detecting orphan sources.

Response

.

Subsidiary Question 1.55.1

Provide reference to relevant legislation authorising the regulatory body to monitor, or request other authorized bodies to monitor, at checkpoints for the purpose of detecting orphan sources.

Subsidiary Response

Through the framework of closer cooperation regularly concerned personnel, the NRA can request other organizations to perform monitoring. As necessary, the NRA also dispatches its own staff for monitoring purposes.

In addition, radiation monitoring is conducted on containers at some ports and bays, etc. in accordance with guidelines provided by the Ministry of Land, Infrastructure, Transport and Tourism. Iron scrap companies also perform radiation monitoring on their own initiative in accordance with a manual prepared by an iron scrap association.

<ATTACHMENTS>

Guidelines for Radiation Measurement of Export Containers at Ports and Bays

Subsidiary Attachments

A14_Guidelines for Radiation Measurement in Export Containers at Ports and Bays

Question 1.56

Does the regulatory body have the authority to ensure that corrective actions are taken when a radioactive source is in an unsafe or non-secure condition?

Answer

Yes

Finding

The regulatory body has the authority to ensure that corrective actions are taken when a radioactive source is in an unsafe or non-secure condition.

Response

Subsidiary Question 1.56.1

Provide a reference to the relevant legislation authorizing the regulatory body to ensure that corrective actions are taken when a radioactive source is in an unsafe or non-secure condition.

Subsidiary Response

The Act makes it obligatory that facilities for the use, storage, or waste management of radiation sources shall conform to technical standards (Article 13 of the Act). If the NRA recognize that a facility does not conform to technical standards, it may issue an order to conform (Article 14 of the Act). If necessary in the case of an emergency, there is an obligation to implement emergency measures and report to Police or Coast Guard officers (Article 33 paragraphs 1 and 2 of the Act), and the NRA may issue an order for necessary measures for the prevention of radiation hazards to be implemented (Article 33 paragraph 4 of the Act). In such cases, the authorized operator is obliged to report the date, time, location and cause of occurrence of the emergency, together with situation status and emergency measures taken and others, to the NRA (Article 33 paragraph 3 of the Act, and Article 29 paragraph 3 of the Ordinance), and the NRA confirm the content of this information.

<ATTACHMENTS>

The Act, Articles 13, 14 and 33

The Ordinance, Article 29 paragraph 3

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.57

Does the regulatory body have the authority to liaise and co-ordinate with relevant non-governmental bodies in all areas relating to the safety and security of radioactive sources?

Answer

Yes

Finding

The regulatory body has the authority to liaise and co-ordinate with relevant non-governmental bodies in all areas relating to the safety and security of radioactive sources.

Response

Pursuant to the Act, the NRA designates registered certification bodies (Article 39 of the Act), registered inspection bodies (Article 41-15 of the Act), registered periodic confirmation bodies (Article 41-17 of the Act), registered transportation method confirmation bodies (Article 41-19 of the Act), registered freight confirmation bodies (Article 41-21 of the Act), registered concentration confirmation bodies (Article 41-25 of the Act), registered examination bodies (Article 41-27 of the Act), registered certification training bodies (Article 41-31 of the Act), and registered periodic training bodies (Article 41-35 of the Act) and maintains cooperation with these bodies (currently, the Nuclear Safety Technology Center bears the all these registered task).

The NRA also maintains cooperation with the Japan Radioisotope Association with respect to action for the investigation and recovery of orphan sources. The Association is also a registered certification training body (Article 41-31 of the Act), a registered periodic training body (Article 41-35 of the Act), and a licensee of radioactive waste management business (Articles 4-2 and 7 of the Act).

Other than the above, several organizations are designated as registered certification training bodies (Article 41-31 of the Act) or registered periodic training bodies (Article 41-35 of the Act).

In addition, the NRA has jurisdiction over the Japan Atomic Energy Agency and the National Institute of Radiological Sciences, and maintains close cooperation with these, mainly in the area of scientific and technical issues.

Subsidiary Question 1.57.1

Provide a reference to the relevant legislation authorizing the regulatory body have to liaise and co-ordinate with relevant non-governmental bodies in all areas relating to the safety and security of radioactive sources.

Subsidiary Response

Related regulations are attached.

<ATTACHMENTS>

The Act, Chapter 5 (Articles 39 through 41-40)

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.58

Does the regulatory body have the authority to establish criteria for intervention in emergency situations?

Answer

Yes

Finding

The regulatory body has the authority to establish criteria for intervention in emergency situations.

Response

.

Subsidiary Question 1.58.1

Provide a reference to the relevant legislation authorizing the regulatory body to establish criteria for intervention in emergency situations.

Subsidiary Response

Related regulations are attached.

<ATTACHMENTS>

The Act, Article 33 paragraphs 1 and 4

Act for Establishment of the NRA, Article 4 paragraph 1 item (5)

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Question 1.59

Does the regulatory body have the authority to ensure that radioactive sources are stored in facilities appropriate for the purpose of such storage?

Answer

Yes

Finding

The regulatory body has the authority to ensure that radioactive sources are stored in facilities appropriate for the purpose of such storage.

Response

.

Subsidiary Question 1.59.1

Provide a reference to the relevant legislation that authorizes the regulatory body to ensure that radioactive sources are stored in facilities appropriate for the purpose of such storage.

Subsidiary Response

The Act and its Ordinances stipulate the obligation for storage facilities to conform to technical standards at the authorization stage (Articles 6 and 13 of the Act). Authorized

operators are obliged to ensure that storage facilities conform (Article 13 of the Act) to technical standards (Article 14-9 of the Ordinance). The NRA has the authority to issue an order to conform (Article 14 of the Act) if it recognizes that a facility does not conform to technical standards. The technical standards to be satisfied for the storage practice of radioactive sources are also stipulated (Article 16 of the Act and Article 17 of the Ordinance).

<ATTACHMENTS>

The Act, Articles 6, 13, 14 and 16

The Ordinance, Articles 14-9 and 17

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.60

Does the regulatory body have the authority to ensure that, where disused sources are stored for extended periods of time, the facilities in which they are stored are fit for that purpose?

Answer

Yes

Finding

The regulatory body has the authority to ensure that, where disused sources are stored for extended periods of time, the facilities in which they are stored are fit for that purpose.

Response

Subsidiary Question 1.60.1

Provide reference to the relevant legislation which provides authority to the regulatory body to ensure that, where disused sources are stored for extended periods of time, the facilities in which they are stored are fit for that purpose.

Subsidiary Response

By requiring authorized operators to install storage facilities that conform to technical standards (Article 6 of the Act, and Article 14-9 of the Ordinance), the NRA makes it obligatory for managers of usage facilities to perform safe management, storage, and waste management of disused sources. In addition, with regard to storage for predisposal of radioactive sources in waste management facilities (Article 14-11 of the Ordinance), authorized operators are obliged to ensure that the facilities conform to technical standards (Article 13 of the Act), and the NRA has the authority to issue an order to conform (Article 14 of the Act) if it recognizes that a facility does not conform to technical standards.

<ATTACHMENTS>

The Act, Articles 6, 13 and 14

The Ordinance, Articles 14-9 and 14-11

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.61

Does the regulatory body ensure that arrangements are made for the safe management and secure protection of radioactive sources, including financial provisions where appropriate, once they have become disused?

Answer

Yes

Finding

The regulatory body ensures that arrangements are made for the safe management and secure protection of radioactive sources, including financial provisions where appropriate, once they have become disused.

Response

.

Subsidiary Question 1.61.1

Describe how the regulatory body ensures that arrangements are made for the safe management and secure protection of radioactive sources, including financial provisions where appropriate, once they have become disused.

Subsidiary Response

It is required that disused sources shall be stored in storage facilities conforming to the relevant technical standards (Article 14-9 of the Ordinance) in the same manner as during their period of use until their termination. For waste management of radioactive sources,

the standards that the waste management facilities shall conform to (Article 14-11 of the Ordinance) and those for waste management activities (Article 19 of the Act, and Article 19 of the Ordinance) are given.

The Radiation Hazards Prevention Act and its Ordinance stipulate the measures for safety control and management of radioactive sources as the authorized operators' obligation, therefore the provisioning of appropriate financial resources for disused radioactive sources is also attributed to the authorized operators' responsibility. There are, however, no clear provisions on appropriate financial resources in the Act and its Ordinances. In case where responsible operators are not identified, the NRA coordinates relevant ministries and agencies and other organizations so as to ensure the safety management, such as transfer and storage of disused radioactive sources.

<ATTACHMENTS>

The Act, Article 19

The Ordinance, Articles 14-9, 14-11 and 19

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.62

Does the regulatory body maintain records of persons with authorizations in respect of radioactive sources, with a clear indication of the type(s) of radioactive sources that they are authorized to use?

Answer

Yes

Finding

The regulatory body maintains records of persons with authorizations in respect of radioactive sources, with a clear indication of the type(s) of radioactive sources that they are authorized to use.

Response

Subsidiary Question 1.62.1

Describe the records kept by the regulatory body with respect to authorizations.

Subsidiary Response

Pursuant to the Act, it is required with regard to permission for use (Article 3 of the Act), registration for use (Article 3-2 of the Act), registration for sale or rental business (Article 4 of the Act), or permission for waste management business (Article 4-2 of the Act) of a radioisotope and others, that the information on the type, shape, and quantity of the relevant radioisotope shall be clearly described on the application form. On issuing permission or receiving notification, the NRA saves the original of the application and records the main information it contains, including information on the applicants and relevant radioactive sources.

For radioactive sources of Category 2 and higher, and some of Category 3, authorized operators are obliged to report the reception, transfer and others of the relevant radioactive source within 15 days (Article 39 paragraph 4 of the Ordinance), and information on the radioactive source is recorded and managed on the Source Tracking System.

All authorized operators (excluding registered users of approved devices with certification label) are obliged to periodically submit annual reports to the NRA on the radioactive sources under their management (Article 39 paragraph 3 of the Ordinance), and after confirming the contents, the NRA saves these reports.

<ATTACHMENTS>

The Act, Articles 3, 3-2, 4 and 4-2

The Ordinance, Article 39 paragraphs 3 and 4

Explanatory diagram of the Source Tracking System

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J18Source Tracking System

Question 1.63

Does the regulatory body maintain records of the transfer and disposal of radioactive sources on termination of authorizations?

Answer

Yes

Finding

The regulatory body maintains records of the transfer and disposal of radioactive sources on termination of authorizations.

Response

.

Subsidiary Question 1.63.1

Describe the records kept by the regulatory body with respect to transfers and disposals of the radioactive sources on termination of authorizations.

Subsidiary Response

With regard to rescission of permission and termination of use and others, authorized operators are obliged to notify the NRA of termination of use (Article 27 of the Act), to implement the measures stipulated in the Act and its Ordinances (Article 28 of the Act, and Article 26 of the Ordinance), such as assignment of transfer of radioisotopes, and others (Article 29 of the Act), and to report them to the NRA (Article 28 of the Act, and Article 39 paragraph 2 of the Ordinance). The NRA records the report from the authorized operators.

For radioactive sources of Category 2 and higher, and some of Category 3, authorized operators are obliged to submit a report on the waste management to the NRA within 15 days (Article 39 paragraph 4 of the Ordinance), of which the information is recorded on the Source Tracking System by the NRA.

In addition, the NRA may, in the time up till completion of decommissioning, request necessary reporting and conduct on-site inspection (Article 43-2 of the Act) in order to collect information.

<ATTACHMENTS>

The Act, Articles 27, 28, 29 and 43-2

The Ordinance, Article 26, and Article 39 paragraphs 2 and 4

Explanatory diagram of the Source Tracking System

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.64

Are records maintained by the regulatory body in accordance with General Principle 22(c) of the Code of Conduct?

Answer

Yes

Finding

Records maintained by the regulatory body are in accordance with General Principle 22(c) of the Code of Conduct.

Response

.

Subsidiary Question 1.64.1

How are these records secured against unauthorized access or alteration?

Subsidiary Response

The NRA stipulates standards for access to the Source Tracking System which stores all registered information on radioactive sources and implements necessary measures for information security.

<ATTACHMENTS>

The Ordinance, Article 39 paragraph 4

Explanatory diagram of the Source Tracking System

Subsidiary Attachments

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J18Source Tracking System

Subsidiary Question 1.64.2

Are back ups made of all records maintained by the regulatory body?

Subsidiary Response

Yes.

Question 1.65

Has the regulatory body established systems for ensuring that, where practicable, both radioactive sources and their containers are marked by users with an appropriate sign to warn members of the public of the radiation hazard, but where this is not practicable, at least the container is so marked?

Answer

Yes

Finding

The regulatory body has established systems for ensuring that both radioactive sources and their containers are marked by users with an appropriate sign to warn members of the public of the radiation hazard and where this is not practicable, that the container is so marked.

Response

Subsidiary Question 1.65.1

Describe how the regulatory body requires and verifies that sources and their containers are marked by users with an appropriate sign

Subsidiary Response

It is obligatory for each of the following items related to radioisotopes and others to be marked with signage: usage rooms, contamination inspection rooms, activated material storage equipment, and the boundaries of controlled areas in usage facilities (Article 14-7 paragraph 1 item (7) of the Ordinance); storage chambers or boxes, storage containers and the boundaries of controlled areas in storage facilities (Article 14-9 item (7) of the Ordinance); and ventilation equipment, discharge equipment, waste management workrooms, contamination inspection rooms, equipment for waste storage, containers for waste storage, and the boundaries of controlled areas in waste management facilities (Article 14-11 paragraph 1 item (10) of the Ordinance). Standards for design certification of approved devices with certification label also make it obligatory for the containers to be marked with a sign (Article 14-3 paragraph 2 items (3) and (5) of the Act).

With regard to transportation of radioisotopes, it is obligatory for consignments to be marked with signage (Article 18 paragraph 1 item (9), and Article 18-13 item (7) of the Ordinance, Article 6 of the RI On-Site Transportation Notice, and Article 24 of the RI Off-Site Transportation Notice).

Verification that the above signage have been marked are carried out through facility inspection (Article 12-8 of the Act), periodic inspection (Article 12-9 of the Act), on-site inspection (Article 43-2 of the Act), and confirmation for transportation (Article 18 of the Act, Article 16 of the Cabinet Order, and Articles 18-14 and 18-15 of the Ordinance).

<ATTACHMENTS>

The Act, Article 12-8, 12-9, 14-3, 18 and 43-2

The Cabinet Order, Article 16

The Ordinance, Articles 14-7, 14-9, 14-11 and 18 through 18-15

RI On-site Transportation Notice, Article 6

RI Off-site Transportation Notice, Article 24

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J06The Notification on Technical Details for On-Site Transportation of Radioisotopes etc.

J07The Notification on Technical Details for Off-Site Transportation of Radioisotopes, etc.

Question 1.66

Has the regulatory body established systems for ensuring that the areas where radioactive sources are managed are marked by users with appropriate signs to warn workers or members of the public, as applicable, of the radiation hazard?

Answer

Yes

Finding

The regulatory body has established systems for ensuring that the areas where radioactive sources are managed are marked by users with appropriate signs to warn workers or members of the public, as applicable, of the radiation hazard.

Response

.

Subsidiary Question 1.66.1

Describe how the regulatory body requires and verifies that the areas where radioactive sources are managed are marked by users with appropriate signs

Subsidiary Response

It is obligatory for areas where radioactive sources are managed to be posted with signs (Article 14-7 paragraph 1 item (7), Article 14-9 item (7), and Article 14-11 paragraph 1 item (10) of the Ordinance), and for precautions to be displayed (Article 15 paragraph 1 item (11), Article 17 paragraph 1 item (8), and Article 19 paragraph 3 item (3) of the Ordinance).

It is confirmed that the above signs and precautions have been posted/displayed are carried out through facility inspection (Article 12-8 of the Act), periodic inspection (Article 12-9 of the Act), and on-site inspection (Article 43-2 of the Act).

<ATTACHMENTS>

The Act, Articles 12-8, 12-9 and 43-2

The Ordinance, Articles 14-7, 14-9, 14-11, 15, 17 and 19

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.67

Has the regulatory body established systems for ensuring that radioactive sources are identifiable and traceable, or where this is not practicable, that alternative processes for identifying and tracing those sources are in place?

Answer

Yes

Finding

The regulatory body has established systems for ensuring that radioactive sources are identifiable and traceable, or where this is not practicable, that alternative processes for identifying and tracing those sources are in place.

Response

.

Subsidiary Question 1.67.1

Describe the system for ensuring that radioactive sources are identifiable and traceable, or where this is not practicable, that alternative processes for identifying and tracing those sources are in place.

Subsidiary Response

Users and others of radioactive sources of Category 2 or higher, and some sources of Category 3, are obliged to inform the NRA of necessary information via the Source Tracking System (Article 39 paragraph 4 of the Ordinance). In this manner, the NRA keeps track of information on the possession of radioactive sources. In addition, based on this registered information, the NRA confirms owners regarding the location of radioactive sources, as required.

<ATTACHMENTS>

The Ordinance, Article 39 paragraph 4

Explanatory diagram of the Radiation Source Tracking System

Subsidiary Attachments

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J18Source Tracking System

Question 1.68

Does the regulatory body ensure that persons with authorizations conduct inventory controls on a regular basis?

Answer

Yes

Finding

The regulatory body ensures that persons with authorizations conduct inventory controls on a regular basis.

Response

.

Subsidiary Question 1.68.1

Describe how the regulatory body requires and verifies that inventory controls are conducted on a regular basis

Subsidiary Response

For radioactive sources of Category 2 and higher, and some of Category 3, authorized operators are obliged to report the reception or transfer of a source within 15 days (Article 39 paragraph 4 of the Ordinance) to the NRA. The NRA confirms the corresponding information each time provided by an authorized operator via the Source Tracking System. In addition, all authorized operators are also obliged to record the transfer and waste management of all radioactive sources in an appropriate manner and report storage status annually to the NRA (Article 39 paragraphs 3 and 6 of the Ordinance), on which the NRA confirms the content of the information provided.

Confirmation that these obligations are being fulfilled and registration is implemented in an appropriate manner is carried out as required by checking actual data against the information on the Source Tracking System and in annual reports during periodic inspection (Article 12-10 of the Act, and Article 15 of the Cabinet Order) and on-site inspection (Article 43-2 of the Act).

<ATTACHMENTS>

The Act, Articles 12-10 and 43-2

The Cabinet Order, Article 15

The Ordinance, Article 39

Notification to Stipulate Sealed Radioisotopes that may have a Serious Influence on Human Health

Explanatory Diagram of the Source Tracking System

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J18Source Tracking System

J23Notification to Stipulate Sealed Radioisotopes that may have a Serious Influence on Human Health

Question 1.69

Does the regulatory body ensure that the regulatory principles and criteria remain adequate and valid and take into account, as applicable, operating experience and internationally endorsed standards and recommendations?

Answer

Yes

Finding

The regulatory body ensures that the regulatory principles and criteria remain adequate and valid and take into account, as applicable, operating experience and internationally endorsed standards and recommendations.

Response

.

Subsidiary Question 1.69.1

Describe how this is achieved

Subsidiary Response

The NRA makes continuous efforts to receive international assessment through the acceptance of reviews from the IRRS and TranSAS, and others. The NRA also constantly endeavors to obtain the latest scientific knowledge and information on international standards by commissioning special operators to dispatch personnel with expertise to the meetings of UNSCEAR, IAEA's RASSC, and OECD/NEA's CRPPH, and others, and obtaining their reports.

In addition, the NRA accumulates information regarding operating experience through communication with authorized operators at on-site inspection (Article 43-2 of the Act), periodic confirmation (Article 12-10 of the Act), and through periodic reports (Article 39 paragraph 3 of the Ordinance) or problem reports from all authorized operators (Article 29 paragraph 3 and Article 39 paragraph 1 of the Ordinance), and others.

However, currently, the NRA does not establish a mechanism sufficient to identify, collect, and evaluate new radiation protection findings in order to reflect such findings in the regulatory activities adequately.

<ATTACHMENTS>

The Act, Articles 12-10 and 43-2

The Ordinance, Articles 29 and 39

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.70

Does the regulatory body require the prompt reporting by authorized persons of loss of control over, and of incidents in connection with, radioactive sources?

Answer

Yes

Finding

The regulatory body requires the prompt reporting by authorized persons of loss of control over, and of incidents in connection with, radioactive sources.

Response

.

Subsidiary Question 1.70.1

Describe how the regulatory body ensures that authorized persons promptly report incidents and loss of control occurrences

Subsidiary Response

Authorized operators are obliged to contact police or Coast Guard officers and a fire station if radiation hazards may occur or actually have occurred due to an earthquake, fire and others disasters, and then to notify the NRA without delay (Article 33 of the Act, and Article 29 paragraph 3 of the Ordinance).

Authorized operators are also obliged to report immediately the occurrence of loss of management of radioisotopes mainly of the types listed below, and to report situation status and measures implemented within 10 days to the NRA (Article 39 paragraph 1 of the Ordinance).

** The theft of a radioisotope has occurred, or its whereabouts are unknown (Article 32 of the Act)*

** Leakage of a radioisotope and others has occurred from a controlled area, or the discharge out of the facility has occurred that exceeds concentration limits in the exhaust/drainage.*

** A radiation dose regarding the area exceeds or may exceed the predetermined limit*

** An exposure dose due to unplanned exposure exceeds or may exceed the stipulated dose*

<ATTACHMENTS>

The Act, Articles 32 and 33

The Ordinance, Articles 29 and 39

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.71

Does the regulatory body provide guidance on appropriate levels of information, instruction and training on the safety and security of radioactive sources and the devices or facilities in which they are housed, to manufacturers of radioactive sources?

Answer

Yes

Finding

The regulatory body provides guidance on appropriate levels of information, instruction and training on the safety and security of radioactive sources and the devices or facilities in which they are housed, to manufacturers of radioactive sources.

Response

.

Subsidiary Question 1.71.1

Describe how the regulatory body provides guidance on appropriate levels of information, instruction and training to manufacturers of radioactive sources

Subsidiary Response

Same as the answer to SQID 37.1.

With regard to the guidelines on handling radioactive sources, the NRA supports short courses on radiation safety management held by industrial associations, and the Secretariat of the NRA regularly sends lecturers to give relevant lectures.

Subsidiary Question 1.71.2

Append or provide references to documents on the guidance provided on appropriate levels of information, instruction and training to manufacturers of radioactive sources

Subsidiary Response

Related documents are attached.

<ATTACHMENTS>

JIS Z4821-1(Sealed Radioactive Sources - General Requirements and Classification),

JIS Z4560 (Industrial gamma-ray Apparatus for Radiography),

JIS Z4620 (Particular requirements for the safety of remote-controlled afterloading therapy equipment)

The Act, Articles 12-3, 12-4, 15, 16 and 19

The Ordinance, Articles 14-3, 14-7 through 14-10, 15, 17, 21-2 and 32

Notification to Stipulate Detailed Technical Standards for Design Certification, and others

Notification to Stipulate the Number of Hours, and others of Training Course

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J04JIS concerning radiation sources

J13Notification to stipulate the number of hours of training courses

J17Notification to Stipulate Detailed Technical Standards for Design Certification etc.

Question 1.72

Does the regulatory body provide guidance to radioactive source suppliers on appropriate levels of information, instruction and training on the safety and security of the sources and devices or facilities in which they are housed?

Answer

Yes

Finding

The regulatory body provides guidance to radioactive source suppliers on appropriate levels of information, instruction and training on the safety and security of the sources and devices or facilities in which they are housed.

Response

.

Subsidiary Question 1.72.1

Describe how the regulatory body provides guidance to radioactive source suppliers on appropriate levels of information, instruction and training on the safety and security of the sources and devices or facilities in which they are housed

Subsidiary Response

Same as the answer to SQID 71.1.

Subsidiary Question 1.72.2

Append or provide references to documents on the guidance provided to radioactive source suppliers on appropriate levels of information, instruction and training on the safety and security of the sources and devices or facilities in which they are housed

Subsidiary Response

Same as the answer to SQID 71.2.

Question 1.73

Does the regulatory body provide guidance to users of radioactive sources on appropriate levels of information, instruction and training on the safety and security of radioactive sources and the devices or facilities in which they are housed?

Answer

Yes

Finding

The regulatory body provides guidance to users of radioactive sources on appropriate levels of information, instruction and training on the safety and security of radioactive sources and the devices or facilities in which they are housed

Response

.

Subsidiary Question 1.73.1

Describe how the regulatory body provides guidance on appropriate levels of information, instruction and training to users of radioactive sources

Subsidiary Response

Same as the answer to SQID 71.1.

Subsidiary Question 1.73.2

Append or provide references to documentation on the guidance to users of radioactive sources on appropriate levels of information, instruction and training on the safety and security of radioactive sources and the devices or facilities in which they are housed

Subsidiary Response

Same as the answer to SQID 71.2.

Question 1.74

Does the regulatory body require authorized persons to prepare emergency plans?

Answer

Yes

Finding

The regulatory body requires authorized persons to prepare emergency plans.

Response

Subsidiary Question 1.74.1

Describe how the regulatory body specifies the requirements for and the scope and depth of these emergency plans

Subsidiary Response

It is obligatory for authorized operators (excluding registered users of approved devices with certification label) to establish "measures in the event of an earthquake, fire, or other disaster" and "measures in the event of a hazard" in their Radiation Hazards Prevention Program (Article 21 of the Act, and Article 21 of the Ordinance).

Actions stipulated as those to be implemented in the event of a fire (Article 29 paragraph 1 of the Ordinance) include the following: making efforts to extinguish the fire or prevent its spread, and notifying a fire station; when necessary, issuing a warning to evacuate to persons within or near the facilities; rescuing persons who have suffered or may have suffered radiation hazards; implementing emergency measures for evaluation and others; performing prompt measures to prevent the spread of and remove contamination, and others, in cases where contamination has occurred by a radioisotope and others; if relocation of the radioisotope and others is possible, indicating the relevant location and imposing restrictions on entry using signage and others; and taking other necessary measures to prevent radiation hazards.

It is also stipulated that the exposure doses of workers engaged in emergency work shall be minimized as far as possible (Article 29 paragraph 2 of the Ordinance), and others.

<ATTACHMENTS>

The Act, Articles 21, 32 and 33

The Ordinance, Articles 21, and Article 29 paragraphs 1 and 2

Subsidiary Attachments

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 1.75

Is the regulatory body prepared, or has established provisions to recover and restore control over orphan sources?

Answer

Yes

Finding

The regulatory body is prepared and has established provisions to recover and restore control over orphan sources.

Response

.

Subsidiary Question 1.75.1

Describe the system in place for the recovery and restoration of control of orphan sources and indicate by whom this is done

Subsidiary Response

If an orphan source is discovered, the NRA will request the manager of the site or facility where the source found to place the source under safe conditions, and will give instructions for the purpose of achieving this. As required, officials will be dispatched from the NRA or one of its cooperating organizations to confirm that appropriate action has been performed. The discovered orphan source will be managed under valid permission by its owner, or after undergoing measures implemented by the NRA, will be collected by an operator authorized to use, store and to manage wastes of radioactive sources (the Japan Radioisotope Association, and others) and placed under appropriate management.

Subsidiary Question 1.75.2

Describe how preparations and provisions to recover and restore control over orphan sources are documented

Subsidiary Response

Actions to be implemented when an orphan source is discovered are also described in "What to Do If You Find an Uncontrolled Radioactive Material".

<ATTACHMENTS>

"What to Do If You Find an Uncontrolled Radioactive Material"

Subsidiary Attachments

J05What to Do If You Find an Uncontrolled Radioactive Material

Question 1.76

Is the regulatory body prepared, or has established provisions, to deal with radiological emergencies?

Answer

Yes

Finding

The regulatory body is prepared and has provisions to deal with radiological emergencies.

Response

.

Subsidiary Question 1.76.1

Describe preparations and provisions made by the regulatory body to deal with radiological emergencies

Subsidiary Response

The NRA EPR Plan stipulates, within the scope of affairs under the Jurisdiction of the NRA, the establishment of a framework necessary for emergency preparedness, together with measures to be implemented for disaster prevention, emergency response/recovery from disaster, post-disaster reconstruction and other emergency preparedness measures.

Subsidiary Question 1.76.2

Describe how these preparations and provisions are documented

Subsidiary Response

They are documented as internal regulations of the NRA, and are available to the public.

<ATTACHMENTS>

The NRA EPR Plan

Subsidiary Attachments

C11 NRA EPR Plan

Question 1.77

Has the regulatory body established emergency response plans and measures?

Answer

Yes

Finding

The regulatory body has established emergency response plans and measures.

Response

Subsidiary Question 1.77.1

Describe the radiological emergency response plans and measures currently in place

Subsidiary Response

It is stipulated that the NRA shall receive a report if an authorized operator handling radiation sources is subject to a disaster such as a fire or earthquake (Article 33 paragraph 3 of the Act), or loss/leakage of a radioactive source or an exposure accident (Article 39 paragraph 1 of the Ordinance).

If the NRA receives such a report, it takes relevant action such as dispatching officials, and others, in cooperation with relevant organizations, based on the NRA EPR Plan.

<ATTACHMENTS>

The Act, Article 33 paragraph 3

The Ordinance, Article 39 paragraph 1

The NRA EPR Plan

Subsidiary Attachments

C11 NRA EPR Plan

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.77.2

Describe how these plans and measures are documented

Subsidiary Response

The NRA EPR Plan is documented as internal regulations of the NRA, and is available to the public.

Question 1.78

With respect to orphan sources that may have originated within the State, is the regulatory body prepared to assist in obtaining technical information relating to their safe and secure management?

Answer

Yes

Finding

With respect to orphan sources that may have originated within the State, the regulatory body will assist in obtaining technical information relating to their safe and secure management.

Response

.

Subsidiary Question 1.78.1

Describe how (and append, or make reference to, relevant documents) the regulatory body will assist in obtaining technical information relating to the safe and secure management of orphan sources

Subsidiary Response

Measures to be taken when an orphan source is discovered are defined in NRA guidance in the form of general rules published on the Internet, these actions including keeping yourself and others away from the source as much as possible, shortening work time, and putting radiation shielding in place. When the NRA receives a report concerning an orphan source, it may also provide the finder or an appropriate personnel with more specific technical advice.

Information on the identification and possession, and on the reception, transfer and others of radioactive sources of Category 2 or higher and some sources of the Category 3 is registered in the Source Tracking System, enabling such sources to be traced.

The owner of a radioactive source can also be identified from the unique source numbers assigned to radioactive sources distributed within Japan.

<ATTACHMENTS>

"What to Do If You Find an Uncontrolled Radioactive Material"

The Ordinance, Article 39

Explanatory diagram of the Source Tracking System

Subsidiary Attachments

J05What to Do If You Find an Uncontrolled Radioactive Material

J18Source Tracking System

Question 1.79

Does the State/regulatory body take steps to ensure that transfers of radioactive sources in the import and export process are undertaken in a manner consistent with the provisions of the Code of Conduct?

Answer

Yes

Finding

The State/regulatory body involved in the import or export of radioactive sources takes steps to ensure that transfers are undertaken in a manner consistent with the provisions of the Code of Conduct.

Response

.

Subsidiary Question 1.79.1

Describe the steps taken by the State/regulatory body to ensure that transfers are undertaken in a manner consistent with the provisions of the Code of Conduct.

Subsidiary Response

Export of radioactive sources of 300 GBq or more (or 100 to 300 GBq for particular applications) is only permitted to persons who have been granted a certificate of export confirmation by the NRA and an approval of the Minister of Economy, Trade and Industry. Granting of the certificate (an application for consent of the importing country, this being required in the Code of Conduct) and notification prior to shipment are implemented in accordance with the IAEA Guidance on the Import and Export of Radioactive Sources.

Persons who intend to import a radioactive source shall submit to customs a copy of a certificate of permission or registration to use radioactive sources in Japan, and import is only allowed when this certificate has been confirmed.

Subsidiary Question 1.79.2

Append or provide references to documentation setting out measures to ensure that transfers are undertaken in a manner consistent with the provisions of the Code of Conduct

Subsidiary Response

The following related regulations are attached.

**Chart illustrating export and import*

(Rules related to export)

**Export Trade Control Order, Article 2 (Export Approval) and appended Table 2*

**Notification of the Ministry of Economy, Trade and Industry No. 334*

**For Export Approval of Radioisotopes (Considerations for Export 17 No. 34, 2005)*

**Procedures for Issue of Verification Certificate for Export of Radioisotopes (Nuclear Safety, Science and Technology Agency, No. 124, 2005)*

(Rules related to import)

**Import Trade Control Order, Article 3 (Publication of Matters concerning Import) paragraph 1, and Article 4 (Import Approval) paragraphs 1 and 2*

**Public Announcement on the Items of Goods Subject to Import Quotas, Places of Origin or Places of Shipment of Goods Requiring Approval for Import, and Other Necessary Matters concerning Import of Goods (Notification of Ministry of International Trade and Industry No. 170)*

**Handling of Permit of Use and Documents to Prove Registration of Use, Selling or Rental Business concerning Import of Radioisotopes (Considerations for Import 12 No. 177)*

(Legal basis)

**Foreign Exchange and Foreign Trade Act, Article 48 paragraph 3 and Article 52*

Subsidiary Attachments

A02Public Announcement on the Items of Goods Subject to Import Quotas the Places of Origin or Places of Shipment of Goods Requiring Approval for Import and Other Necessary Matters concerning Import of Goods

A12_ For Export Approval of Radioisotopes

A15_ Handling of Permit of Use and Documents to Prove Registration of Use Selling or Rental Business concerning Import of Radioisotopes

A18_ Notification of the Ministry of Economy Trade and Industry No. 334

A22Procedures for Issue of Verification Certificate for Export of Radioisotopes

H05Export Trade Control Order

H06Foreign Exchange and Foreign Trade Act

H09Import Trade Control Order

J24Import procedure of radioactive sources

Question 1.80

Does the State/regulatory body take steps to ensure that transfers of radioactive sources in Categories 1 and 2 of Annex 1 of the Code of Conduct take place only with the prior notification of the exporting State and, as appropriate, consent by the importing State in accordance with their respective laws and regulations?

Answer

Yes

Finding

The State/regulatory body involved in the import or export of radioactive sources ensures that transfers of radioactive sources in Categories 1 and 2 of Annex 1 of the Code of Conduct take place only with the prior notification of the exporting State and, as appropriate, consent by the importing State in accordance with their respective laws and regulations.

Response

.

Subsidiary Question 1.80.1

Describe the steps taken by the State/regulatory body to ensure that transfers of radioactive sources in Categories 1 and 2 of Annex 1 of the Code of Conduct take place only with the prior notification of the exporting State and, as appropriate, consent by the importing State in accordance with their respective laws and regulations.

Subsidiary Response

For export of radioactive sources of 300 GBq or more (or 100 to 300 GBq for particular applications), business operators in Japan are required to obtain a certificate of export confirmation from the NRA. Issuing of certificate requires fulfillment of the following conditions.

** The consent or confirmation of the importing country is obtained.*

** The recipient of the radioisotope in the importing country to which the application relates is a party that is authorized to receive and possess that radioisotope under the laws of that country.*

** Appropriate regulation of radioisotopes is implemented in the importing country to which the recipient of the radioisotope relating to the application belongs.*

During the process of issuing the certificate to the person intending to export, the NRA makes an application for consent of the importing country in accordance with the IAEA Guidance on the Import and Export of Radioactive Sources, and then provides notification prior to shipment.

Business operators intending to import radioactive sources of Category 1 or 2 shall fulfill the following criteria, confirmation of which is performed at customs.

** The recipient of the radioisotope to which the application relates is a person who has, in accordance with the Japanese law, obtained permission for possession of radioisotopes (including registration of use, selling and rental business, the same applies hereafter) from the NRA.*

When application for approval has been made by an exporting country in accordance with the IAEA Guidance on the Import and Export of Radioactive Sources (for radioactive sources of Category 1), the NRA gives approval after confirming that the recipient is a person who has obtained permission from the NRA for possession of radioactive sources. The NRA also confirms the situation regarding permission in the same manner when it receives notification prior to shipment from the exporting country.

Subsidiary Question 1.80.2

Append or provide references to documentation setting out measures to ensure that transfers of radioactive sources in Categories 1 and 2 of Annex 1 of the Code of Conduct take place only with the prior notification of the exporting State and, as appropriate, consent by the importing State in accordance with their respective laws and regulations

Subsidiary Response

Refer to the attached documents for SQID 79.2.

Question 1.81

Does the State/regulatory body consent to the import of radioactive sources in Categories 1 and 2 of Annex 1 to the Code only if the recipient is authorized to receive and possess the source under its national law and the State has the technical and administrative capability, resources and regulatory structure needed to ensure that the source will be managed in a manner consistent with the provisions of this Code?

Answer

Yes

Finding

The State/regulatory body consents to the import of radioactive sources in Categories 1 and 2 of Annex 1 to the Code only where the recipient is authorized to receive and possess the source under its national law and the State has the technical and administrative capability, resources and regulatory structure needed to ensure the source will be managed in a manner consistent with the provisions of the Code

Response

.

Subsidiary Question 1.81.1

Describe the provisions for reviewing proposed imports of sources and granting consent.

Subsidiary Response

Persons who intend to import a radioactive source from outside Japan are required to submit the following documents to customs.

(1) Persons who have obtained permission to use radioisotopes shall submit a copy of the permit

(2) Persons who have submitted for registration of use, selling or rental business of radioisotopes, shall submit a certificate showing the fact that a notification has been implemented.

When an application for approval has been made by an exporting country in accordance with the IAEA Guidance on the Import and Export of Radioactive Sources, the NRA gives approval after confirming the situation regarding acquisition of permission, or registration, and others. The NRA also confirms the situation regarding acquisition of permission, or registration, and others, when it receives notification prior to shipment from the exporting country.

Subsidiary Question 1.81.2

Append or provide references to documentation setting out the processes for reviewing proposed imports of sources and granting consent

Subsidiary Response

Refer to the description, "Rules related to import" in the answer to SQID 79.2.

Question 1.82

Does the State/regulatory body authorize the export of radioactive sources in Categories 1 and 2 of Annex 1 to the Code of Conduct only if it can satisfy itself, insofar as is practicable, that the receiving State has authorized the recipient to receive and possess the source and has the technical and administrative capability, resources and regulatory structure needed to ensure that the source will be managed in a manner consistent with the provisions of this Code?

Answer

Yes

Finding

The State/regulatory body authorizes the export of radioactive sources in Categories 1 and 2 of Annex 1 to the Code of Conduct only if it can satisfy itself, insofar as is practicable, that the receiving State has authorized the recipient to receive and possess the source and has the technical and administrative capability, resources and regulatory structure needed to ensure that the source will be managed in a manner consistent with the provisions of the Code of Conduct.

Response

Subsidiary Question 1.82.1

Describe the provisions for reviewing proposed exports.

Subsidiary Response

Persons who intend to export are required to obtain a certificate for export confirmation from the NRA, granting of which depends on fulfillment of the following criteria.

- * The consent or confirmation of the importing country has been obtained.*
- * The recipient of the radioisotope to which the application is related is a party who is authorized to receive and possess that radioisotope under the laws of the country to which the said recipient belongs.*
- * Appropriate regulation of radioisotopes is implemented in the country to which the radioisotope recipient related to the application belongs.*

Subsidiary Question 1.82.2

Append or provide references to documentation setting out the processes for reviewing proposed exports of sources and granting consent.

Subsidiary Response

Refer to "Procedure for Issue of Verification Certificate for Export of Radioisotopes" cited in the answer to SQID 79.2.

Question 1.83

Does the State/regulatory body have a process wherein, if the conditions in paragraphs 24 and 25 of the Code of Conduct with respect to a particular import or export cannot be satisfied, import or export may be authorized in exceptional circumstances with the consent of the importing State if an alternative arrangement has been made to ensure the source will be managed in a safe and secure manner?

Answer

No

Finding

The State/regulatory body has no process wherein, if the conditions in paragraphs 24 and 25 of the Code of Conduct with respect to a particular import or export cannot be satisfied, import or export may be authorized in exceptional circumstances with the consent of the importing State if an alternative arrangement has been made to ensure the source will be managed in a safe and secure manner.

Response

If the conditions in paragraphs 24 and 25 of the Code of Conduct cannot be satisfied with respect to a the particular import or export, the NRA will not approve such an import or export.

Subsidiary Question 1.83.2

Describe any initiated actions or plans by the State/regulatory body towards establishing processes wherein, if the conditions in paragraphs 24 and 25 of the Code of Conduct with respect to a particular import or export cannot be satisfied, import or export may be authorized in exceptional circumstances with the consent of the importing State if an alternative arrangement has been made to ensure the source will be managed in a safe and secure manner.

Subsidiary Response

Fulfillment of the conditions in paragraphs 24 and 25 of the Code of Conduct is compulsory for import and export. No problems have occurred as a result of enforcement, and the NRA does not intend to establish provisions for exemption.

Question 1.84

Does the State/regulatory body allow for re-entry into its territory of disused radioactive sources if, in the framework of its national law, it has accepted that they be returned to a manufacturer authorized to manage the disused sources?

Answer

Yes

Finding

The State/regulatory body allows for re-entry into its territory of disused radioactive sources if, in the framework of its national law, it has accepted that they be returned to a manufacturer authorized to manage the disused sources.

Response

.

Subsidiary Question 1.84.1

Describe how the process for re-entry of disused sources is implemented.

Subsidiary Response

With regard to not only disused radioactive sources but all radioactive sources, when an application for consent of export has been made (for a radioactive source of Category 1) by an exporting country in accordance with the IAEA Guidance on the Import and Export of Radioactive Sources, the NRA gives approval after confirming the situation regarding permission (including registration of use, selling or rental business) granted to the domestic operator who intends to import. The NRA also confirms the situation regarding acquisition of permission when it receives notification prior to shipment from the exporting country.

Subsidiary Question 1.84.2

Append or provide references to documentation setting out the processes whereby the State/regulatory body allows for re-entry into its territory of disused radioactive sources

Subsidiary Response

Refer to the description, "Rules related to import" in the answer to SQID 79.2.

Question 1.85

Does the State/regulatory body take steps to ensure that such import or export is conducted in a manner consistent with existing relevant international standards relating to the transport of radioactive materials?

Answer

Yes

Finding

The State/regulatory body authorizing the import or export of a radioactive source ensures that such import or export is conducted in a manner consistent with existing relevant international standards relating to the transport of radioactive materials.

Response

.

Subsidiary Question 1.85.1

Describe in detail how is insured and provide information about relevant regulatory requirements and provisions for ensuring the import or export of a radioactive source is conducted in a manner consistent with existing relevant international standards relating to the transport of radioactive materials.

Subsidiary Response

In Japan, import and export of radioactive sources are conducted in a manner consistent with existing relevant international standards such as the IAEA Regulations for the Safe Transport of Radioactive Material (SS R-6), as evidenced by consideration of the following: 1. restrictions on the amount of radioactive material and its concentration; 2. requirements for transportation; 3. classification, standards and signage of transport containers and packages; 4. testing methods for transport containers and others; 5. requirements for approval procedures and others for import and export; 6. emergency measures and others

Whenever international rules are revised, these revisions are incorporated into Japan's domestic laws, thereby maintaining consistency with the international standards.

Question 1.86

Does the State/regulatory body take steps to ensure that transport of radioactive sources through the territory of a transit or transshipment state will be conducted in a manner consistent with existing relevant international standards relating to the transport of

radioactive materials, in particular paying careful attention to maintain continuity of control during international transport?

Answer

Yes

Finding

The State/regulatory body ensures that transport of radioactive sources through the territory of a transit or transshipment state is conducted in a manner consistent with existing relevant international standards relating to the transport of radioactive materials, in particular paying careful attention to maintain continuity of control during international transport.

Response

.

Subsidiary Question 1.86.1

Describe the steps taken to ensure that transport of radioactive sources through the territory of a transit or transshipment state will be conducted in a manner consistent with existing relevant international standards relating to the transport of radioactive materials, in particular paying careful attention to maintain continuity of control during international transport.

Subsidiary Response

When importing or exporting radioactive sources via a transit state, confirmation as to whether that state has declared support for the Guidance on the Import and Export of

Radioactive Sources is carried out as part of the procedure implemented with an importing or exporting operator.

In Japan, the persons who intend to import or export radioactive sources are confined to those who have been authorized by the State as licensee or registrant. When importing or exporting radioactive sources, the authorized operators ensures secure transport by confirming that all of the transit and trans-shipment states involved in land transport satisfy the international standards for the transport of radioactive sources (i.e., those states that have ratified IAEA SS R-6), and others. If such confirmation is not possible, under the agreement between the authorized operator and the consignee, relevant measures are taken such as changing the delivery port or airport to that in a state where confirmation is possible.

Regardless of whether there is a transit state, import or export of radioactive sources is generally carried out by port or airport delivery.

Subsidiary Question 1.86.2

Append or provide references to documents that describe the standards and controls applied to the shipment of radioactive sources through the territory of transit and transshipment State

Subsidiary Response

"Procedure for Issue of Verification Certificate for Export of Radioisotopes" is attached.

Question 1.87

Has the State/regulatory body informed persons involved in the management of radioactive sources, such as industry, health professionals, and government bodies, and the public, of the measures it has taken to implement the Code of Conduct and taken steps to disseminate that information?

Answer

Yes

Finding

The State/regulatory body has informed persons involved in the management of radioactive sources, such as industry, health professionals, and government bodies, and the public, of the measures it has taken to implement the Code of Conduct and taken steps to disseminate that information.

Response

.

Subsidiary Question 1.87.1

Describe the activities taken to inform relevant persons, bodies and the public about the measures taken to implement the Code of Conduct

Subsidiary Response

With regard to revision of legislation for the incorporation of the Code of Conduct into domestic laws (the most recent being regulations on the import and export of radioactive sources in December 2005, and the framework of the Source Tracking System introduced in October 2009), the NRA sends brief overviews of the revised laws to authorized operators and provides information on the overview at lecture meetings held by related academic societies and industrial associations, and others.

The NRA also calls attention to relevant issues by disclosing trouble cases, and provides widespread general access to information on implementation of the Code of Conduct by publishing status and explanations, and others, regarding revisions to legislation on its website.

Subsidiary Question 1.87.2

Append or provide references to documents that describe information programmes

Subsidiary Response

As described in evidence.

<ATTACHMENTS>

OUTCOMES OF THE SELF-ASSESSMENT FOR OCCUPATIONAL RADIATION PROTECTION

Module: Legal Regulatory Framework

Findings

Question 1.1

Has a legislative and regulatory framework been established to provide for Occupational Radiation Protection?

Answer

Yes

Finding

A legislative and regulatory framework has been established to provide for Occupational Radiation Protection.

Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

In Japan, the competent authorities vary depending on the type of facilities. The NRA regulates facilities and activities licensed under the Reactor Regulation Act or Radiation Hazards Prevention Act.

Pursuant to laws and ordinances related to the Reactor Regulation Act and the Radiation Hazards Prevention Act, the licensees and registrants (hereinafter referred to as "authorized operators") shall ensure that radiation worker dose does not exceed the dose limit prescribed by the NRA and that the concentration of radioactive material in the air inhaled by radiation workers does not exceed the limit prescribed by the NRA.

For emergency work, the management and exposure limit, etc. of radiation workers (including cases of emergency) are stipulated in the Commercial Reactors Dose Limit Notice, etc.

Subsidiary Question 1.1.1

Has the government established a programme for managing, controlling and recording the doses received in an emergency by emergency workers, which shall be implemented by response organizations and employers?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

For emergency work, the management and exposure limit, etc. of radiation workers (including cases of emergency) are stipulated in the Commercial Reactors Dose Limit Notice, etc.

Pursuant to the Guide for Emergency Preparedness and Response under the Nuclear Emergency Act, the licensee shall distribute a sufficient number of direct-reading personal radiation dosimeters as part of the measures to protect persons engaging in disaster prevention work.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

The management and exposure limit, etc. of radiation workers (including cases of emergency) are stipulated in the Radiation Hazards Prevention Ordinance and the Notification to Specify the Amounts of Radioisotopes (hereinafter referred to as the "Amount of RI Notice").

Subsidiary Question 1.1.2

Please describe and attach (as appropriate) the relevant legislation and regulatory framework.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Dose Limit Notice, Article 6 to Article 8

Fuel Fabrication Dose Limit Notice, Article 6 to Article 8

Research Reactors Dose Limit Notice, Article 6 to Article 8

Guide for Nuclear Emergency Preparedness and Response

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20, 33, and 42

Radiation Hazards Prevention Ordinance, Articles 20, 29, and 39

Amount of RI Notice, Article 22

Subsidiary Attachments

C03NRA EPR Guide

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Question 1.2

Do the regulations specify dose limits for the occupational exposure of any worker?

Answer

Yes

Finding

The regulations specify dose limits for the occupational exposure of any worker.

Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

The NRA specifies the radiation worker dose limit and dose limit for emergency work in the Commercial Reactors Dose Limit Notice and the Amount of RI Notice, etc.

Subsidiary Question 1.2.1

Please indicate and attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Dose Limit Notice, Article 6 and 8

Fuel Fabrication Dose Limit Notice, Article 6 and 8

Research Reactors Dose Limit Notice, Article 6 and 8

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Amount of RI Notice, Articles 4, 5, 6, 10, and 22

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Subsidiary Question 1.2.2

Do the regulations specify dose limits consistent with the requirements of the Safety Standards Series No. GSR Part 3 (Interim)?

Subsidiary Response

Yes.

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

The same limit as in the requirements of the Safety Standards Series No. GSR Part 3 (Interim), except for an equivalent dose to the lens of the eye. (50 mSv/year in GSR, and 150 mSv/year in Japan).

For dose limit to the lens of the eye, IAEA Safety Standard in 2014 describe as "An equivalent dose to the lens of the eye of 20 mSv per year averaged over 5 consecutive years (100 mSv in 5 years) and of 50 mSv in any single year" (GSR Part 3 Schedule III). On the other hand, the dose limit to the lens of the eye stipulated in the domestic Acts is still 150 mSv per year which is concordant with IAEA Basic Safety Standards issued in 1996, therefore it is necessary to work on this problem in accordance with new knowledge.

Subsidiary Question 1.2.3

Do the regulations require that no person under the age of 16 years shall be subjected to occupational exposure?

Subsidiary Response

[Regulations for employers under the Labor Standards Act]

Yes.

Pursuant to Article 62 of the Labor Standards Act, the employer shall not allow persons under 18 years of age to engage in work in places where harmful radiation is generated.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Pursuant to the Radiation Hazards Prevention Act, persons under 18 years of age shall not handle radioisotopes, radioactive contaminants or radiation generating apparatus.

[attachments]

(Reference)

[Regulations for employers under the Labor Standards Act]

Labor Standards Act, Article 62

Rules for Labor Standards for Minors, Article 8

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Subsidiary Attachments

A07The Regulations on Labor Standards for Minors

H14Labor Standards Act

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.2.4

Do the regulations specify dose limits for exposure of apprentices of 16 to 18 years of age who are being trained for employment involving radiation and for exposure of students of age 16 to 18 who use sources in the course of their studies?

Subsidiary Response

[Regulations for employers under the Labor Standards Act]

Yes.

Pursuant to Article 62 of the Labor Standards Act, the employer shall not allow persons under 18 years of age to engage in work in places where harmful radiation is generated.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Pursuant to the Radiation Hazards Prevention Act, persons under 18 years of age shall not handle radioisotopes, radioactive pollutants or radiation generating apparatus.

[Attachments]

(Reference)

[Regulations for employers under the Labor Standards Act]

Labor Standards Act, Article 62

Rules for Labor Standards for Minors, Article 8

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 31 paragraph 1, and paragraph 2

Subsidiary Attachments

A07The Regulations on Labor Standards for Minors

H14Labor Standards Act

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 1.2.5

Do the regulations provide guidance for limitation of exposures of workers in emergency situations?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Yes.

The NRA specifies the dose limit in cases of emergency in the following notices.

Commercial Reactors Dose Limit Notice, Article 8

Fuel Fabrication Dose Limit Notice, Article 8

Research Reactors Dose Limit Notice, Article 8

Amount of RI Notice, Article 22

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Question 1.3

Does the regulatory framework require the regulatory body, before authorization of a new or modified practice, to require, as appropriate, and review supporting documents from the responsible parties that state: (a) design criteria and design features relating to the exposure and potential exposure of workers in all anticipated operational states and conditions; (b) design criteria and design features of the appropriate systems and programmes for individual monitoring of workers for occupational exposure in all anticipated operational states and conditions?

Answer

Yes

Finding

The regulatory framework require the regulatory body, before authorization of a new or modified practice, to require, as appropriate, and review supporting documents from the responsible parties that state: (a) design criteria and design features relating to the exposure and potential exposure of workers in all anticipated operational states and conditions; (b) design criteria and design features of the appropriate systems and programmes for individual monitoring of workers for occupational exposure in all anticipated operational states and conditions.

Response

[Regulations for licensees under the Reactor Regulation Act]

Pursuant to the NRA ordinances for each type of facilities and activities, the licensee shall take measures to ensure that radiation worker dose and the concentration of radioactive material in the air does not exceed the limit prescribed by the NRA. Specifically, the licensee shall provide a radiation management facility for the protection of radiation workers. At the design stage of the facility, the licensee shall conform to the technical standards for ventilation facilities and biological shielding in places where measures are required to prevent radiation hazards from external radiation.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

As with the licensee under the Reactor Regulation Act, the authorized operator under the Radiation Hazards Prevention Act shall take measures to ensure that radiation worker dose and the concentration of radioactive material in the air does not exceed the limit prescribed by the NRA. The authorized operator shall conform to the technical standards specified under the Radiation Hazards Prevention Act in order to prevent radiation hazards.

Subsidiary Question 1.3.1

Please describe and attach (as appropriate) the relevant legislation and regulatory framework.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 79

Fuel Fabrication Ordinance, Article 7-3

Research Reactors Ordinance, Article 8

Research Power Reactors Ordinance, Article 74

Spent Fuel Storage Ordinance, Article 30

Reprocessing Ordinance, Article 10

Category 1 Waste Disposal Ordinance, Article 54

Category 2 Waste Disposal Ordinance, Article 15

Waste Storage Ordinance, Article 28

Nuclear Fuel Materials Use Ordinance, Article 2-5, item(v), Article 3, item (iv) and (xii)

Commercial Reactor Establishment Permit Ordinance, Article 30

Commercial Reactor Technical Standards Ordinance, Article 42 and 43

Fuel Fabrication Permit Ordinance, Article 18

Fuel Fabrication Design Construction Ordinance, Article 8 and 9

Research Reactors Establishment Permit Ordinance, Article 25

Research Power Reactors Establishment Permit Ordinance, Article 30

Research Power Reactors Technical Standards Ordinances, Article 41 and 42

Spent Fuel Storage Permit Ordinance, Article 4 and 19

Spent Fuel Storage Design Construction Ordinance, Article 9 and 9-2

Reprocessing Permit Ordinance, Article 23

Reprocessing Design Construction Ordinance, Article 8 and 9

Category 2 Waste Disposal Permit Ordinance, Article 8 and 11

Waste Storage Permit Ordinance, Article 2 and 16

Waste Storage Design Construction Ordinance, Article 7 and 8

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 10, and 21

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-9, 14-11, 15, 17, 19, and 21

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G05The NRA Ordinance on Technical Standards for the Design and Construction Methods of Spent Fuel Interim Storage Facilities

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

G16The NRA Ordinance on Technical Standards for the Design and Construction Methods for Specific Waste Disposal Facility or Specific Waste Interim Storage and Treatment Facility

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

K10The NRA Ordinance on Technical Standards for the Design and Construction Methods of Fuel Fabrication Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

M13The NRA Ordinance on Technical Standards for Power Reactor Facilities at the Research and Development Stage

M14The NRA Ordinance on Standards for the Location, Structure, and Equipment of Power Reactors Facilities at the Research and Development Stage

Question 1.4

Does the regulatory framework require the regulatory body to establish and enforce requirements for the monitoring and recording of occupational exposures in planned exposure situations?

Answer

Yes

Finding

The regulatory framework require the regulatory body to establish and enforce requirements for the monitoring and recording of occupational exposures in planned exposure situations.

Response

-

Subsidiary Question 1.4.1

Please describe and attach (as appropriate) the relevant legislation and regulatory framework.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Pursuant to the NRA ordinances for each type of facilities and activities, the licensee shall record radiation worker dose and report it to the NRA once a year.

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v) (d), Article 136

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii) (c), Article 10

Research Reactors Ordinance, Article 6, paragraph (1), item (iv) (d), Article 18

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v) (d), Article 131

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (iii) (d), Article 48

Reprocessing Ordinance, Article 8, paragraph (1), item (ii) (f), Article 21

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (iii) (e), Article 91

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ii) (d), Article 27

Waste Storage Ordinance, Article 26, paragraph (1), item (ii) (d), Article 40

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii) (d), Article 7

Radiation Hazards Prevention Act, Articles 20, and 42

Radiation Hazards Prevention Ordinance, Articles 20, and 39

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 1.5

Has the regulatory body established and enforced requirements for the protection of workers in existing exposure situations?

Answer

No

Finding

The regulatory body has not established and enforced requirements for the protection of workers in existing exposure situations.

Response

-

Subsidiary Question 1.5.2

Are there any plans to establish and enforce requirements for protection of workers in existing exposure situations such exposure due to radon and exposure of aircrew due to cosmic radiation?

Subsidiary Response

There is no facility regulated by the NRA that is subject to radiation exposure. (Regulations for the facilities affected by the accident at Fukushima Dai-ichi NPS are beyond the scope of this review.)

Question 1.6

Has the regulatory body established a strategy for protection against Rn-222 in workplaces?

Answer

No

Finding

The regulatory body has not established a strategy for protection against Rn-222 in workplaces

Response

-

Subsidiary Question 1.6.8

Are plans in place for the establishment of a strategy for protection against Rn-220 in workplaces or what is the basis for deciding that such a strategy is not necessary?

Subsidiary Response

According to the "Report on Activities of the Special Research Group for Radon Protective Standards related to Criteria for Radiation Protection against Radon Exposure(October 2012, Japan Health Physics Society)," the national average for the concentration of indoor radon in Japan is 15.5 Bq/m³. The reference level for the radon concentration in the IAEA Basic Safety Standard is 300 Bq/m³. Compared to this, the concentration of indoor radon in Japan is extremely low.

Question 1.7

Has the regulatory body or other relevant authority determined that the assessment of the exposure of aircrew is warranted?

Answer

No

Finding

The regulatory body or other relevant authority has not determined that the assessment of the exposure of aircrew is warranted.

Response

However, The MEXT made a guideline for radiation protection of aircrews to cosmic radiation in 2006, and it has transferred to the NRA.

Subsidiary Question 1.7.11

What is the basis for deciding that assessment of the exposure of aircrew due to cosmic radiation is not warranted?

Subsidiary Response

Owing to the guideline for radiation protection of aircrews to cosmic radiation, there has not been further examined for warranting.

Question 1.8

Has a framework been established for radiation protection of individuals in space-based activities?

Answer

No

Finding

A framework has not been established for radiation protection of individuals in space-based activities

Response

The NRA has not ever made some guidelines for radiation protection of individuals in space-based activities.

Subsidiary Question 1.8.2

Describe any plans to establish a framework for radiation protection of individuals in space-based activities

Subsidiary Response

Currently, there is no plan to stipulate a formulation for radiation protection in space-based activities.

Module: General Responsibilities of Registrants, Licensees and Employers

Findings

Question 2.1

Do the regulations assign to registrants, licensees and employers of workers the responsibilities for the protection of workers from occupational exposure in activities involving occupational exposures, and for the compliance with the requirements of the regulations?

Answer

Yes

Finding

The regulations assign to registrants, licensees and employers of workers the responsibilities for the protection of workers from occupational exposure in activities involving occupational exposures, and for the compliance with the requirements of the regulations

Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

The Reactor Regulation Act defines necessary regulations required to ensure public safety, aiming to contribute to protecting people's lives health, and property, etc. Radiation Hazards Prevention Act regulates the handling of radioisotopes, etc. in order to prevent hazards from radiation caused by the radioisotopes, and ensure public safety. In addition, Industrial Safety and Health Act and Health requires employers to establish standards for hazard prevention, etc. with a view to preventing industrial accidents, aiming to ensure the safety and health of workers in workplace and to facilitate the establishment of comfortable working environment.

The NRA ordinances for each type of facilities and activities define measures to be taken by licensees, such as measures regarding restriction of entry into controlled areas, and those relating to doses, etc. In addition, with regard to the operational safety program, the NRA requires that, based on a safety culture, the performance of operational safety activities based on appropriate quality assurance activities for the prevention of disasters caused by

reactors be defined as basic policy, in accordance with the ALARA principle indicated by the ICRP.

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Chapter 1: General (Basic Rules for Radiation Hazard Prevention), Article 1 stipulates that employers must endeavor to minimize their employees' exposure to ionizing radiation.

[Attachment]

[Regulations for licensees under the Reactor Regulation Act]

the Commercial Reactors Operational Safety Program Standards , Article 92, paragraph (1), item (xxviii)

Fuel Fabrication Operational Safety Program Standard , Article 8, paragraph (1), item (xxiii)

Research Reactors Operational Safety Program Standard , Article 15, paragraph (1), item (xix)

Research Power Reactors Operational Safety Program Standards , Article 87, paragraph (1), item (xxviii)

Spent Fuel Storage Operational Safety Program Standards , Article 37, paragraph (1), item (xxi)

Reprocessing Operational Safety Program Standards , Article 17, paragraph (1), item (xxvi)

Category 2 Waste Disposal Operational Safety Program Standards , Article 20, paragraph (1), item (xx)

Waste Storage Operational Safety Program Standards , Article 34, paragraph (1), item (xx)

Nuclear Fuel Materials Use Operational Safety Program Standards , Article 2-12, paragraph (1), item (xv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 1

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Article 1

Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G08The Standard Review Plan on Approval of Operational Safety Program of Spent Fuel Interim Storage Facilities

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.1

Please describe and attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Articles 78 and 79

Fuel Fabrication Ordinance, Articles 7-2-9 and 7-3

Research Reactors Ordinance, Articles 7 and 8

Research Power Reactors Ordinance, Articles 73 and 74

Spent Fuel Storage Ordinance, Articles 29 and 30

Reprocessing Ordinance, Articles 9 and 10

Category 1 Waste Disposal Ordinance, Articles 53 and 54

Category 2 Waste Disposal Ordinance, Articles 14 and 15

Waste Storage Ordinance, Articles 27 and 28

Nuclear Fuel Materials Use Ordinance, Article 3

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, 16, 19, and 20

Radiation Hazards Prevention Ordinance, Articles 15, 17, 19, and 20

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.2

Do the regulations define the responsibilities of registrants, licensees and employers of workers for the protection of workers from occupational exposure in activities involving occupational exposures, and for the compliance with the requirements of the regulations?

Answer

Yes

Finding

The regulations define the responsibilities of registrants, licensees and employers of workers for the protection of workers from occupational exposure in activities involving occupational exposures, and for the compliance with the requirements of the regulations.

Response

-

Subsidiary Question 2.2.1

Please describe and attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Articles 78 and 79

Fuel Fabrication Ordinance, Articles 7-2-9 and 7-3

Research Reactors Ordinance, Articles 7 and 8

*Research Power Reactors Ordinance, Articles 73 and 74 Spent Fuel Storage Ordinance,
Articles 29 and 30*

Reprocessing Ordinance, Articles 9 and 10

Category 1 Waste Disposal Ordinance, Articles 53 and 54

Category 2 Waste Disposal Ordinance, Articles 14 and 15

Waste Storage Ordinance, Articles 27 and 28

Nuclear Fuel Materials Use Ordinance, Article 3

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, 16, 19, and 20

Radiation Hazards Prevention Ordinance, Articles 15, 17, 19, and 20

Subsidiary Attachments

F07 The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01 The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02 The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.3

Do the regulations require employers, registrants and licensees to ensure that occupational exposure is controlled so that the relevant dose limits for occupational exposure specified in the regulations are not exceeded?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that occupational exposure is controlled so that the relevant dose limits for occupational exposure specified in the regulations are not exceeded.

Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

The NRA defines dose limits and their measurement in controlled areas, etc. in the Dose Limit Notices.

[Regulations for employers]

For employers, Ordinance on Prevention of Ionizing Radiation Hazards, Chapter 2 defines controlled areas, and dose limits and their measurement.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Dose Limit Notice, Article 2, 6, and 10

Fuel Fabrication Dose Limit Notice, Article 2, 6, and 10

Research Reactors Dose Limit Notice, Article 2, 6, 7 and 10

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Amount of RI Notice, Articles 4 through 10, and 22

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Chapter 2

Attachments

F03 Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04 Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05 Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

H19 Ordinance on Prevention of Ionizing Radiation Hazards

J16 Notification to Specify Standards for the Amount, etc. of Radioisotopes

Subsidiary Question 2.3.1

Do the regulations require response organizations and employers to ensure that emergency workers who undertake actions in which the doses received might exceed 50 mSv do so voluntarily; that they have been clearly and comprehensively informed in advance of the associated health risks, as well as of available protective measures; and that they are, to the extent possible, trained in the actions that they may be required to take?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes. The NRA amended the each type of facilities and activities that define radiation worker designated to perform emergency work as persons who, after receiving the necessary education, have indicated their willingness to perform emergency work in writing, and who have undergone training regarding emergency work. The amendment will come into force in Apr. 2016.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Licensees and registrants (hereinafter referred to as "authorized operators") under the Radiation Hazards Prevention Act are obliged to provide for radiation workers comprehensive information and training regarding health risks and safe handling of radiation in the education and training provided for in Article 21-2 of the Act. In addition, the Notification to specify standards for the amounts of radioisotopes (hereinafter referred to as the "Amount of RI Notice"), Article 22 prescribes dose limits in cases where emergency work is performed in accordance with the emergency measures stipulated in the Radiation Hazards Prevention Act, Article 33 and the NRA Ordinance for Enforcement of the same Act, Article 29.

(Reference)

[Regulations for employers]

The Ordinance for prevention of ionizing radiation hazards, Article 52-6 and 52-7 requires employers to provide special education regarding work that involves handling nuclear fuel materials etc. in fuel and reactor facilities, regardless of the dose of exposure.

[Attachiments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92

Fuel Fabrication Ordinance, Article 8

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87

Spent Fuel Storage Ordinance, Article 37

Reprocessing Ordinance, Article 17

Category 1 Waste Disposal Ordinance, Article 63

Category 2 Waste Disposal Ordinance, Article 20

Waste Storage Ordinance, Article 34

Nuclear Fuel Materials Use Ordinance, Article 2-12

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 22, and 33

Radiation Hazards Prevention Ordinance, Articles 21-2, and 29

Notification to stipulate the Number of Hours of Education and Training

Amount of RI Notice, Article 22

(Reference)

[Regulations for employers]

Ordinance for prevention of ionizing radiation hazards, Articles 52-6 and -7

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J11Notification to stipulate the number of hours for education and training

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 2.3.2

Do the regulations require employers, registrants and licensees to ensure that workers exposed to radiation from sources within a practice that are not required by or directly related to their work have the same level of protection against such exposure as members of the public?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The licensees are obliged to establish controlled areas, operations areas, and surrounding monitored areas and define regulations regarding restrictions on entry into those areas, etc. in the operational safety program for the nuclear facility, based on the NRA ordinances for each type of facilities and activities.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

The Radiation Hazards Prevention Act obliges authorized operators to provide education and training to radiation workers, and to establish and clearly indicate controlled areas in order that, apart from necessary personnel, entry into those areas is restricted. In addition, the Act obliges operators to define regulations necessary for preventing radiation hazards, such as those regarding facility maintenance and management, in the Radiation Hazards Prevention Programs.

Subsidiary Question 2.3.3

Please indicate/attach (as appropriate) the relevant references and the applicable dose limits.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Articles 92

Fuel Fabrication Ordinance, Articles 8

Research Reactors Ordinance, Articles 15

Research Power Reactors Ordinance, Articles 87

Spent Fuel Storage Ordinance, Articles 37

Reprocessing Ordinance, Articles 9 and 17

Category 1 Waste Disposal Ordinance, Articles 63

Category 2 Waste Disposal Ordinance, Articles 20

Waste Storage Ordinance, Articles 34

Nuclear Fuel Materials Use Ordinance, Article 2-12

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazard Prevention Act, Articles 21, and 22

Radiation Hazard Prevention Ordinance, Article 21, 21-2, Article 1 item 1, Article 14-7 items (3), (4), (5), (8), and (9), Article 14-9 items (6), and (7), Article 14-11 paragraph 1 items (4), (5), (9), and (10), and paragraph 3 items (4), and (5)

Amount of RI Notice, Articles 1, 4 through 10, and 14

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.4

Do the regulations require employers, registrants and licensees to ensure that occupational protection and safety is optimized to ensure that exposure be kept as low as reasonably achievable?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that occupational protection and safety is optimized to ensure that exposure be kept as low as reasonably achievable.

Response

-

Subsidiary Question 2.4.1

Do the regulations require employers, registrants and licensees to: (a) Involve workers, through their representatives where appropriate, in optimization of protection and safety; (b) Establish and use, as appropriate, constraints as part of optimization of protection and safety?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

(a) Yes.

The Reactor Regulation Act obliges licensees to define operational safety program and to ensure that they and their employees comply with that program.

The operational safety program shall define a system (including the involvement of executive officers) for the development of a safety culture based on the NRA ordinances for each type of facilities and activities. In addition, when the NRA reviews this operational safety program, it will be confirmed that the program defines, as basic policy, the performance—based on a safety culture—of operational safety activities based on appropriate quality assurance activities for the prevention of disasters caused by reactors, in accordance with the ALARA principle indicated by the ICRP.

The Radiation Hazards Prevention Act obliges authorized operators to specify the Radiation Hazards Prevention Programs and carry out safe operation based on the Programs in order to prevent radiation Hazards from occurring.

In addition, in accordance with the spirit of ALARA indicated by the ICRP, the Act also obliges authorized operators to take measures to avoid unnecessary exposure associated with relevant actions (use and storage), so as to ensure that optimal protection is provided.

(b) No.

Discussions held in the Radiation Council up till 2011 concluded that "In a situation in which dose management policies for radiation workers enable strict compliance with the dose limit by keeping the exposure of the said workers below that limit, uniform incorporation of a

dose constraint into the system would become an obstacle to the flexible and optimum operation of the management policies currently implemented by individual facilities, and it is therefore not necessary for a dose constraint to be incorporated into the domestic system in addition to the dose limit." (according to Radiation Council Report dated January 2011).

Subsidiary Question 2.4.2

Please indicate/attach (as appropriate) the relevant references to the regulations (law, requirements and standards).

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

(b)

Commercial Reactors Ordinance, Article 92, paragraph (1), item (ii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (ii)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (ii)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (ii)

Reprocessing Ordinance, Article 17, paragraph (1), item (ii)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (ii)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (ii)

Waste Storage Ordinance, Article 34, paragraph (1), item (ii)

Commercial Reactors Operational Safety Program Standards , Article 92, paragraph (1), item (xxviii)

Fuel Fabrication Operational Safety Program Standard , Article 8, paragraph (1), item (xxiii)

Research Power Reactors Technical Safety Program Standards , Article 87, paragraph (1), item (xxviii)

Spent Fuel Storage Safety Program Standards , Article 37, paragraph (1), item (xxi)

Reprocessing Operational Safety Program Standards , Article 17, paragraph (1), item (xxvi)

Category 2 Waste Disposal Safety Program Standards , Article 20, paragraph (1), item (xx)

Waste Storage Operational Safety Program Standards , Article 34, paragraph (1), item (xx)

Nuclear Fuel Materials Use Operational Safety Program Standards , Article 2-12, paragraph (1), item (xv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 15, 17, and 21

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G08The Standard Review Plan on Approval of Operational Safety Program of Spent Fuel Interim Storage Facilities

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

M08 The Standard Review Plan on Approval of Operational Safety Program of Power Reactor Facilities at the Research and Development Stage

Question 2.5

Do the regulations require employers, registrants and licensees to ensure that decisions regarding measures for occupational protection and safety are recorded?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that decisions regarding measures for occupational protection and safety are recorded.

Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The NRA ordinances for each type of facilities and activities require licensees to define regulations regarding doses, dose equivalent, decontamination, etc. in an operational safety program. When approving the operational safety program, the NRA confirms that

"measures are defined to ensure that the dose of radiation workers does not exceed the dose limit."

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

In order to prevent radiation hazards,

Radiation Hazards Prevention Act, its Cabinet Order, Ordinance and related Notifications (hereinafter, referred to as "the Radiation Hazards Prevention Act and its Ordinances") oblige authorized operators to establish the Radiation Hazards Prevention Programs and notify them to the NRA. In addition, the Act and its Ordinances oblige authorized operators to record and store data required to prevent radiation hazards, such as records of measurements of the environment and workers in facilities in which radiation sources are handled.

Subsidiary Question 2.5.1

Are these recorded decisions available to relevant parties, through their representatives where appropriate, in a manner specified by the regulatory body?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The Reactor Regulation Act stipulates that operational safety programs must be approved by the NRA. When the NRA reviews the program, relevant details—other than non-disclosure information—are released on the NRA web site and the reviews are made public, thereby guaranteeing that the substantive aspects of NRA's decisions are disclosed.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

The Radiation Hazard Prevention Act and its Ordinances oblige authorized operators to notify Radiation Hazards Prevention Programs to the NRA, and to provide radiation workers with education and training regarding safe handling of radiation sources and the Programs, in order to ensure that information on occupational protection and safety measures is thoroughly conveyed to the relevant parties.

In addition, the Acts oblige licensees to report radiation control status, and radioisotope inventory status and increase/decrease, etc. to the NRA once a year.

Subsidiary Question 2.5.2

Are these records required to be shared with the regulatory body?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The Reactor Regulation Act stipulates that operational safety programs must be approved by the NRA.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

As described in SQID5.1, records are shared with the NRA.

Subsidiary Question 2.5.3

Please indicate/attach (as appropriate) the relevant references to the regulations (law, requirements and standards).

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 22, 37(1), 43-3-24, 43-20, 50, 51-18, 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xiv)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (ix)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (x)

Reprocessing Ordinance, Article 17, paragraph (1), item (xi)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (x)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (x)

Waste Storage Ordinance, Article 34, paragraph (1), item (x)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (v)

Commercial Reactors Operational Safety Program Standards , Article 92, paragraph (1), item (xiv)

Fuel Fabrication Operational Safety Program Standard , Article 8, paragraph (1), item (viv)

Research Reactors Operational Safety Program Standard

Research Power Reactors Operational Safety Program Standards

Spent Fuel Storage Operational Safety Program Standards , Article 37, paragraph (1), item (x)

Reprocessing Operational Safety Program Standards , Article 17, paragraph (1), item (xi)

Category 2 Waste Disposal Operational Safety Program Standards , Article 20, paragraph (1), item (x)

Waste Storage Operational Safety Program Standards , Article 34, paragraph (1), item (x)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20, 21, and 22

Radiation Hazards Prevention Ordinance, Articles 20, 21, 21-2, and 39

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G08The Standard Review Plan on Approval of Operational Safety Program of Spent Fuel Interim Storage Facilities

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M08 The Standard Review Plan on Approval of Operational Safety Program of Power Reactor Facilities at the Research and Development Stage

Question 2.6

Do the regulations require employers, registrants and licensees to ensure that policies, procedures and organizational arrangements for protection and safety be established for implementing the relevant regulatory requirements ?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that policies, procedures and organizational arrangements for protection and safety be established for implementing the relevant regulatory requirements.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require licensees to define regulations regarding doses, dose equivalent, decontamination, etc. in an operational safety program. When approving the operational safety program, the NRA confirms that "measures are defined to ensure that the dose of radiation workers does not exceed the dose limit."

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act obliges authorized operators to provide information regarding the facility and its radiation control on the application or notification form submitted to the NRA when starting or changing a facility or operations, and to establish and notify the Radiation Hazards Prevention Programs. When reviewing the application or notification form, the NRA confirms that the facility complies with technical standards before issuing permission or registration.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 22, 37, 43-3-24, 43-20, 50, 51-18, 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xiv)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (ix)

Research Reactors Ordinance, Article 15, paragraph (1), item (viii)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (xiv)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (x)

Reprocessing Ordinance, Article 17, paragraph (1), item (xi)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (x)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (x)

Waste Storage Ordinance, Article 34, paragraph (1), item (x)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (v)

Commercial Reactors Operational Safety Program Standards, Article 92, paragraph (1), item (xiv)

Fuel Fabrication Operational Safety Program Standard, Article 8, paragraph (1), item (ix)

Research Reactors Operational Safety Program Standard, Article 15, paragraph (1), item (viii)

Research Power Reactors Operational Safety Program Standards, Article 87, paragraph (1), item (xiv)

Spent Fuel Storage Operational Safety Program Standards, Article 37, paragraph (1), item (x)

Reprocessing Operational Safety Program Standards, Article 17, paragraph (1), item (xi)

Category 2 Waste Disposal Operational Safety Program Standards, Article 20, paragraph (1), item (x)

Waste Storage Operational Safety Program Standards, Article 34, paragraph (1), item (x)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 3, 4-2, 6, 7, 20, and 21

Radiation Hazards Prevention Ordinance, Articles 2, 7, 20, 21, Article 1 item (1), Article 14-7 items (3), (4), (5), (8), and (9), and Article 14-9 items (6), and (7), Article 14-11 paragraph items (4), (5), (9), and (10), and paragraph 3 (4), and (5)

Amount of RI notice, Articles 1, 4 through 10, and 14

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G08The Standard Review Plan on Approval of Operational Safety Program of Spent Fuel Interim Storage Facilities

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

M08 The Standard Review Plan on Approval of Operational Safety Program of Power Reactor Facilities at the Research and Development Stage

Subsidiary Question 2.6.1

Is priority given to implementing design and technical measures for controlling occupational exposures?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The exposure limit for radiation workers is defined in the Commercial Reactors Dose Limit Notice, etc.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

As with authorized operators under the Reactor Regulation Act, the provisions in Ordinance on Prevention of Ionizing Radiation Hazards also apply to authorized operators under the Radiation Hazard Prevention Act. Furthermore, the definition of exposure dose limits is based on the Radiation Hazard Prevention Act and its Ordinances.

(Reference)

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Article 1 defines that employers must endeavor to minimize the exposure of their employees to ionizing radiation.

Subsidiary Question 2.6.2

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Dose Limit Notice, Article 6

Fuel Fabrication Dose Limit Notice, Article 6

Research Reactors Dose Limit Notice, Article 6

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20, and 42

Radiation Hazards Prevention Ordinance, Articles 15, 17, 19, 20, and 39

Amount of RI Notice, Articles 5, 6, 10, and 22

(Reference)

[Regulations for employers]

Ordinance for prevention of ionizing radiation hazards, Article 1

Subsidiary Attachments

F03 Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04 Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05 Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

H19 Ordinance on Prevention of Ionizing Radiation Hazards

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 2.7

Do the regulations require employers, registrants and licensees to ensure that suitable and adequate facilities, equipment and services for protection and safety are provided, the nature and extent of which are commensurate with the expected magnitude and likelihood of the occupational exposure?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that suitable and adequate facilities, equipment and services for protection and safety are provided, the nature and extent of which are commensurate with the expected magnitude and likelihood of the occupational exposure.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require licensees to define controlled areas, operations areas, and surrounding monitored areas, and take radiation protection measures appropriate to each.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Authorized operators under the Radiation Hazards Prevention Act are required to establish controlled areas and take necessary radiation protection measures.

Subsidiary Question 2.7.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 78

Fuel Fabrication Ordinance, Article 7-2-9

Research Reactors Ordinance, Article 7

Research Power Reactors Ordinance, Article 73

Spent Fuel Storage Ordinance, Article 29

Reprocessing Ordinance, Article 9

Category 1 Waste Disposal Ordinance, Article 53

Category 2 Waste Disposal Ordinance, Article 14

Waste Storage Ordinance, Article 27

Nuclear Fuel Materials Use Ordinance, Article 3

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20, 21, and 34

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-8, 14-9, 14-10, 14-11, 20, 21, and 30

Amount of RI Notice, Articles 4 through 10

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.8

Do the regulations require employers, registrants and licensees to ensure that the necessary health surveillance and health services are provided?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that the necessary health surveillance and health services are provided.

Response

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

For authorized operators, regulations are defined regarding health examinations for persons who have entered controlled areas and measures to be taken for persons who have or may have suffered radiation hazards.

[Regulations for employers]

The Ordinance for prevention of ionizing radiation hazards obliges employers to offer health checkups and (if an accident etc. occurs) assessments by a physician to employees who are engaged in operations involving radioactivity on a regular basis and enter controlled areas.

Subsidiary Question 2.8.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 23, and 24

Radiation Hazards Prevention Ordinance, Articles 22, and 23

[Regulations for employers]

Ordinance for prevention of ionizing radiation hazards, Articles 44 and 56

Subsidiary Attachments

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 2.9

Do the regulations require employers, registrants and licensees to ensure that appropriate monitoring equipment and personal protective equipment are provided and arrangements are made for its proper use, calibration, testing and maintenance?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that appropriate monitoring equipment and personal protective equipment are provided and arrangements are made for its proper use, calibration, testing and maintenance.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require licensees to define regulations regarding the management of radiation meters in the operational safety program.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act obliges authorized operators to measure radiation doses, contamination status, and personal exposure at specified locations within relevant facilities. The Act also makes wearing of suitable work wear and using protective equipment in workrooms.

[Regulations for employers]

Employers are obliged to provide radiation dosimeters and personal protective equipment, and to ensure that this personal protective equipment is used by their workers. This regulation falls under the jurisdiction of the Ministry of Health, Labour and Welfare, based on the Ordinance for prevention of ionizing radiation hazards.

Subsidiary Question 2.9.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Calibration and testing, etc.:

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xv)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (x)

Research Reactors Ordinance, Article 15, paragraph (1), item (ix)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (xv)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (xi)

Reprocessing Ordinance, Article 17, paragraph (1), item (xii)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (xi)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (xii)

Waste Storage Ordinance, Article 34, paragraph (1), item (xi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (vii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20

[Regulations for employers]

Provision and use of radiation dosimeters and personal protective equipment: Ordinance for Prevention of Ionizing Radiation Hazards, Articles 38 to 41 and 60

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.10

Do the regulations require employers, registrants and licensees to ensure that suitable and adequate human resources and appropriate training in protection and safety are provided, as well as periodic training and updating as required in order to ensure the necessary level of competence?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that suitable and adequate human resources and appropriate training in protection and safety are provided,

as well as periodic training and updating as required in order to ensure the necessary level of competence.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities oblige licensees to define in the operational safety program and implement a system (including the involvement of executive officers) ensuring compliance with the operational safety program and its related Acts, and corresponding safety education for personnel who operate and manage nuclear facilities.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act obliges authorized operators to disseminate the Radiation Hazards Prevention Programs, and provide education and training necessary for preventing hazards.

Subsidiary Question 2.10.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), items (i) and (viii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 15, paragraph (1), item (ii)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 22

Radiation Hazards Prevention Ordinance, Article 21-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.11

Do the regulations require employers, registrants and licensees to ensure that adequate records are maintained?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that adequate records are maintained.

Response

[Regulations for licensees under the Reactor Regulation Act]

The Reactor Regulation Act and the NRA ordinances for each type of facilities and activities oblige licensees to keep records regarding radiation control, such as the dose per year of radiation workers.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act obliges authorized operators to keep records regarding types, acceptance, delivery, use and storage of radioisotopes and radiation generators, and those of inspection of facilities handling radioactive sources and persons who have entered the facilities etc., and the results of measurements of exposure dose in the environment of controlled areas and of the personnel who work in those areas.

Subsidiary Question 2.11.1

Please indicate/attach (as appropriate) the relevant references

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 21, 43-3-21, 43-17, 47, 51-15, and 56-2

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v)

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii)

Research Reactors Ordinance, Article 6, paragraph (1)

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v)

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (ii)

Reprocessing Ordinance, Article 8, paragraph (1), item (ii)

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (iii)

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ii)

Waste Storage Ordinance, Article 26, paragraph (1), item (ii)

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii)

[Regulations for licensees under the Act for Radiation Hazard Prevention]

Radiation Hazard Prevention Act, Articles 20, 23, and 25

Radiation Hazard Prevention Ordinance, Articles 20, 22, and 24

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.12

Do the regulations require employers, registrants and licensees to ensure that arrangements are made to facilitate consultation and co-operation with workers with respect to protection and safety with regard to all measures necessary to achieve the effective implementation of the regulations?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that arrangements are made to facilitate consultation and co-operation with workers with respect to protection and safety with regard to all measures necessary to achieve the effective implementation of the regulations.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities oblige licensees to take necessary measures to ensure that the dose of radiation workers does not exceed the limit defined by the NRA. The NRA ordinances also require that licensees, in their operational safety program, define and comply with a system for development of a safety culture, and quality assurance procedures for the nuclear facilities.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The NRA obliges authorized operators to designate radiation protection supervisors, provide supervision for the purpose of compliance with relevant laws, and provide education and training for workers engaged in operations involving radiation, aiming to promote consultation and cooperation with workers concerning radiation protection and safety.

Subsidiary Question 2.12.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 79, Article 92, paragraph (1), items (ii) and (iii)

Fuel Fabrication Ordinance, Article 7-3, Article 8, paragraph (1), items (ii) and (iii)

Research Reactors Ordinance, Article 8, Article 15, paragraph (1), item (xviii)

Research Power Reactors Ordinance, Article 74

Spent Fuel Storage Ordinance, Article 30, Article 37, paragraph (1), items (ii) and (iii)

Reprocessing Ordinance, Article 10, Article 17, paragraph (1), items (ii) and (iii)

Category 1 Waste Disposal Ordinance, Article 54, Article 63, paragraph (1), items (ii) and (iii)

Category 2 Waste Disposal Ordinance, Article 15, Article 20, paragraph (1), items (ii) and (iii)

Waste Storage Ordinance, Article 28, Article 34, paragraph (1), items (ii) and (iii)

Nuclear Fuel Materials Use Ordinance, Article 3, item (vi), Article 2-12, paragraph (1), item (xiv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 21, 22, and 34

Radiation Hazards Prevention Ordinance, Articles 21, 21-2, and 30

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.13

Do the regulations require employers, registrants and licensees to ensure the necessary conditions to promote a safety culture are provided?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure the necessary conditions to promote a safety culture are provided.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities oblige licensees to define in the operational safety program a system for the development of a safety culture. In addition, when the NRA reviews this operational safety program, it is confirmed that the program defines, as basic policy, the performance—based on a safety culture—of operational safety activities based on appropriate quality assurance activities for the prevention of disasters caused by nuclear facilities, in accordance with the ALARA principle indicated by the ICRP.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Regulations relating to ensuring the safe use of nuclear power (Act for Establishment of the Nuclear Regulation Authority, Article 4, paragraph (1), item (i)) are designated as falling under the jurisdiction of the NRA, with the aim of promoting—within this scope— the development and improvement of an appropriate safety culture, based on the spirit of ALARA indicated by the ICRP. In addition, within the scope of the measures that the Radiation Hazards Prevention Act obliges authorized operators to take, and that of short courses, etc. held of their own initiative by public utility corporation, measures are in operation for the practical dissemination and promotion of radiation safety and safety

culture. However, the Radiation Hazards Prevention Act and its Ordinances do not clearly define regulations regarding the development and improvement of safety culture relating to radiation safety.

Subsidiary Question 2.13.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (ii)

Fuel Fabrication Ordinance, Article 7-3, Article 8, paragraph (1), item (ii)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (ii)

Reprocessing Ordinance, Article 10, Article 17, paragraph (1), item (ii)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (ii)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (ii)

Waste Storage Ordinance, Article 34, paragraph (1), item (ii)

Commercial Reactors Operational Safety Program Standards, Article 92, paragraph (1), items (ii) and (xxviii)

Fuel Fabrication Operational Safety Program Standard, Article 8, paragraph (1), items (ii) and (xxiii)

Research Reactors Operational Safety Program Standards, Article 15, paragraph (1), item (xix)

Spent Fuel Storage Operational Safety Program Standards, Article 37, paragraph (1), items (ii) and (xxi)

Reprocessing Operational Safety Program Standards, Article 17, paragraph (1), items (ii) and (xxvi)

Category 2 Waste Disposal Operational Safety Program Standards, Article 20, paragraph (1), items (ii) and (xx)

Waste Storage Operational Safety Program Standards, Article 34, paragraph (1), items (ii) and (xx)

Nuclear Fuel Materials Use Operational Safety Program Standards, Article 2-12, paragraph (1), item (xv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Act for Establishment of the Nuclear Regulation Authority, Article 4, paragraph (1), item (i)

Radiation Hazards Prevention Act, Articles 21, and 21-2

Radiation Hazards Prevention Ordinance, Articles 21, and 22

Question 2.14

Do the regulations require that if workers are engaged in work that involves or that could involve a source that is not under the control of their employer, the registrant or licensee responsible for the source and the employer shall cooperate to the extent necessary for compliance by both parties with the requirements of the regulations?

Answer

Yes

Finding

The regulations require that if workers are engaged in work that involves or that could involve a source that is not under the control of their employer, the registrant or licensee responsible for the source and the employer shall cooperate to the extent necessary for compliance by both parties with the requirements of the regulations.

Response

[Regulations for licensees under the Reactor Regulation Act]

The Reactor Regulation Act obliges licensees to define an operational safety program and ensure that they and their employees comply with it. The NRA ordinances for each type of facilities and activities require licensees to define regulations regarding education on operational safety in their operational safety programs. When the NRA reviews the operational safety program, it is confirmed that—as part of operational safety education—policies regarding education on operational safety are defined not only for employees but also for the employees of subcontractors, and that regulations necessary for radiation protection with which contractors are required to comply are defined, together with measures for ensuring the contractor's compliance with these regulations.

The NRA ordinances for each type of facilities and activities oblige licensees to establish controlled areas according to the degree of risk from radiation, etc., and take necessary measures, such as restrictions on access to these areas.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

When a worker belonging to a subcontractor, etc. handles a radiation source in a facility of an authorized operator whilst not under the supervision of his/her employer, that worker is considered to be a radiation worker in that facility, and is obliged to work under the supervision of that facility's radiation protection supervisor, in accordance with the Radiation Hazards Prevention Programs.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 22, 43-3-24, 43-20, 50, 51-18 and 56-3

Commercial Reactors Ordinance, Article 78

Fuel Fabrication Ordinance, Article 7-2-9

Research Reactors Ordinance, Article 7

Research Power Reactors Ordinance, Article 73

Spent Fuel Storage Ordinance, Article 37

Reprocessing Ordinance, Article 9

Category 1 Waste Disposal Ordinance, Article 63

Category 2 Waste Disposal Ordinance, Article 20

Waste Storage Ordinance, Article 34

Nuclear Fuel Materials Use Ordinance, Article 3, item 4 and 5

Commercial Reactors Operational Safety Program Standards , Article 92, paragraph (1), item (xii)

Fuel Fabrication Operational Safety Program Standard , Article 8, paragraph (1), item (vi) and (viii)

Research Reactors Operational Safety Program Standard , Article 15, paragraph (1), item (ii)

Research Power Reactors Operational Safety Program Standards

Spent Fuel Storage Operational Safety Program Standards , Article 37, paragraph (1), item (vi) and (viii)

Reprocessing Operational Safety Program Standards , Article 17, paragraph (1), item (vi) and (ix)

Category 2 Waste Disposal Operational Safety Program Standards , Article 20, paragraph (1), item (vi) and (viii)

Waste Storage Operational Safety Program Standards , Article 34, paragraph (1), item (vi) and (viii)

Nuclear Fuel Materials Use Operational Safety Program Standards , Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazard Prevention Act, Article 29 item (1), and Article 36

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G08The Standard Review Plan on Approval of Operational Safety Program of Spent Fuel Interim Storage Facilities

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

M08 The Standard Review Plan on Approval of Operational Safety Program of Power Reactor Facilities at the Research and Development Stage

Subsidiary Question 2.14.1

Do the regulations require the development and use of specific restrictions on exposure and other means of ensuring that the measures for protection and safety for workers who are engaged in work that involves or could involve a source that is not under the control of their employer are at least as good as those for employees of the registrant or licensee?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The NRA, based on the operational safety program standards, confirms that the operational safety program of the licensee defines—as part of operational safety education—policies regarding education on operational safety not only for employees but also for the employees of subcontractors, and confirms that the program stipulates that education on operational safety be provided on the basis of those policies.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

When a worker belonging to a subcontractor, etc. is to handle radiation sources in an authorized operator's facility, the Act obliges the authorized operator to provide education and training to that worker, and treat him/her as radiation worker of that facility.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Research Reactors Ordinance, Article 62(1), item(v)(d) and 74(1)

Research Power Reactors Ordinance, Article 6(1), item(iv)(d) and 8(1)

Commercial Reactors Operational Safety Program Standards , Article 92, paragraph (1), item (viii)

Fuel Fabrication Operational Safety Program Standard , Article 8, paragraph (1), item (vi)

Spent Fuel Storage Operational Safety Program Standards , Article 37, paragraph (1), item (vi)

Reprocessing Operational Safety Program Standards , Article 17, paragraph (1), item (vi)

Category 2 Waste Disposal Operational Safety Program Standards , Article 20, paragraph (1), item (vi)

Waste Storage Operational Safety Program Standards , Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Operational Safety Program Standards , Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 22

Radiation Hazards Prevention Ordinance, Article 21-2

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G08The Standard Review Plan on Approval of Operational Safety Program of Spent Fuel Interim Storage Facilities

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 2.14.2

Do the regulations require specific assessments of the doses received by workers who are engaged in work that involves or could involve a source that is not under the control of their employer?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

For nuclear facilities, the NRA ordinances for each type of facilities and activities oblige licensee to take necessary measures to ensure that the dose of radiation workers does not exceed the dose limit defined by the NRA, and to record the dose of radiation workers.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

The Act obliges authorized operators to measure the radiation dose of a person who has entered a controlled area in the facility, and the contamination status of that person due to radioisotopes, etc.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 79, paragraph (1), Article 67, paragraph (1), item (v) (d)

Fuel Fabrication Ordinance, Article 7-3, Article 7, paragraph (1), item (ii) (c)

Research Reactors Ordinance, Article 6, paragraph (1), item (iv) (d), Article 8, paragraph (1)

Research Power Reactors Ordinance, Article 74, paragraph (1), Article 62, paragraph (1), item (v) (d)

Spent Fuel Storage Ordinance, Article 30, paragraph (1), Article 27, paragraph (1), item (iii) (d)

Reprocessing Ordinance, Article 10, Article 8, paragraph (1), item (ii) (f)

Category 1 Waste Disposal Ordinance, Article 54, paragraph (1), Article 44, paragraph (1), item (iii) (e)

Category 2 Waste Disposal Ordinance, Article 15, Article 13, paragraph (1), item (ii) (d)

Waste Storage Ordinance, Article 28, Article 26, paragraph (1), item (ii) (d)

Nuclear Fuel Materials Use Ordinance, Article 3, item (vi), Article 2-11, paragraph (1), item (ii) (d)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 2.14.3

Do the regulations require a clear allocation and documentation of the responsibilities of the employer and those of the registrant or licensee for protection and safety?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

In order to ensure that the dose of radiation workers does not exceed the dose limit defined in the Research Reactor Dose limit Notice , the NRA ordinances for each type of facilities and activities oblige licensee to take relevant measures, and to perform operational safety activities based on the quality assurance program.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Authorized operators are obliged to measure and record the exposure dose of radiation workers at the facility, and to take necessary measures to ensure that exposure dose does not exceed the limit defined by the NRA.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 79, paragraph (1), Article 73

Fuel Fabrication Ordinance, Articles 7-3 and 7-2-6

Research Reactors Ordinance, Article 6, paragraph (1), item (iv) (d), Article 8, paragraph (1)

Research Power Reactors Ordinance, Article 74, paragraph (1), Article 62, paragraph (1), item (v)(d)

Spent Fuel Storage Ordinance, Article 28-5, Article 30, paragraph (1)

Reprocessing Ordinance, Articles 10 and 8-7

Category 1 Waste Disposal Ordinance, Article 50, Article 54, paragraph (1)

Category 2 Waste Disposal Ordinance, Article 13-7, Article 15, paragraph (1)

Waste Storage Ordinance, Article 26-7, Article 28, paragraph (1)

Nuclear Fuel Materials Use Ordinance, Article 3, item (vi)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20

Amount of RI Notice, Articles 5, 6, 19, and 20

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 2.14.4

Do the regulations require that as part of the cooperation between parties, the registrant or licensee responsible for the source or for the exposure shall, as appropriate, obtain from the employers, including self-employed individuals, the previous occupational exposure history of the workers and any other necessary information?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The NRA ordinances for each type of facilities and activities oblige licensees to record a person's past exposure history etc. when that person is initially assigned to work as radiation worker.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

The Radiation Hazards Prevention Act and its Ordinances oblige authorized operators to provide personnel engaged in radiation work in controlled areas with health checkups, and, as in the case of nuclear facilities, to obtain information, such as exposure history.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v) (f)

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii) (e)

Research Reactors Ordinance, Article 6, paragraph (1), item (iv) (f)

Research Power Reactors Ordinance, Articles 64 and 65, and Article 87, paragraph (1), item (ii)

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (iii) (f)

Reprocessing Ordinance, Article 8, paragraph (1), item (ii) (h)

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (iii) (g)

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ii) (f)

Waste Storage Ordinance, Article 26, paragraph (1), item (ii) (f)

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii) (f)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 23

Radiation Hazards Prevention Ordinance, Article 22

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 2.14.5

Do the regulations require that as part of the cooperation between parties, the registrant or licensee responsible for the source or for the exposure shall provide appropriate information to the employer, including any available information relevant for compliance with the requirements of the regulations that the employer requests?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The Reactor Regulation Act obliges licensees to define an operational safety program , and ensure that they and their employees comply with it. The NRA ordinances for each type of facilities and activities require licensees to specify items concerning education on operational safety in their operational safety programs. When the NRA reviews the operational safety program, it is confirmed that—as part of operational safety education—policies regarding education on operational safety are defined not only for employees but also for the employees of subcontractors, and that regulations necessary for radiation protection with which contractors are required to comply are defined, together with measures for ensuring the contractor's compliance with these regulations.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Even in the case that an employee of a subcontractor different from the authorized operator works in a controlled area in the said authorized operator's facilities, the Act obliges the authorized operator, just as when the employer is identical to the authorized operator, to consider this employee as radiation worker of the authorized operator, and to provide

him/her with the education and training defined in the Radiation Hazards Prevention Act and its Ordinances, so that he/she receives appropriate information.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 43-20, 50, 51-18 and 56-3

Commercial Reactors Operational Safety Program Standards, Article 92, paragraph (1), items (viii) and (xii)

Fuel Fabrication Operational Safety Program Standard, Article 8, paragraph (1), items (vi) and (viii)

Research Reactors Operational Safety Program Standard, Article 15, paragraph (1), item (ii)

Research Power Reactors Operational Safety Program Standards, Article 87, paragraph (1), items (viii) and (xii)

Spent Fuel Storage Operational Safety Program Standards, Article 37, paragraph (1), items (vi) and (viii)

Reprocessing Operational Safety Program Standards, Article 17, paragraph (1), and items (vi) and (ix)

Category 2 Waste Disposal Operational Safety Program Standards, Article 20, paragraph (1), items (vi) and (viii)

Waste Storage Operational Safety Program Standards, Article 34, paragraph (1), items (vi) and (viii)

Nuclear Fuel Materials Use Operational Safety Program Standards, Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 22

Radiation Hazards Prevention Ordinance, Article 21-2

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G08The Standard Review Plan on Approval of Operational Safety Program of Spent Fuel Interim Storage Facilities

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M08 The Standard Review Plan on Approval of Operational Safety Program of Power Reactor Facilities at the Research and Development Stage

Subsidiary Question 2.14.6

Do the regulations require that as part of the cooperation between parties, the registrant or licensee responsible for the source or for the exposure shall provide both the worker and the employer with the relevant exposure records?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

NRA Ordinances relating to the Reactor Regulation Act oblige licensees to keep records of the dose of radiation workers, and to issue a copy of these records to those workers when they leave the relevant work.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

The Act obliges authorized operators to issue a record of measurements to the personnel on whom the measurements were performed each time an entry is recorded.

(Reference)

[Regulations for employers]

The Ordinance for prevention of ionizing radiation hazards obliges employers to notify radiation workers of doses of exposure without delay.

[Attachments]

Rules for Commercial Reactors, Article 67

Radiation Hazards Prevention Ordinance, Article 20 paragraph 4

(Reference)

[Regulations for employers]

Ordinance for prevention of ionizing radiation hazards, Article 9

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H19Ordinance on Prevention of Ionizing Radiation Hazards

Subsidiary Question 2.14.7

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Attachments]

For the evidence for each question, refer to the answer to each question.

Question 2.15

Do the regulations require employers, registrants and licensees to take such administrative actions as are necessary to ensure that workers are informed that radiation protection and safety are integral parts of a general occupational health and safety programme and that they have certain obligations and responsibilities for their own protection and the protection of others against radiation and for the safety of sources?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to take such administrative actions as are necessary to ensure that workers are informed that radiation protection and safety are integral parts of a general occupational health and safety programme and that they have certain obligations and responsibilities for their own protection and the protection of others against radiation and for the safety of sources.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require licensees to define in the operational safety program—as part of education on operational safety—implementation policies regarding radiation control, etc. for persons who operate or manage nuclear facilities. In addition, based on the Reactor Regulation Act, licensees are obliged to receive approval for the operational safety program from the NRA, and to comply with that program.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Act obliges authorized operators to provide education and training to radiation workers, and to define items regarding education and training in the Radiation Hazards Prevention Programs and notify these to the NRA.

Subsidiary Question 2.15.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 43-20, 50, 51-18, and 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 15, paragraph (1), item (ii)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 21, and 22

Radiation Hazards Prevention Ordinance, Articles 21, and 21-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.16

Do the regulations require employers, registrants and licensees to facilitate compliance by workers with the requirements of the regulations?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to facilitate compliance by workers with the requirements of the regulations.

Response

[Regulations for licensees under the Reactor Regulation Act]

Based on the Reactor Regulation Act, the licensees are obliged to define an operational safety program, receive approval from the NRA for that program, and comply with the program's provisions. In addition, based on the NRA ordinances for each type of facilities and activities., licensees are also required to specify items concerning education on operational safety in their operational safety programs.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Authorized operators are obliged to provide predefined education and training to workers engaged in radiation work. In addition, radiation workers are obliged to observe the instructions provided by the radiation protection supervisors assigned by the authorized operator to ensure enforcement of the Radiation Hazards Prevention Act and its Ordinances, and the Radiation Hazards Prevention Programs.

Subsidiary Question 2.16.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 43-3-24

Commercial Reactors Ordinance, Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 15, paragraph (1), item (ii)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 21, 22, and 34

Radiation Hazards Prevention Ordinance, Articles 21, 21-2, and 31

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.17

Do the regulations require employers, registrants and licensees to record any report received from a worker that identifies circumstances which could affect compliance with the regulations and to take appropriate action?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to record any report received from a worker that identifies circumstances which could affect compliance with the regulations and to take appropriate action.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA confirms that the quality assurance program, which is defined in the operational safety program based on the NRA ordinances for each type of facilities, defines methods, including corrective measures, etc., for the appropriate management of nonconformities when they occur. In addition, the licensees are required to record the status of improvement, etc. of the quality assurance program.

In addition, it is also considered that appropriate measures for developing a safety culture based on the operational safety program should be taken on the licensees' own responsibility.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Act obliges authorized operators to keep records of measurements of radiation doses and contamination status at various locations in facilities and exposure doses of radiation workers, records of water discharge and air ventilation, and records of acceptance and delivery of radiation sources. In the event of an accident, authorized operators are obliged to report the accident situation, measures taken, etc. to the NRA.

Subsidiary Question 2.17.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 21, 34, 43-3-21, 43-17, 47, 51-15, and 56-2

Commercial Reactors Ordinance, Article 67, paragraph (1), item (x), Articles 69, 70, and 92

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (viii), Articles 7-2-2, 7-2-3, and 8

Research Reactors Ordinance, Article 6, paragraph (1), item (xi), Article 15, paragraph (1), item (xviii)

Research Reactors Operational Safety Program Standards, Article 15, paragraph (1), item (xviii)

Research Power Reactors Ordinance, Article 62, paragraph (1), item (x), Articles 64, 65, and 87

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (viii), Articles 28, 28-2, and 37

Reprocessing Ordinance, Article 8, paragraph (1), item (viii), Articles 8-3, 8-4, and 17

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (x), Articles 46, 47, and 63

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (x), Articles 13-3, 13-4, and 20

Waste Storage Ordinance, Article 26, paragraph (1), item (viii), Articles 26-3, 26-4, and 34

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (vii), Article 2-12

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20, 25, and 33

Radiation Hazards Prevention Ordinance, Articles 20, 24, and 29

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 2.18

Do the regulations require employers, in cooperation with registrants and licensees, to provide female workers who are liable to enter controlled areas or supervised areas or who may undertake emergency duties with appropriate information?

Answer

Yes

Finding

The regulations require employers, in cooperation with registrants and licensees, to provide female workers who are liable to enter controlled areas or supervised areas or who may undertake emergency duties with appropriate information.

Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

The NRA ordinances for each type of facilities stipulate that women must not engage in emergency work unless they have been diagnosed as incapable of becoming pregnant, or have indicated in writing to the licensee of the nuclear power reactor that they have no intention of becoming pregnant.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 79, paragraph (2)

Fuel Fabrication Ordinance, Article 7-3, paragraph (2)

Research Reactors Ordinance, Article 8, paragraph (2)

Research Power Reactors Ordinance, Article 74, paragraph (2)

Spent Fuel Storage Ordinance, Article 30, paragraph (2)

Reprocessing Ordinance, Article 10, paragraph (2)

Category 1 Waste Disposal Ordinance, Article 54, paragraph (2)

the Category 2 Waste Disposal Ordinance, Article 15, paragraph (2)

Waste Storage Ordinance, Article 28, paragraph (2)

Nuclear Fuel Materials Use Ordinance, Article 8, paragraph (2)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 29 paragraph 2

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 2.18.1

Do the regulations require the provision of information on the risk to the embryo or foetus due to the exposure of a pregnant woman?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The licensees are obliged to specify items, in the operational safety program, concerning education on operational safety for persons who operate or manage nuclear facilities. Specifically, licensees are required to specify items concerning compliance with the relevant Acts and operational safety program, and concerning radiation control, etc. In addition, a special dose limit for women during pregnancy is also defined.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

The Radiation Hazard Prevention Act prescribe "the effects of radiation on the human body" as a subject for education and training, with the necessary information being provided. In addition, a special dose limit for women during pregnancy is also defined.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 15, paragraph (1), item (ii)

Research Power Reactors Ordinance, Articles 87, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

Commercial Reactors Dose Limit Notice, Article 6, paragraph (4)

Fuel Fabrication Dose Limit Notice, Article 6, paragraph (4)

Research Reactors Dose Limit Notice, Article 6, paragraph (4)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 22

Radiation Hazards Prevention Ordinance, Article 22

Notification to Stipulate the number of Hours of Education and Training

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J11Notification to stipulate the number of hours for education and training

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 2.18.2

Do the regulations require the provision of information on the importance for a female worker of notifying her employer as soon as possible if she suspects that she is pregnant or if she is breast-feeding?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

No.

However, the NRA defines exposure limit for women during pregnancy in the Notices. In addition, the NRA ordinances for each type of facilities require licensees to define in their operational safety program regulations regarding education on operational safety concerning compliance with the relevant Acts and operational safety program, and requires licensees to comply with these. In this way, the NRA considers that information regarding the importance of these issues will also be provided in the education provided by licensees.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

No.

Same as SQID18.1

[Attachments]

[Regulations for licensees under the Reactor Regulation Act] Commercial Reactors Ordinance, Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 15, paragraph (1), item (ii)

Research Power Reactors Ordinance, Articles 87, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

Commercial Reactors Dose Limit Notice, Article 6

Fuel Fabrication Dose Limit Notice, Article 6

Research Reactors Dose Limit Notice, Article 6

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 2.18.3

Do the regulations require the provision of information on the risk of health effects for a breast-fed infant due to ingestion of radioactive substances?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

No.

Same as SQID18.1

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

No.

Same as SQID18.1

Subsidiary Question 2.18.4

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 79, paragraph (2), Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 7-3, paragraph (2), Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 8, paragraph (2), Article 15, paragraph (1), item (ii)

Spent Fuel Storage Ordinance, Article 30, paragraph (2), Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 10, paragraph (2), Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 54, paragraph (2), Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 15, paragraph (2), Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 28, paragraph (2), Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 8, paragraph (2), Article 2-12, paragraph (1), item (ii)

Commercial Reactors Dose Limit Notice, Article 6

Fuel Fabrication Dose Limit Notice, Article 6

Research Reactors Dose Limit Notice, Article 6

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 22

Radiation Hazards Prevention Ordinance, Article 22

Notification to Stipulate the number of Hours of Education and Training

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J11Notification to stipulate the number of hours for education and training

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 2.19

Do the regulations require employers of a female worker who has notified pregnancy or that she is breast-feeding: a) not to consider this as a reason to exclude a female worker from work, and b) to adapt her working conditions in respect of occupational exposure so as to ensure that the embryo or foetus or the infant is afforded the same broad level of protection as is required for members of the public?

Answer

Yes

Finding

The regulations require employers of a female worker who has notified pregnancy or that she is breast-feeding: a) not to consider this as a reason to exclude a female worker from work, and b) to adapt her working conditions in respect of occupational exposure so as to ensure that the embryo or foetus or the infant is afforded the same broad level of protection as is required for members of the public.

Response

a) Yes.

[Regulations for employers]

a is under the jurisdiction of the Ministry of Health, Labour and Welfare.

Article 9 of the Act for Securing, Etc. of Equal Opportunity and Treatment between Men and Women in Employment bans employers from dismissing female workers during pregnancy, or within 1 year of the child's birth.

b) Yes.

The NRA defines a dose limit for women during pregnancy in the Commercial Reactors Dose Limit Notice, etc.

Subsidiary Question 2.19.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

the Commercial Reactors Dose Limit Notice, Article 6, paragraph (1), item (iv)

the Fuel Fabrication Dose Limit Notice, Article 6, paragraph (1), item (iv)

the Research Reactors Dose Limit Notice, Article 6, paragraph (1), item (iv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Amount of RI Notice, Articles 5, and 6

(Reference)

[Regulations for employers]

Act for Securing, Etc. of Equal Opportunity and Treatment between Men and Women in Employment, Article 9

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

H10Act on Securing Etc. of Equal Opportunity and Treatment between Men and Women in Employment

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Question 2.20

Do the regulations require employers, registrants and licensees to ensure that no person under the age of 16 years is or could be subject to occupational exposure?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that no person under the age of 16 years is or could be subject to occupational exposure.

Response

[Regulations for employers in the Act for Labor Standards]

Article 62 of the Act for Labor Standards bans employers from allowing persons under 18 years of age to engage in work in locations where harmful radiation is released.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act explicitly bans authorized operators from allowing persons under 18 years of age to handle radioisotopes, radioactive contaminants, or radiation generating apparatus.

[Attachments]

(Reference)

[Regulations for employers in the Act for Labor Standards]

Act for Labor Standards, Article 62

Rules for Labor Standards for Minors, Article 8

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazard Prevention Act, Article 31 paragraphs 1, and 2

Attachments

A07The Regulations on Labor Standards for Minors

H14Labor Standards Act

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 2.20.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for employers in the Act for Labor Standards]

Act for Labor Standards, Article 62

Rules for Labor Standards for Minors, Article 8

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazard Prevention Act, Article 31 paragraphs 1, and 2

Subsidiary Attachments

A07The Regulations on Labor Standards for Minors

H14Labor Standards Act

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 2.21

Do the regulations require employers, registrants and licensees to ensure that persons under the age of 18 years are allowed access to a controlled area only under supervision and only for the purpose of training for employment in which they are or could be subject to occupational exposure or for the purpose of studies in which sources are used?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that persons under the age of 18 years are allowed access to a controlled area only under supervision and only for the purpose of training for employment in which they are or could be subject to occupational exposure or for the purpose of studies in which sources are used.

Response

[Regulations for employers in the Act for Labor Standards]

The Act for Labor Standards, Article 62 bans employers from allowing persons under 18 years of age to engage in work in locations where harmful radiation is released, regardless of whether or not these persons are under the supervision of the employer.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act explicitly bans authorized operators from allowing persons under 18 years of age to handle radioisotopes, radioactive contaminants, or radiation generating apparatus.

[Attachments]

(Reference)

[Regulations for employers in the Act for Labor Standards]

Act for Labor Standards, Article 62

Rules for Labor Standards for Minors, Article 8

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazard Prevention Act, Article 31 paragraphs 1, and 2

Attachments

A07The Regulations on Labor Standards for Minors

H14Labor Standards Act

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 2.21.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for employers in the Act for Labor Standards]

Act for Labor Standards, Article 62

Rules for Labor Standards for Minors, Article 8

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazard Prevention Act, Article 31 paragraphs 1, and 2

Subsidiary Attachments

A07The Regulations on Labor Standards for Minors

H14Labor Standards Act

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Question 2.22

Do the regulations require registrants and licensees to minimize the need to rely on administrative controls and personal protective equipment for protection and safety by providing well engineered controls and satisfactory working conditions?

Answer

Yes

Finding

The regulations require registrants and licensees to minimize the need to rely on administrative controls and personal protective equipment for protection and safety by providing well engineered controls and satisfactory working conditions.

Response

[Regulations for licensees under the Reactor Regulation Act]

The licensees are obliged to establish radiation management facilities for the protection of radiation workers, and to install ventilation equipment or biological shields, etc. complying with relevant technical standards in locations where the prevention of hazards due to external radiation is necessary. In addition, with regard to facility operation, the licensees are required to define controlled areas, operational areas, and surrounding monitored areas, and take measures appropriate to each.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Authorized operators are required to establish radiation management facilities for the protection of radiation workers, and to install ventilation equipment or radiation shieldings, etc. complying with relevant technical standards in locations where the prevention of hazards due to external radiation is necessary. In addition, with regard to facility operation,

authorized operators are obliged to take necessary measures for controlled areas and facility boundaries.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactor Establishment Permit Ordinance, Article 30

Commercial Reactor Technical Standards Ordinance, Article 42 and 43

Fuel Fabrication Permit Ordinance, Article 18

Fuel Fabrication Design Construction Ordinance, Article 8 and 9

Research Power Reactors Establishment Permit Ordinance, Article 30

Research Power Reactors Technical Standards Ordinance, Article 41 and 42

Research Reactors Establishment Permit Ordinance, Article 25

Research Reactors Technical Standards Ordinance, Article 8 and 9

Spent Fuel Storage Permit Ordinance, Article 4 and 19

Reprocessing Permit Ordinance, Article 23

Reprocessing Design Construction Ordinance, Article 8 and 9

the Category 2 Waste Disposal Permit Ordinance, Article 8 and 11

Waste Storage Permit Ordinance, Article 2 and 16

Nuclear Fuel Materials Use Ordinance, Article 2-5, item (v) and Article 3, item (xii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 14-7, 14-9, 14-11, 15, 17, and 19

Attachments

G06The Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Spent Fuel Interim Storage Facilities

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

K10The NRA Ordinance on Technical Standards for the Design and Construction Methods of Fuel Fabrication Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M04The NRA Ordinance on Technical Standards for the Design and Construction Methods of Research and Test Reactors

M13The NRA Ordinance on Technical Standards for Power Reactor Facilities at the Research and Development Stage

M14The NRA Ordinance on Standards for the Location, Structure, and Equipment of Power Reactors Facilities at the Research and Development Stage

Subsidiary Question 2.22.1

Do the regulations require the provision of well engineered controls and satisfactory working conditions, in accordance with the following hierarchy of preventive measures: (1) Engineered controls; (2) Administrative controls; (3) Personal protective equipment.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Based on the NRA Ordinances for each type of facilities and activities., the licensees are required to establish controlled areas, etc. and take measures regarding doses, etc. of radiation workers. The NRA also performs administrative control through inspections of compliance with the operational safety program defined by the licensee, on-site inspections, and reporting, etc. Although detailed regulations for personal protective equipment are not defined, appropriate use is considered to be ensured through the measures taken by licensees regarding dose of exposure, etc. of radiation workers.

(1) Establishment of controlled areas, etc.

(2) Safety inspections, etc.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

The Radiation Hazards Prevention Ordinance obliges authorized operators to establish controlled areas, etc., perform management of the dose of exposure of radiation workers, perform administrative control through on-site inspections and reporting, and ensure that suitable working wear and protective equipment are worn.

(1) Establishment of controlled areas, etc.

(2) On-site inspections and levying report, etc.

(3) Radiation Hazards Prevention Ordinance, Article 15 paragraph 1 item (7)

Subsidiary Attachments

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 2.22.2

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Article 22, 43-3-24, 43-20, 50, 51-18, 56-3, 67, and 68

Commercial Reactors Ordinance, Articles 78 and 79

Fuel Fabrication Ordinance, Articles 7-2-9 and 7-3

Research Reactors Ordinance, Articles 8

Spent Fuel Storage Ordinance, Articles 29 and 30

Reprocessing Ordinance, Articles 9 and 10

Category 1 Waste Disposal Ordinance, Articles 53 and 54

Category 2 Waste Disposal Ordinance, Articles 14 and 15

Waste Storage Ordinance, Articles 27 and 28

Nuclear Fuel Materials Use Ordinance, Articles 2-5(5) and 3(12)

Commercial Reactor Establishment Permit Ordinance, Article 30

Commercial Reactor Technical Standards Ordinance, Articles 42 and 43

Fuel Fabrication Permit Ordinance, Article 18

Fuel Fabrication Design Construction Ordinance, Article 8 and 9

Research Power Reactors Establishment Permit Ordinance, Article 30

Research Power Reactors Technical Standards Ordinance, Article 41

Research Reactors Establishment Permit Ordinance, Article 25

Research Reactors Technical Standards Ordinance, Article 12

Research Power Reactors Establishment Permit Ordinance, Article 30

Research Power Reactors Technical Standards Ordinances, Article 41

Spent Fuel Storage Design Construction Ordinance, Article 9 and 9-2

Reprocessing Permit Ordinance, Article 23

Reprocessing Design Construction Ordinance, Article 8 and 9

Category 2 Waste Disposal Permit Ordinance, Article 11

Waste Storage Permit Ordinance, Article 16

Waste Storage Design Construction Ordinance, Article 7 and 8

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 43-2

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-9, 14-11, 15, 17, 19, and 39

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G05The NRA Ordinance on Technical Standards for the Design and Construction Methods of Spent Fuel Interim Storage Facilities

G09The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Category 2 Waste Disposal Facilities

G11The Regulatory Guide of NRA Ordinance on Standards for the Location Structure and Equipment of Waste Interim Storage and Treatment Facilities

G16The NRA Ordinance on Technical Standards for the Design and Construction Methods for Specific Waste Disposal Facility or Specific Waste Interim Storage and Treatment Facility

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

K10The NRA Ordinance on Technical Standards for the Design and Construction Methods of Fuel Fabrication Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M05The NRA Ordinance on Technical Standards for the Capabilities of Nuclear Research and Test Reactors etc.

M13The NRA Ordinance on Technical Standards for Power Reactor Facilities at the Research and Development Stage

M14The NRA Ordinance on Standards for the Location, Structure, and Equipment of Power Reactors Facilities at the Research and Development Stage

Module: General Responsibilities of Workers

Findings

Question 3.1

Do the regulations require workers to follow any applicable rules and procedures for protection and safety specified by the employer, registrant or licensee?

Answer

Yes

Finding

The regulations require workers to follow any applicable rules and procedures for protection and safety specified by the employer, registrant or licensee.

Response

[Regulations for licensees under the Reactor Regulation Act]

Licensees shall specify and comply with guidelines, operational manuals, and other operational safety documents based on their operational safety programs in order to take necessary measures to maintain nuclear facilities.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Licensees and Registrants (hereinafter referred to as "authorized operators") shall conform to technical standards on the use, storage and transport of radiation sources, and radioactive waste management stipulated in the Radiation Hazards Prevention Act and its Ordinances.

Subsidiary Question 3.1.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for authorized operators under the Reactor Regulation Act]

Reactor Regulation Act, Articles 35, 37, 43-3-22, 43-3-24, 43-18, 43-20, 51-16, 51-18, 21-2, 22, 48, 50, 56-3, 57, 57-4, and 57-5

Commercial Reactors Ordinance, Article 76

Fuel Fabrication Ordinance, Article 7-2-8-2

Research Reactors Ordinance, Article 15, paragraph(1), item(xviii)

Research Power Reactors Ordinance, Article 71

Spent Fuel Storage Ordinance, Article 28-8

Reprocessing Ordinance, Article 8-10

Category 1 Waste Disposal Ordinance, Article 52-2

Category 2 Waste Disposal Ordinance, Article 13-10

Waste Storage Ordinance, Article 26-10

Research Reactors Operational Safety Program Standard , Article 15, paragraph (1), item (xviii)

Nuclear Fuel Materials Use Operational Safety Program Standards , Article 2-12, paragraph (1), item (xiv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, 16, 17, and 19

Radiation Hazards Prevention Ordinance, Articles 15, 17, 18 and 19

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 3.2

Do the regulations require workers to use properly the monitoring equipment and the personal protective equipment and clothing provided by the employer, registrant or licensee?

Answer

No

Finding

The regulations do not require workers to use properly the monitoring equipment and the personal protective equipment and clothing provided by the employer, registrant or licensee.

Response

-

Subsidiary Question 3.2.2

In the absence of specific regulations on this requirement, describe any other means in place that give effect to this requirement.

Subsidiary Response

[Regulations for employers]

Employers shall provide radiation measuring instruments and personal protective equipment as well as ensure workers use such equipment. The MHLW shall supervise this matter pursuant to the Ordinance on Prevention of Ionizing Radiation Hazards.

[attachments]

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Articles 38, 39, 40, and 60

Subsidiary Attachments

H19 Ordinance on Prevention of Ionizing Radiation Hazards

Subsidiary Question 3.2.3

In the absence of specific regulations on this requirement, describe any plans or actions being progressed to implement this requirement.

Subsidiary Response

None

Question 3.3

Do the regulations require workers to cooperate with the employer, registrant or licensee with respect to protection and safety and the operation of radiological health surveillance and dose assessment programmes?

Answer

No

Finding

The regulations do not require workers to cooperate with the employer, registrant or licensee with respect to protection and safety and the operation of radiological health surveillance and dose assessment programmes.

Response

[Regulations for licensees under the Reactor Regulation Act and the Radiation Hazards Prevention Act]

Workers are not required to cooperate with their employers, registrants, or licensees.

Subsidiary Question 3.3.2

In the absence of specific regulations on this requirement, describe any other means in place that give effect to this requirement.

Subsidiary Response

(Reference)

[Regulations for employers]

Pursuant to the Ordinance on Prevention of Ionizing Radiation Hazards, radiation workers, etc. are required to undergo medical examinations, use personal protective equipment, and carry radiation measuring instruments in controlled areas. Employers shall ensure that radiation workers, etc. comply with these requirements.

<Attachments>

Ordinance on Prevention of Ionizing Radiation Hazards, Articles 8, 38, 39, 40, and 56

Subsidiary Attachments

H19Ordinance on Prevention of Ionizing Radiation Hazards

Subsidiary Question 3.3.3

In the absence of specific regulations on this requirement, describe any plans or actions being progressed to implement this requirement.

Subsidiary Response

Not applicable.

Question 3.4

Do the regulations require workers to provide to the employer, registrant or licensee such information on their past and current work as is relevant to ensure effective and comprehensive protection and safety for themselves and others?

Answer

No

Finding

The regulations do not require workers to provide to the employer, registrant or licensee such information on their past and current work as is relevant to ensure effective and comprehensive protection and safety for themselves and others.

Response

-

Subsidiary Question 3.4.2

In the absence of specific regulations on this requirement, describe any other means in place that give effect to this requirement.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Pursuant to laws and ordinances related to the Reactor Regulation Act, radiation workers are not themselves required to report their radiation exposure histories. However, pursuant to the NRA ordinances for each type of facilities and activities licensees shall record radiation workers' radiation exposure histories when assigning workers to carry out activities. At such time, information on exposure is requested.

Pursuant to the Ordinance on Prevention of Ionizing Radiation Hazards, licensees shall have workers engaged in radiation work undergo medical examinations for a regular basis. Since medical examinations includes surveys and assessment of radiation exposure histories, information on exposure is requested at such times.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

As is the case for licensees under the the Reactor Regulation Act, authorized operators under the Radiation Hazards Prevention Act are not required to ensure that radiation workers report their radiation exposure histories by themselves. However, since medical checkup under the Radiation Hazards Prevention Act and its Ordinances include surveys and assessments of radiation exposure histories, information on exposure is requested at such times.

[Regulations for employers]

Pursuant to the Ordinance on Prevention of Ionizing Radiation Hazards, employers shall have workers engaged in radiation work undergo medical examinations for a regular basis. Since such medical examinations include surveys and assessment of radiation exposure histories, information on exposure is requested at such times.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v)(f)

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii)(e)

Research Reactors Ordinance, Article 6, paragraph (1), item (iv)(f)

Research Power Reactors Ordinance, Articles 64, 65, and 87, paragraph (1), item (ii)

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (iii)(f)

Reprocessing Ordinance, Article 8, paragraph (1), item (ii)(h)

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (iii)(g)

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ii)(f)

Waste Storage Ordinance, Article 26, paragraph (1), item (ii)(f)

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii)(f)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 23

Radiation Hazards Prevention Ordinance, Article 22

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Article 56, paragraph (1)

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 3.4.3

In the absence of specific regulations on this requirement, describe any plans or actions being progressed to implement this requirement.

Subsidiary Response

Not applicable.

Question 3.5

Do the regulations require workers to abstain from any wilful action that could put themselves or others in situations that contravene the requirements of the regulations?

Answer

Yes

Finding

The regulations require workers to abstain from any wilful action that could put themselves or others in situations that contravene the requirements of the regulations.

Response

[Regulations for licensees under the Reactor Regulation Act]

Licensees shall specify operational safety programs and obtain the approval of the NRA. Licensees and their employees shall comply with such programs. When granting approval, the NRA shall check whether licensees are carrying out operational safety activities based on an appropriate quality assurance program underpinned by a safety culture.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Authorized operators shall establish the Radiation Hazards Prevention Programs and confirm them to the NRA. The NRA shall check whether authorized operators have properly specified matters related to radiation protection. Authorized operators and their employees shall comply with these regulations.

Subsidiary Question 3.5.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

<Operational safety programs for each facility>

Reactor Regulation Act, Articles 22, 37, 43-3-24, 43-20, 50, 51-18, and 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1), item (ii)

Fuel Fabrication Ordinance, Article 8

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87

Spent Fuel Storage Ordinance, Article 37

Reprocessing Ordinance, Article 17

Category 1 Waste Disposal Ordinance, Article 63

Category 2 Waste Disposal Ordinance, Article 20

Waste Storage Ordinance, Article 34

Nuclear Fuel Materials Use Ordinance, Article 2-12

<Operational Safety Programs Standards>

Commercial Reactors Operational Safety Program Standards , Article 92, paragraph (1), item (xxviii)

Fuel Fabrication Operational Safety Program Standard , Article 8, paragraph (1), item (xxiii)

Research Reactors Operational Safety Program Standard

Research Power Reactors Operational Safety Program Standards

Spent Fuel Storage Operational Safety Program Standards , Article 37, paragraph (1), item (xxi)

Reprocessing Operational Safety Program Standards , Article 17, paragraph (1), item (xxvi)

Category 2 Waste Disposal Operational Safety Program Standards , Article 20, paragraph (1), item (xx)

Waste Storage Operational Safety Program Standards , Article 34, paragraph (1), item (xx)

Nuclear Fuel Materials Use Operational Safety Program Standards , Article 2-12, paragraph (1), item (xv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 21

Radiation Hazards Prevention Ordinance, Article 21

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M08 The Standard Review Plan on Approval of Operational Safety Program of Power Reactor Facilities at the Research and Development Stage

Question 3.6

Do the regulations require that workers accept such information, instruction and training concerning protection and safety as will enable them to conduct their work in accordance with the requirements of the regulations?

Answer

Yes

Finding

The regulations require that workers accept such information, instruction and training concerning protection and safety as will enable them to conduct their work in accordance with the requirements of the regulations.

Response

[Regulations for licensees under the Reactor Regulation Act]

Licensees shall specify matters related to education on operational safety in their operational safety programs. Licensees and their employees shall comply with such operational safety programs.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Authorized operators shall specify matters related to necessary education and training to prevent radiation hazards in Radiation Hazards Prevention Programs. Authorized operators and their employees shall comply with these Radiation Hazards Prevention Programs.

Subsidiary Question 3.6.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 37, 43-3-24, 43-20, 50, 51-18, and 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 21, and 22

Radiation Hazards Prevention Ordinance, Article 21, and 21-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Question 3.7

Do the regulations require workers to report to the employer, registrant or licensee as soon as possible, circumstances, which for any reason they are able to identify, that could adversely affect protection and safety?

Answer

Yes

Finding

The regulations require workers to report to the employer, registrant or licensee as soon as possible, circumstances, which for any reason they are able to identify, that could adversely affect protection and safety.

Response

[Regulations for licensees under the Reactor Regulation Act]

Licensees shall specify matters related to reports on accidents, incidents, or any equivalent events that have occurred (if any) to a responsible manager in their operational safety programs, and comply with such matters.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Authorized operators shall specify matters related to maintenance and management of facilities and measures to take in case any emergency event occurs in their Radiation Hazards Prevention Programs. All workers engaged in radiation work shall be informed of these measures under the Radiation Hazards Prevention Act and its Ordinances and the operator's Radiation Hazards Prevention Program through education and training required under the Act and its Ordinances. These regulations ensure that workers properly report matters to authorized operators.

Subsidiary Question 3.7.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (24)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (xix)

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (xvii)

Reprocessing Ordinance, Article 17, paragraph (1), item (xxii)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (xvi)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (xvi)

Waste Storage Ordinance, Article 34, paragraph (1), item (xvi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xi)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 21, and 32

Radiation Hazards Prevention Ordinance, Article 21, and Article 39 paragraph 1

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Module: Requirements for Radiation Protection Programmes

Findings

Question 4.1

Do the regulations require registrants and licensees to designate as a controlled area any area in which specific measures for protection and are or could be required for: a) controlling exposures or preventing the spread of contamination, or b) preventing or limiting the likelihood and magnitude of exposures in anticipated operational occurrences and accident conditions?

Answer

Yes

Finding

The regulations require registrants and licensees to designate as a controlled area any area in which specific measures for protection and are or could be required for: a) controlling exposures or preventing the spread of contamination, or b) preventing or limiting the likelihood and magnitude of exposures in anticipated operational occurrences and accident conditions.

Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Ordinances for each type of facilities and activities require licensees and registrants to designate all areas in which external radiation doses may exceed the limits defined by the NRA as controlled areas; to identify and separate controlled areas with walls, fences, or markings; and to restrict people's entry to such areas.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 78

Fuel Fabrication Ordinance, Article 7-2-9

Research Reactors Ordinance, Article 7

Research Power Reactors Ordinance, Article 73

Spent Fuel Storage Ordinance, Article 29

Reprocessing Ordinance, Article 9

Category 1 Waste Disposal Ordinance, Article 53

Category 2 Waste Disposal Ordinance, Article 14

Waste Storage Ordinance, Article 27

Nuclear Fuel Materials Use Ordinance, Article 3, item (iv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 1 item (1), Article 14-7 items (3), (4), (5), (8), and (9), Article 14-9 items (6), and (7), Article 14-11 paragraph 1 items (4), (5), (9), and (10), and paragraph 3 items (4), and (5)

Amount of RI Notice, Articles 1, 4 through 10, and 14

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.1.1

Do the regulations require that the boundaries of the controlled area shall be defined taking into account the magnitudes of the exposures expected in normal operation, the likelihood and magnitude of exposures in anticipated operational occurrences and in accident conditions, and the type and extent of the procedures required for protection and safety?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Yes.

Ordinances for each type of facilities and activities require licensees and registrants to designate all areas in which external radiation doses may exceed the limits defined by the NRA (except in the event of a severe accident) as controlled areas.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 78

Fuel Fabrication Ordinance, Article 7-2-9

Research Reactors Ordinance, Article 7

Research Power Reactors Ordinance, Article 73

Spent Fuel Storage Ordinance, Article 29

Reprocessing Ordinance, Article 9

Category 1 Waste Disposal Ordinance, Article 53

Category 2 Waste Disposal Ordinance, Article 14

Waste Storage Ordinance, Article 27

Nuclear Fuel Materials Use Ordinance, Article 3, item (iv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 1 item (1), Article 14-7 items (3), (4), (5), (8), and (9), Article 14-9 items (6), and (7), Article 14-11 paragraph 1 items (4), (5), (9), and (10), and paragraph 3 items (4), and (5)

Amount of RI Notice, Articles 1, 4 through 10, and 14

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.1.2

Do the regulations require that registrants and licensees shall delineate controlled areas by physical means or, where this is not reasonably practicable, by some other suitable means?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Yes.

Ordinances for each type of facilities and activities require licensees and registrants to identify and separate controlled areas with walls, fences, or markings and to restrict people's entry to such areas.

[Attachments]

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 1 item (1), Article 14-7 items (3), (4), (5), (8), and (9), Article 14-9 items (6), and (7), Article 14-11 paragraph 1 items (4), (5), (9), and (10), and paragraph 3 items (4), and (5)

Amount of RI Notice, Articles 1, 4 through 10, and 14

Subsidiary Attachments

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Subsidiary Question 4.1.3

Do the regulations require that registrants and licensees shall, where a source is only intermittently brought into operation or energized, or is moved from place to place, delineate an appropriate controlled area by means that are appropriate under the prevailing circumstances and shall specify exposure times?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

For a mobile source, licensees must designate all areas in which external radiation doses may exceed the limits defined by the NRA as controlled areas. Although controlled areas are not established during sources are moving, technical standards are in place for transporting packages, and licensees are required to comply with these standards. There are no rules for exposure times, but dose limits for radiation workers are in place.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

For purposes such as underground logging and riverbed scouring (Radiation Hazards Prevention Cabinet Order, Article 9, and Notification), sealed sources and radiation generating apparatus may be temporarily used outside facilities.

In such cases, licensees must submit to the NRA a document describing the place of use and situation of the surrounding area, a ground plan showing the place of use and indicating the controlled area and locations of markings, and a document describing the measures to be taken to prevent radiation hazards.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Dose Limit Notice, Article 6

Fuel Fabrication Dose Limit Notice, Article 6

Research Reactors Dose Limit Notice, Article 6

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 10 paragraph 6

Radiation Hazards Prevention Cabinet Order, Article 9

Radiation Hazards Prevention Ordinance, Article 11

Notification to Designate the Purpose of Use concerning the Notification for a Temporary Change of the Place of Use

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J14Notification to Designate the Purpose of Use concerning the Notification for a Temporary Change of the Place of Use

Subsidiary Question 4.1.4

Do the regulations require that registrants and licensees shall display the symbol recommended by the International Organization for Standardization (ISO) [16] and shall display instructions at access points to and at appropriate locations within controlled areas?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Yes.

Ordinances for each type of facilities and activities require licensees and registrants to display markings and instructions, although they are not required to use ISO symbols.

(Reference)

[Regulations for employers]

The Ordinance on Prevention of Ionizing Radiation Hazards require employers to identify controlled areas.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

(Displaying of marks)

Commercial Reactors Ordinance, Article 78

Fuel Fabrication Ordinance, Article 7-2-9

Research Reactors Ordinance, Article 7

Research Power Reactors Ordinance, Article 73

Spent Fuel Storage Ordinance, Article 29

Reprocessing Ordinance, Article 9

Category 1 Waste Disposal Ordinance, Article 53

Category 2 Waste Disposal Ordinance, Article 14

Waste Storage Ordinance, Article 27

Nuclear Fuel Materials Use Ordinance, Article 3, item (iv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 14-7 paragraph 1 item (9), Article 14-9 item (7), Article 14-11 paragraph 1 item (10), and paragraph 3 item 5, Article 15 paragraph 1 item (11), Article 17 paragraph 1 item (8), Article 19 paragraph 1, and paragraph 3 item (3), and paragraph 4 item (2)

(Reference)

[Regulations for employers]

(Displaying of marks in controlled areas)

Ordinance on Prevention of Ionizing Radiation Hazards, Article 3

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.1.5

Do the regulations require that registrants and licensees shall establish measures for protection and safety, including, as appropriate, physical measures to control the spread of contamination and local rules and procedures for controlled areas?

Subsidiary Response

[Licensees under the Reactor Regulation Act]

Yes.

The NRA ordinances for each type of facilities and activities require licensees to specify in their operational safety programs issues concerning designation of controlled areas and access restrictions for such areas; issues concerning monitoring of radiation doses, concentration of radioactive materials, and other conditions as well as removal of contamination; and issues concerning appropriate recording of and reporting on facilities' operational safety.

[Regulations for authorized operators under the Radiation Hazard Prevention Act]

The Radiation Hazard Prevention Act requires licensees and registrants (hereinafter referred to as "authorized operators") to establish Radiation Hazards Prevention Programs aiming at preventing radiation hazards, to verify contamination levels and workers' exposure situations through measurement and recording of measurement results, and to prevent contamination from spreading in emergencies.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92

Fuel Fabrication Ordinance, Article 8

Research Reactors Ordinance, Article 15

Research Power Reactors Ordinance, Article 87

Spent Fuel Storage Ordinance, Article 37

Reprocessing Ordinance, Article 17

Category 1 Waste Disposal Ordinance, Article 63

Category 2 Waste Disposal Ordinance, Article 20

Waste Storage Ordinance, Article 34

Nuclear Fuel Materials Use Ordinance, Article 2-12

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 15, 16, 19, 20, 21, and 33

Radiation Hazards Prevention Ordinance, Articles 15, 17, 19, 20, 21, and 29

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.1.6

Do the regulations require that registrants and licensees shall restrict access to controlled areas by means of administrative procedures such as the use of work permits, and by physical barriers, which could include locks or interlocks, the degree of restriction being commensurate with the likelihood and magnitude of exposures?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Yes.

Ordinances for each type of facilities and activities require licensees and registrants to separate controlled areas by physical means such as walls or fences, distinguish these areas from other areas with markings, and take measures (e.g., access restrictions and control by locks) according to the level of radiation and other hazards.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 78

Fuel Fabrication Ordinance, Article 7-2-9

Research Reactors Ordinance, Article 7

Research Power Reactors Ordinance, Article 73

Spent Fuel Storage Ordinance, Article 29

Reprocessing Ordinance, Article 9

Category 1 Waste Disposal Ordinance, Article 53

Category 2 Waste Disposal Ordinance, Article 14

Waste Storage Ordinance, Article 27

Nuclear Fuel Materials Use Ordinance, Article 3, item (iv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Articles 14-7, 14-9, 14-11, 15, 17, and 19

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K04The NRA Ordinance on Use of Nuclear Source Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.1.7

Do the regulations require that registrants and licensees shall provide, as appropriate, at entrances to controlled areas: (i) Personal protective equipment; (ii) Equipment for individual monitoring and workplace monitoring; (iii) Suitable storage for personal clothing?

Subsidiary Response

[Regulations for licensees under the Radiation Hazard Prevention Act]

Licensees using unsealed sources are required to set up a contamination inspection room proximate to the entranceway of the usage facility, which is outfitted inside with cleaning equipment, gowning equipment, radiation measurement equipment, and instruments required to eliminate contamination.

(Reference)

[Regulations for employers]

With respect to (i) and (ii), employers are required (although not at entrances to controlled areas) to provide radiation measuring instruments and personal protective equipment, to have their workers use such personal protective equipment, and to measure work environments. These items are regulated by the Ministry of Health, Labour and Welfare under the Ordinance on Prevention of Ionizing Radiation Hazards.

[Attachments]

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 14-7 paragraph 1 item (5)

(Reference)

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Articles 8, 38, 39, 40, and 54

Subsidiary Attachments

H19 Ordinance on Prevention of Ionizing Radiation Hazards

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 4.1.8

Do the regulations require that registrants and licensees shall provide, as appropriate, at exits from controlled areas: (i) Equipment for monitoring for contamination of skin and clothing; (ii) Equipment for monitoring for contamination of any objects or material being removed from the area; (iii) Washing or showering facilities and other personal decontamination facilities; (iv) Suitable storage for contaminated personal protective equipment?

Subsidiary Response

[Regulations for licensees under the Radiation Hazard Prevention Act]

Licensees using unsealed sources are required to set up a contamination inspection room proximate to the entranceway of the usage facility, which is outfitted inside with cleaning equipment, gowning equipment, radiation measurement equipment, and instruments required to eliminate contamination.

(Reference)

[Regulations for employers]

With respect to (i), (ii), and (iii), employers are required to provide at the exits to controlled areas a place for performing contamination inspections to examine the level of contamination of workers' bodies and gear upon leaving controlled areas as well as of objects being removed from such areas. These items are regulated by the Ministry of Health, Labour and Welfare under the Ordinance on Prevention of Ionizing Radiation Hazards.

[Attachments]

[Regulations for licensees under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 14-7 paragraph 1 item (5)

(Reference)

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Articles 31 and 32

Subsidiary Attachments

H19Ordinance on Prevention of Ionizing Radiation Hazards

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 4.1.9

Do the regulations require that registrants and licensees shall periodically review conditions to assess whether there is any need to modify the measures for protection and safety or the boundaries of controlled areas?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

No.

However, the NRA ordinances for each type of facilities and activities require licensees to measure and record external radiation dose equivalents and other values in controlled areas on a weekly basis. Licensees are also required to establish quality assurance programs that define items associated with evaluation and improvement of their operational safety activities. In practice, it can be considered that the appropriate activities are implemented by licensees.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

No.

However, authorized operators are required to conduct reviews based on any deficiencies found by the NRA during periodic inspections, periodic confirmations, and on-site inspections. Authorized operators are also required to submit applications or notifications before making self-motivated changes to their facilities.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v), and Article 70

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v), and Article 64

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii), and Article 8-4

Reprocessing Ordinance, Article 8, paragraph (1), item (ii), and Article 7-2-3

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii)

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (ii), and Article 28-2

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (iii), and Article 47

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ii), and Article 13-4

Waste Storage Ordinance, Article 26, paragraph (1), item (ii), and Article 26-4

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 10, 11, 12-9, 12-10, and 43-2

Radiation Hazards Prevention Cabinet Order, Articles 8, and 10

Radiation Hazards Prevention Ordinance, Articles 9, and 9-3, and Forms 8, and 9

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J02The Cabinet Order for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.1.10

Do the regulations require that registrants and licensees shall provide appropriate information, instruction and training for persons working in controlled areas?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The NRA ordinances for each type of facilities and activities require licensees to establish a system to provide the necessary education and training to those performing operational safety activities, as well as an implementation policy and details of education on operational safety. Licensees must follow their established systems and policies.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Authorized operators are obliged to educate and train workers concerning the radiation effects, radiation hazards prevention and so on.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 72, item (vi); Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 7-2-5, item (vi); Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 15, paragraph (1), item (ii)

Research Power Reactors Ordinance, Article 67, item (vi); Article 87, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 28-4, item (vi); Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 8-6, item (vi); Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 49, item (vi); Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 13-6, item (vi); Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 26-6, item (vi); Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 22

Radiation Hazards Prevention Ordinance, Article 21-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.1.11

Please indicate/attach (as appropriate) the relevant references to the regulations for the requirements to define controlled areas and to the management of safety in the controlled areas.

Subsidiary Response

Evidences related are provided in the answer to each question.

[Attachments]

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 1 item (1), Article 14-7 items (3), (4), (5), (8), and (9), Article 14-9 items (6), and (7); Article 14-11 paragraph 1 items (4), (5), (9), and (10), and paragraph 3 items (4) and (5)

Amount of RI Notice, Articles 1, 4 through 10, and 14

Subsidiary Attachments

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

Question 4.2

Do the regulations require licensees to designate as a supervised area any area not already designated as a controlled area but where occupational exposure conditions need to be kept under review, even though specific measures for protection and safety are not normally needed?

Answer

No

Finding

The regulations do not require licensees to designate as a supervised area any area not already designated as a controlled area but where occupational exposure conditions need to

be kept under review, even though specific measures for protection and safety are not normally needed.

Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

In Japan, licensees and registrants are required to designate all areas in which radiation doses and other values may exceed the limits defined by the NRA as controlled areas. Radiation doses and other values are kept low in non-controlled areas; therefore, review of occupational exposure conditions is unnecessary in such areas.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 2, paragraph (2), item (iv)

Fuel Fabrication Ordinance, Article 1, paragraph (2), item (ii)

Research Reactors Ordinance, Article 1-2, paragraph (2), item (iv)

Research Power Reactors Ordinance, Article 2, paragraph (2), item (iv)

Spent Fuel Storage Ordinance, Article 1, paragraph (2), item (ii)

Reprocessing Ordinance, Article 1, paragraph (2), item (ii)

Category 1 Waste Disposal Ordinance, Article 2, paragraph (2), item (iii)

Category 2 Waste Disposal Ordinance, Article 1-2, paragraph (2), item (viii)

Waste Storage Ordinance, Article 1, items (ii) and (iii)

Nuclear Fuel Materials Use Ordinance, Article 1, paragraph (2), item (ii)

Commercial Reactors Dose Limit Notice, Article 2

Fuel Fabrication Dose Limit Notice, Article 2

Research Reactors Dose Limit Notice, Article 2

Attachments

F03 Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04 Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05 Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

F07 The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01 The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02 The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03 The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04 The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

K01 The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02 The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03 The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01 The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07 The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.2.3

In the absence of specific regulations on this requirement, describe any other means in place that give effect to this requirement.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

None in particular.

Subsidiary Question 4.2.4

In the absence of specific regulations on this requirement, describe any plans or actions being progressed to implement this requirement.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

None in particular.

Question 4.3

Do the regulations require employers, registrants and licensees to provide to workers suitable and adequate personal protective equipment which meets any relevant standards or specifications, including as appropriate, protective clothing, respiratory equipment, the characteristics of which are made known to the users, protective aprons, protective gloves and organ shields?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to provide to workers suitable and adequate personal protective equipment which meets any relevant standards or specifications, including as appropriate, protective clothing, respiratory equipment, the characteristics of which are made known to the users, protective aprons, protective gloves and organ shields.

Response

[Regulations for licensees under the Reactor Regulation Act]

Based on the NRA ordinances for each type of facilities and activities, licensees are required to take measures to prevent doses of radiation workers from exceeding the limits it has defined. Licensees specify measures for radiation dose monitoring and other items in their operational safety programs, which must be approved by the NRA. To verify observance of operational safety programs, the NRA periodically performs operational safety inspections.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The NRA defines dose limits for radiation workers in the Radiation Hazards Prevention Ordinance. When using radiation sources, workers are required to clothe workwear, protective equipment, and so on..

[Regulations for employers]

Employers are required to have their workers to use respiratory protective equipment, gloves, work clothing, and other personal protective equipment.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22, 43-3-24, 43-20, 50, 51-18, and 56-3

Commercial Reactors Ordinance, Articles 79 and 92

Fuel Fabrication Ordinance, Articles 7-3 and 8

Research Reactors Ordinance, Articles 8 and 15

Research Power Reactors Ordinance, Articles 74 and 87

Spent Fuel Storage Ordinance, Article 30 and Article 37

Reprocessing Ordinance, Articles 10 and 17

Category 1 Waste Disposal Ordinance, Articles 54 and 63

Category 2 Waste Disposal Ordinance, Articles 15 and 20

Waste Storage Ordinance, Articles 28 and 34

Nuclear Fuel Materials Use Ordinance, Article 3, item (vi), and Article 2-12

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 15 paragraph 1 item (5), Article 20 paragraph 3 item (1)

(Reference)

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Articles 38, 39, and 40

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H19 Ordinance on Prevention of Ionizing Radiation Hazards

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01 The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02 The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03 The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01 The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07 The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.3.1

Do the regulations require that employers, registrants and licensees, where appropriate, ensure that workers receive adequate instruction in the proper use of respiratory protective equipment including testing for good fit.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Although there are no provisions specific to respiratory protective equipment, licensees are required to establish and implement a system for providing the necessary education and training to those performing operational safety activities.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Although there are no specific regulations on handling of respiratory protective equipment, workers are instructed, if it is necessary, as a part of the mandatory education and training they undergo before they enter controlled areas.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 72, item (vi); Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 7-2-5, item (vi); Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 15, paragraph (1), item (ii)

Research Power Reactors Ordinance, Article 67, item (vi); Article 87, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 28-4, item (vi); Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 8-6, item (vi); Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 49, item (vi); Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 13-6, item (vi); Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 26-6, item (vi); Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 22

Radiation Hazards Prevention Ordinance, Article 21-2

Notification to stipulate the number of hours for education and training

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J11Notification to stipulate the number of hours for education and training

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.3.2

Do the regulations require that employers, registrants and licensees ensure that tasks requiring the use of certain personal protective equipment are assigned only to workers who on the basis of medical advice are capable of safely sustaining the extra effort necessary?

Subsidiary Response

No.

[Regulations for employers]

Although use of specific protective equipment is not required, employers are required, based on doctors' advice, to take necessary measures (e.g., changing places of work, reassigning personnel to other jobs, shortening exposure times) for workers whose ionizing radiation health examinations have undesirable findings.

[Attachments]

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Articles 57-2 and 59

Subsidiary Attachments

H19Ordinance on Prevention of Ionizing Radiation Hazards

Subsidiary Question 4.3.3

Do the regulations require that employers, registrants and licensees ensure that all personal protective equipment, including equipment for use in an emergency, is maintained in proper condition and, if appropriate, is tested at regular intervals?

Subsidiary Response

Yes.

[Regulations for employers]

Employers are required to provide effective respiratory protective equipment and to ensure that personal protective equipment is used only after decontamination (e.g., washing) to meet the specified limits.

[Attachments]

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Articles 38 and 41

Subsidiary Attachments

H19Ordinance on Prevention of Ionizing Radiation Hazards

Subsidiary Question 4.3.4

Do the regulations require that employers, registrants and licensees ensure that if the use of personal protective equipment is considered for any given task, account is taken of any additional exposure that could result owing to the additional time taken or the inconvenience, and of any non-radiological risks that might be associated with using personal protective equipment while performing the task?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

No.

However, through reviews of operational safety programs, the NRA verifies that operational safety activities are being performed in accordance with the ALARA principle as their basic policy.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

No.

The regulations do not require this.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Operational Safety Program Standards, Article 92, paragraph (1), item (xxviii)

Fuel Fabrication Operational Safety Program Standard, Article 8, paragraph (1), item (xxiii)

Research Reactors Operational Safety Program Standard, Article 15, paragraph (1), item (xix)

Research Power Reactors Operational Safety Program Standards, Article 87, paragraph (1), item (xxviii)

Spent Fuel Storage Operational Safety Program Standards, Article 37, paragraph (1), item (xxi)

Reprocessing Operational Safety Program Standards, Article 17, paragraph (1), item (xxvi)

Category 2 Waste Disposal Operational Safety Program Standards, Article 20, paragraph (1), item (xx)

Waste Storage Operational Safety Program Standards, Article 34, paragraph (1), item (xx)

Nuclear Fuel Materials Use Operational Safety Program Standards, Article 2-12, paragraph (1), item (xv)

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G08The Standard Review Plan on Approval of Operational Safety Program of Spent Fuel Interim Storage Facilities

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M08 The Standard Review Plan on Approval of Operational Safety Program of Power Reactor Facilities at the Research and Development Stage

Subsidiary Question 4.3.5

Please indicate/attach (as appropriate) the relevant references and/or documentation of the regulations on the personal protective equipment requirement.

Subsidiary Response

Evidences related are provided in the answer to each question.

Question 4.4

Do the regulations require employers, as well as self-employed persons, and registrants and licensees to be responsible for making arrangements for assessment of the occupational exposure of workers, on the basis of individual monitoring where appropriate, and to ensure that arrangements are made with authorized or approved dosimetry service providers that operate under a quality management system?

Answer

Yes

Finding

The regulations require employers, as well as self-employed persons, and registrants and licensees to be responsible for making arrangements for assessment of the occupational exposure of workers, on the basis of individual monitoring where appropriate, and to ensure that arrangements are made with authorized or approved dosimetry service providers that operate under a quality management system.

Response

[Regulations for licensees under the Reactor Regulation Act and the Act for Radiation Hazard Prevention]

First half of the question: Yes.

Second half of the question: No.

There are no requirements on cooperating with dosimetry service providers. However, with respect to procurement, under the Reactor Regulation Act licensees are required to have plans for their operational safety activities as part of their quality assurance programs.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Articles 78 and 79

Fuel Fabrication Ordinance, Articles 7-2-9 and 7-3

Research Reactors Ordinance, Articles 7 and 8

Research Power Reactors Ordinance, Articles 73 and 74

Spent Fuel Storage Ordinance, Articles 29 and 30

Reprocessing Ordinance, Articles 9 and 10

Category 1 Waste Disposal Ordinance, Articles 53 and 54

Category 2 Waste Disposal Ordinance, Articles 14 and 15

Waste Storage Ordinance, Articles 27 and 28

Nuclear Fuel Materials Use Ordinance, Article 3

Commercial Reactors Ordinance, Article 72, paragraph (1), item (iii)

Fuel Fabrication Ordinance, Article 7-2-5, item (iii)

Research Reactors QMS Ordinance, Article 36

Research Power Reactors Ordinance, Article 67, item (iii)

Spent Fuel Storage Ordinance, Article 28-4, item (iii)

Reprocessing Ordinance, Article 8-6, item (iii)

Category 1 Waste Disposal Ordinance, Article 49, item (iii)

Category 2 Waste Disposal Ordinance, Article 13-6, item (iii)

Waste Storage Ordinance, Article 26-6, item (iii)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xiv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M06The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Research and Test Reactors for Licensee of Research and Test Reactor and System for their Inspection

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.4.1

Do the regulations require response organizations and employers to take all reasonable steps to assess and record the doses received in an emergency by emergency workers and that information of the doses received and information concerning the associated health risks shall be communicated to the workers involved?

Subsidiary Response

Yes.

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require licensees to record radiation workers' measured exposure doses.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances require authorized operators to take measures to prevent radiation hazards as a part of their emergency measures. The Act and its Ordinances also require authorized operators to inform workers of their measured radiation doses and health checkup results as well as to preserve these records.

[Regulations for employers]

Employers are required (not only in emergencies) to measure radiation workers' exposure doses and inform them of their measured exposure doses

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

First half of the answer:

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v)

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii)

Research Reactors Ordinance, Article 6, paragraph (1), item (iv)

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v)

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (iii)

Reprocessing Ordinance, Article 8, paragraph (1), Item 2

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (iii)

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ii)

Waste Storage Ordinance, Article 26, paragraph (1), item (ii)

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

First half of the answer:

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20

Second half of the answer:

Radiation Hazards Prevention Act, Articles 23, 24, and 33

Radiation Hazards Prevention Ordinance, Articles 22, 23, and 29

[Regulations for business operators]

Ordinance on Prevention of Ionizing Radiation Hazards, Articles 8 and 9

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.4.2

Do the regulations require employers, registrants and licensees to ensure that for any worker who usually works in a controlled area, or who occasionally works in a controlled area and may receive a significant dose from occupational exposure, individual monitoring shall be undertaken where appropriate, adequate and feasible.

Subsidiary Response

Yes.

[Regulations for licensees under the Reactor Regulation Act]

In their operational safety programs, licensees are required to specify radiation doses and other monitoring items for nuclear facilities, and they must measure and record workers' exposure doses accordingly. Licensees are also required to take measures to prevent radiation workers' doses from exceeding the dose limits.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Under the Radiation Hazards Prevention Act, authorized operators are required to measure individual radiation workers' radiation doses and preserve such records.

[Regulations for employers]

Employers are required to measure exposure doses of radiation workers, laborers temporarily entering controlled areas, and other persons in controlled areas.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xiv); Article 67, paragraph (1), item (v)(d); Article 79, paragraph (1), item (i)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (ix); Article 7, paragraph (1), item (ii)(c); Article 7-3, paragraph (1), item (i)

Research Reactors Ordinance, Article 15, paragraph (1), item (viii); Article 6, paragraph (1), item (iv)(d); Article 8, paragraph (1), item (i)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (xiv); Article 62, paragraph (1), item (v)(d); Article 74, paragraph (1), item (i)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (x); Article 27, paragraph (1), item (iii)(d); Article 30, paragraph (1), item (i)

Reprocessing Ordinance, Article 17, paragraph (1), item (xi); Article 8, paragraph (1), item (ii)(f); Article 10, paragraph (1), item (i)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (x); Article 44, paragraph (1), item (iii)(e); Article 54, paragraph (1), item (i)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (x); Article 13, paragraph (1), item (ii)(d); Article 15, paragraph (1), item (i)

Waste Storage Ordinance, Article 34, paragraph (1), item (x); Article 26, paragraph (1), item (ii)(d); Article 28, paragraph (1), item (i)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (v); Article 2-11, paragraph (1), item (ii)(d); Article 3, item (vi)(a)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20

(Reference)

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Article 8

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.4.3

Do the regulations require employers, registrants and licensees to ensure that in cases where individual monitoring for any worker who usually works in a controlled area, or who occasionally works in a controlled area and may receive a significant dose from occupational exposure, is inappropriate, inadequate or not feasible, the occupational exposure is assessed on the basis of the results of workplace monitoring and information on the locations and durations of exposure of the worker.

Subsidiary Response

Yes.

[Regulations for licensees under the Reactor Regulation Act]

Under the Reactor Regulation Act and the NRA ordinances for each type of facilities and activities, based on their operational safety programs, licensees are required to specify radiation doses and other monitoring items for nuclear facilities, and they must measure and record workers' exposure doses accordingly.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Under the Radiation Hazards Prevention Act, authorized operators are required to measure radiation doses periodically in locations such as the boundaries of controlled areas in facilities where radiation sources are used, the boundaries of residential areas within places of activities, and the boundaries of places of activities. Authorized operators are also required to measure contamination conditions in controlled areas, at discharge points, and other such locations.

[Regulations for employers]

Employers are required to measure exposure doses of radiation workers, laborers temporarily entering controlled areas, and other persons in controlled areas. When measurement of external exposure doses with radiation-measuring instruments is infeasible, licensees may obtain such values through calculation.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xiv); Article 67, paragraph (1), item (v)(d)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (ix); Article 7, paragraph (1), item (ii)(c)

Research Reactors Ordinance, Article 15, paragraph (1), item (viii); Article 6, paragraph (1), item (iv)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (xiv); Article 62, paragraph (1), item (v)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (x); Article 27, paragraph (1), item (iii)(d)

Reprocessing Ordinance, Article 17, paragraph (1), item (xi); Article 8, paragraph (1), item (ii)(f)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (x); Article 44, paragraph (1), item (iii)(e)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (x); Article 13, paragraph (1), item (ii)(d)

Waste Storage Ordinance, Article 34, paragraph (1), item (x); Article 26, paragraph (1), item (ii)(d)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (v); Article 2-11, paragraph (1), item (ii)(d)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Article 8

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.4.4

Do the regulations require employers, registrants and licensees to ensure that for any worker who regularly works in a supervised area or who enters a controlled area only occasionally, the occupational exposure is assessed on the basis of the results of workplace monitoring or individual monitoring, as appropriate?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and the Act for Radiation Hazard Prevention]

Yes.

However, since no supervised areas have been designated in Japan, radiation doses are monitored only in controlled areas. Under the provisions of the Doses Limit Notices, exposure doses outside controlled areas are restricted to sufficiently low levels by designation of controlled areas.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Dose Limit Notice, Article 2

Fuel Fabrication Dose Limit Notice, Article 2

Research Reactors Dose Limit Notice, Article 2

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20

Amount of RI Notice, Articles 4, 5, and 6

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F05Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc.

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 4.4.5

Do the regulations require employers, registrants and licensees to ensure that any workers who could be subject to exposure due to contamination are identified, including workers who use respiratory protective equipment, and arrange for appropriate monitoring to the extent necessary to demonstrate the effectiveness of the measures for protection and safety and to assess intakes of radionuclides and the committed effective doses?

Subsidiary Response

Yes.

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Licensees and registrants are required to record radiation workers' doses and take measures to prevent such radiation doses from exceeding the limits defined by the NRA. In practice, this ensures that workers are identified.

[Regulations for employers]

Under the Ordinance on Prevention of Ionizing Radiation Hazards employers are required to provide at the exits to controlled areas a place for performing contamination inspections to examine the level of contamination of workers' bodies and gear upon leaving controlled areas.

Employers are also required to provide respiratory protective equipment to laborers performing work during which contaminated air may be inhaled, and to have them use such equipment during that work.

Furthermore, employers are required to manage and record radiation workers' radiation doses.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v)(d) and Article 79

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii)(c) and Article 7-3

Research Reactors Ordinance, Article 6, paragraph (1), item (iv)(d), and Article 8

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v)(d) and Article 74

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (iii)(d) and Article 30

Reprocessing Ordinance, Article 8, paragraph (1), item (ii)(f) and Article 10

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (iii)(e) and Article 54

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ii)(d) and Article 15

Waste Storage Ordinance, Article 26, paragraph (1), item (ii)(d) and Article 28

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii)(d); Article 3, Item 6

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20

Amount of RI Notice, Articles 5 and 6

[Regulations for employers]

NRA Ordinance on Prevention of Ionizing Radiation Hazards, Articles 8, 31, and 38

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.4.6

Please indicate/attach (as appropriate) the relevant references to the regulations for the requirements for the assessment and monitoring of occupational exposure of workers.

Subsidiary Response

Evidences related are provided in the answer to each question.

Question 4.5

Do the regulations require registrants and licensees, in co-operation with employers where appropriate, to establish, maintain and keep under review a programme for workplace monitoring under the supervision of a qualified expert or a radiation protection officer?

Answer

Yes

Finding

The regulations require registrants and licensees, in co-operation with employers where appropriate, to establish, maintain and keep under review a programme for workplace monitoring under the supervision of a qualified expert or a radiation protection officer.

Response

-

Subsidiary Question 4.5.1

Do the regulations require the type and frequency of the workplace monitoring to be sufficient to enable: (i) evaluation of the radiological conditions in all workplaces; (ii) assessment of exposures in controlled areas and supervised areas; (iii) review of the classification of controlled areas and supervised areas?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The Reactor Regulation Act and the NRA ordinances for each type of facilities and activities require licensees to establish operational safety programs and specify items regarding monitoring of radiation doses, concentrations of radioactive materials, and other values, as well as to comply with such programs.

Operational safety programs actually established by licensees specify, for example, the locations and frequency of radioactivity monitoring. These operational safety programs are subject to the NRA's review and approval.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Authorized operators are required to carry out activities to prevent radiation hazards under the supervision of the radiation protection supervisor. Under the Radiation Hazards Prevention Act and its Ordinances, authorized operators shall record and preserve the result of monitoring of radiation doses, concentration of radioactive materials and others, and they must comply with the standards concerning the items.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act, Articles 22-2, 40, 43-3-26, 43-22, 50-2, and 51-20

Commercial Reactors Ordinance, Article 70 and Article 92, paragraph (1), item (xiv)

Fuel Fabrication Ordinance, Article 7-2-3 and Article 8, paragraph (1), item (ix)

Research Reactors Ordinance, Article 15, paragraph (1), item (viii)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (xiv)

Spent Fuel Storage Ordinance, Article 28-2 and Article 37, paragraph (1), item (x)

Reprocessing Ordinance, Article 8-4 and Article 17, paragraph (1), item (x)

Category 1 Waste Disposal Ordinance, Article 47 and Article 63, paragraph (1), item (x)

Category 2 Waste Disposal Ordinance, Article 13-4 and Article 20, paragraph (1), item (x)

Waste Storage Ordinance, Article 26-4 and Article 34, paragraph (1), item (x)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (v)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 36

Radiation Hazards Prevention Ordinance, Article 20 paragraph 1

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.5.2

Do the regulations require the type and frequency of the workplace monitoring to be based on dose rate, activity concentration in air and surface contamination, and their expected fluctuations, and on the likelihood and magnitude of exposures in anticipated operational occurrences and accident conditions?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Licensees are required to establish operational safety programs and specify items regarding monitoring of radiation doses, concentrations of radioactive materials, and other values, as well as to comply with such programs.

Operational safety programs actually established by licensees specify, for example, the locations and frequency of radioactivity monitoring. These operational safety programs are subject to the NRA's review and approval.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

The methods of Monitoring and its frequency in controlled areas during normal times are defined. The type and frequency of monitoring to perform if an accident occurs are designated according to the natures of potential accidents. The Act provides that the NRA may order measures be taken to prevent such radiation hazards.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xiv)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (ix)

Research Reactors Ordinance, Article 6, paragraph (1), item (iv)

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (x)

Reprocessing Ordinance, Article 17, paragraph (1), item (x)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (x)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (x)

Waste Storage Ordinance, Article 34, paragraph (1), item (x)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (v)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 33 paragraph 4

Radiation Hazards Prevention Ordinance, Article 20 paragraph 1

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.5.3

Do the regulations require registrants and licensees, in co-operation with employers where appropriate, to maintain records of the findings of the workplace monitoring programme,

and to make the findings available to workers, where appropriate through their representatives?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Licensees are required to keep radiation control records at nuclear facilities, and the locations and frequency of measurement as well as the duration for retaining records are defined.

Under the Ordinance on Prevention of Ionizing Radiation Hazards, employers are required to periodically measure the dose equivalent rate or dose equivalent from external radiation in controlled areas; the results must be communicated to laborers entering such controlled areas by means such as displaying the results in a highly visible place.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Authorized operators are required to record and preserve results of the measurements of exposure doses of a radiation worker and the work environment. They are also required to provide copies of these records to such workers.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v)

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii)

Research Reactors Ordinance, Article 6, paragraph (1), item (iv)

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v)

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (iii)

Reprocessing Ordinance, Article 8, paragraph (1), item (ii)

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (iii)

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ii)

Waste Storage Ordinance, Article 26, paragraph (1), item (ii)

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 20 paragraph 4

(Reference)

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Article 54

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.5.4

Please indicate/attach (as appropriate) the relevant references and/or documentation of the regulations (law, requirements and standards).

Subsidiary Response

Evidences related are provided in the answer to each question.

Question 4.6

Do the regulations require employers, registrants and licensees to ensure that the necessary health surveillance and health services are provided?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to ensure that the necessary health surveillance and health services are provided.

Response

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act and its Ordinances require the authorized operators to have radiation workers undergo periodic health examinations and to take medical treatment as necessary.

[Regulations for employers]

The Ordinance on Prevention of Ionizing Radiation Hazards require employers to have laborers who consistently engage in radiation work undergo periodic health examinations, seek advice from doctors regarding their health examination results, and take measures based on such results (e.g., reassigning them to suitable jobs). Employers must have laborers involved in accidents or other unusual events examined by a doctor.

[Attachments]

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 23

Radiation Hazards Prevention Ordinance, Article 22

(Reference)

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards 44, 56, 57-2, and 59

Attachments

H19Ordinance on Prevention of Ionizing Radiation Hazards

Subsidiary Question 4.6.1

Do the regulations require the health surveillance programmes to be: (a) based on the general principles of occupational health; and (b) designed to assess the initial and continuing fitness of workers for their intended tasks.

Subsidiary Response

Yes.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Act and its Ordinances require authorized operators to have radiation workers undergo health examinations before they first enter controlled areas and at intervals no less frequently than annually thereafter.

(Reference)

[Regulations for employers]

The Ordinance on Prevention of Ionizing Radiation Hazards require employers to have their laborers who consistently engage in radiation work undergo a health examination upon obtaining employment and periodically thereafter, seek advice from a doctor on their health examination results, and take measures based on such results (e.g., reassigning them to suitable jobs).

[Attachments]

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 23

Radiation Hazards Prevention Ordinance, Article 22

(Reference)

[Regulations for employers]

Rules for Prevention of Ionizing Radiation Hazards, Articles 44, 56, 57-2, and 59

Subsidiary Attachments

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 4.6.2

Do the regulations require that, if one or more workers are to be engaged in work in which they are or could be exposed to radiation from a source that is not under the control of their employer, the registrant or licensee responsible for the source shall, as a precondition for the engagement of such workers, make any special arrangements for workers' health surveillance with the employer that are needed to comply with the rules established by the regulatory body?

Subsidiary Response

Yes.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act and its Ordinances require authorized operators to have radiation workers (except those temporarily entering control areas) undergo health examinations before they first enter controlled areas and at intervals no less frequently than annually thereafter.

(Reference)

[Regulations for employers]

The Ordinance on Prevention of Ionizing Radiation Hazards require employers to have their laborers who consistently engage in radiation work undergo periodic health examinations.

[Attachments]

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 23

Radiation Hazards Prevention Ordinance, Article 22

(Reference)

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Article 56

Subsidiary Attachments

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

Subsidiary Question 4.6.3

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

Evidences related are provided in the answer to each question.

Question 4.7

Do the regulations require that the conditions of service of workers shall be independent of whether they are or could be subject to occupational exposure and that special compensatory arrangements, or preferential consideration with respect to salary, special insurance coverage, working hours, length of vacation, additional holidays or retirement benefits, shall neither be granted nor be used as substitutes for measures for protection and safety in accordance with the requirements of the regulations?

Answer

Yes

Finding

The regulations require that the conditions of service of workers shall be independent of whether they are or could be subject to occupational exposure and that special compensatory arrangements, or preferential consideration with respect to salary, special insurance coverage, working hours, length of vacation, additional holidays or retirement benefits, shall neither be granted nor be used as substitutes for measures for protection and safety in accordance with the requirements of the regulations.

Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

It is not required from the viewpoint of nuclear safety regulation.

Subsidiary Question 4.7.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

It is not required from the viewpoint of nuclear safety regulation.

Question 4.8

Do the regulations require employers to make all reasonable efforts to provide workers with suitable alternative employment in circumstances for which it has been determined, either by the regulatory body or in the framework of the programme for workers' health surveillance in accordance with the requirements of the regulations, that workers, for health reasons, may no longer continue in employment in which they are or could be subject to occupational exposure?

Answer

Yes

Finding

The regulations require employers to make all reasonable efforts to provide workers with suitable alternative employment in circumstances for which it has been determined, either by the regulatory body or in the framework of the programme for workers' health surveillance in accordance with the requirements of the regulations, that workers, for health reasons, may no longer continue in employment in which they are or could be subject to occupational exposure.

Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

This matter pertains to condition or maintenance for employment, therefore it is not required from the viewpoint of nuclear safety regulation.

Subsidiary Question 4.8.1

Do the regulations require workers who receive doses in an emergency exposure situation not to normally be precluded from incurring further occupational exposure, and that qualified medical advice shall be obtained before any further occupational exposure if a worker has received a dose exceeding 200 mSv or at the request of the worker?

Subsidiary Response

Yes.

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

This matter pertains to condition or maintenance for employment, therefore it is not required from the viewpoint of nuclear safety regulation.

Subsidiary Question 4.8.2

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

Yes.

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

This matter pertains to condition or maintenance for employment, therefore it is not required from the viewpoint of nuclear safety regulation.

Question 4.9

Do the regulations require employers, registrants and licensees, in consultation with workers or through their representatives, to establish in writing local rules and procedures that are necessary for protection and safety for workers and other persons?

Answer

Yes

Finding

The regulations require employers, registrants and licensees, in consultation with workers or through their representatives, to establish in writing local rules and procedures that are necessary for protection and safety for workers and other persons.

Response

[Regulations for licensees under the Reactor Regulation Act]

Licensees are required to establish written work procedures and comply with them.

However, requirements for other matters, such as consultations with workers, pertain to employment maintenance and therefore are outside the scope of nuclear power safety regulations.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The Radiation Hazards Prevention Program as well as education and training based on the said Program ensure that workers are informed and aware of the procedures and other instructions necessary to prevent radiation hazards.

However, requirements for other matters, such as consultations with workers, pertain to employment maintenance and therefore are outside the scope of the regulations provided for in the Radiation Hazards Prevention Act.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 76

Fuel Fabrication Ordinance, Article 7-2-8-2

Research Reactors QMS Ordinance, Article 4

Research Reactors Operational Safety Program Standard , Article 15, paragraph (1), item (xviii) 3.

Research Power Reactors Ordinance, Article 71

Spent Fuel Storage Ordinance, Article 28-8

Reprocessing Ordinance, Article 8-10

Category 1 Waste Disposal Ordinance, Article 52-2

Category 2 Waste Disposal Ordinance, Article 13-10

Waste Storage Ordinance, Article 26-10

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xiv)

Nuclear Fuel Materials Use Operational Safety Program Standards , Article 2-12, paragraph (1), item (xiv) 3.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 21, and 22

Radiation Hazards Prevention Ordinance, Articles 21, and 21-2

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M06The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Research and Test Reactors for Licensee of Research and Test Reactor and System for their Inspection

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.9.1

Do the regulations require the local rules and procedures to include any relevant investigation level or authorized level, and the procedures to be followed in the event that any such level is exceeded;

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

In their operational safety programs, licensees are required to include specifications on adequate recording and reporting of operational safety issues at nuclear power reactor facilities. This includes cases in which the exposure of radiation workers or other persons has exceeded the specified level.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Authorized operators are required to report to the NRA in the case that the concentrations of radioisotopes in discharge water or ventilation air exceed the standards prescribed in the Notice, or leakage of radioisotopes occurs, etc.

The Radiation Hazards Prevention Act and its Ordinances require that the Radiation Hazards Prevention Program shall specify provisions on facility maintenance and management, emergency measures, and other issues.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xxiv); Article 134, items (xi) and (xii)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (xix); Article 9-16, item (xi)

Research Power Reactors Ordinance, Article 71

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (xvii); Article 43-13, items (x) and (xi)

Reprocessing Ordinance, Article 17, paragraph (1), item (xxii); Article 19-16, item (xi)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (xvi); Article 89, items (ix) and (x)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (xvi); Article 22-17, items (ix) and (x)

Waste Storage Ordinance, Article 34, paragraph (1), item (xvi); Article 35-16, items (x) and (xi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xii); Article 6-10, item (xi)

Research Reactors QMS Ordinance, Article 4

Research Reactors Operational Safety Program Standard , Article 15, paragraph (1), item (xviii) 3.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 21

Radiation Hazards Prevention Ordinance, Article 19 paragraph 1, Article 21, and Article 39 paragraph 1

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M06The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Research and Test Reactors for Licensee of Research and Test Reactor and System for their Inspection

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.9.2

Do the regulations require employers, registrants and licensees to make the local rules and procedures and the measures for protection and safety known to those workers to whom they apply and to other persons who may be affected by them?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The NRA ordinances for each type of facilities and activities require licensees to specify matters related to education on operational safety in their operational safety programs. Education on operational safety must cover topics such as radiation control measures, and observance of the relevant laws and operational safety program. Through education on operational safety, workers learn about relevant laws and the operational safety program.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Authorized operators are required to provide radiation workers with education and training, including measures for protection and safety, before they first enter controlled areas and at intervals no less frequently than annually thereafter.

In their Radiation Hazards Prevention Program, authorized operators are also required to formulate issues related to education and training necessary to prevent radiation hazards.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 72, item (vi); Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 7-2-5, item (vi); Article 8, paragraph (1), item (vi)

Regulations for Research Reactors, Article 15, paragraph (1), item (ii)

Research Power Reactors Ordinance, Article 67, Item 6; Article 87, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 28-4, item (vi); Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 8-6, item (vi); Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 49, item (vi); Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 13-6, item (vi); Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 26-6, item (vi); Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 21, and 22

Radiation Hazards Prevention Ordinance, Articles 21, and 21-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 4.9.3

Do the regulations require employers, registrants and licensees to ensure that any work in which workers are or could be subject to occupational exposure is adequately supervised and shall take all reasonable steps to ensure that the rules, procedures, and measures for protection and safety are observed?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

At nuclear facilities, operational safety activities are required to be carried out under the supervision of the chief engineer of the commercial power reactor or other party. Licensees must specify items regarding monitoring of radiation doses, concentrations of radioactive materials, and other values, as well as to comply with such programs. Licensees are also required to take measures to prevent radiation workers' radiation doses from exceeding the dose limits.

Furthermore, the NRA reviews operational safety programs and verifies that operational safety activities are being performed in accordance with the ALARA principle as their basic policy.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Authorized operators are required to monitor workers' exposure doses and work environments as well as to take necessary measures to prevent radiation hazards under the supervision of the Radiation Protection Supervisor appointed for the relevant facilities. To ensure that programs, procedures, and measures for radiation protection and safety are observed, they are also required to stipulate issues related to the duties and organization of the Radiation Protection Supervisor and other persons engaged in safety management of

radioisotopes or radiation generating apparatus, in their Radiation Hazards Prevention Programs.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xiv); Article 67, paragraph (1), item (v)(d); Article 79, paragraph (1), item (i)

Fuel Fabrication Ordinance, Article 8, paragraph (1), item (ix); Article 7, paragraph (1), item (ii)(c); Article 7-3, paragraph (1), item (i)

Research Reactors Ordinance, Article 15, paragraph (1), item (viii); Article 6, paragraph (1), item (iv)(d); Article 8, paragraph (1), item (i)

Research Power Reactors Ordinance, Article 87, paragraph (1), item (xiv); Article 62, paragraph (1), Item (v)(d); Article 74, paragraph (1), item (i)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (x); Article 27, paragraph (1), item (iii)(d); Article 30, paragraph (1), item (i)

Reprocessing Ordinance, Article 17, paragraph (1), item (xi); Article 8, paragraph (1), item (ii)(f); Article 10, paragraph (1), item (i)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (x); Article 44, paragraph (1), item (iii)(e); Article 54, paragraph (1), item (i)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (x); Article 13, paragraph (1), item (ii)(d); Article 15, paragraph (1), item (i)

Waste Storage Ordinance, Article 34, paragraph (1), item (x); Article 26, paragraph (1), item (ii)(d); Article 28, paragraph (1), item (i)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (v); Article 2-11, paragraph (1), item (ii)(d); Article 3, item (vi)(a)

Commercial Reactors Operational Safety Program Standards , Article 92, paragraph (1), item (xxviii)

Fuel Fabrication Operational Safety Program Standard , Article 8, paragraph (1), item (xxiii)

Research Reactors Operational Safety Program Standard , Article 15, paragraph (1), item (xix)

Research Power Reactors Operational Safety Program Standards , Article 87, paragraph (1), item (xxviii)

Spent Fuel Storage Operational Safety Program Standards , Article 37, paragraph (1), item (xxi)

Reprocessing Operational Safety Program Standards , Article 17, paragraph (1), item (xxvi)

Category 2 Waste Disposal Operational Safety Program Standards , Article 20, paragraph (1), item (xx)

Waste Storage Operational Safety Program Standards , Article 34, paragraph (1), item (xx)

Nuclear Fuel Materials Use Operational Safety Program Standards , Article 2-12, paragraph (1), item (xv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20, 21, and 36

Radiation Hazards Prevention Ordinance, Articles 20, 21, and 30

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

G08The Standard Review Plan on Approval of Operational Safety Program of Spent Fuel Interim Storage Facilities

G13The Standard Review Plan on Approval of Operational Safety Program of Waste Interim Storage and Treatment Facilities

G18The Standard Review Plan on Approval of Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities

J01 Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03 The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01 The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02 The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03 The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

K12 The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13 The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

K14 The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M01 The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02 The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M07 The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

M08 The Standard Review Plan on Approval of Operational Safety Program of Power Reactor Facilities at the Research and Development Stage

Subsidiary Question 4.9.4

Do the regulations require employers, registrants and licensees to designate, as appropriate, a radiation protection officer in accordance with criteria established by the regulatory body?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

No.

However, with respect to nuclear facilities, licensees are required to establish operational safety programs and specify items regarding monitoring of radiation doses, concentrations of radioactive materials, and other values, as well as to comply with the program.

Operational safety programs actually established by licensees specify, for example, the duties of the person responsible for radiation control measures, thereby indicating that appropriate supervision is in place.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Authorized operators under the Radiation Hazards Prevention Act are required to designate a radiation protection supervisor.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 70 and Article 92, paragraph (1), item (xiv)

Research Power Reactors Ordinance, Article 65 and Article 87, paragraph (1), item (xiv)

Research Reactors Ordinance, Article 15, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 7-2-3 and Article 8, paragraph (1), item (ix)

Reprocessing Ordinance, Article 8-4 and Article 17, paragraph (1), item (xi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (v)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (x) and Article 28-2

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (x) and Article 47

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (x) and Article 13-4

Waste Storage Ordinance, Article 34, paragraph (1), item (x) and Article 26-4

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 34

Radiation Hazards Prevention Ordinance, Article 30

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.9.5

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

Evidences related are provided in the answer to each question.

Question 4.10

Do the regulations require employers, in co-operation with registrants and licensees, to provide all workers with adequate information on health risks due to their occupational exposure in normal operation, anticipated operational occurrences and accident conditions, adequate instruction and training and periodic retraining in protection and safety, and adequate information on the significance of their actions for protection and safety?

Answer

Yes

Finding

The regulations require employers, in co-operation with registrants and licensees, to provide all workers with adequate information on health risks due to their occupational exposure in normal operation, anticipated operational occurrences and accident conditions, adequate instruction and training and periodic retraining in protection and safety, and adequate information on the significance of their actions for protection and safety.

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA ordinances for each type of facilities and activities require licensees to specify matters related to education on operational safety in their operational safety programs. Education on operational safety must cover topics such as radiation control measures, and observance of the relevant laws and operational safety program. Through education on operational safety, workers learn about relevant laws and the operational safety program.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Authorized operations are required to provide radiation workers with necessary education and training in order to prevent radiation hazards, to control radiation workers' exposure, and to monitor contamination conditions of working environment. In their Radiation

Hazards Prevention Programs, they are also required to stipulate issues related to necessary education and training in order to prevent radiation hazards.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 72, item (vi); Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 7-2-5, item (vi); Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 15, paragraph (1), item (ii)

Research Power Reactors Ordinance, Article 67, item (vi); Article 87, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 28-4, item (vi); Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 8-6, item (vi); Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 49, item (vi); Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 13-6, item (vi); Article 20, paragraph (1), item (vi)

Waste Storage Ordinance, Article 26-6, item (vi); Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20, 21, and 22

Radiation Hazards Prevention Ordinance, Articles 20, 21, and 21-2

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.10.1

Do the regulations require employers, in co-operation with registrants and licensees, to provide those workers who could be involved in or affected by the response to an emergency with appropriate information, and adequate instruction and training and periodic retraining, for protection and safety?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

The NRA amended the ordinances for each type of facilities and activities that define radiation worker designated to perform emergency work as persons who, after receiving the necessary education, have indicated their willingness to perform emergency work in writing, and who have undergone training regarding emergency work. The amendment will come into force in Apr. 2016.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

Prior education and training on emergency work are included in the education and training to prevent radiation hazards, which authorized operators are required to provide to workers. In their Radiation Hazards Prevention Program, authorized operators are also required to stipulate issues related to the education and training necessary to prevent radiation hazards.

Subsidiary Question 4.10.2

Do the regulations require employers, in co-operation with registrants and licensees, to maintain records of the training provided to individual workers?

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

No.

Although this is not a requirement, the NRA ordinances for each type of facilities and activities stipulate that licensees provide their and subcontractors' employees with operational safety education as well as verify the situation. For the purpose of keeping records on operational safety education, licensees must record and retain the dates of education sessions, names of participants, and other relevant information.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Yes.

It is required.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (vii)

Research Reactors Ordinance, Article 6, paragraph (1), item (ix)

Research Power Reactors Ordinance, Article 62, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (vii)

Reprocessing Ordinance, Article 8, paragraph (1), item (vii)

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (ix)

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ix)

Waste Storage Ordinance, Article 26, paragraph (1), item (vii)

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (vi)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 24 paragraph 1 item (1)(p)

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 4.10.3

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

Evidences related are provided in the answer to each question.

Question 4.11

Do the regulations require employers, registrants and licensees to maintain records of occupational exposure for every worker for whom assessment of occupational exposure is required under the regulations?

Answer

Yes

Finding

The regulations require employers, registrants and licensees to maintain records of occupational exposure for every worker for whom assessment of occupational exposure is required under the regulations.

Response

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Licensees and registered users under the Radiation Hazards Prevention Act are required to measure the individual exposure dose of every radiation worker and preserve such records.

[Regulations for employers]

Employers are required to measure and record exposure doses of workers in controlled areas, such as radiation workers and laborers temporarily entering such areas.

[Attachments]

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Articles 8 and 9

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.11.1

Describe the requirements on the content of the exposure records.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Laws related to the Reactor Regulation Act and the Radiation Hazards Prevention Act require licensees and registrants to record the annual radiation doses of every radiation worker every fiscal year (starting April 1), as well as the five-year radiation dose of every radiation worker whose annual radiation dose has exceeded 20 mSv (such five-year periods should include the year the person was subjected to an excess dose).

[Regulations for employers]

Employers are required to measure the internal and external exposure doses of workers in controlled areas, such as radiation workers and laborers temporarily entering such areas, and record their total effective doses every three months, every year, and every five years.

[attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v)

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii)

Research Reactors Ordinance, Article 6, paragraph (1), item (iv)

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v)

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (iii)

Reprocessing Ordinance, Article 8, paragraph (1), item (ii)

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (iii)

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ii)

Waste Storage Ordinance, Article 26, paragraph (1), item (ii)

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 20

Radiation Hazards Prevention Ordinance, Article 20 paragraph 4, item (6)

Amount of RI Notice, Article 20 paragraphs 2, and 3

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Article 9

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J16Notification to Specify Standards for the Amount, etc. of Radioisotopes

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.11.2

Describe the requirements for the access to the occupational exposure records.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Laws related to the Reactor Regulation Act require licensees to provide all radiation workers leaving their current radiation work-related jobs with a copy of their exposure records.

[Regulations for employers]

Employers are required to inform radiation workers without delay of their exposure dose records kept under the provisions of the Ordinance on Prevention of Ionizing Radiation Hazards.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Authorized operators are required to provide radiation workers with a copy of their exposure measurement records every time measurement is performed, pursuant to the provisions in the Radiation Hazards Prevention Ordinance.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (6)

Fuel Fabrication Ordinance, Article 7, paragraph (6)

Research Reactors Ordinance, Article 6, paragraph (6)

Research Power Reactors Ordinance, Article 62, paragraph (6)

Spent Fuel Storage Ordinance, Article 27, paragraph (6)

Reprocessing Ordinance, Article 8, paragraph (6)

Category 1 Waste Disposal Ordinance, Article 44, paragraph (6)

Category 2 Waste Disposal Ordinance, Article 13, paragraph (6)

Waste Storage Ordinance, Article 26, paragraph (6)

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (6)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 20 paragraph 4 item (6)

[Regulations for employers]

Ordinance on Prevention of Ionizing Radiation Hazards, Article 9

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H19Ordinance on Prevention of Ionizing Radiation Hazards

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.11.3

Describe the requirements for the long term retention and maintenance of occupational exposure records.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Laws related to the Reactor Regulation Act and Radiation Hazards Prevention Act require licensees and registrants to retain occupational exposure records until such records are transferred to the institution designated by the NRA in case the person described in the relevant records ceases to be a radiation worker or the records have been retained for more than five years.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 67, paragraph (1), item (v)

Fuel Fabrication Ordinance, Article 7, paragraph (1), item (ii)

Research Reactors Ordinance, Article 6, paragraph (1), item (iv)

Research Power Reactors Ordinance, Article 62, paragraph (1), item (v)

Spent Fuel Storage Ordinance, Article 27, paragraph (1), item (iii)

Reprocessing Ordinance, Article 8, paragraph (1), item (ii)

Category 1 Waste Disposal Ordinance, Article 44, paragraph (1), item (iii)

Category 2 Waste Disposal Ordinance, Article 13, paragraph (1), item (ii)

Waste Storage Ordinance, Article 26, paragraph (1), item (ii)

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 20 paragraph 4 item (7)

Ordinance of MEXT, "Ministerial Ordinance on the organization to which records are delivered, pursuant to the provisions of the Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc."

Notification to designate the record delivery organization pursuant to the provisions of the Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc.

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J08Ministerial Ordinance on the organization to which records are delivered pursuant to the provisions of the Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc.

J09Regarding the Change of the Name of the Designated Record Storage Body Pursuant to the NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.11.4

Describe the requirements for the arrangements for the maintenance of the occupational exposure records in the event of the employer, registrant and licensee ceasing to conduct their activities.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Requirements in the event the registrant ceases performing its activities are as described in the answer to SQID 11.2.

When an employer or licensee cease to perform activities, their records are transferred to the institution designated by the NRA as required by the provisions in the NRA ordinances for each type of facilities and activities.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 115

Fuel Fabrication Ordinance, Article 9-4

Research Reactors Ordinance, Article 16-5

Research Power Reactors Ordinance, Article 110

Spent Fuel Storage Ordinance, Article 43-3

Reprocessing Ordinance, Article 19-4

Category 1 Waste Disposal Ordinance, Article 78

Category 2 Waste Disposal Ordinance, Article 22-6

Waste Storage Ordinance, Article 35-5

Nuclear Fuel Materials Use Ordinance, Article 6

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Ordinance, Article 20 paragraph 4, Article 26 paragraph 1 item (9)

Ordinance of MEXT, "Ministerial Ordinance on the organization to which records are delivered, pursuant to the provisions of the Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc."

Notification to designate the record delivery organization pursuant to the provisions of the Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc.

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J08Ministerial Ordinance on the organization to which records are delivered pursuant to the provisions of the Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc.

J09Regarding the Change of the Name of the Designated Record Storage Body Pursuant to the NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 4.11.5

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

Evidences related are provided in the answer to each question.

Module: Monitoring Programmes Technical Services

Findings

Question 5.1

Do the regulations require authorization or approval of service providers for individual monitoring and calibration services by a competent authority (such as the regulatory body)?

Answer

No

Finding

The regulations do not require authorization or approval of service providers for individual monitoring and calibration services by a competent authority (such as the regulatory body).

Response

-

Subsidiary Question 5.1.3

In the absence of specific regulations on this requirement, are there any other means in place that give effect to this requirement.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Yes.

Pursuant to the NRA ordinances for each type of facilities and activities., the licensees shall specify methods for properly arranging and managing services, and the NRA checks such methods during operational safety inspections.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The NRA shall confirm proper performance of monitoring and calibration during on-site inspections, or other means.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Commercial Reactors Ordinance, Article 72, paragraph (1), item (iii)

Fuel Fabrication Ordinance, Article 7-2-5, item(iii)

the Research Reactors QMS Ordinance, Article 36

Research Power Reactors Ordinance, Article 67 paragraph (1), item (iii)

Spent Fuel Storage Ordinance, Article 28-4, item(iii)

Reprocessing Ordinance, Article 8-6, item (iii)

Category 1 Waste Disposal Ordinance, Article 49, item (iii)

Category 2 Waste Disposal Ordinance, Article 13-6, item (iii)

Waste Storage Ordinance, Article 26-6, item(iii)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (xiv)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 12-10 and 43-2

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 5.1.4

In the absence of specific regulations on this requirement, describe any plans or actions being progressed to implement this requirement.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

Not applicable.

Question 5.2

Do the regulations require that dose record keeping services shall be approved by a competent authority (such as the regulatory body)?

Answer

Yes

Finding

The regulations require that dose record keeping services shall be approved by a competent authority (such as the regulatory body).

Response

-

Subsidiary Question 5.2.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA shall designate an organization to be in charge of collection and maintenance of records on radiation workers as specified in the NRA ordinances for nuclear facilities.

Commercial Reactors Ordinance, Article 67, paragraph (5) and Article 129

Fuel Fabrication Ordinance, Article 7, paragraph (5) and Article 9-15-2

Research Reactors Ordinance, Article 6, paragraph (5)

Research Power Reactors Ordinance, Article 62, paragraph (5) and Article 124

Spent Fuel Storage Ordinance, Article 27, paragraph (5) and Article 43-12-2

Reprocessing Ordinance, Article 8, paragraph (5) and Article 19-15-2

Category 1 Waste Disposal Ordinance, Article 44, paragraph (5) and Article 88-2

Category 2 Waste Disposal Ordinance, Article 13, paragraph (5) and Article 22-16-2

Waste Storage Ordinance, Article 26, paragraph (5) and Article 35-15-2

Nuclear Fuel Materials Use Ordinance, Article 2-11, paragraph (5)

Ordinance for the Organization to Which Radiation Management Records on Radiation Workers Are Submitted

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The NRA shall designate an organization to be in charge of maintenance of dose records after retention periods of licensees and registrants (hereinafter referred to as "authorized operators") expire.

NRA Ordinance for Enforcement of the Radiation Hazards Prevention Act, Article 20, paragraph (4), item (vii)

Ordinance of MEXT, "Ministerial Ordinance concerning the organization to which records are delivered, pursuant to the provisions of the NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc."

Notification to Designate the Record Delivery Organization pursuant to the Provisions of the NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc.

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J08Ministerial Ordinance on the organization to which records are delivered pursuant to the provisions of the Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc.

J09Regarding the Change of the Name of the Designated Record Storage Body Pursuant to the NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards Due to Radioisotopes, etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 5.2.2

Please identify the competent authority (such as the regulatory body) responsible for the approval of dose record keeping services and the technical requirements for approval.

Subsidiary Response

The NRA designates relevant organizations.

Question 5.3

Do the regulations require that workplace monitoring services shall be approved by a competent authority (such as the regulatory body)?

Answer

Yes

Finding

The regulations require that workplace monitoring services shall be approved by a competent authority (such as the regulatory body).

Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA shall check on-site monitoring of nuclear facilities when approving operational safety programs.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

The NRA shall confirm the records of on-site monitoring at authorized operators' facilities through on-site inspections and periodic confirmations as required by the Radiation Hazards Prevention Act.

Subsidiary Question 5.3.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

the Reactor Regulation Act , Articles 22, 43-3-24, 43-20, 50, 51-18, and 56-3

Commercial Reactors Ordinance, Article 92, paragraph (1), item (xiv)

Research Reactors Ordinance, Article 15, paragraph (1), item (viii)

Research Power Reactors Ordinance, Article 87, items (i) and (xiv)

Spent Fuel Storage Ordinance, Article 37, paragraph (1), item (x)

Category 1 Waste Disposal Ordinance, Article 63, paragraph (1), item (x)

Category 2 Waste Disposal Ordinance, Article 20, paragraph (1), item (x)

Waste Storage Ordinance, Article 34, paragraph (1), item (x)

Fuel Fabrication Operational Safety Program Standard , Article 8, paragraph (1), item (ix)

Reprocessing Operational Safety Program Standards , Article 17, paragraph (1), item (xi)

Nuclear Fuel Materials Use Operational Safety Program Standards , Article 2-12, paragraph (1), item (v)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 20, 12-10, and 43-2

Radiation Hazards Prevention Ordinance, Article 20

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K13The Standard Review Plans on Approval of Operational Safety Programs of Fuel Fabrication Facilities

K14The Standard Review Plan on Approval of Operational Safety Program of Facilities using Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 5.3.2

Please identify the competent authority (such as the regulatory body) responsible for the approval of workplace monitoring services and the technical requirements for approval.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act and authorized operators under the Radiation Hazards Prevention Act]

The NRA is in charge of monitoring nuclear facilities and radiation facilities.

Question 5.4

Do regulations require that personnel training services in radiation protection and safety shall be approved by a competent authority (such as the regulatory body)?

Answer

Yes

Finding

The regulations require that personnel training services in radiation protection and safety shall be approved by a competent authority (such as the regulatory body).

Response

[Regulations for licensees under the Reactor Regulation Act]

Pursuant to the NRA ordinances for each type of facilities and activities., licensees shall specify the structures, etc. of necessary education and training for persons carrying out operational safety activities under their operational safety activity plans. Further, licensees shall specify the details of education on operational safety in their operational safety programs (including matters related to radiation management). The NRA shall then approve each licensee's operational safety program.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Authorized operators shall provide education and training to radiation workers. The subjects to be taught and numbers of hours of training sessions are specified by the Notification. The outcomes of education and training shall be examined through on-site inspections, etc. by the NRA.

Subsidiary Question 5.4.1

Please indicate/attach (as appropriate) the relevant references.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act , Articles 22, 43-3-24, 50, and 56-3

Commercial Reactors Ordinance, Article 72, item (vi) and Article 92, paragraph (1), item (viii)

Fuel Fabrication Ordinance, Article 7-2-5, item (6) and Article 8, paragraph (1), item (vi)

Research Reactors Ordinance, Article 15, paragraph (1), item (ii)

Research Power Reactors Ordinance, Article 67, item (vi) and Article 87, paragraph (1), item (viii)

Spent Fuel Storage Ordinance, Article 28-4, item (vi) and Article 37, paragraph (1), item (vi)

Reprocessing Ordinance, Article 8-6, item (vi) and Article 17, paragraph (1), item (vi)

Category 1 Waste Disposal Ordinance, Article 49, item (vi) and Article 63, paragraph (1), item (vi)

Category 2 Waste Disposal Ordinance, Article 13-6, item (vi) and Article 20, paragraph (1) and item (vi)

Waste Storage Ordinance, Article 26-6, Item 6 and Article 34, paragraph (1), item (vi)

Nuclear Fuel Materials Use Ordinance, Article 2-12, paragraph (1), item (ii)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Articles 22, and 43-2

Radiation Hazards Prevention Ordinance, Article 21-2

Notification to stipulate the Number of Hours for Education and Training

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

G01The NRA Ordinance on the Activity of Waste Interim Storage and Treatment of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material

G02The NRA Ordinance on Activity of Interim Storage of Spent Fuel

G03The NRA Ordinance on Activity of Category 1 Waste Disposal of Nuclear Fuel Material and Materials Contaminated by Nuclear Fuel Material

G04The NRA Ordinance on Activity of Category 2 Waste Disposal of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J11Notification to stipulate the number of hours for education and training

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K02The NRA Ordinance on Activity of Fuel Fabricating and Enrichment

K03The NRA Ordinance on the Use etc. of Nuclear Fuel Materials

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M07The NRA Ordinance on the Installation and Operation of Power Reactors at the Research and Development Stage

Subsidiary Question 5.4.2

Please identify the competent authority (such as the regulatory body) responsible for the approval of personnel training services in radiation protection and safety and the technical requirements for approval.

Subsidiary Response

[Regulations for licensees under the Reactor Regulation Act]

The NRA approves licensees' operational safety programs.

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Authorized operators shall formulate the Radiation Hazards Prevention Programs and submit them to the NRA. The NRA shall confirm whether the Programs include matters related to education and training.

[Attachments]

[Regulations for licensees under the Reactor Regulation Act]

Reactor Regulation Act , Article 37, paragraph (1)

[Regulations for authorized operators under the Radiation Hazards Prevention Act]

Radiation Hazards Prevention Act, Article 21

Radiation Hazards Prevention Ordinance, Article 21

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

J01Act on Prevention of Radiation Hazards due to Radioisotopes etc.

J03The NRA Ordinance for Enforcement of the Act on Prevention of Radiation Hazards due to Radioisotopes etc.

OUTCOMES OF THE SELF-ASSESSMENT FOR FUEL CYCLE FACILITIES

Module: Development of Regulations and Guides

Findings

Question 1.1

Does the legal and regulatory infrastructure include provisions for the regulation of fuel cycle facilities?

Answer

Yes

Finding

The legal and regulatory infrastructure includes provisions for the regulation of fuel cycle facilities

Response

The NRA implements regulations based on potential hazards for nuclear fuel cycle facilities by taking into consideration the types, quantities, chemical properties, and physical shapes of nuclear fuel materials (graded approach).

Thus, the answers in Module 8 focus mainly on regulations related to reprocessing facilities with high potential hazards. Answers related to fuel fabrication and nuclear material usage facilities are provided in order to explain regulations about issues specific to such facilities.

(See Section 9.4 (Nuclear Fuel Cycle Regulation in Japan) in "Outline of Nuclear Regulation of Japan".)

Subsidiary Question 1.1.1

What kinds of documents (e.g. regulations, guides, etc.) are used by the regulatory body to impose requirements on fuel cycle facilities?

Subsidiary Response

The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors (hereinafter, the “Reactor Regulation Act”) was enacted in Japan in order to regulate all kinds of nuclear installations including nuclear fuel cycle facilities. NRA Ordinances are established by the NRA under the Reactor Regulation Act to provide detailed requirements.

<Attachments>

Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors (hereinafter, the “Reactor Regulation Act”)

Reprocessing Ordinance

Reprocessing Permission Ordinance

Reprocessing Design Construction Ordinance

Reprocessing QMS Ordinance

Reprocessing Technical Standards Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 1.1.2

Has the regulatory body established requirements concerning the siting of fuel cycle facilities?

Subsidiary Response

Yes.

Siting factors that may affect the safety of nuclear fuel cycle facilities are assessed in reviews for designation and permit (referred to as “permit” in the answers in Module 8), which are required by the Reactor Regulation Act based on the potential hazards for the facilities. In reviews, it is required that the external events which may occur at the site are investigated sufficiently and the nuclear fuel cycle facilities are designed by taking into consideration the effects of such events on the facilities.

Reprocessing Permit Ordinance in which the NRA stipulates location, structure and facility standards based on the potential hazards for nuclear fuel cycle facilities require that such facilities be built on ground that can support them even when subject to seismic forces and safeguard them against other external accidents (tsunami, external fires, and so on).

The application is reviewed by the NRA when normal operation may result in releasing nuclear materials with possible exposure beyond the dose limit to the public (1mSv/year) at the site boarder and when design basis accident may result in risk of excess radiation exposure to the general public in the vicinity or beyond 5mSv/accident.

<Attachments>

Reactor Regulation Act, Article 44

Reprocessing Permit Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.3

Has the regulatory body established requirements concerning the design and construction of fuel cycle facilities?

Subsidiary Response

Yes.

Based on the Reactor Regulation Act, the NRA has set the following design requirements according to the potential hazards for nuclear fuel cycle facilities:

- Permit, which involves assessment of facilities' basic design and safety, is required.*
- After permit, approval of designs and construction methods, which involves assessment of the detailed designs of each facility, is required. Approval must be obtained before construction and inspection of facilities. The Reactor Regulation Act also requires approval of welding methods, which involves assessment of welding design.*

The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection, which allow the NRA to determine relevant standards based on potential hazards for nuclear fuel cycle facilities, also require quality assurance during the design and construction stages.

<Attachments>

Reactor Regulation Act, Articles 44, 45, 46, and 46-2

Reprocessing QMS Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 1.1.4

Has the regulatory body established requirements concerning the commissioning and operation of fuel cycle facilities?

Subsidiary Response

Yes.

The Reactor Regulation Act and the relevant NRA ordinances prescribe requirements for commissioning and operating nuclear fuel cycle facilities based on the potential hazards for such facilities.

More specifically, the following requirements are stipulated: some types of facilities that have had their designs and construction methods approved must pass inspections (pre-service inspections) conducted by the NRA before use. Among these pre-service inspections, which are conducted during the following phases (1) to (4), facilities must pass the inspections in (3) before commissioning and the inspections in (4) before operation.

Pre-service inspections are conducted during the following four phases.

(1) When conducting chemical analysis tests, non-destructive tests, machine tests, pressure-resistance tests, or leakage tests

(2) When the sizes of the major parts of each facility can be measured or when conducting non-destructive tests, machine tests, pressure-resistance tests, or leakage tests

(3) After completing construction of instrumental and control system facilities, radiation control facilities, or other reprocessing facilities

(4) When commissioning a reprocessing facility at maximum reprocessing capacity

Welding must also be inspected (in welding inspections) by the NRA.

In addition, Operational Safety Program including operational conditions shall be approved by the NRA before commissioning.

Designated facilities must pass periodic inspections conducted by the NRA while in use and they must earn periodic facility inspection certificates.

Licensee shall comply with approved Operational Safety Program. NRA conducts Operational Safety inspection to check licensee's conformity to Operational Safety Program.

<Attachments>

Reactor Regulation Act, Articles 46, 46-2, 46-2-3, and 50

Reprocessing Ordinance, Article 6

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.5

Has the regulatory body established requirements concerning the decommissioning of fuel cycle facilities?

Subsidiary Response

Yes.

The Reactor Regulation Act prescribes requirements for decommissioning nuclear fuel cycle facilities based on their potential hazards.

When implementing measures to decommission nuclear fuel cycle facilities including demolition of facilities, transferring nuclear fuel materials, and decontamination, licensees must prepare decommissioning plans and submit to the NRA for approval.

<Attachments>

Reactor Regulation Act, Article 50-5

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.6

Has the regulatory body established requirements on safety management systems for fuel cycle facilities?

Subsidiary Response

Yes.

The Reactor Regulation Act stipulates the following requirements regarding management system based on the potential hazards for nuclear fuel cycle facilities;

- To establish quality management in design and construction phase by the Reprocessing QMS Ordinance.*
- To obtain approval for Operational Safety Program based on the potential hazards and to specify matters related to quality management.*

The Reactor Regulation Act does not require the matters regarding quality management in the phase of application for permit.

<Attachments>

Reactor Regulation Act, Article 45, 50

Reprocessing QMS Ordinance

Reactor Regulation Act, Article 17

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 1.1.7

Where nuclear, environmental, industrial safety and occupational health aspects are regulated by separate authorities, what are the arrangements for cooperation between these authorities?

Subsidiary Response

The NRA is solely responsible for matters for ensuring safety in the use of nuclear energy under the Act for Establishment of the Nuclear Regulation Authority, and therefore there is no need for coordination with other authorities (Act for Establishment of the Nuclear Regulation Authority, Article 1, Article 3, and Article 4).

Where different government offices deal with the same items requiring regulations, interagency coordination is arranged through frameworks such as cross-attendance of personnel at study committee meetings.

For example, the Radiation Review Council, which reviews dose limit notices under the Reactor Regulation Act, permits in its operational rules, the attendance of personnel from related administrative agencies necessary for deliberations on its agendas (Article 5). Accordingly, the Council is attended by personnel from the Ministry of Health, Labour and Welfare, which oversees the Ordinance on Prevention of Ionizing Radiation Hazards under the Industrial Safety and Health Law.

<Attachments>

the NRA Establishment Act, Article 1, 3 and 4

Ordinance on Prevention of Ionizing Radiation Hazards

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

H19Ordinance on Prevention of Ionizing Radiation Hazards

Subsidiary Question 1.1.8

Has the regulatory body defined policies, safety principles and associated criteria, including radiological protection targets and limits, for the nuclear fuel cycle facilities?

Subsidiary Response

Yes.

Measures to take for radiation protection at nuclear fuel cycle facilities are specified in the Reactor Regulation Act and other laws and in rules managed under these laws (processing radiation dose notices, etc.). Work of personnel engaged in radiation work is managed so as not to exceed the radiation limits specified in such rules. Standards on radiation protection have been defined in Japanese laws in accordance with the advice of the International Commission on Radiological Protection (ICRP).

<Attachments>

Fuel Fabrication Dose Limit Notice

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

Subsidiary Question 1.1.9

Has the regulatory body established requirements for the application of the defence in depth concept for fuel cycle facilities?

Subsidiary Response

Yes.

The Reprocessing Permit Ordinance requires licensees to develop safety measures incorporating the concept of defence in depth be implemented based on the potential hazards for nuclear fuel cycle facilities.

For details, see Section 9.4 (Nuclear Fuel Cycle Regulation in Japan) in "Outline of Nuclear Regulation of Japan".

<Attachments>

Reprocessing Permit Ordinance

Reprocessing Permit Guide

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.10

What are the regulatory requirements relevant for the siting of nuclear fuel cycle facilities?

Subsidiary Response

Siting factors that may affect the safety of nuclear fuel cycle facilities are assessed in reviews for permit. Licensees must sufficiently study external incidents that may occur at

facility sites and design nuclear fuel cycle facilities while considering the effects of such incidents on their facilities.

For example, to ensure the safety of facilities in the face of an external incident, the Reprocessing Permit Ordinance established by the NRA require that facilities be built on ground that can support them even when subject to seismic forces and safeguard them against other external accidents (tsunami, external fires, and so on).

The application is reviewed by the NRA when normal operation may result in releasing nuclear materials with possible exposure beyond the dose limit to the public (1mSv/year) at the site boarder and when design basis accident may result in risk of excess radiation exposure to the general public in the vicinity or beyond 5mSv/accident.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Articles 6, 7, 8, and 9

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.11

Does the regulatory body require that an appropriate radiological monitoring of the site is conducted at the siting stage, in order to establish the baseline levels of radiological parameters?

Subsidiary Response

No.

The NRA does not require by law or regulation that nuclear fuel cycle facility operators submit the results of radiation dose monitoring during the facility siting stage.

Radioactivity levels in Japan have been analyzed based on investigations of nuclear testing fallout. No locations in Japan have been confirmed as having locally high levels of radioactivity.

<Attachments>

Reprocessing Ordinance, Article 8

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.12

What are the regulatory criteria regarding the external events, natural and human induced, which have to be considered in the design basis of a fuel cycle facility?

Subsidiary Response

In the standards for permit based on the Reactor Regulation Act, the NRA specifies detailed standards for verifying that nuclear fuel cycle facilities meet requirements with respect to their basic design-- for example, facilities' locations, structures, and equipment must be appropriate to prevent disasters caused by postulated external events.

More specifically, the NRA requires that safety measures be taken to safeguard against incidents such as earthquake, tsunami, tornadoes, volcanic activity, forest fires, falling of aircraft, and fires in nearby factories.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Articles 6, 7, 8, and 9

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.13

Does the regulatory body require that the geological, hydrogeological and meteorological data concerning the site is collected and incorporated in the facility licensing documentation?

Subsidiary Response

Yes.

Based on the Reactor Regulation Act, the Reprocessing Ordinance requires, depending on the potential hazards for nuclear fuel cycle facilities, that written documents be submitted alongside applications for permit that explain weather and oceanographic conditions, ground conditions, hydraulic conditions, earthquakes, and the social environment at sites where facilities will be constructed.

<Attachments>

Reprocessing Ordinance, Article 1-2

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.14

Does the regulatory body require an evaluation of the potential for accidental aircraft crashes, including impacts, fires and explosions on the site?

Subsidiary Response

Yes.

Based on the Reactor Regulation Act, the Reprocessing Permit Ordinance requires, depending on the potential hazards for nuclear fuel cycle facilities, that assessments be performed for applications for permit in order to evaluate the potential hazards for accidental aircraft crashes, including impacts, fires, and explosions.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Article 9

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.15

Does the regulatory body require that the analysis of the suitability of the site includes consideration of the storage and transport of radioactive material, processing chemicals, radioactive waste and chemical wastes?

Subsidiary Response

Yes.

The NRA requires that the social environment of places where nuclear fuel cycle facilities will be constructed be described in applications for permit.

When reviewing such applications, the NRA verifies that radioactive materials will be stored and transported in accordance with laws and regulations and that nitric acid and other chemicals, including waste, will be managed properly and disposed of. In analyzing the appropriateness of siting by facility operators, the NRA considers the measures necessary to ensure appropriate management of such materials.

<Attachments>

Reprocessing Ordinance, Articles 1-2, 14, 15, and 16

Off-Site Transportation Ordinance

Subsidiary Attachments

G20The NRA Ordinance on Off-Site Transportation of Nuclear Fuel Materials etc.

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.16

Does the regulatory body require that the site evaluation includes the assessment of the existing site infrastructure (e.g. the power supply and its reliability)?

Subsidiary Response

Yes.

Based on the Reactor Regulation Act, the Reprocessing Ordinance requires that explanations of the social environment and other related conditions of locations where nuclear fuel cycle facilities will be constructed be given and that necessary assessments be performed based on such explanations.

The Reprocessing Permit Ordinance also requires that assessments be performed to ensure the electricity supply is sufficient to maintain the functions of nuclear fuel cycle facilities.

<Attachments>

Reprocessing Ordinance, Article 1-2

Reprocessing Permit Ordinance, Article 25

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.17

Does the regulatory body require that the site evaluation includes an assessment of the foreseeable natural and human-made changes in the area over a period that encompasses the projected lifetime of the facility?

Subsidiary Response

The NRA requires applicants for permit to describe in their applications the conditions of the locations where nuclear fuel cycle facilities will be constructed, including weather, ground conditions, hydraulic conditions, earthquakes, and the social environment. Although applicants are not explicitly required to assess predictable changes, they are expected to describe in their application documents any changes they foresee at the time of application.

<Attachments>

Reprocessing Ordinance, Article 1-2

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.18

Does the regulatory body require that the site evaluation includes an assessment of the need for and the extent of mitigatory actions and emergency measures that may be required for accident situations at the facility?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires applicants for permit to assess exposure doses in the event of a design basis accident in order to ensure the effectiveness of measures to prevent the worsening of serious accidents.

To provide standards for assessing the adequacy of safety design for design basis accidents, the NRA requires licensees to avoid any risks resulting in marked radiation exposure of residents in surrounding areas. The NRA also requires that measures be taken to prevent abnormally high amounts of radioactive materials from being released in the event of a severe accident.

<Attachments>

Reprocessing Permit Ordinance, Articles 16 and 28

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.19

Does the regulatory body require that the license applicant/licensee collects information in sufficient detail to support the safety analysis to demonstrate that the facility can be operated safely at the proposed site?

Subsidiary Response

Yes.

The Reactor Regulation Act requires, based on the potential hazards for nuclear fuel cycle facilities, that applicants investigate information required to analyze the safety programs they will implement for their facilities and describe such information in their application documents for permit.

More specifically, applicants are required to describe the social environment of the locations where facilities will be constructed, including ground conditions, weather, hydraulic conditions, and transportation infrastructure.

<Attachments>

Reprocessing Ordinance, Article 1-2

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.20

Does the regulatory body specify requirements on the content and format of the licensing documentation for the siting stage?

Subsidiary Response

Yes.

As a requirement based on the Reactor Regulation Act, the Reprocessing Ordinance prescribes what must be described in applications for permit.

<Attachments>

Reprocessing Ordinance, Article 1-2

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.21

Does the regulatory body require the operating organisation to establish a programme for monitoring the site characteristics throughout the lifetime of the facility?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to perform periodic safety assessment of continuous improvement after start of operation. The Reactor Regulation Act requires licensees to perform periodic safety assessment of continuous improvement in order to investigate site characteristics and assess facility safety based on the results. However, currently, only seismic and tsunami hazards are reassessed in the Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities.

Also, the NRA requires that wind velocity and direction, rainfall, and air temperature be recorded continuously and that records of doing so be preserved for the specified period of time.

<Attachments>

Reactor Regulation Act, Article 50-4-2

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Reprocessing Ordinance, Article 8

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Question 1.1.22

Does the regulatory body require the operating organisation to evaluate natural and human-made changes in the area throughout the lifetime of the facility and compare them with the original predictions?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires that facilities be assessed at the time of application for permit (prior to construction) in order to evaluate natural and artificial hazards.

After start of operation, the Reactor Regulation Act requires that periodic safety assessment of continuous improvement be performed. To do so, surveys must be conducted to check the characteristics of facility sites and to evaluate the safety of nuclear fuel cycle facilities based on changes in their characteristics.

<Attachments>

Reactor Regulation Act, Article 50-4-2

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.23

Does the regulatory body require that the safety precautions, such as engineering controls and emergency preparedness arrangements, are reviewed and changed as appropriate to reflect changes in the site characteristics over the lifetime of the facility?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires that periodic safety assessment of continuous improvement be assessed after start of operation. To do so, surveys must be conducted to check the characteristics of facility sites. Based on the results, the safety of nuclear fuel cycle facilities is assessed and changes are made to safety programs as needed.

<Attachments>

Reactor Regulation Act, Article 50-4-2

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Question 1.1.24

What are the bases for the regulatory requirements regarding the design of fuel cycle facilities?

Subsidiary Response

The Reactor Regulation Act requires that the design of nuclear fuel cycle facilities be adequate in terms of location, structure, and equipment in order to prevent damage caused by nuclear fuel materials or objects contaminated by such materials. Such facilities must also be designed in accordance with radiation protection targets and dose limits.

<Attachments>

Reactor Regulation Act, Article 44-2

Reprocessing Ordinance, Article 10

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.25

Does the regulatory body require that the design and safety justification of the facility take account of the interfaces with other facilities and installations?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires nuclear fuel cycle facility operators to design their facilities by considering interfaces with other facilities and equipment. For example, the NRA requires that facilities with safety functions be able to be shared with other facilities without jeopardizing safety and that portable equipment for coping with serious accidents can be easily and reliably connected to permanent facilities.

<Attachments>

Reprocessing Permit Ordinance, Articles 15 and 33

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.26

Does the regulatory body require that explicit criteria are specified for the design of the fuel cycle facility with regard to the level of safety to be achieved?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires facility operators to ensure a level of safety in accordance with the standards of the Reactor Regulation Act or radiation protection targets. More specifically, the NRA has set the following requirements.

- For the general public

(1) During normal times, the NRA has set the annual effective dose limit outside Environmental Monitoring Areas at 1 mSv. The NRA has also set limits on the radiation concentration in the air and water outside Environmental Monitoring Areas resulting from the release of radioactive materials into the surrounding environment.

(2) For accidents, the NRA has set the effective dose limit outside Environmental Monitoring Areas at 5 mSv. For design basis accidents, the NRA requires the amount of radioactive materials released to be below 100 tera becquerel in terms of cesium 137.

- For personnel engaged in radiation work

(1) During normal times, the NRA has set the effective dose limit at 100 mSv for five years. The NRA has also set limits for radiation concentration in the air breathed by personnel engaged in radiation work.

(2) For accidents, the NRA has set the effective dose limit in emergency work during accidents at 100 mSv per accident. The NRA also requires that measures be taken to ensure safety during work by personnel engaged in radiation work against the chemical effects of uranium hexafluoride leakage during accidents at processing facilities.

<Attachments>

Reprocessing Ordinance, Article 10

Fuel Fabrication Dose Limit Notice

Reprocessing Permit Ordinance (including Reprocessing Permit Guide), Article 16, 28

Fuel Fabrication Permit Ordinance (including Fuel Fabrication Permit Guide), Article 15, 22

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

Subsidiary Question 1.1.27

Does the regulatory body require the use of risk targets and acceptance criteria in the design of fuel cycle facilities?

Subsidiary Response

No.

Risk goals for nuclear power facilities were reviewed by the former Nuclear Safety Commission's Special Committee on Safety Goals. As a quantitative safety goal, the Committee proposed reducing the average risk of death for the general public resulting from radiation exposure caused by nuclear facility accidents to less than approximately one in one million per year. However, the NRA has not set any risk goals in regulations for individual nuclear fuel cycle facilities.

Thus far, probabilistic risk assessment (PRA) methods for nuclear fuel cycle facilities have not yet been fully developed. However, it is desirable to make the most of the PRA methods available today rather than to wait for them to fully mature. For this reason, the NRA is working to gather data required for PRA methods by using in periodic safety assessment of continuous improvement in consideration of the potential hazards for their facilities. At the same time, the NRA requires that available data be actively used based on the extent of development of PRA methods.

<Attachments>

Reactor Regulation Act, Article 50-4-2

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Question 1.1.28

Does the regulatory body require that the availability and reliability of design measures and administrative controls are commensurate with the potential hazards to be managed?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires facility operators to design SSCs that have safety functions, are important for safety, or are necessary to cope with severe accidents by considering the multiplicity, diversity, and independence required based on such facilities' levels of importance.

<Attachments>

Reprocessing Permit Ordinance (including Reprocessing Permit Guide), Articles 15, 24, 25, 26, 27, 33, 34, 36, 37, 39, 42, and 46

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.29

Does the regulatory body specify postulated initiating events to be considered in the design of fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires facility operators to design facilities in consideration of initiating events. More specifically, the NRA

requires operators to consider the following factors: releases of radioactive and chemical materials inside facilities, fires, explosions, earthquakes, water overflow, tornadoes, and malfunctions of instrumentation and control systems.

<Attachments>

Reprocessing Permit Ordinance (including Reprocessing Permit Guide), Articles 5, 7, 8, 9, 11, 12, 15

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.30

What are the regulatory requirements concerning the SSCs and administrative requirements important to safety?

Subsidiary Response

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires facility operators to observe design standards for such facilities. To ensure the safety of important SSCs, operators are required to prevent damage from fires, explosions, natural phenomena, human-caused events, water overflow inside facilities, and chemical leaks. Operators are also required to prevent functional loss due to erroneous operation and single failures, and they must also be able to perform inspections and tests during operation and properly maintain and repair the facilities.

<Attachments>

Reprocessing Permit Ordinance (including Reprocessing Permit Guide), Articles 5, 7, 8, 9, 11, 12, 13, and 15

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.31

Does the regulatory body require the operating organisation to perform an internal safety review of the design of the facility, independently from the designer?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to establish a quality assurance system to support management and supervision by divisions that conduct operational safety activities in order to ensure service quality. When procuring outside services (designers, etc.) within the framework of such a quality assurance system, licensees must manage the items required to properly implement their action plans. Under the system, it is required that in review of facility design, the department or staff involved in the design of the relevant facility shall not perform the review the design.

<Attachments>

Reprocessing QMS Ordinance, Article 33

Subsidiary Attachments

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 1.1.32

Does the regulatory body require the operating organisation to maintain an adequate liaison with the facility designer, in order to ensure proper access to safety-related information and technical support, as needed?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to collaborate with facility designers in their quality assurance systems. When procuring outside services (designers, etc.) within the framework of such a quality assurance system, licensees must manage the items required to properly implement their action plans. Under the system, it is required that in design and development verification, the involved representative and specialists shall perform the relevant verification.

<Attachments>

Reprocessing QMS Ordinance, Articles 32

Subsidiary Attachments

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 1.1.33

Does the regulatory body impose requirements on the use of codes and standards for nuclear fuel cycle facilities?

Subsidiary Response

Yes.

Ordinances for nuclear fuel cycle facilities are performance-based. The NRA uses voluntary consensus standards after endorsing those standards if the NRA can confirm by technical assessment that those standards satisfy the performance codes.

<Attachments>

Reprocessing Permit Guide, Chapter 1

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.34

Does the regulatory body require the consideration of human factors and human-machine interfaces in the design of fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires facility operators to prevent operational mistakes and to design facilities that are important for safety so as to be easily operated during the permit stage. The NRA also requires facility operators to construct facilities in accordance with the basic designs presented in permit for approval of design and construction methods.

More specifically, the NRA reviews applications to ensure that human engineering factors are considered in panel arrangements and valve designs and that care is taken to prevent operational mistakes during maintenance and inspection.

<Attachments>

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.35

Does the regulatory body require the consideration of ageing management from the design stage of fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires that the materials and structures of facilities important for ensuring safety meet design requirements for strength and corrosion resistance. Furthermore, aging effects of corrosion, fatigue, and creep caused by chemical substances must be sufficiently considered in detailed design.

<Attachments>

Reprocessing Design Construction Ordinance, Article 6

Subsidiary Attachments

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 1.1.36

Does the regulatory body impose requirements on the maintenance, inspection and testing of fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA imposes requirements on maintenance, inspection, and testing of facilities.

For example, the NRA requires that reprocessing facilities be made available for a variety of inspections during basic design. To be permitted for use, reprocessing facilities must pass pre-service inspections conducted to ensure that construction work is carried out according to detailed design based on permit. Subsequently, facilities must also be inspected daily and checked monthly and annually to ensure facility performance is maintained. Periodic inspections are also necessary.

<Attachments>

Reactor Regulation Act, Articles 46, 46-2-3, and 50

Reprocessing Permit Ordinance, Article 15

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.37

Does the regulatory body specify requirements for the use of computer based systems important to safety?

Subsidiary Response

Yes.

In consideration of the diverse types of nuclear fuel cycle facilities, the NRA does not specify one-size-fits-all requirements for such facilities. However, in safety reviews of individual facilities, to ensure quality among other reasons, the NRA reviews the appropriateness of facilities that are important for safety, including computer systems such as instrumentation and control systems and safety protection circuits.

<Attachments>

Reprocessing Technical Standards Ordinance, Article 46

Subsidiary Attachments

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

Subsidiary Question 1.1.38

Does the regulatory body specify requirements on the design measures to be incorporated in a fuel cycle facility for coping with accident conditions?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires that facilities intended to prevent the expansion of accidents and to mitigate the effects thereof be incorporated in facility design to cope with accident conditions.

More specifically, the NRA requires that measures be taken to cope with high temperatures, high pressure, high levels of radiation, and other postulated initiating events that may lead to severe accidents.

<Attachments>

Reprocessing Permit Ordinance, Chapter 3

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.39

Does the regulatory body require that specific features for emergency planning purposes are incorporated in the design of a fuel cycle facility?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires that SSCs for coping with accident conditions be present, including evacuation routes, communication equipment, emergency offices, and monitoring/measurement facilities.

<Attachments>

Reprocessing Permit Ordinance, Articles 14, 23, 24, 25, 26, 27, 46, and 47

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.40

Does the regulatory body require that the generation of radioactive waste is optimised from the design stage?

Subsidiary Response

No.

Because no method has been established for disposing of radioactive waste generated from nuclear fuel cycle facilities, the NRA allows licensees to store nuclear waste as is.

Although the NRA does not require that amounts of radioactive waste be reduced, it does require that such waste be strictly and safely controlled based on the Reactor Regulation Act. To reduce the amount of resources required for management, licensees are working on independent initiatives to minimize amounts of radioactive waste.

Subsidiary Question 1.1.41

Does the regulatory body require that the design of a fuel cycle facility includes provisions for the management of aerial and liquid radioactive discharges to the environment?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires facility operators to control releases of radioactive materials into the environment by installing equipment to monitor the concentration of radioactive materials before such release.

More specifically, facility operators are required to monitor and measure the concentrations and doses of radioactive materials in facilities and in areas near facility boundaries.

<Attachments>

Reprocessing Permit Ordinance, Article 24

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.42

Does the regulatory body require that provisions for facilitating decommissioning are taken into account in the design of a fuel cycle facility?

Subsidiary Response

No.

According to the Reactor Regulation Act, licensees must implement appropriate decommissioning measures when decommissioning nuclear fuel cycle facilities.

<Attachments>

Reactor Regulation Act, Article 50-5

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.43

Does the regulatory body require that provisions for contamination control and protection against internal exposure are taken into account in the design of a fuel cycle facility?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires a confinement function to control contamination inside facilities and to protect against internal exposure.

More specifically, reprocessing facilities must maintain cells and gloveboxes at a negative pressure. Cells that contain equipment for handling liquid spent fuel must have a structure that allows monitoring of leakage of liquid fuel from the equipment. Such cells must have a structure that enables safe handling of liquid fuel when leakage occurs and prevents leakage of fuel outside the cells. Workers must wear protective clothing.

The NRA also requires that information necessary for radiation control be displayed where it is needed.

<Attachments>

Reprocessing Permit Ordinance, Articles 4, 23, and 24

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.44

Does the regulatory body require that provisions for protection against external exposure are taken into account in the design of a fuel cycle facility?

Subsidiary Response

Yes.

Depending on the potential hazards for nuclear fuel cycle facilities, the NRA requires that measures be taken to protect against external exposure in such facilities.

More specifically, operators of facilities with safety functions must ensure that during operation or suspension of their facilities, the dose of direct or skyshine radiation from facilities in areas around the plant is sufficiently below the dose limit specified by the NRA. In addition, in locations where it is necessary to prevent radiation hazards resulting from external radiation inside the plant, shelters must be built with sufficient sheltering capacity to prevent radiation hazards. If there is a need to prevent radiation hazards by openings, piping, or other connections in such shelters, measures must be taken to prevent radiation leakage.

<Attachments>

Reprocessing Permit Ordinance, Article 3

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.45

Does the regulatory body require that the design of the fuel cycle facilities includes adequate provisions for controlling criticality hazards?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA imposes requirements for criticality control.

More specifically, facilities with safety functions must implement appropriate measures to prevent criticality accidents. To this end, measures must be taken to control the shapes and sizes of devices used to store nuclear fuel materials; to monitor the concentration and mass of nuclear fuel materials and the composition of isotopes; and to control the shapes, sizes,

concentration, and materials of neutron absorbents. These methods must be used in combination to prevent nuclear fuel materials from reaching criticality even if any of the following events postulated in the operation of units for handling nuclear fuel materials should occur: a failure or malfunction of a machine or tool, or an operational mistake by an operator.

<Attachments>

Reprocessing Design Construction Ordinance, Article 2

Subsidiary Attachments

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 1.1.46

Does the regulatory body require that non-radiological hazards that can impact on nuclear safety are considered in the design of a fuel cycle facility?

Subsidiary Response

Yes.

The NRA identifies initiating events that should be considered in the design, based on the characteristics of nuclear fuel cycle facilities, and conducts reviews to ensure that the design does not interfere with emergency response. These include external events such as fire, explosion, chemical substance leakage, missiles, and tornadoes.

In addition, the Industrial Safety and Health Law requires that employers implement measures to prevent industrial accidents associated with specified chemical substances, etc. handled at reprocessing facilities. This aspect is also considered in design as needed.

Enrichment facilities are equipped with hydrogen fluoride detectors, although it is not a regulatory requirement. In the event of a malfunction, the facility automatically stops discharge.

<Attachments>

Reprocessing Design Construction Ordinance, Article 4

Subsidiary Attachments

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 1.1.47

Does the regulatory body require the performance of fire safety analyses for fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires facility operators to prevent facilities from being damaged by fires. The NRA also confirms fire safety analyses of design basis accidents in the review during the permit stage.

<Attachments>

Reprocessing Design Construction Ordinance, Article 4

Subsidiary Attachments

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 1.1.48

Does the regulatory body require a safety demonstration to be submitted before authorising the construction of a fuel cycle facility?

Subsidiary Response

Yes.

During the process for permit the design and construction method mandated based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to submit application documents that explain how their facilities have been designed in compliance with technical standards based on the Reactor Regulation Act.

<Attachments>

Reactor Regulation Act, Article 16-2

Reprocessing Ordinance, Article 2

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.49

What is the content of the safety case / safety analysis report submitted in support of an application for a construction licence for a fuel cycle facility?

Subsidiary Response

Licensees must attach to their applications documents that show that calculations for design and construction methods described in their applications conform to technical standards and documents which show that designs and methods for quality management of construction work conform to technical standards.

<Attachments>

Reprocessing Ordinance, Article 2

Reprocessing Design Construction Ordinance

Reprocessing QMS Ordinance

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 1.1.50

Does the regulatory body specify requirements for the different stages of the construction of a fuel cycle facility?

Subsidiary Response

Yes.

Depending on the level of importance of the relevant nuclear fuel cycle facilities, the NRA conducts reviews during the stages of basic and detailed design. Afterwards, the NRA confirms that designs and construction methods are consistent with the basic design permitted by the NRA and general standards. The NRA also conducts pre-service inspections

to check the construction and performance of facilities before use. For details, see Section 9.4 (Nuclear Fuel Cycle Regulation in Japan) in "Outline of Nuclear Regulation of Japan".

<Attachments>

Reprocessing Ordinance, Article 6

Reactor Regulation Act, Articles 45, 46, and 46-2

Reprocessing Design Construction Ordinance

Reprocessing Technical Standards Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

Subsidiary Question 1.1.51

Does the regulatory body require that the operating organisation has made adequate arrangements for the safe management of the construction process, including the oversight of the work performed by contractors?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to ensure that quality management methods for facility design and construction meet technical standards. During the review of designs and construction methods, the NRA confirms that technical standards have been fulfilled.

<Attachments>

Reprocessing QMS Ordinance, Articles 36, 37, and 38

Subsidiary Attachments

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 1.1.52

Does the regulatory body require that the operating organisation implements a process for verifying the compliance of construction and installations of SSCs important to safety in order to ensure that the design requirements and intent are properly met?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to describe the organizations in charge of quality assurance in their applications for approval of designs and construction methods. The NRA reviews such applications to confirm that technical standards have been fulfilled.

<Attachments>

Reprocessing Ordinance, Article 2

Reprocessing QMS Ordinance, Articles 39 and 40

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 1.1.53

Does the regulatory body require that the operating organisation maintains adequate records to confirm that the facility and its equipment have been constructed in accordance with design specifications?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to prepare and store records on quality management from the stage of approval of designs and construction methods. As needed, the NRA confirms records on construction kept by licensees as a result of pre-service inspections.

<Attachments>

Reprocessing QMS Ordinance, Article 7

Subsidiary Attachments

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 1.1.54

Does the regulatory body require that the operating organisation implements a formal procedure for the management of design changes during construction of the fuel cycle facility?

Subsidiary Response

Yes.

The Reactor Regulation Act requires licensees to submit applications for approval to the NRA when the licensee changes designs that have already been approved by the NRA in the same manner as when the licensee applied for approval for the original design.

<Attachments>

Reactor Regulation Act, Article 45

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.55

Does the regulatory body require that the operating organisation has available the as built drawings of the facility and reviews them to confirm compliance with the design intent and specifications?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to submit design drawings during the stage of approval for designs and construction methods. The NRA reviews whether such drawings meet the relevant standards.

If, as a result of changes in a design, a need arises to revise submitted design drawings, licensees must report any changes to the NRA to obtain approval again.

<Attachments>

Reactor Regulation Act, Article 45

Reprocessing Ordinance, Articles 2 and 3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.56

Does the regulatory body require the submission of a safety demonstration / safety analysis report prior to authorising the commissioning of a fuel cycle facility?

Subsidiary Response

Yes.

Before conducting pre-service inspections mandated based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires facility operators to obtain permit for their basic design and design policies. Facility operators are also required to obtain approval for detailed design and construction methods developed based on the said approval. Operators must submit written assessments on the specified items when applying for such authorization.

<Attachments>

Reactor Regulation Act, Articles 44, 45 and 46

Reprocessing Ordinance, Articles 1-2, 2, and 5

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.57

Does the regulatory body specify requirements regarding the commissioning programme for fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, facility operators must undergo pre-service inspections after permit and approval of designs and construction methods. Based on applications submitted by licensees describing the schedule and items for pre-service inspections, the NRA prepares inspection manuals in order to specify the items required to verify that the construction and performance of facilities conform to approval requirements and fulfill performance standards. The NRA conducts inspections in accordance with the inspection manuals it has prepared.

<Attachments>

Reprocessing Ordinance, Articles 6 and 6-4

Reprocessing Technical Standards Ordinance

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

Subsidiary Question 1.1.58

Does the regulatory body require the implementation of an adequate management system for the commissioning stage of a fuel cycle facility?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to obtain approval for Operational Safety Programs before using nuclear fuel materials at facilities. In Operational Safety Programs, licensees must specify the work tasks of and organization for managing facilities and rules for quality assurance.

<Attachments>

Reprocessing Ordinance, Article 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.59

Does the regulatory body require the implementation of a commissioning programme also for facilities or processes restarting after lengthy shutdown periods?

Subsidiary Response

Yes.

When resuming use of a nuclear fuel cycle facility after a long-term suspension, based on the potential hazards for the facility, the NRA verifies that its performance conforms to technical standards by means of a pre-service inspection if the facility is under a pre-service inspection program or by means of an annual periodic facility inspection if the facility is already in operation, and so on.

<Attachments>

Reactor Regulation Act, Articles 46 and 46-2-3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.60

Does the regulatory body require that the operating organisation establishes a safety committee to review the commissioning programme and the results of commissioning tests and to provide technical advice to the operating organisation?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to obtain approval for Operational Safety Programs before using nuclear fuel materials at facilities. In Operational Safety Programs, licensees must specify the work tasks of and organization for managing facilities and rules for quality assurance. In the review for safety program approval, the NRA verifies that an appropriate meeting system has been established.

<Attachments>

Reprocessing Ordinance, Article 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.61

Does the regulatory body require that the results of tests directly concerning safety and their analyses are made available for regulatory review and approval?

Subsidiary Response

Yes.

When conducting a pre-service inspection mandated based on the potential hazards for nuclear fuel cycle facilities, the NRA can require licensees to submit documents related to pre-inspection requirements and record inspections as necessary.

<Attachments>

Reactor Regulation Act, Article 46

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.62

Does the regulatory body require that the commissioning activities are performed in accordance with written procedures?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA conducts pre-service inspections in accordance with the inspection manuals it has prepared. The purpose of these inspections is to check whether facility construction is carried out in accordance with the approved designs and construction methods and whether performance fulfills the technical standards.

<Attachments>

Reprocessing Ordinance, Articles 6 and 6-4

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.63

Does the regulatory body require that the objectives of the commissioning tests, the acceptance criteria, the safety provisions required during tests and the necessary precautions and prerequisites are specified in the commissioning procedures?

Subsidiary Response

Yes.

When conducting a pre-service inspection mandated based on the potential hazards for nuclear fuel cycle facilities, the NRA prepares an inspection manual and conducts the inspection based on the said manual. This inspection manual describes pre-inspection requirements to confirm the results of independent inspections conducted by facility operators and standards for passing the inspection along with the inspection's objectives and location.

<Attachments>

Reprocessing Ordinance, Articles 5, 6, and 6-4

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.64

Does the regulatory body require to witness specific commissioning activities?

Subsidiary Response

Yes.

When conducting a pre-service inspection mandated based on the potential hazards for nuclear fuel cycle facilities, the NRA prepares an inspection manual that describes the inspection's objectives, location, pre-inspection requirements, details of the inspection, and so on. The NRA conducts on-site inspections as necessary.

<Attachments>

Reprocessing Ordinance, Articles 6 and 6-4

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.65

What are the notifications required by the regulatory body during the commissioning of a fuel cycle facility?

Subsidiary Response

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to submit applications for pre-service inspections before using their facilities (before commissioning). Even during the commissioning stage, licensees must report to the NRA without delay on a facility's status and other matters specified by the NRA if an accident hazardous to humans, facility failure, or other event specified by the NRA occurs.

<Attachments>

Reactor Regulation Act, Article 62-3

Reprocessing Ordinance, Article 19-16

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.66

Does the regulatory body require that reports are prepared for all commissioning activities? (e.g. test reports)

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to carry out quality assurance activities during construction. The NRA can conduct security inspections to verify that records are compiled and maintained in accordance with such quality assurance activities.

<Attachments>

Reactor Regulation Act, Article 45

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.67

Does the regulatory body require the implementation of a process for corrective actions dealing with deviations and deficiencies identified during the commissioning?

Subsidiary Response

Yes.

If inadequacies or defects are discovered during a pre-service inspection mandated for nuclear fuel cycle facilities based on the potential hazards for the facilities, the NRA requires facility operators to take corrective measures in accordance with Operational Safety Programs or quality assurance plans.

<Attachments>

Reprocessing Ordinance, Articles 8-3 and 17

Subsidiary Attachments

Subsidiary Question 1.1.68

Does the regulatory body require that the operating organisation has available and retains all the commissioning test results, whether obtained by the operating organisation or by a manufacturer?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires facility operators to keep the results of pre-service inspections on facility construction and performance for the designated period of time. The NRA can request that licensees submit these results as necessary.

<Attachments>

Reprocessing QMS Ordinance, Article 7

Subsidiary Attachments

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 1.1.69

Does the regulatory body require that commissioning test results are made available for regulatory review?

Subsidiary Response

Yes.

The NRA does not require licensees to submit the results of commissioning; however, when conducting a pre-service inspection, the NRA can request that licensees submit the results of test operations in order to check pre-inspection requirements.

<Attachments>

Reprocessing Ordinance, Articles 6 and 6-4

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.70

Does the regulatory body require the submission of an appropriate safety demonstration / safety case / safety analysis report prior to authorising the operation of a fuel cycle facility?

Subsidiary Response

Yes.

Before conducting pre-service inspections mandated for nuclear fuel cycle facilities based on the potential hazards for the facilities, the Reactor Regulation Act requires facility operators to obtain approval for their basic design and design policies and for detailed design and construction methods developed based on such basic policies. When applying for the aforementioned approval, facility operators must submit assessments of the specified items.

<Attachments>

Reactor Regulation Act, Articles 44, 45, and 46

Reprocessing Ordinance, Articles 1-2, 2, and 5

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.71

Does the regulatory body require that the operating organisation establishes an appropriate management structure and the necessary infrastructure for the safe operation of the fuel cycle facility?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to establish rules on the following matters in Operational Safety Programs: matters related to tasks for and organizations of those engaged in operation and management of facilities; matters on systems for ensuring compliance with relevant laws and safety programs; and matters on safety education policies.

<Attachments>

Reprocessing Ordinance, Article 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.72

Does the regulatory body specify requirements on the qualification and training of personnel for the fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA sets requirements for qualifications and training of facility personnel. More specifically, in various operational rules, the NRA requires that facility operations be performed by those who have a level of knowledge necessary to carry out such operations. The NRA also sets requirements for chief engineers of nuclear fuel appointed to supervise operational safety when handling nuclear fuel materials.

In addition, the NRA also requires facility operators to establish rules for education and training of facility personnel in safety programs and confirms these rules during the review for safety program approving.

<Attachments>

Reprocessing Ordinance, Articles 13, 17, and 18

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.73

Does the regulatory body require that the operating organisation defines the minimum staffing levels for the safe operation of the fuel cycle facility, including for inter-campaign periods, accident management and implementation of the emergency plan?

Subsidiary Response

Yes.

The Reactor Regulation Act requires that nuclear fuel cycle facility operators obtain approval for Operation Safety Program before using nuclear materials at facilities based on the potential hazards for nuclear fuel cycle facilities. The NRA requires the licensees to have necessary facility operators for operation and management, necessary staff to facilitate activities to ensure facility safety in the event of a severe accident in Operational Safety Program.

<Attachments>

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

Subsidiary Question 1.1.74

Does the regulatory body require that the operating organisation establishes one or more internal safety committees to provide advice on safety issues related to the commissioning, operation and modification of the facility?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to obtain approval for their operational safety programs before using nuclear fuel materials at facilities. In Operational Safety Programs, licensees must specify the work tasks of and organization for managing facilities and rules for quality assurance. In

the review for operational safety program, the NRA verifies that an appropriate meeting system has been established.

<Attachments>

Reprocessing Ordinance, Article 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.75

Does the regulatory body require that the operating organisation makes adequate arrangements for the feedback of operating experience?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to specify items concerning assessment and ongoing improvement of quality assurance activities in accordance with quality assurance plans in operational safety programs and to obtain approval for such programs. These quality assurance activities facilitate feedback of operating experience.

Also, in periodic safety assessment of continuous improvement mandated based on the potential hazards for facilities, licensees are required to develop additional measures based on lessons learned from operating experience.

<Attachments>

Reactor Regulation Act, Article 50-4-2

Reprocessing Ordinance, Article 17

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Question 1.1.76

Does the regulatory body require that the operating organisation implements an adequate process for document control?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to establish rules for quality assurance in their operational safety programs. Licensees are also required to specify procedures for appropriately compiling and managing necessary records to meet the standards under the Reprocessing Operational Safety Program Standards.

Licensees implement document management processes based on Operational Safety Programs.

<Attachments>

Reprocessing Ordinance, Articles 8-6 and 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

Subsidiary Question 1.1.77

Does the regulatory body require that the operating organisation makes adequate arrangements for the management of organisational changes?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to establish rules on organizations for quality assurance and improvement of operational safety activities in quality assurance plans developed based on Operational Safety Programs.

Licensees make organizational changes in order to improve safety activities as needed when implementing quality assurance measures based on such safety programs.

<Attachments>

Reprocessing Ordinance, Articles 8-5, 8-9, and 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.78

Does the regulatory body specify reporting requirements for fuel cycle facilities?

Subsidiary Response

Yes.

The NRA requires nuclear fuel cycle facility licensees to submit reports. More specifically, the NRA requires them to submit reports on accidents caused by loss of confinement functions due to facility failures and periodic reports on radiation workers' radiation doses.

<Attachments>

Reprocessing Ordinance, Articles 19-16 and 21

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.79

Does the regulatory body specify which facility modifications require regulatory approval prior to implementation?

Subsidiary Response

Yes.

The Reactor Regulation Act prescribes requirements for nuclear fuel cycle facility licensees on facility changes that require prior approval.

More specifically, the Reactor Regulation Act requires that licensees submit applications to the NRA to obtain approval when making changes to facility designs or operational safety programs.

The dismantling plan of the authorized SSCs should not be reviewed when that dismantling work may result in releasing nuclear materials with possible exposure beyond the dose limit to the public (1 mSv/year) at the site boarder.

<Attachments>

Reactor Regulation Act, Articles 44-4, 45, and 50

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.80

Does the regulatory body specify requirements on the operational limits and conditions for fuel cycle facilities?

Subsidiary Response

Yes.

The NRA requires that licensees attach written documents on the safety design of nuclear fuel cycle facilities to their permit applications. When reviewing such applications, the NRA checks the appropriateness of these safety assessments, including requirements for analysis carried out to confirm the validity of the designs described in the applications.

Operational limits, including nuclear and thermal limits, are described in applications for designs and construction methods and are specified in safety programs. The NRA requires licensees to ensure that these limits are consistent with the requirements for safety assessments described in their permit applications.

<Attachments>

Reprocessing Ordinance, Articles 1-2, 2, and 17

Subsidiary Attachments

Subsidiary Question 1.1.81

Does the regulatory body specify requirements on maintenance, calibration, periodic testing and inspection for fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act and the relevant NRA ordinances prescribe requirements for licensees regarding periodic independent facility inspections in addition to maintenance, calibration, and inspections for facilities carried out during daily patrols.

In addition, based on the potential hazards for nuclear fuel cycle facilities, the NRA also verifies whether facility performance is being properly maintained so as to meet standards in annual periodic facility inspections.

<Attachments>

Reactor Regulation Act, Articles 46-2-3 and 48

Reprocessing Ordinance, Articles 11 and 12

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.82

Does the regulatory body specify requirements on the control of modifications at fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to specify items concerning facility quality assurance in Operational Safety Programs and obtain approval for these programs. Based on Operational Safety Programs, licensees must prepare quality assurance plans and plan, implement, evaluate, and improve their safety activities based on the quality assurance plans.

<Attachments>

Reprocessing Ordinance, Articles 8-3 and 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.83

Does the regulatory body specify requirements on radiation protection for fuel cycle facilities in operation?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA specifies requirements for licensees on radiation protection.

More specifically, the NRA requires licensees to avoid exceeding the following dose limits.

- For the general public

(1) During normal times, the NRA has set the annual effective dose limit outside Environmental Monitoring Areas at 1 mSv. The NRA has also set limits on the radiation concentration in the air and water outside Environmental Monitoring Areas resulting from the release of radioactive materials into the surrounding environment.

(2) For accidents, the NRA has set the effective dose limit outside Environmental Monitoring Areas at 5 mSv per accident. For severe accidents, the NRA requires the amount of radioactive materials released to be below 100 tera becquerel in terms of cesium 137.

- For personnel engaged in radiation work

(1) During normal times, the NRA has set the effective dose limit at 100 mSv for five years. The NRA has also set limits for radiation concentration in the air breathed by personnel engaged in radiation work.

(2) For accidents, the NRA has set the effective dose limit in emergency work during accidents at 100 mSv per accident. The NRA also requires that measures be taken to ensure safety during work by personnel engaged in radiation work against the chemical effects of uranium hexafluoride leakage during accidents at processing facilities.

<Attachments>

Reprocessing Ordinance, Article 10

Fuel Fabrication Dose Limit Notice

Reprocessing Permit Ordinance (including Reprocessing Permit Ordinance Guide), Article 16, 28

Fuel Fabrication Permit Ordinance (including Fuel Fabrication Permit Ordinance Guide), Article 15, 22

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

Subsidiary Question 1.1.84

Does the regulatory body require the operating organisation to establish and implement a radiation protection programme that covers all activities involving potential radiation exposure?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to establish and implement radiation protection programs. To this end, licensees are required to develop safety programs on safety education for radiation workers, establishment of controlled areas and Environmental Monitoring Areas, restrictions on entry to such areas, and operation of facilities that require special security management.

<Attachments>

Reprocessing Ordinance, Article 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.85

Does the regulatory body specify requirements with regard to the availability, competence and qualifications of the radiation protection personnel for the fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to prepare quality assurance plans based on Operational Safety Programs. Based on these plans, licensees must plan, implement, assess, and improve safety activities while simultaneously continuing to improve their quality assurance plans.

Rules for recruitment of personnel and competency management including education and training must be specified in these quality assurance plans.

<Attachments>

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

Subsidiary Question 1.1.86

Does the regulatory body specify requirements for the control of occupational exposures at fuel cycle facilities?

Subsidiary Response

Yes.

The NRA requires that nuclear fuel cycle facility licensees not exceed the dose limits it has specified.

<Attachments>

Reprocessing Ordinance, Article 10

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.87

Does the regulatory body specify requirements for the control of contamination at fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA specifies requirements on management of contamination at facilities.

More specifically, during the permit stage, the NRA checks whether the basic facility design to prevent expand of damage in the event of an accident properly conforms to standards. Based on the basic design, in order to control contamination, facility operators are required to establish controlled areas in their operating facilities, restrict access to specified areas, and set requirements including controlling the concentration of radioactive materials on the surface of radiation-contaminated objects that may be touched by people so as to fall within the concentration limits specified by the NRA.

<Attachments>

Reprocessing Ordinance, Article 9

Reprocessing Permit Ordinance, Article 23

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 1.1.88

Does the regulatory body specify requirements for criticality control at fuel cycle facilities?

Subsidiary Response

Yes.

The NRA requires nuclear fuel cycle facilities to avoid reaching criticality under any circumstances.

More specifically, based on the potential hazards for nuclear fuel cycle facilities, the NRA stipulates rules for review of basic design for criticality management and facility operations that require special security management.

In addition, the NRA also requires licensees to establish rules in Operational Safety Programs on facility operations, transport and storage of nuclear fuel materials, and so on.

<Attachments>

Reprocessing Technical Standards Ordinance, Article 3

Reprocessing Ordinance, Articles 13, 14, 15, and 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.89

Does the regulatory body require that, where relevant, the operating organisation employs qualified staff who are knowledgeable about the physics of nuclear criticality and the associated safety standards, codes and best practices, and who are familiar with the facility operations?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, during the review of technical competencies for permit, the NRA verifies that engineers with the expertise, techniques, and competencies required to design, construct, operate, and maintain facilities have been appropriately secured. To ensure personnel are qualified, the NRA requires licensees to specify rules in Operational Safety Programs that establish organizational systems for engineers.

<Attachments>

Reprocessing Ordinance, Articles 1-2 and 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.90

Does the regulatory body specify requirements on the management of radioactive waste and effluents resulting from the operation of fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA specifies requirements for facility operators on management of gaseous, liquid, and solid radioactive waste and effluents generated from facility operation.

<Attachments>

Reprocessing Technical Standards Ordinance, Article 25

Subsidiary Attachments

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

Subsidiary Question 1.1.91

Does the regulatory body require the implementation of adequate arrangements for controlling the hazards associated with the operations at the fuel cycle facilities, including chemical, industrial and radiological hazards?

Subsidiary Response

Yes.

Nuclear fuel cycle facilities are required to comply with, in addition to the Reactor Regulation Act, legislation applicable to general industrial facilities, such as the High Pressure Gas Safety Act, Poisonous and Deleterious Substances Control Act, Industrial Safety and Health Law, and Fire Protection Law.

Subsidiary Question 1.1.92

Does the regulatory body specify requirements on fire protection for the fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to design their facilities so as to prevent fires and explosions and to have fire-extinguishing and fire-sensing equipment. Licensees must also specify rules in Operational Safety Programs on the development of systems for initial firefighting activities and take necessary measures based on such rules.

The NRA further requires licensees to perform periodic safety assessment of continuous improvement based on the potential hazards for their facilities in order to evaluate facilities' safety with respect to fire protection.

<Attachments>

Reprocessing Technical Standards Ordinance, Articles 4 and 31

Reprocessing Ordinance, Articles 12-3 and 17

Reactor Regulation Act, Article 50-4-2

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

Subsidiary Question 1.1.93

Does the regulatory body specify requirements on emergency preparedness for fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to specify rules in Operational Safety Programs on the development of systems to facilitate activities to ensure facility safety in the event of a severe accident. Licensees must prepare plans and allocate personnel as necessary based on these rules.

<Attachments>

Reprocessing Ordinance, Articles 17 and 12-4

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.94

Does the regulatory body require that the emergency plan for a fuel cycle facility is tested in an exercise before the radioactive material is introduced into the facility?

Subsidiary Response

No.

However, based on the potential hazards for nuclear fuel cycle facilities, the Nuclear Emergency Act requires licensees to prepare Nuclear Operator Emergency Action Plans to implement and evaluate emergency drills. Licensees must also specify measures to take in an emergency based on such plans in Operational Safety Programs which are approved before nuclear fuel materials can be transported into their facilities. Licensees are allowed to conduct emergency drills as needed in order to test their Nuclear Operator Emergency Action Plans even before nuclear fuel materials have been brought to their facilities.

<Attachments>

Nuclear Emergency Act, Article 7

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

C02 Nuclear Emergency Act

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

Subsidiary Question 1.1.95

Does the regulatory body require that the emergency plans for fuel cycle facilities are tested at suitable intervals, reviewed and updated in the light of the experience gained?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, as specified in Article 7 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, the NRA requires that licensees prepare Nuclear Operator Emergency Action Plans. These plans must specify measures to prevent nuclear emergencies, emergency response measures, restoration measures after a nuclear emergency, and other operations required to prevent the occurrence and expand of damage from a nuclear accident and to recover from such an accident. Licensees are also required to review their Nuclear Operator Emergency Action Plans annually and revise the plans if necessary.

<Attachments>

Nuclear Emergency Act, Article 7

Subsidiary Attachments

C02 Nuclear Emergency Act

Subsidiary Question 1.1.96

Does the regulatory body require that the exercises for testing of the emergency plans for fuel cycle facilities are integrated with local, regional and national response organisations, as appropriate?

Subsidiary Response

Yes.

The Nuclear Emergency Act requires licensees to prepare an emergency preparedness action plan for every place of activity and review it annually. Licensees must appropriately coordinate with national and local governments in preparing and revising their emergency preparedness action plans. The NRA also requires licensees to report the results of disaster prevention drills. If drills are found to be insufficient to prevent the occurrence or progression of a nuclear disaster, the NRA may order the licensee to improve the drill procedure or take other necessary measures.

<Attachments>

Nuclear Emergency Act, Article 7 and Article 13-2

Subsidiary Attachments

C02 Nuclear Emergency Act

Subsidiary Question 1.1.97

Does the regulatory body require the operating organisations to carry out systematic reassessments of the safety of the fuel cycle facilities at regular intervals and to keep the safety documentation of the facility up to date?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the Reactor Regulation Act requires licensees to perform periodic safety assessment of continuous improvement.

In periodic safety assessment of continuous improvement, licensees must verify the measures specified in Operational Safety Programs in order to improve safety by making use of the latest knowledge. Based on the results of such verification, licensees must review documents, including those for Operational Safety Programs, as necessary.

<Attachments>

Reactor Regulation Act, Article 50-4-2

Reprocessing Ordinance, Article 19-3-2

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.98

Does the regulatory body specify requirements on the management system reviews to be carried out by operating organisations for fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to prepare quality assurance plans and continuously improve upon these plans. By making such efforts to improve, licensees are required to implement corrective measures based on analyses of the fundamental causes of nonconformities and to review their management systems as necessary.

<Attachments>

Reprocessing Ordinance, Articles 8-3 and 8-9

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.99

Does the regulatory body require the operating organisations for fuel cycle facilities to conduct self-assessments and safety culture reviews?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA requires licensees to prepare quality assurance plans and to plan, implement, assess, and improve safety activities based on the quality assurance plans.

Licensees are also required to establish systems designed to cultivate a culture of safety in Operational Safety Programs and to comply with such systems.

<Attachments>

Reprocessing Ordinance, Articles 8-3, 8-8, and 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.100

Does the regulatory body require the operating organisations for fuel cycle facilities to put in place appropriate arrangements for the eventual decommissioning of the facility (including funding arrangements)?

Subsidiary Response

Yes.

The Reactor Regulation Act requires licensee to prepare decommissioning plans and to obtain the NRA's approval. Documents and drawings attached to decommissioning plan include explanations of the amount of funds required for decommissioning and plans to procure such funds.

Licensees are also required to obtain approval for (changes to) Operational Safety Program for decommissioning before obtaining approval of their decommissioning plans.

<Attachments>

Reactor Regulation Act, Article 50-5

Reprocessing Ordinance, Articles 19-5 and 17

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.101

Does the regulatory body specify requirements on the decommissioning plans for fuel cycle facilities?

Subsidiary Response

Yes.

Based on the potential hazards for nuclear fuel cycle facilities, the NRA specifies requirements for decommissioning plans.

For example, the NRA has specified the following requirements for decommissioning plans for reprocessing facilities.

- Spent fuel and nuclear fuel materials (excluding spent fuel and nuclear fuel materials that accumulate without being collected after operating a reprocessing facility in an ordinary manner) shall be transported out of reprocessing facilities.*
- Spent fuel, nuclear fuel materials, and materials separated from spent fuel shall be managed and transferred properly.*
- Spent fuel, nuclear fuel materials, materials separated from spent fuel, and materials contaminated by such materials shall be managed, processed, and disposed of properly.*
- Decommissioning shall be conducted properly so as to prevent accidents caused by spent fuel, nuclear fuel materials, materials separated from spent fuel, and materials contaminated by such materials.*

However, the Reactor Regulation Act does not require that an initial decommissioning plan should be developed at the time of establishment.

<Attachments>

Reprocessing Ordinance, Article 19-8

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.102

What are the regulatory requirements relevant for the decommissioning of the fuel cycle facilities?

Subsidiary Response

The Reactor Regulation Act stipulates that licensees must prepare decommissioning plans and obtain the NRA's approval upon decommissioning nuclear fuel cycle facilities. Standards for approving decommissioning plans are defined in Ordinances and the NRA reviews decommissioning plans in accordance with such rules. Licensees must also obtain approval for changes to Operational Safety Programs for decommissioning. Standards for approving safety programs are defined in the Reactor Regulation Act. Licensees must carry out decommissioning in accordance with approved decommissioning plans and Operational Safety Program. When making a change to decommissioning plan or Operational Safety Program, licensees must apply for approval of or report such changes. Upon completion of decommissioning, licensees must apply for confirmation of completion of decommissioning. The NRA confirms completion in accordance with the confirmation standards defined in Ordinances.

<Attachments>

Reactor Regulation Act, Articles 50 and 50-5

Reprocessing Ordinance, Articles 17-2 and 19-5 to 19-10

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.103

Does the regulatory body specify requirements on the conduct of decommissioning activities for fuel cycle facilities?

Subsidiary Response

Yes.

Before decommissioning a facility, licensees must prepare decommissioning plans and obtain the NRA's approval for the plans.

In addition, when starting decommissioning, licensees must make all necessary additions and changes to Operational Safety Programs and obtain the NRA's approval regarding such additions and changes.

<Attachments>

Reactor Regulation Act, Articles 50 and 50-5

Reprocessing Ordinance, Articles 17-2 and 19-5 to 19-10

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.104

Does the regulatory body specify requirements for maintenance and surveillance of fuel cycle facilities that have been shut down but the decommissioning of which is deferred?

Subsidiary Response

No.

Before licensees have obtained approval for their decommissioning plans, in-service regulations are imposed on them. The NRA designates facilities that have had accidents as specific nuclear facilities if necessary.

<Attachments>

Reactor Regulation Act, Articles 50-5, 64-2, and 64-4

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.105

Does the regulatory body specify provisions for the decommissioning of fuel cycle facilities which have been affected by accidents?

Subsidiary Response

No.

Facilities that cannot be decommissioned in a normal manner due to an accident or other circumstances are designated by the NRA as specific nuclear facilities.

<Attachments>

Reactor Regulation Act, Articles 64-2 and 64-4

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.106

Does the regulatory body specify requirements on the management of radioactive waste during decommissioning of fuel cycle facilities?

Subsidiary Response

Yes.

The NRA imposes the same regulatory requirements on radioactive waste generated during decommissioning as on radioactive waste generated during facility operation. Stipulations on predisposal management of radioactive waste in facilities in rules for operations apply to both operation and decommissioning.

<Attachments>

Reprocessing Ordinance, Article 16

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.107

Does the regulatory body require specific hazard analyses to be performed for the decommissioning activities at fuel cycle facilities?

Subsidiary Response

Yes.

The NRA requires licensees to submit the following documents as attachments to applications for approval of their decommissioning plans: explanations on management of radiation exposure resulting from decommissioning, explanations of the types, levels, and effects of accidents that may occur in the event of an operational error, machine or device failure, inundation, earthquake, or fire during decommissioning.

<Attachments>

Reprocessing Ordinance, Article 19-5

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.108

Does the regulatory body specify requirements on radiological protection for the decommissioning of fuel cycle facilities?

Subsidiary Response

Yes.

Radiation protection requirements for workers and the general public during decommissioning are the same as during facility operation—i.e., an effective dose of 50 mSv per year for radiation workers and 1 mSv per year for the general public. Dose limits for the general public are specified in decommissioning plans and safety programs so as to be below concentration levels defined in laws and regulations. At the same time, release control targets are set and managed to reduce radiation exposure as low as possible rationally.

<Attachments>

Fuel Fabrication Dose Limit Notice

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

Subsidiary Question 1.1.109

Does the regulatory body specify requirements on the training and qualifications of personnel working on the decommissioning of fuel cycle facilities?

Subsidiary Response

Yes.

Regarding training of decommissioning personnel, the NRA requires that the following matters related to safety education of radiation workers engaged in decommissioning be specified in safety programs for decommissioning. Licensees must fulfill these requirements:

1. Matters on safety education policies (including formulation of implementation plans)

2. The following matters on safety education content:

(1) Matters on compliance with related laws and safety programs

(2) Matters on the structure and performance (and operation) of facilities

(3) Matters on facility decommissioning

(4) Matters on radiation management

(5) Matters on handling of nuclear fuel materials and objects contaminated by such materials

(6) Matters on measures to take in an emergency

3. Other necessary matters on safety education related to facilities

Regarding qualifications, licensees must specify rules in Operational Safety Programs for the tasks and organization of decommissioning personnel. For nuclear power plants, licensees must assign persons responsible for supervision of decommissioning safety (decommissioning managers) to meet standards for safety programs. Although there are no

similar standards for nuclear fuel cycle facilities at present, such facilities will be managed in the same manner in the future. Qualifications for decommissioning managers will be similar to those for nuclear power plants: to decommission facilities with nuclear fuel materials, those who are certified as chief engineers of nuclear fuel materials; and to decommission facilities without nuclear materials, those are certified as chief engineers of nuclear fuel or Class 1 supervisors of radiation protection.

<Attachments>

Reprocessing Ordinance, Article 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.110

Does the regulatory body specify the requirements for the release of sites for unrestricted use following the completion of decommissioning of the respective fuel cycle facilities?

Subsidiary Response

Yes.

When completing decommissioning, a licensee shall obtain confirmation by the NRA. With the NRA's confirmation of the Completion of Decommissioning, establishment permit for nuclear facilities expires.

Standards for confirming completion of decommissioning are as follows.

- 1. The transfer of nuclear fuel materials (spent fuel or materials separated from spent fuel) is complete.*
- 2. There is no need to take measures to prevent radiation hazards with respect to soil for equipment remaining on the premises of facilities targeted for decommissioning.*
- 3. The disposal of nuclear fuel materials (spent fuel or materials separated from spent fuel) and objects contaminated by nuclear fuel materials is complete.*

4. Radiation management records on radiation workers have been transferred to the organization designated by the NRA.

<Attachments>

Reactor Regulation Act, Article 50-5

Reprocessing Ordinance, Article 19-10

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 1.1.111

Does the regulatory body specify requirements on the final decommissioning report and on the confirmation survey(s) that need to be performed upon completion of the decommissioning of a fuel cycle facility?

Subsidiary Response

Yes.

Facility operators that have completed decommissioning of their facilities must apply for confirmation of decommissioning. Standards for applying for confirmation of decommissioning and for confirming completion of decommissioning are defined in operational rules. The NRA reviews application documents and confirms decommissioning on site if necessary.

<Attachments>

Reactor Regulation Act, Article 50-5

Reprocessing Ordinance, Articles 19-9 and 19-10

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Module: Licensing

Findings

Question 2.1

Does the regulatory body apply a specific procedure for the licensing of fuel cycle facilities?

Answer

Yes

Finding

The regulatory body applies a specific procedure for the licensing of fuel cycle facilities

Response

—

Subsidiary Question 2.1.1

What are the stages of the licensing procedure for a fuel cycle facility?

Subsidiary Response

Procedures for the authorization of nuclear fuel cycle facilities are specified in the Reactor Regulation Act. These procedures are basically implemented for each of the following stages depending on the potential hazards of facilities:

(1) Siting: permit (designation)

(2) Design and construction: approval of the design and construction method

(3) Before the start of operation: pre-service inspections (including commissioning), welding inspections and approval of operational safety program

(4) During operation: periodic facility inspections and operational safety inspections

(5) Before the start of decommissioning: approval of the decommissioning plan

(6) During decommissioning: operational safety inspections

<Attachments>

Articles 44, 45, 46, 46-2, 46-2-3, 50, and 50-5 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.2

What is the procedure for amending / modifying the licence for a fuel cycle facility?

Subsidiary Response

When modifying permit of nuclear fuel cycle facility, licensees must obtain the permit of the NRA by submitting an application for the modification. When modifying approval, licensees must also obtain the approval of the NRA.

<Attachments>

Articles 44-4, 45, 46-2, 50, and 50-5 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.3

What is the procedure for authorising safety-related modifications to a fuel cycle facility?

Subsidiary Response

Same as the answer in SQID 1.2.

<Attachments>

Same as the answer to SQID 1.2

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.4

Please provide an example of a set of conditions attached to a licence for a fuel cycle facility.

Subsidiary Response

Based on the Reactor Regulation Act, the NRA may impose supplementary conditions on authorization for nuclear fuel cycle facilities, but has never actually imposed such conditions.

<Attachments>

Article 62-2 of the Reactor Regulation Act

Subsidiary Attachments

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.5

How does the licensing process accommodate the specific aspects relevant for the safety of fuel cycle facilities?

Subsidiary Response

The NRA reviews that an applicant identifies initiating events to be considered in the design, based on the characteristics of nuclear fuel cycle facilities, and ensures that the design does not interfere with emergency response. These include external events such as fire, explosion, chemical substance leakage, missiles, and tornadoes.

In addition, the Industrial Safety and Health Law requires that employers implement measures to prevent industrial accidents associated with specified chemical substances, etc. handled at reprocessing facilities. This aspect is also considered in design as needed.

Enrichment facilities are equipped with hydrogen fluoride detectors, although it is not a regulatory requirement. In the event of a malfunction, the facility automatically stops discharge.

<Attachments>

Reprocessing Permit Ordinance (including Reprocessing Permit Guide), Article 5, 9, 11 and Article 12

Subsidiary Attachments

K05 The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 2.1.6

Does the regulatory body have requirements related to the licensee's preparation and content of a safety analysis report (SAR) that includes periodic updating on the basis of operating experience?

Subsidiary Response

Yes.

The NRA sets requirements for nuclear fuel cycle facility operators regarding the content of their safety analysis reports. See the next question (SQID 1.7) for details.

<Attachments>

Article 1-2 of the Reprocessing Ordinance

Articles 16 and 28 of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 2.1.7

What are the regulatory requirements with regard to the content and format of the Safety Analysis Report (SAR) for a fuel cycle facility?

Subsidiary Response

The Reactor Regulation Act requires nuclear fuel cycle facility operators to submit supporting documents regarding the development of facilities and systems required to cope with accidents anticipated based on the latest knowledge depending on the potential hazards of the facilities. Such documents are submitted as attachments when operators apply for permit.

For example, in order to verify the adequacy of safety designs, the operator evaluates the following design basis accidents:

- Loss of functions of facilities crucial for safety, such as cooling and hydrogen scavenging functions*
- Fires and explosions due to TBP, etc.*
- Criticality accidents*

Also, to assess the effectiveness of measures regarding serious accidents, the operator analyzes the following events:

- Criticality accidents in a solution tank*
- Criticality accidents due to erroneous transportation of solvent containing plutonium*
- Evaporation to dryness due to the loss of a cooling function*
- Damage to a spent fuel assembly in a fuel storage pool, etc.*

In addition, after the commissioning of a facility, the NRA requires the licensee of the facility to perform periodic safety assessment of continuous improvement in accordance with the potential hazards of the facility and to report the results to the NRA.

<Attachments>

Article 1-2 of the Reprocessing Ordinance

Articles 16 and 28 of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

Article 50-4-2 of the Reactor Regulation Act

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01 The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05 The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K17 The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Question 2.1.8

Does the regulatory body require that the SAR forms the basis for establishing the OLCs for the fuel cycle facility?

Subsidiary Response

Yes.

The NRA requires operators to submit supporting documents regarding the safety design of their nuclear fuel cycle facilities along with applications for permit. When reviewing applications, the NRA verifies the adequacy of the safety assessment of the requirements for the analysis performed to confirm the validity of designs described in the applications.

Operational limits, including nuclear and thermal limits, are described in application documents for the approval of the design and construction method and are specified in operational safety programs. The NRA requires licensees to ensure that these limits are consistent with the requirements for the safety assessment described in the application for permit.

<Attachments>

Articles 1-2, 2, and 17 of the Reprocessing Ordinance

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 2.1.9

Does the regulatory body require that the SAR cite the technical literature in the form of references that may be necessary for a thorough review and assessment process?

Subsidiary Response

Yes.

Based on the latest scientific and technological knowledge, the NRA reviews the assessment performed by nuclear fuel cycle facility operators to apply for permit, in order to verify the validity of the assessment, including the content of references quoted in application documents.

<Attachments>

Articles 16 and 28, etc. of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 2.1.10

Does the regulatory body have internal guidance regarding the review and assessment of licensee submittals?

Subsidiary Response

Yes.

The NRA develops internal guidance regarding the review and assessment of licensee submittals. The guidance is released to the public.

<Attachments>

Reprocessing Permit Guide

Reprocessing QMS Guide

Reprocessing Operational Safety Program Standards

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Question 2.1.11

Does the regulatory body require or provide a schedule for the submission of documents necessary to be reviewed at the appropriate times in the licensing process?

Subsidiary Response

Yes.

The Reactor Regulation Act requires licensees to submit applications for the approval of the design and construction method and to receive approval in accordance with the potential hazards of the nuclear fuel cycle facilities before starting the construction of the facilities.

The Reactor Regulation Act also requires licensees to submit applications for the approval of operational safety program and receive approval before commissioning their facilities.

<Attachments>

Articles 45 and 50 of the Reactor Regulation Act

Articles 1-2 and 17 of the Reprocessing Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 2.1.12

Does the regulatory body provide the licensees with acceptance criteria for the review and assessment process?

Subsidiary Response

Yes.

The NRA provides standards and rules used in the review and assessment for approval. These standards and rules are released to the public.

<Attachments>

Reactor Regulation Act

Reprocessing Permit Ordinance

Reprocessing Design Construction Ordinance

Reprocessing QMS Ordinance

Reprocessing Technical Standards Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Module: Review and Assessment

Findings

Question 3.1

Does the regulatory body have in place processes and resources for reviewing the safety management for fuel cycle facilities?

Answer

Yes

Finding

The regulatory body has in place processes and resources for reviewing the safety management for fuel cycle facilities

Response

—

Subsidiary Question 3.1.1

Does the regulatory body verify/review that the licensees establish and implement safety policies and ensure that safety matters are given due priority?

Subsidiary Response

Yes.

The Nuclear Regulation Authority (NRA) requires each licensee to set quality assurance-related provisions in their operational safety program in accordance with the potential risk in their nuclear fuel cycle facility. Through reviews, the NRA checks whether the licensee has set quality policies for implementing quality assurance activities in their quality assurance program.

The NRA also requires the licensee to stipulate provisions in its operational safety program, i.e., provisions related to a system for ensuring compliance with relevant laws and its operational safety program as well as those related to a system for enhancing safety culture. Through reviews, the NRA checks whether the licensee has clearly established a system for ensuring compliance with security-related laws and its operational safety program and for enhancing a culture for creating, maintaining and reinforcing an organizational sense of value prioritizing safety and security.

<Attachments>

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

Subsidiary Question 3.1.2

Does the regulatory body require/verify that the licensees clearly define responsibilities and accountabilities with corresponding lines of authority and communication?

Subsidiary Response

Yes.

The Reactor Regulation Act requires each licensee to obtain the latest knowledge for the safety of nuclear fuel cycle facilities, and based on such knowledge install systems and equipment that contribute to the enhancement of facility safety, develop education on operational safety and take other measures to prevent disasters due to nuclear source materials or the like.

In accordance with the potential risk in each facility, the NRA also requires the licensee to define systems in its operational safety program, namely a system for ensuring compliance with relevant laws and its operational safety program, a system for fostering a safety culture, and a system for quality assurance activities, which are checked by the NRA through a operational safety program review.

<Attachments>

Act on the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (hereinafter abbreviated as the "Reactor Regulation Act"), Article 57-9

Reprocessing Ordinance, Article 17

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.1.3

How does the regulatory body verify that the licensee ensures that it has sufficient staff with appropriate qualification and experience at all levels and that it ensures that the qualification and training of contractors are adequate for the activities to be performed?

Subsidiary Response

The Reactor Regulation Act requires applicants of nuclear fuel cycle facilities to show in their application for permit that they can adequately secure engineers having expertise,

techniques and skills necessary to perform construction, operation or maintenance. The NRA checks whether the content (such as the number of engineers) described in the application document are appropriate through review related to technical competence.

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the licensee's methods of managing the quality of facility design and construction to satisfy relevant technical criteria and checks the methods through review related to design and construction. The NRA requires such technical criteria to include a requirement to check the eligibility of the employees of outside suppliers that provide services or items to the licensee.

<Attachments>

Reprocessing Ordinance, Article 1-2

Reprocessing QMS Ordinance, Articles 36, 37 and 38.

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.1.4

Does the regulatory body require/verify that the licensees develop and strictly adhere to sound procedures for all activities that may affect safety, ensuring that managers and supervisors promote and support good safety practices while correcting poor safety practices?

Subsidiary Response

Yes.

The NRA requires each licensee to stipulate provisions concerning a system for enhancing a safety culture (with the involvement of the business manager) in their operational safety

program, in accordance with the potential risk of their nuclear fuel cycle facility, and checks the status of their compliance with the provisions via operational safety inspections.

<Attachments>

Reprocessing Ordinance, Article 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.1.5

Does the regulatory body require/verify that the licensees review, monitor and audit all safety related matters on a regular basis, implementing appropriate corrective actions where necessary?

Subsidiary Response

Yes.

The NRA requires each licensee to stipulate provisions that ensure the quality of their general operational safety activities in accordance with the potential risk in their nuclear fuel cycle facility, to develop a quality assurance program based on the operational safety program, and thereby to plan, implement, assess and improve the operational safety activities, and to continuously improve the quality assurance program. How these are complied with by the licensee is checked through a operational safety program review by the NRA.

<Attachments>

Reprocessing Ordinance, Articles 8-3 and 17

Subsidiary Attachments

Subsidiary Question 3.1.6

Does the regulatory body require/verify that the licensee is committed to a safety culture on the basis of a statement of safety policy and safety objectives which is prepared and disseminated and is understood by all staff?

Subsidiary Response

Yes.

The NRA requires each licensee to stipulate requirements regarding their system for enhancing a safety culture (with the involvement of the business manager) in their operational safety program in accordance with the potential risk in their nuclear fuel cycle facility and checks the status of compliance with such requirements via operational safety inspections.

<Attachments>

Reprocessing Ordinance, Article 17

Subsidiary Attachments

Subsidiary Question 3.1.7

Does the regulatory body require that whenever a change of stage is initiated by the licensee, it shall submit a detailed demonstration, which shall include an adequate safety analysis, for review and assessment by the regulatory body before the project is authorized to progress to the next stage?

Subsidiary Response

Yes.

In accordance with the potential risk in each nuclear fuel cycle facility, the Reactor Regulation Act requires the operator to submit a written application to it beforehand to obtain authorization in each of the following processes (procedural stages):

- 1. Site Selection, permit*
- 2. Design and construction phase, approval of design and construction method*
- 3. Before operation, pre-service inspection (including commissioning), welding inspection and the approval of operational safety program*
- 4. During operation, periodic facility inspections and operational safety inspections*
- 5. Before decommissioning, approval of decommissioning plan*
- 6. During decommissioning, operational safety inspection*

<Attachments>

Reactor Regulation Act, Articles 44, 45, 46, 46-2, 46-2-3, 50 and 50-5

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.1.8

Does the regulatory body require that the licensee submit to the regulatory body in a timely manner any information that it has requested?

Subsidiary Response

Yes.

The NRA can require each licensee to report their business operation status to it where necessary according to the Reactor Regulation Act.

<Attachments>

Reactor Regulation Act, Article 67

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.1.9

Does the regulatory body require that the licensee be responsible for informing the regulatory body of any new information on the facility and of any changes to information submitted previously?

Subsidiary Response

Yes.

When a licensee wants to modify a design that was authorized the Reactor Regulation Act requires the licensee to submit a application for the modification to it in the same manner the licensee had applied for the original authorization.

The Reactor Regulation Act also requires each licensee to perform periodic safety assessment of continuous improvement in accordance with the potential risk. For periodic safety assessment of continuous improvement, the NRA requires the licensee to check measures for improving safety as stipulated in the licensee's operational safety program reflecting the latest safety-related knowledge and to submit the results to the NRA.

<Attachments>

Reactor Regulation Act, Articles 44-4, 45, 50, 50-3, 50-5 and 50-4-2

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.1.10

What are the aspects reviewed by the regulatory body in order to ascertain that the licensee for a fuel cycle facility has established and implemented an integrated management system?

Subsidiary Response

The Reactor Regulation Act requires each licensee to obtain approval for the design and construction method of their nuclear fuel cycle facility in accordance with the potential risk in it and the NRA reviews the following aspects of quality control methods and organizations for inspecting the quality control methods:

- Quality control oversight system*
- Responsibilities of the business manager*
- Management and oversight of resources*
- Development of a plan for each operation and implementation of operations*
- Monitoring, measurement, analysis, and improvement*

Moreover, the Reactor Regulation Act requires licensees to obtain approval from it for their operational safety program wherein an organizational management system, etc. must be specifically stipulated, and the NRA reviews the following aspects.

- System for ensuring compliance with relevant laws and operational safety program (system in which the business manager is also involved)*

- *System for fostering a safety culture (system in which the business manager is also involved)*
- *Quality assurance of facility (including root cause analysis methods and a system and procedures for performing such analysis stated in the operational safety program)*
- *Duties of persons in charge of facility operation and management, and their organizations*

<Attachments>

Reactor Regulation Act, Article 45

Reprocessing QMS Ordinance

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.1.11

What kind of evidence does the regulatory body require in order to ascertain whether the licensee for a fuel cycle facility performs adequate assessments of its management system and of the processes therein and that it applies the principle of continuous improvement?

Subsidiary Response

The Reactor Regulation Act requires each licensee to submit documents to it showing that the quality control of the design and construction of their nuclear fuel cycle facilities in accordance with the potential risk in it conforms to the relevant criteria at the time when the licensee applies for approval of the design and construction method of the facility.

In response to application for the approval of operational safety program, the Reactor Regulation Act requires the licensee to submit operational safety program that include explanations related to quality assurance to the NRA.

<Attachments>

Reprocessing Ordinance, Articles 2 and 17

Reprocessing QMS Ordinance

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.1.12

How does the regulatory body review the arrangements made by the licensee when contracting work to outside organisations in order to verify that the licensee retains adequate control over the contracted work and has the competence necessary for performing an independent review of the work performed?

Subsidiary Response

The Reactor Regulation Act requires licensees to stipulate their operational safety program for their general operational safety activities, including a quality assurance program, in accordance with the risks in their nuclear fuel cycle facilities, and the NRA checks the content of the program via reviews. The NRA requires licensees to stipulate in their plan for implementing a quality assurance program the items to be procured and reliable management methods for those items before the licensees procure the items or services from an outside organization and requires that they carry out the inspection and test necessary to check whether the requirements of the implementation plan have been satisfied, which the NRA also reviews.

In the review before approving the design and construction method, the NRA checks the licensee's quality control methods. Requirements regarding the case where items or services are procured from an outside organization are set forth in the quality control-related criteria, on the basis of which the NRA conducts the review.

<Attachments>

Reprocessing Ordinance, Articles 8-7 and 17

Reprocessing QMS Ordinance, Articles 36, 37 and 38

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.1.13

How does the regulatory body review the arrangements made by the licensee to ensure that all items and services important to safety under procurement meet established requirements and perform as specified?

Subsidiary Response

The Reactor Regulation Act requires licensees to stipulate their operational safety program for their general operational safety activities, including a quality assurance program, in accordance with the risks in their nuclear fuel cycle facilities, and the NRA checks the content of the program via reviews. The NRA requires licensees to stipulate in their plan for implementing a quality assurance program the items to be procured and reliable management methods for those items before the licensees procure the items or services from an outside organization and requires that they carry out the inspection and test necessary to check whether the requirements of the implementation plan have been satisfied, which the NRA also reviews. In the review before approving the design and construction method, the NRA checks the licensee's quality control methods. Requirements regarding the case where items or services are procured from an outside organization are set forth in the quality control-related criteria, on the basis of which the NRA conducts a review.

<Attachments>

Reprocessing Ordinance, Articles 8-7 and 17

Reprocessing QMS Ordinance, Articles 36, 37 and 38

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.1.14

How does the regulatory body review the accident management programme and the on-site and off-site emergency procedures for fuel cycle facilities?

Subsidiary Response

The NRA requires nuclear fuel cycle facilities to implement on-site disaster measures in accordance with the facility's potential hazards. Nuclear fuel cycle facilities are also required to stipulate operational safety activities in emergencies in their operational safety programs and undergo reviews, based on established criteria, to verify that emergency preparedness actions to be implemented at normal times are defined and that a necessary plan is in place in preparation for facility maintenance activities in a severe accident.

Off-site emergency measures must be addressed mainly by the national and local governments pursuant to the Nuclear Emergency Act and the Basic Act on Disaster Control Measures.

<Attachments>

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

Subsidiary Question 3.1.15

How does the regulatory body assess the capability of a licensee for a fuel cycle facility of performing adequate safety reviews and verifications and of maintaining a valid safety case for the installations and activities covered by the licence?

Subsidiary Response

The NRA reviews the technical competence of a nuclear fuel cycle operator as follows in accordance with the potential risk in its facilities:

- At permitting, the NRA performs a review based on the Regulatory Guide for Reviewing Technical Competence of Nuclear Operator.

- At approving a design and construction method, the NRA conducts a review based on the NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection.

- At approving operational safety program, the NRA reviews them on the basis of Reprocessing Operational Safety Program Standards.

<Attachments>

Reprocessing QMS Ordinance

Examination Guide for Technical Capability of License Holders of Nuclear Power

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

H27Examination Guide for Technical Capability of License Holders of Nuclear Power

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.1.16

How does the regulatory body review the licensees arrangements for physical protection of the fuel cycle facility?

Subsidiary Response

The Reactor Regulation Act requires licensees to develop their physical protection program in accordance with the potential risk in their nuclear fuel cycle facilities and obtain approval from the NRA, which reviews whether each physical protection program is adequate to protect specified nuclear fuel materials.

<Attachments>

Reactor Regulation Act, Article 50-3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 3.2

Does the regulatory body have in place processes and resources for performing an independent review of an application for a site licence for a fuel cycle facility?

Answer

Yes

Finding

The regulatory body has in place processes and resources for performing an independent review of an application for a site licence for a fuel cycle facility

Response

—

Subsidiary Question 3.2.1

What are the regulatory requirements on the contents of the safety documentation that has to be submitted in support of an application for a site licence for a fuel cycle facility?

Subsidiary Response

In the Reactor Regulation Act and related rules, the NRA sets forth the content to be stated by nuclear fuel cycle operators in their permit application document and the content of attached documents to be submitted with the application. For example, with regard to a reprocessing facility, the items to be stated in a written permit application and attached documents are as follows:

Items to be stated in a written application for permit:

- Name or title and address (and in the case of a corporate body, the name of its representative)*
- The name and address of a plant or place where a reprocessing facility is to be constructed*
- The types of spent fuels to be reprocessed and reprocessing capacity*
- The location, structure, systems and equipment of the reprocessing facility as well as the reprocessing method*
- The construction plan of the reprocessing facility*
- Methods of disposing of nuclear fuel materials separated from spent fuel*
- Matters related to radiation management at the reprocessing plant*
- Matters related to facilities or systems required to deal with an event in which nuclear fuel materials reach criticality or to deal with any other accident in the reprocessing facility*

Attached documents:

- Document explaining the purposes of the reprocessing business*
- Business operation plan*

- Document explaining technical reprocessing competence
- Meteorology, hydrographic conditions, foundation soil, hydrogeology, earthquake, social environment, etc. at the location where the reprocessing facility is to be constructed
- 1: 200,000 map of the area covering a distance of 20 km from the center of the location where the reprocessing facility is to be built and 1: 50,000 map of the area covering a distance of 5 km from the same central location
- Document explaining the safety design of the reprocessing facility (including the layout drawings of major systems and equipment)
- Document explaining radiation management at the reprocessing plant
- Document explaining facilities and systems necessary to deal with an accident at the reprocessing facility
- When a business operation is already ongoing, a document describing its summary
- In the case of a corporate body: Corporate charters, the names and personal history of board members, the certificates of registered matters, the latest list of properties, balance sheet, and profit-and-loss statement

<Attachments>

Reactor Regulation Act, Article 44

Reprocessing Ordinance, Article 1-2

Subsidiary Attachments

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01 The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.2.2

What are the most important aspects reviewed by the regulatory body in the context of an application for a site licence? Please explain.

Subsidiary Response

The most important aspect reviewed by the NRA is whether there is a problem in terms of disaster prevention, among permit standards.

<Attachments>

Reactor Regulation Act, Article 44-2

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.2.3

What are the regulatory criteria for assessing the suitability / acceptability of a site for a fuel cycle facility?

Subsidiary Response

The NRA has set requirements regarding the suitability and acceptability of a site among permit standards for nuclear fuel cycle facilities, such as whether there is a problem in terms of disaster prevention due to nuclear fuel materials.

For example, criteria for facility location, structure, systems and equipment set forth by the NRA to prevent a disaster caused by spent fuel, etc. requires that safety functions not be compromised in the face of an earthquake, tsunami, tornado, or the effects of volcano, forest fire that can be expected because of the natural environment of the site, internal and external missiles including aircraft crashing or a fire at a nearby plant.

<Attachments>

Reactor Regulation Act, Article 44-2

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Articles 6, 7, 8 and 9

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.2.4

How are the regulatory requirements and review criteria for the siting phase taking account of the potential for radiological consequences in case of accidents?

Subsidiary Response

In permit standards based on the Reactor Regulation Act, the NRA requires nuclear fuel cycle business operators to develop measures to take against a design basis accident and a severe accident in accordance with the potential risk in their nuclear fuel cycle facilities. In the interpretation of the said criteria, the NRA requires that a design basis accident not pose a significant radiation exposure risk to the public (not exceeding 5 mSv per accident), and an abnormal level of radioactive release should be prevented (cesium 137: well under 100 TBq) and radioactive release should be as low as practicable for a severe accident.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Articles 16 and 28

Subsidiary Attachments

Subsidiary Question 3.2.5

Does the regulatory body review the radiological monitoring conducted at the siting stage?

Subsidiary Response

No.

On the basis of relevant laws, the NRA does not require nuclear fuel cycle business operators to submit the results of siting-stage radiation monitoring to it. To grasp the radioactivity levels in Japan, the radioactive fallout mainly caused by nuclear bomb test which were conducted in surrounding countries was investigated, but no place where the radioactivity level is locally high has been found. The NRA requires nuclear fuel cycle business operators to monitor environmental monitoring areas, etc. after commissioning in accordance with the potential risk of their nuclear fuel cycle facilities.

<Attachments>

Reprocessing Ordinance, Article 8

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.2.6

Does the regulatory body verify that natural and artificial radioactivity at the site in the air, the water and the ground and in flora and fauna are investigated and recorded at the siting stage?

Subsidiary Response

No.

On the basis of relevant laws, the NRA does not require nuclear fuel cycle business operators to submit the results of siting-stage radiation monitoring to it. To grasp the radioactivity levels in Japan, the radioactive fallout mainly caused by nuclear bomb test which were conducted in surrounding countries was investigated, but no place where the radioactivity level is locally high has been found. The NRA requires nuclear fuel cycle business operators to monitor environmental monitoring areas, etc. after commissioning in accordance with the potential risk of their nuclear fuel cycle facilities.

<Attachments>

Reprocessing Ordinance, Article 8

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.2.7

Does the regulatory body review the assessment of the environmental characteristics of the site area that may potentially be affected by the radiological impacts and the associated chemical impacts of the facility in operational states and in accident conditions?

Subsidiary Response

Yes.

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the operator to reduce the radiation exposure of the public during normal operation and accidents to as low a level as possible and reviews their results in permit review. With regard to the radiation exposure of the public during normal operation, the NRA review permit application in which the operator's investigation results of radiation exposure includes the food chain.

<Attachments>

Reprocessing Ordinance, Article 16

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.2.8

Does the regulatory body review the adequacy of the monitoring system provided to verify the results obtained using the mathematical models of the radiological impacts and the associated chemical impacts?

Subsidiary Response

The NRA does not review it.

However, reprocessing facilities are required to perform exposure assessments based on released amounts of radioactive materials in the design stage and to analyze and monitor environmental data during operation. These values are sufficiently low and pose no problems.

Radiological monitoring system proposed by the licensee is reviewed in permit application process and will confirm the system is properly monitor the radiation level which is estimated by safety analysis.

The Industrial Safety and Health Law requires employers to take measures to prevent industrial accidents associated with specified chemical substances, etc. handled in reprocessing facilities. This requirement is considered in design as needed.

In addition, enrichment facilities are equipped with hydrogen fluoride detectors, although it is not a regulatory requirement. In the event of a malfunction, the facility automatically stops discharge.

<Attachments>

Reprocessing Ordinance, Article 8 and Article 21

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.2.9

Does the regulatory body review the hydrological and hydrogeological investigations for the site area?

Subsidiary Response

Yes.

As required by the regulatory requirements of the Reactor Regulation Act, the NRA requires each nuclear fuel cycle business operator to attach an explanatory document to its written permit application, namely a document explaining meteorological conditions, hydrographic conditions, foundation soil, hydraulic conditions, earthquake, etc. The NRA reviews the business operator's investigation results on the basis of the explanatory document.

<Attachments>

Reprocessing Ordinance, Article 1-2

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.2.10

Does the regulatory body review the models used to evaluate the possible impacts of the contamination of surface water and groundwater on the public and the environment?

Subsidiary Response

Yes, the NRA does review them.

The NRA requires nuclear fuel cycle applicants to calculate the diffusion of radioactive material under normal operation and in an accident, according to the potential hazards of the nuclear fuel cycle facility, when applying for permit, etc. In this context, the NRA reviews the adequacy of diffusion models as well.

<Attachments>

Reprocessing Permit Ordinance (including Reprocessing Permit Guide), Article 16 and Article 21

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.2.11

Does the regulatory body review the models used to assess the dispersion of radioactive material and other hazardous material released to the environment in operational states and in accident conditions?

Subsidiary Response

Yes.

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires each operator to submit during their permit application the results of their calculations on

diffusion of radioactive substances in the environment in the normal operating and accident states. The NRA reviews the validity of the diffusion model.

Since NRA do not require the consideration of the impact of general chemical substances, their diffusion models are not reviewed. However, licensees must manage facility design and operations to meet the discharge standards of the Air Pollution Control Act, if ventilation is used during operation in facilities regulated under the said act.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Article 16 and 21

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.2.12

Does the regulatory body review the assessment of doses to the public and of the contamination of the biological systems and food chains from normal operation of the fuel cycle facility?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA require operator to submit during their permit application the results of their calculations on dose to the public. In the calculations, the contamination of the biological system and internal exposure due to food chain are also required to be considered. The NRA reviews the calculation results.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Article 21

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.2.13

Does the regulatory body review the assessment of site characteristics (e.g. soil properties, geology, hydrogeology) that may affect the safety of the facility?

Subsidiary Response

Yes.

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires each operator to attach explanatory documents to its written permit application, i.e., explanatory documents describing meteorological conditions, hydrographic conditions, foundation soil, hydraulic conditions, earthquake, social environment, etc. at the location where the reprocessing facility is to be constructed, which the NRA reviews.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Articles 6, 7, 8 and 9

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.2.14

Does the regulatory body review the assessment of the likelihood and the potential severity of natural phenomena and external human induced events?

Subsidiary Response

Yes.

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the operator to evaluate the durability of its facilities equipped with safety functions against the surrounding natural and social environment before obtaining permit to it. The NRA checks whether the natural phenomena assumed in the evaluation are appropriate and based on the latest scientific knowledge and whether safety functions will be compromised or not due to the assumed natural phenomena, etc.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Articles 6, 7, 8 and 9

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.2.15

Does the regulatory body verify that the design and operating criteria for the facility take account of the site specific characteristics?

Subsidiary Response

Yes.

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the operator to explain in its permit application the site-specific natural environment such as the geological conditions, foundation and tsunamis, as well as the site-specific social environment and to perform an assessment of the safety of the facility based on such information. The NRA checks whether such natural phenomena are appropriately assumed.

For example, the NRA checks whether the design basis ground motion set by the business operator is appropriate and is based on factors such as the geological conditions, subsurface structure, and seismic activities at the site and its surrounding area.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Articles 6, 7, 8 and 9

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Question 3.3

Does the regulatory body have in place processes and resources for performing an independent safety review of the design of a fuel cycle facility?

Answer

Yes

Finding

The regulatory body has in place processes and resources for performing an independent safety review of the design of a fuel cycle facility

Response

—

Subsidiary Question 3.3.1

What are the most important aspects reviewed by the regulatory body in the context of an application for a construction licence for a fuel cycle facility? Please explain giving relevant examples.

Subsidiary Response

The Reactor Regulation Act prescribes requirements as permit standards for a nuclear fuel cycle facility. The requirements include items related to technical competence and financial basis for performing business as well as preventing disasters due to nuclear fuel materials.

Among these requirements, the NRA prioritizes those for preventing disasters.

For example, the Reprocessing Design Construction Ordinance prescribes requirements for facilities equipped with criticality safety and confinement functions. In particular, the Reactor Regulation Act has set requirements for organizational capability to handle a severe accident and reviews compliance with such requirements in permit reviews.

<Attachments>

Reactor Regulation Act, Articles 14, 43-5, 44-2, 45, 51-3 and 53

Reprocessing Design Construction Ordinance, Articles 3 and 7

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 3.3.2

What are the regulatory criteria for assessing the acceptability of the design of a fuel cycle facility?

Subsidiary Response

With regard to a reprocessing facility, on the Reprocessing Permit Ordinance, the NRA checks the business operator's compliance with about 50 requirements concerning their basic design and its validity by checking the business operator's safety analysis report and the like at the stage of permit review.

Before approving design and construction methods, the NRA checks the detailed design and its validity based on the Reprocessing Design Construction Ordinance to see whether the design and construction methods entered in the written application conform to the authorized basic design criteria.

<Attachments>

Reprocessing Permit Ordinance

Reprocessing Permit Guide

Reprocessing Design Construction Ordinance

Reactor Regulation Act, Article 45, Paragraph 3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.3.3

What types of safety analyses are required by the regulatory body to be submitted by an applicant for a licence in order to demonstrate the adequacy of the design of a fuel cycle facility and the compliance with regulatory requirements and criteria?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the operator to submit attached documents stating the results of analyzing anticipated accidents and the results of assessing normal-time radiation exposure of the public with the permit application document. For example:

- Assessment conditions and results regarding anticipated abnormal transients during operation, facilities required to withstand a design basis accident and the degrees and impacts of anticipated accidents.*
- Assessment conditions and results regarding an accident that may result in a severe accident, facilities required to withstand a severe accident and the degrees and impacts of anticipated accidents.*

<Attachments>

Reprocessing Ordinance, Article 1-2

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.3.4

How do the regulatory processes for reviewing the design of a fuel cycle facility reflect a graded approach with regard to the potential hazards associated with the facility?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, such as anticipated radiation dose after functional loss and accident progress, as well as on the basis of the importance classification and seismic classification of safety functions, the NRA has set requirements for permit. The authorization requirements for reprocessing facilities, fabrication facilities and facilities where nuclear fuel materials are used (hereinafter abbreviated as "usage facilities") have been stipulated on the ordinances. Among these, requirements for usage facilities differ depending on the amount of nuclear fuel materials used. On the basis of the graded approach, no process is in place for approving the design and construction method of usage facilities. Therefore, for usage facilities, there are neither Design Construction Ordinance and QMS Ordinance, thus no review concerning them. With regard to facility safety design, reprocessing facilities and fuel fabrication facilities where plutonium is used are required to cope with severe accidents, for example.

<Attachments>

Reprocessing Permit Ordinance

Reprocessing Design Construction Ordinance

Reprocessing QMS Ordinance

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.3.5

What are the reviews and assessments performed by the regulatory body in order to verify the adequacy of the design bases for a fuel cycle facility?

Subsidiary Response

In the standards and rules for permit, the NRA has stipulated requirements for confinement functions, functions required for predisposal facilities, measures for preventing severe accident expansion and facilities required to withstand a severe accident.

The NRA checks whether the design is capable of preventing the expansion of an accident by evaluating the design for preventing an accident and measures to be taken against a design basis accident and major accident stated in the permit application documents.

With regard to defence in depth in nuclear fuel cycle facilities, the NRA checks their compliance with about 50 requirements concerning safety design policies, basic design, and their validity while checking each facility's safety analysis report. To preclude internal events and accident-inducing factors and prevent disaster expansion, the NRA checks the site and surrounding natural environment of each facility for any problems. In so doing, the NRA evaluates meteorological, hydrographic, hydraulic and geological conditions as well as geological structure and population distribution. The NRA also checks operational limits such as thermal limit and nuclear limit.

Since reprocessing facilities handle a large amount of chemicals in particular, the NRA checks their impacts on the facility.

For details, see Section 9.4 (Nuclear Fuel Cycle Regulation in Japan) in "Outline of Nuclear Regulation of Japan".

<Attachments>

Reprocessing Permit Ordinance

Reprocessing Permit Guide

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.3.6

What evidence is required by the regulatory body in order to ascertain whether the applicant for a licence for a fuel cycle facility has sufficient understanding of the design of the facility and of all the aspects relevant for safety?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the operator to report the following items to it concerning the technical competence of the business operator and reviews them:

- Organizations related to design and construction*
- How engineers related to design or construction are secured*
- Experience related to design and construction*
- Quality assurance activities for design and construction*
- Selection of and assigning positions to qualified persons*

<Attachments>

Examination Guide for Technical Capability of License Holders of Nuclear Power

Subsidiary Attachments

H27Examination Guide for Technical Capability of License Holders of Nuclear Power

Subsidiary Question 3.3.7

What are the regulatory expectations and requirements with regard to the capability of an applicant for a licence for a fuel cycle facility for performing independent safety analyses of the design of the respective facility?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the operator to report the following items to it at the stage of permit application, concerning the technical competence for fulfilling the duties of the operator and checks them:

- Organizations related to design and construction*
- How engineers related to design or construction are secured*
- Experience related to design and construction*
- Quality assurance activities for design and construction*
- Organizations for operation and maintenance*
- How engineers related to operation and maintenance are secured*
- Experience of operation and maintenance*
- Quality assurance activities for operation and maintenance*
- Education and training provided to engineers*
- Selection of and assigning positions to qualified persons*

<Attachments>

Examination Guide for Technical Capability of License Holders of Nuclear Power

Subsidiary Attachments

H27Examination Guide for Technical Capability of License Holders of Nuclear Power

Subsidiary Question 3.3.8

What are the aspects reviewed by the regulatory body in relation with the codes and standards used in the design of a fuel cycle facility?

Subsidiary Response

Although the NRA has set requirements for applying voluntary consensus standards to commercial power reactors, it does not use voluntary consensus standards for nuclear fuel cycle facilities because their types vary significantly and therefore they must be reviewed individually.

Subsidiary Question 3.3.9

How does the regulatory body review the consideration of human factors and human-machine interfaces in the design of fuel cycle facilities?

Subsidiary Response

As basic requirements and in accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires each nuclear fuel cycle operator during the permit review stage to take measures to prevent misoperation, to make systems and equipment important to safety easy to operate and to ensure that necessary safety functions are maintained even without control by operators for a certain period of time and checks whether these are complied with by the business operator.

Next, before approving the design and construction method, the NRA checks whether the facility's design is consistent with the accepted basic design. For example, the NRA checks whether the panel arrangement and valve operability are appropriate with human engineering factors taken into account and whether measures to prevent errors and mistakes during maintenance and inspection are ensured.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Article 13

Reprocessing Design Construction Ordinance, Article 15

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 3.3.10

How does the regulatory body review the way in which ageing mechanisms have been accounted for in the design of a fuel cycle facility?

Subsidiary Response

In permit review, the NRA requires as a system/equipment maintenance and management requirement that systems and equipment provided with safety functions be capable of being provided with appropriate maintenance and repairs to maintain their safety functions and that ageing degradation should be prevented by satisfying this requirement. The NRA checks compliance with these requirements.

The NRA requires that the materials and structure of systems and equipment important to safety should have the strength and corrosion resistance necessary in terms of design, and checks whether ageing degradation such as corrosion, fatigue and creep rupture due to chemicals is adequately taken into account in the detailed design.

<Attachments>

Reprocessing Permit Ordinance, Article 15

Reprocessing Design Construction Ordinance, Article 6

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 3.3.11

What are the design aspects reviewed by the regulatory body in relation to the use of computer based systems important for the safety of a fuel cycle facility?

Subsidiary Response

In each safety review, the NRA reviews the appropriateness of systems and equipment important to safety such as instrumentation and control systems, safety protection circuits, and so on (including their computers), and also reviews them in terms of quality assurance.

<Attachments>

Reprocessing Design Construction Ordinance, Article 37

Reprocessing QMS Ordinance

Subsidiary Attachments

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.3.12

What are the aspects reviewed by the regulatory body in order to verify the adequacy of the safety systems and design measures incorporated in a fuel cycle facility for coping with accident conditions?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA reviews facility-related aspects such as the basic design of systems and equipment required to withstand an accident and human-related aspects such as the technical competence of employees, thereby judging the validity of the safety regime and design measures of the facility at the stage of permit review.

With regard to design, the NRA requires operators to ensure certain measures, for example: To enable operators and workers to take necessary safety measures in the event of a design basis accident, systems and equipment that protect operators and workers must be in place so that they can enter the control room unhindered, i.e., systems and equipment such as shielding and isolated ventilation equipment to protect them from toxic gases generated by gaseous radioactive materials, fire, or explosion outside the control room. The NRA reviews whether these measures are ensured.

<Attachments>

Reprocessing Ordinance, Article 13

Reprocessing Permit Ordinance, Article 20

Reprocessing Design Construction Ordinance, Article 15

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 3.3.13

How does the regulatory body verify the specific features of a fuel cycle facility that are provided for emergency planning purposes?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA has set criteria for evacuation routes, communication means, the monitoring of radiation levels and chemical substances, etc., and the NRA reviews their compliance with these criteria.

<Attachments>

Reprocessing Permit Ordinance, Articles 14, 27, 39, 40, 42 and 47

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.3.14

What are the design aspects reviewed by the regulatory body in relation to the management of radioactive waste from fuel cycle facilities?

Subsidiary Response

The NRA checks waste management at nuclear fuel cycle facilities for any problems in terms of disaster prevention.

The NRA has defined requirements concerning the management of waste ranging from potentially low-risk miscellaneous solid waste to potentially high-risk vitrified waste, including requirements for shielding and confinement functions, cooling function, and fire/explosion prevention.

<Attachments>

Reprocessing Ordinance, Articles 1-2, 2, 16 and 17

Reprocessing Permit Ordinance, Articles 21 and 22

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.3.15

How does the regulatory body review the design provisions for the management of aerial and liquid radioactive discharges to the environment?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA reviews the design in terms of radiation exposure of the public and confinement function under normal operating conditions at the stage of permit review.

The NRA requires a design to ensure that gaseous and liquid radioactive waste be discharged through a waste processing facility capable of reducing their concentrations to lower than those stipulated by the NRA and the concentrations and radiation levels of radioactive materials should be monitored and measured. Regarding these, the NRA reviews each design.

<Attachments>

Reprocessing Permit Ordinance, Articles 21 and 24

Reprocessing Design Construction Ordinance, Articles 16 and 39

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.3.16

How does the regulatory body review the design provisions for facilitating decommissioning of a fuel cycle facility?

Subsidiary Response

In Japanese safety assurance system, based on principle of phased regulation, an appropriate regulation is conducted at each stage of design, construction, operation and decommissioning, respectively. The NRA does not review whether any design aspect for facilitating decommissioning.

Subsidiary Question 3.3.17

How does the regulatory body review the provisions for contamination control and protection against internal exposure?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA reviews items such as confinement function to prevent internal exposure, monitoring equipment, and the setting of controlled areas, starting from basic design review.

<Attachments>

Reprocessing Permit Ordinance, Articles 4 and 39

Reprocessing Design Construction Ordinance, Articles 7, 13 and 14

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 3.3.18

How does the regulatory body review the provisions for protection against external exposure that are taken into account in the design of a fuel cycle facility?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA has set regulatory requirements against its operator, i.e. requirements such as shielding for protecting the environment, workers, and the public from external exposure and requires that measures be taken so that radiation doses will not exceed the limits. The NRA reviews whether these requirements are complied with.

For example, the regulatory requirements include the following:

- Operations can be performed from the control room by remote control.*
- Control areas where access is restricted must be defined.*
- Shielding must be installed so that radiation doses inside and outside the facility are kept adequately lower than the limits stipulated by the NRA.*

<Attachments>

Reprocessing Ordinance, Article 9

Reprocessing Permit Ordinance, Articles 3 and 20

Reprocessing Design Construction Ordinance, Articles 7, 14 and 15

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 3.3.19

What are the regulatory reviews performed in order to verify the design provisions for controlling criticality hazards?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA has set the following criteria for criticality control, and checks compliance with them:

- Appropriate nuclear limits must be in place for the shape and size of components housing nuclear fuel materials, for nuclear fuel material concentrations in solution, for the masses of nuclear fuel materials, for the isotopic composition of nuclear fuel materials, and for the management of contours, concentrations and materials of neutron absorbers.*
- When setting a nuclear limit, an adequate safety margin must be ensured with the physical and chemical properties of the handled nuclear fuel materials, neutron absorption effect, slowdown state and reflection conditions as well as variations in such conditions taken into account.*
- When setting a nuclear limit, assume a situation where the neutron multiplication factor maximizes and ensure an adequate safety margin.*
- Design must ensure that criticality is prevented in case of even a single malfunction or misoperation of a system or piece of equipment and in case of even a single misoperation by an operator.*
- Appropriate nuclear limits must be set for inter-unit arrangement and the arrangement, shape and size of neutron-shielding materials by giving due consideration to variations in the inter-unit neutron absorption effect, slowdown state and reflection and by setting an adequate safety margin.*
- When setting nuclear limits for multiple units, the case where reactivity maximizes must be anticipated and an adequate safety margin must be set.*

- Design must ensure that the criticality alarm system can promptly detect the occurrence of a criticality accident.
- Even in case of criticality at a facility important in terms of criticality control, the design must ensure that countermeasures such as the transfer and dilution of solution containing nuclear fuel materials and the injection of neutron absorber can be readily taken.

<Attachments>

Reprocessing Permit Ordinance (including the Reprocessing Permit Guide), Article 2

Reprocessing Design Construction Ordinance, Article 3

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 3.3.20

How does the regulatory body review the design considerations related to non-radiological hazards that may impact on nuclear safety?

Subsidiary Response

The NRA identifies initiating events that should be considered in the design, based on the characteristics of nuclear fuel cycle facilities, and conducts reviews to ensure that the design considers prevention of disaster caused such initial events but does not interfere with emergency response. These include external events such as fire, explosion, chemical substance leakage, missiles, and tornadoes.

In addition, the Industrial Safety and Health Law requires that employers implement measures to prevent industrial accidents associated with specified chemical substances, etc. handled at reprocessing facilities. This aspect is also considered in design as needed.

Enrichment facilities are equipped with hydrogen fluoride detectors, although it is not a regulatory requirement. In the event of a malfunction, the facility automatically stops discharge.

<Attachments>

Reprocessing Permit Ordinance, Article 5, Article 9, Article 11, and Article 12

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.3.21

What are the main aspects reviewed by the regulatory body in the assessment of the fire safety analyses for fuel cycle facilities?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the nuclear fuel cycle operator to perform fire safety analyses at the stage of permit. Specifically, the NRA reviews conformance to the following requirements.

- In order to prevent the safety of the facility from being compromised due to a fire or explosion, countermeasures and fire-extinguishing equipment must be in place.*
- Systems and equipment for immediately detecting a fire must be in place.*
- Systems and equipment having a function for mitigating the impact of a fire and explosion must be in place.*
- The function of systems and equipment important to safety must not be lost even when fire-extinguishing equipment has been damaged or malfunctions.*

<Attachments>

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Question 3.4

Does the regulatory body have in place processes and resources for performing an adequate safety review of the construction activities for a fuel cycle facility?

Answer

Yes

Finding

The regulatory body has in place processes and resources for performing an adequate safety review of the construction activities for a fuel cycle facility

Response

—

Subsidiary Question 3.4.1

What are the documents and other information reviewed by the regulatory body in order to verify that an applicant for a construction licence for a fuel cycle facility meets all the relevant safety requirements?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the Reactor Regulation Act requires each licensee to submit a written application for approval of the design and construction method and to obtain approval before launching construction.

When the licensee needs to undergo a welding inspection, the Reactor Regulation Act requires the licensee to submit a written application for approval of the welding method.

<Attachments>

Reactor Regulation Act, Articles 45 and 46-2

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.4.2

What are the types of regulatory reviews performed at the different stages of the construction process for a fuel cycle facility?

Subsidiary Response

In accordance with the importance of the safety of each nuclear fuel cycle facility, the NRA conducts a review at the basic design stage and detailed design stage. Then it checks whether the design and construction method comply with the approved design and conform to relevant standards. Before the operation, the NRA conducts a pre-service inspection to check its construction and performance.

For details, see Section 9.4 (Nuclear Fuel Cycle Regulation in Japan) in "Outline of Nuclear Regulation of Japan".

<Attachments>

Reactor Regulation Act, Articles 45, 46 and 46-2

Reprocessing Ordinance, Article 6

Reprocessing Design Construction Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 3.4.3

What kind of reviews does the regulatory body perform in order to verify that the licensee's organisation has made adequate arrangements for the safe management of the construction process, including the oversight of the work performed by contractors?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires each licensee to make the quality control method related to the design and construction of the facility meet the technical criteria and checks the licensee's compliance with the criteria. In the review, the NRA requires each licensee to include information on activities for fostering a safety culture in the information on procurement of services and items from outside sources (contractors).

<Attachments>

Reprocessing QMS Ordinance, Articles 36, 37 and 38

Subsidiary Attachments

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.4.4

How does the regulatory body review the arrangements made by the licensee for verifying the compliance of construction and installations of SSCs important to safety in order to ensure that the design requirements and intent are properly met?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires each licensee to list the organizations involved in quality assurance activities in its written application for the approval of the design and construction method and checks whether such statement conforms to relevant criteria.

<Attachments>

Reprocessing Ordinance, Article 2

Reprocessing QMS Ordinance, Articles 39 and 40

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.4.5

What reviews does the regulatory body perform in order to verify the processes established by the licensee for the management of design changes during construction of the fuel cycle facility?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires each licensee to list the organizations involved in quality assurance activities in the written application for the approval of the design and construction method and checks whether such statement conforms to relevant criteria.

Requirements for design modification include the following:

- When the licensee has modified the design, each modification must be distinguishable and the licensee must record the modifications and preserve the records.*
- Before modifying the design, the licensee must appropriately perform checks, verification and validation and obtain the NRA's approval.*
- Before modifying the design, the licensee must include the evaluation of impacts of the modification on the reprocessing facility (including materials and parts constituting the facility) in the range of various checks.*
- The licensee must record the check results concerning the design modification (including measures taken on the basis of the results) and preserve the records.*

<Attachments>

Reprocessing Ordinance, Article 2

Reprocessing QMS Ordinance, Article 35

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Question 3.5

Does the regulatory body have in place processes and resources for performing an adequate safety review of the commissioning activities of a fuel cycle facility?

Answer

Yes

Finding

The regulatory body has in place processes and resources for performing an adequate safety review of the commissioning activities of a fuel cycle facility

Response

—

Subsidiary Question 3.5.1

What is content of the safety demonstration / safety analysis report required by the regulatory body for review and assessment prior to authorising the commissioning of a fuel cycle facility?

Subsidiary Response

Before pre-service inspection, to which each licensee is subjected in accordance with the potential risk in each nuclear fuel cycle facility, the Reactor Regulation Act requires each licensee to obtain its approval for the basic design and basic design policies as well as for the detailed design and construction method beforehand. The Reactor Regulation Act requires each licensee to submit an assessment report stating the results of evaluating specified items with the written application for said approval.

For example, the Reprocessing Ordinance requires each licensee to submit an explanatory document concerning safety design as well as facility required to deal with an accident, during the review stage for the approval.

<Attachments>

Reactor Regulation Act, Articles 44, 45 and 46

Reprocessing Ordinance, Articles 1-2, 2 and 5

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.5.2

How does the regulatory body review the management system applied for the commissioning of a fuel cycle facility?

Subsidiary Response

Before granting approval for a design and construction method, which each licensee must obtain from the NRA in accordance with the potential risk in each nuclear fuel cycle facility,

the NRA reviews whether the quality control method and organizations involved in inspection of the method satisfy the relevant technical criteria.

The Reprocessing Ordinance requires each licensee to obtain its approval for the licensee's operational safety program and the NRA checks whether persons in charge of the management of the facility, their duties and their organizations have been defined in the operational safety program and whether quality assurance is appropriate.

<Attachments>

Reactor Regulation Act, Articles 45 and 50

Reprocessing QMS Ordinance

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.5.3

How does the regulatory body review the commissioning activities for fuel cycle facilities or processes restarting after lengthy shutdown periods?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, before or after a facility is restarted after lengthy shutdown period, the NRA checks whether the performance of SCCs conforms to the relevant criteria by means of a pre-service inspection (when the facility has not yet restarted) or an annual inspection (when the facility has already restarted).

<Attachments>

Reactor Regulation Act, Articles 46 and 46-2-3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.5.4

How does the regulatory body review the assignment of responsibilities for the safe performance of commissioning activities?

Subsidiary Response

Before granting approval for a design and construction method, which each licensee must obtain from the NRA in accordance with the potential risk in each nuclear fuel cycle facility, the NRA reviews whether the method of quality control and organizations involved in inspection of the method satisfy relevant criteria in terms of the involvement of the business manager and the person in charge of management as well as responsibilities and authorities.

The Reactor Regulation Act requires each licensee to obtain its approval for the licensee's operational safety program before using nuclear fuel materials, to stipulate the duties and organizations of persons in charge of facility management in the rules, and to ensure quality assurance, which the NRA checks for compliance.

<Attachments>

Reactor Regulation Act, Articles 45 and 50

Reprocessing QMS Ordinance, Articles 8, 13, and 14

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 3.5.5

What are the reviews performed by the regulatory body in relation with specific commissioning tests on systems important to safety?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA checks by means of a pre-service inspection whether the facility design and performance are in the approved conditions and conform to the technical criteria. Before conducting a pre-service inspection, the NRA prepares an inspection manual stipulating the inspection purposes, locations to be inspected, pre-inspection conditions, items to be inspected, etc. and conducts inspection.

<Attachments>

Reprocessing Ordinance, Articles 6 and 6-4

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.5.6

What reviews and assessments does the regulatory perform in order to verify the adequacy of commissioning test objectives, acceptance criteria and procedures used in the commissioning of a fuel cycle facility?

Subsidiary Response

Before conducting a pre-service inspection, which is obligatory in accordance with the potential risk in each nuclear fuel cycle facility, the NRA prepares an inspection manual stipulating the inspection purposes, locations to be inspected, pre-inspection conditions for checking the results of the licensee's voluntary inspections, and approval criteria among other items, and conducts inspection based on this manual. When conformance to the acceptance criteria is confirmed, the NRA issues an inspection certificate. If the pre-service inspection is not passed, the licensee cannot use the facility.

<Attachments>

Reprocessing Ordinance, Articles 5, 6, 6-4 and 7

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.5.7

What are the arrangements in place to enable the regulatory body to witness specific commissioning activities?

Subsidiary Response

Before conducting a pre-service inspection, which is obligatory in accordance with the potential risk in each nuclear fuel cycle facility, the NRA prepares an inspection manual stipulating inspection purposes, locations to be inspected, pre-inspection conditions, items to be inspected, etc. and conducts a witnessed inspection when necessary.

<Attachments>

Reprocessing Ordinance, Articles 6 and 6-4

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.5.8

What are the main aspects of interest for the regulatory review of commissioning test reports?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA conducts a pre-service inspection to check whether the facility is constructed in accordance with the approved design and construction method. When conducting a pre-service inspection, the NRA prepares an inspection manual stipulating inspection purposes, locations to be inspected, inspection method, acceptance criteria, inspection results, etc. The NRA carries out the pre-service inspection according to the inspection manual to check for conformance to the relevant standards.

<Attachments>

Reactor Regulation Act, Article 46

Reprocessing Ordinance, Articles 6 and 6-4

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.5.9

What are the regulatory reviews performed for verifying the process implemented for corrective actions dealing with deviations and deficiencies identified during the commissioning of a fuel cycle facility?

Subsidiary Response

When a deviation or deficiency is found during a pre-service inspection to which nuclear fuel cycle facilities are subjected in accordance with the potential risk in each facility, the NRA requires the facility to take corrective actions based on the operational safety program and the quality control methods related design and construction.

<Attachments>

Reprocessing Ordinance, Articles 2, 8-3 and 17

Reprocessing QMS Ordinance

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Question 3.6

Does the regulatory body have in place processes and resources for performing an adequate safety review of the operation of a fuel cycle facility?

Answer

Yes

Finding

The regulatory body has in place processes and resources for performing an adequate safety review of the operation of a fuel cycle facility

Response

—

Subsidiary Question 3.6.1

What is the content of the safety demonstration / safety case / safety analysis report required by the regulatory body for review and assessment prior to authorising the operation of a fuel cycle facility?

Subsidiary Response

Before a pre-service inspection to which each nuclear fuel cycle facility is subjected in accordance with their potential risk, the Reactor Regulation Act requires the facility to obtain permit from it for its basic design and basic design policies as well as for its detailed design and construction method beforehand. The NRA requires the operator to submit an assessment report stating the results of evaluating specified items with the written application for said approval.

<Attachments>

Reactor Regulation Act, Articles 44, 45 and 46

Reprocessing Ordinance, Articles 1-2, 2 and 5

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.6.2

How does the regulatory body review the adequacy of the management structure and of the necessary infrastructure for the safe operation of the fuel cycle facility?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the Reactor Regulation Act and the relevant NRA ordinances require the licensee to stipulate provisions in its operational safety program, i.e., provisions related to the duties and organizations of persons in charge of facility operation and management, a system for ensuring compliance with relevant laws and its operational safety program, policies for executing education on operational safety, etc., which the NRA checks for conformance to the acceptance criteria.

<Attachments>

Reprocessing Ordinance, Article 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.6.3

How does the regulatory body review the qualification and training of personnel for the fuel cycle facilities?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA has set requirements for the qualification and training of its personnel, which the NRA checks for conformance to the acceptance criteria.

For example, the NRA requires each licensee's operation rules to ensure that the operation of systems and equipment is performed by persons having knowledge necessary for the operation. The NRA has set requirements for the chief engineer of nuclear fuel selected to oversee the safe handling of nuclear fuel materials.

The NRA also requires each licensee to stipulate provisions concerning the education and training of personnel in their respective operational safety program. The NRA then checks the content.

<Attachments>

Reprocessing Ordinance, Articles 13, 17 and 18

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.6.4

What are the regulatory reviews and assessments performed in order to verify the adequacy of the staffing levels for the safe operation of the fuel cycle facility?

Subsidiary Response

The NRA requires nuclear fuel cycle business operators to show in permit application that they can adequately secure engineers having expertise, techniques and competence necessary to perform design, construction, operation or maintenance. The NRA checks whether the content (such as the number of engineers) described in the application document are appropriate through review related to technical competence.

<Attachments>

Reprocessing Ordinance, Article 1-2

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.6.5

How does the regulatory body review the arrangements made by the licensee for the feedback of operating experience?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the licensee to stipulate provisions in the licensee's operational safety program, i.e., provisions concerning the self-assessment of quality assurance activities based on a quality assurance program and the continuous improvement of quality. Experience gained in the course of operations must be used as feedback to continuously enhance the quality assurance activities.

In periodic safety assessment of continuous improvement, which licensees are required to perform in accordance with the potential risk in the facility, the NRA requires each licensee to derive additional measures to take based on lessons learned through operating experience.

<Attachments>

Reactor Regulation Act, Article 50-4-2

Reprocessing Ordinance, Article 17

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Question 3.6.6

What are the regulatory reviews and assessments performed in order to verify the implementation of adequate processes for the management of the organisational change?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the licensee to stipulate provisions in its quality assurance program developed based on its operational safety program, namely provisions related to organizations for quality assurance and the improvement of operational safety activities, which the NRA checks for conformance to relevant criteria.

Whether appropriate processes for managing organizational modifications intended to improve operational safety activities are implemented properly by means of quality assurance activities performed by the licensee based on operational safety program is checked through an operational safety inspection by the NRA.

<Attachments>

Reprocessing Ordinance, Articles 8-5, 8-9 and 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.6.7

How does the regulatory body review and assess the safety cases for the modifications to a fuel cycle facility?

Subsidiary Response

When the licensee modifies the approved design or operational safety program, the Reactor Regulation Act requires the licensee to submit an application for the modification and obtain an approval in the same manner of permit application. The NRA reviews the application in the same manner of the original application.

<Attachments>

Reactor Regulation Act, Article 44-4, 45, 50

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.6.8

What are the regulatory reviews and assessments for verifying the adequacy of the operational limits and conditions for fuel cycle facilities and the compliance with the operational limits and conditions?

Subsidiary Response

The NRA requires that an explanatory document concerning the safety design of the nuclear fuel cycle facility be attached to the permit application and checks whether the content of safety self-assessments such as the preconditions of analyses for verifying the design described in the written application is appropriate.

Operational limits such as nuclear limits and thermal limits must be provided in each written application for design and construction method approval and must be stipulated in operational safety program. The NRA requires each licensee to make these limits consistent with safety assessment preconditions stated in the written application.

The NRA checks compliance with operational safety program through operational safety inspections.

<Attachments>

Reprocessing Ordinance, Articles 1-2, 2, 17, and 17-2.

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.6.9

What are the regulatory reviews performed in relation to the maintenance, calibration, periodic testing and inspection activities for fuel cycle facilities?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA has set requirements for the licensee's voluntary periodic inspections, facility maintenance, calibration and inspections to be performed in routine patrols. The operational safety inspector of the NRA checks the implementation status of the operational safety activities through operational safety inspections and routine patrols.

In accordance with the potential risk in each nuclear fuel cycle facility and by means of an annual facility inspection, the NRA checks whether the facility performance has been maintained as required by relevant criteria.

<Attachments>

Reactor Regulation Act, Articles 46-2-3 and 48

Reprocessing Ordinance, Articles 11 and 12

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.6.10

How does the regulatory body review the implementation of radiation protection programmes for fuel cycle facilities in operation?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the licensee to develop operational safety program that include rules for operational safety

education for radiation workers, the setting of control areas and environmental monitoring areas, the control of access to and from such areas, and the operation of systems and equipment that requires particular management in terms of safety and thereby to establish and implement a radiation prevention program. The NRA checks whether the content of the operational safety program conform to the relevant criteria.

<Attachments>

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

Subsidiary Question 3.6.11

What are the regulatory reviews performed to verify the availability, competence and qualifications of the radiation protection personnel for the fuel cycle facilities?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the licensee to develop a quality assurance program based on the licensee's operational safety program and checks whether the operational safety program conform to the relevant criteria.

The NRA also requires the licensee to plan, implement, assess and improve operational safety activities on the basis of the operational safety program, to continuously improve the quality assurance program and to stipulate, in the quality assurance program, provisions concerning the procurement of personnel and manpower management such as education and training in the operational safety program.

<Attachments>

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

Subsidiary Question 3.6.12

How does the regulatory body review the control of occupational exposures at fuel cycle facilities?

Subsidiary Response

The NRA requires licensees of nuclear fuel cycle facilities to ensure that the dose limits set by the NRA will not be exceeded and as well as checks whether the facility design is appropriate, and during an operation stage, checks whether radiation exposure control stipulated in the operational safety program is appropriate.

<Attachments>

Reprocessing Ordinance, Articles 10 and 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.6.13

How does the regulatory body review the control of contamination at fuel cycle facilities?

Subsidiary Response

The NRA has set requirements for managing contamination at each nuclear fuel cycle facility according to its potential risk.

For example, the NRA checks during permit review whether the basic design for preventing accident expansion conforms to the relevant criteria. The NRA requires the licensee to set control areas based on the basic design to control access and ensure that the concentrations of radioactive materials attached to the surfaces of objects that may be touched by persons and contaminated with radioactive materials will not exceed the surface concentration limit set by the NRA, thereby controlling radioactive contamination.

<Attachments>

Reprocessing Ordinance, Article 9

Reprocessing Permit Ordinance, Article 23

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 3.6.14

How does the regulatory body review the arrangements for criticality control at fuel cycle facilities?

Subsidiary Response

The NRA requires each nuclear fuel cycle facility to ensure that criticality never occurs under any circumstance and checks compliance with this requirement.

Specifically, in accordance with the potential risk in each nuclear fuel cycle facility, the NRA checks the basic design for criticality control and the operability of systems and equipment that particularly require safety management.

Moreover, the NRA requires the licensee to set provisions regarding facility operation and the transfer and storage of nuclear fuel materials in the licensee's operational safety program.

<Attachments>

Reprocessing Technical Standards Ordinance, Article 3

Reprocessing Ordinance, Articles 13, 14, 15 and 17

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

Subsidiary Question 3.6.15

What are the regulatory reviews related to the management of radioactive waste and effluents resulting from the operation of fuel cycle facilities?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA has set requirements concerning, e.g., the management of gaseous, liquid, and solid radioactive waste and effluents generated by the operation of the facility.

The requirements for a reprocessing facility include the following:

- *The radioactive waste processing capability of predisposal management facility must be such that the radioactive material concentrations in the air outside the environment monitoring area and radiation doses caused by the discharge of liquid radioactive waste into the ocean are each lower than the values specified by the NRA.*
- *Equipment used to management of radioactive waste must be separate from equipment used to management of other waste. However, this does not apply to the case where non-radioactive fluid waste is introduced into equipment where radioactive fluid waste is managed and the radioactive fluid waste will never flow back into the equipment for the non-radioactive fluid waste.*
- *Equipment used to discharge gaseous radioactive waste must not have an outlet other than the ventilation port for the waste.*
- *When installing filters in equipment for gaseous radioactive waste discharge, the function of the filters must be able to be appropriately maintained, they must have a structure that makes the contamination by spent fuel easily removed, and they must be easy to replace.*
- *Equipment used to discharge liquid radioactive waste must not have an outlet other than its ocean discharge outlet.*

<Attachments>

Reprocessing Technical Standards Ordinance, Article 25

Subsidiary Attachments

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

Subsidiary Question 3.6.16

How does the regulatory body verify the implementation of adequate arrangements for controlling the hazards associated with the operations at the fuel cycle facilities, including chemical, industrial and radiological hazards?

Subsidiary Response

Operators of nuclear fuel cycle facilities are required to comply with, in addition to the Reactor Regulation Act, legislation applicable to general industrial operators, such as the High Pressure Gas Safety Act, Poisonous and Deleterious Substances Control Act, Industrial Safety and Health Law, and Fire Protection Law. Under these acts, competent government offices verify compliance with the standards.

Subsidiary Question 3.6.17

What are the regulatory reviews performed to verify the adequacy of the fire protection arrangements for the fuel cycle facilities?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the licensee to make the facility capable of preventing the occurrence of fire and explosion and install fire-extinguishing equipment and a fire-detecting system as well as to stipulate provisions concerning a system for initial fire-fighting activities in the licensee's operational safety program and take necessary measures based on the system.

According to the potential risk in the facility, the Reactor Regulation Act also requires the licensee to perform periodic safety assessment of continuous improvement, including an assessment of fire protection at the facility.

To check whether the above requirements are complied with, the NRA carries out authorization processes such as permit reviews and approval of the design and construction method.

<Attachments>

Reprocessing Technical Standards Ordinance, Articles 4 and 31

Reprocessing Ordinance, Articles 12-3 and 17

Reactor Regulation Act, Article 50-4-2

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

Subsidiary Question 3.6.18

What reviews does the regulatory body perform to verify the emergency preparedness arrangements for fuel cycle facilities?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the NRA requires the licensee to stipulate provisions in the operational safety program—provisions regarding the preparation of plans and personnel assignments necessary to develop a system for protecting the facility in the event of a severe accident. The NRA checks whether the operational safety program conform to the relevant criteria.

<Attachments>

Reprocessing Ordinance, Articles 17 and 12-4

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.6.19

Does the regulatory body require that the emergency plan for a fuel cycle facility is tested in an exercise before the radioactive material is introduced into the facility?

Subsidiary Response

No.

However, in accordance with the potential risk in each nuclear fuel cycle facility, the Nuclear Emergency Act requires the licensee to develop a nuclear operator emergency action plan stipulating provisions for disaster prevention drills and their assessments. The Reactor Regulation Act requires the licensee to stipulate in the operational safety program, which are approved by the NRA before nuclear fuel materials are carried into the facility, that the measures after the occurrence of an emergency must be taken on the basis of the nuclear operator emergency action plan. Even before nuclear fuel materials are introduced into the facility, it is possible for the licensee to carry out a disaster prevention drill whenever necessary to test the emergency action plan.

<Attachments>

Act on Special Measures Concerning Nuclear Emergency Preparedness (Abbreviated as the "Nuclear Emergency Act"), Article 7

Reprocessing Ordinance, Article 17

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

C02 Nuclear Emergency Act

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

Subsidiary Question 3.6.20

What is the scope of the regulatory reviews in relation to the periodic safety reviews performed by the licensees for fuel cycle facilities?

Subsidiary Response

In accordance with the potential risk in each nuclear fuel cycle facility, the Reactor Regulation Act requires the licensee to perform periodic safety assessment of continuous improvement.

In the assessment, the licensee is required to check measures for improving safety on the basis of the latest safety-related knowledge that has been established in the operational safety program. On the basis of the check results, the operational safety program are modified when necessary.

The NRA requires the licensee to notify the results of periodic safety assessment of continuous improvement, including the following:

- Range in which conformance to the laws for safety regulation has been confirmed*
- Measures taken voluntarily to improve safety*
- Investigations and analyses of measures taken voluntarily to improve safety*
- Comprehensive evaluation*

<Attachments>

Reactor Regulation Act, Article 50-4-2

Reprocessing Ordinance, Article 19-3-2

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Question 3.7

Does the regulatory body have in place processes and resources for performing an adequate safety review of the decommissioning activities for a fuel cycle facility?

Answer

Yes

Finding

The regulatory body has in place processes and resources for performing an adequate safety review of the decommissioning activities for a fuel cycle facility

Response

—

Subsidiary Question 3.7.1

What are the regulatory reviews of the arrangements made by the licensee for the decommissioning of a fuel cycle facility (including financial provisions)?

Subsidiary Response

The Reactor Regulation Act requires each licensee to develop a decommissioning plan before beginning decommissioning and to obtain approval for it. Documents and drawings that must be attached to the written application for decommissioning plan include a document explaining the amount of funds required for the decommissioning and a plan for procuring the funds. When the decommissioning plan is approved, the licensee's operational safety program (regarding modifications) for conducting the decommissioning must be approved by the NRA.

Thus, before decommissioning, the NRA reviews the licensee's decommissioning plan and operational safety program.

<Attachments>

Reactor Regulation Act, Article 50-5

Reprocessing Ordinance, Articles 17-2 and 19-5 to -8

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.7.2

What are the most important aspects considered in the regulatory review of the decommissioning plan for a fuel cycle facility?

Subsidiary Response

On the basis of the Reactor Regulation Act, when the NRA judges that the decommissioning plan submitted by a licensee conforms to its criteria, it must approve the plan. Therefore, the most important aspects considered in the regulatory review of the decommissioning plan for a fuel cycle facility are set forth in the criteria for decommissioning plan approval.

The criteria for approving the decommissioning plan of a reprocessing facility are as follows:

- 1. Spent fuel and nuclear fuel materials are required to be taken out of the reprocessing system proper beforehand (excluding those remaining in the system proper without being retrieved after the normal retrieval operation).*
- 2. The management and transfer of the spent fuel, nuclear fuel materials and materials separated from the spent fuel must be appropriate.*

3. *The management, treatment and disposal of the spent fuel, nuclear fuel materials, materials separated from the spent fuel and materials contaminated by them must be appropriate.*

4. *The decommissioning must be appropriate enough to prevent a disaster due to the spent fuel, nuclear fuel materials, materials separated from the spent fuel or materials contaminated by them.*

<Attachments>

Reactor Regulation Act, Article 50-5

Reprocessing Ordinance, Article 19-8

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.7.3

What types of reviews does the regulatory body perform as part of the regulatory oversight of decommissioning activities for fuel cycle facilities?

Subsidiary Response

In accordance with the Reactor Regulation Act, before a licensee begins decommissioning, the licensee must prepare a decommissioning plan and obtain approval for it from the NRA. The NRA reviews the decommissioning plan on the basis of the approval criteria stipulated in the NRA ordinance on each facility.

The Reactor Regulation Act requires the licensee to obtain its approval for a modification of the licensee's operational safety program for decommissioning. Approval criteria for operational safety program are set forth in the Reactor Regulation Act.

The licensee is required to proceed with the decommissioning in accordance with the approved decommissioning plan and operational safety program. When a modification is necessary, the licensee must apply for or notify the NRA of the modification.

During the decommissioning, the NRA conducts operational safety inspections and periodic facility inspections to check whether the licensee is executing the decommissioning in accordance with the approved decommissioning plan and the operational safety program.

When the decommissioning is complete, the licensee must apply for confirmation of the completion of the decommissioning from the NRA. In response, the NRA checks the post-decommissioning state in accordance with the specified confirmation criteria.

<Attachments>

Reactor Regulation Act, Articles 46-2-3, 50 and 50-5

Reprocessing Ordinance, Articles 7-10-2, 17, Paragraph 2, 17-2, and 19-5 to -10.

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.7.4

What types of reviews does the regulatory body perform as part of the regulatory oversight of fuel cycle facilities that have been shut down but the decommissioning of which is deferred?

Subsidiary Response

The NRA does not conduct such a review.

Until a licensee obtains the NRA's approval for the decommissioning plan, in-service regulations are imposed on the licensee. When the licensee has subsequently shut down the operation for more than 1 year without providing a valid reason, the NRA can revoke the

permit. In such a case, the licensee must prepare a decommissioning plan and apply for approval from the NRA.

However, for facilities where an accident occurred in the past and when the NRA deems it necessary, the NRA designates the facility as a specified nuclear facility. In response, the licensee must develop a relevant implementation plan to be reviewed by the NRA and obtain its approval for it.

<Attachments>

Reactor Regulation Act, Articles 46-7, Paragraph 1, 50-5, 51, Paragraph 2, 64, Paragraph 2, 64, Paragraph 3, and 64-4

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.7.5

What are the specific hazard analyses reviewed by the regulatory body in relation to the decommissioning activities at fuel cycle facilities?

Subsidiary Response

The NRA requires the licensee to attach documents to the written application for decommissioning plan approval, i.e., a document explaining the management of radiation exposure associated with the decommissioning and a document explaining the types, degrees and impacts of anticipated accidents due to negligence, the failure of a machine or equipment, water intrusion, earthquake, fire, etc. during the decommissioning. The NRA reviews their impacts as described in the attached documents for any problems in terms of disaster prevention.

<Attachments>

Reprocessing Ordinance, Article 19-5

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 3.7.6

What are the regulatory reviews and assessments performed in view of releasing a site for unrestricted use following the completion of decommissioning of the respective fuel cycle facilities?

Subsidiary Response

When decommissioning is complete, the NRA confirms the completion, whereupon the nuclear facility is no longer subject to the Reactor Regulations Act.

Criteria for decommissioning completion are as follows:

- 1. It must be ensured that the transfer of the nuclear fuel materials (spent fuel or materials separated from it) is already complete.*
- 2. It must be ensured that the soil and remaining facilities of the decommissioned site do not require measures for preventing radiation hazard.*
- 3. It must be ensured that the disposal of nuclear fuel materials (spent fuel or materials separated from it) and materials contaminated by them is already complete.*
- 4. It must be ensured that the transfer of radiation management records regarding radiation workers to the organization designated by the NRA is already complete.*

<Attachments>

Reactor Regulation Act, Article 50-5

Reprocessing Ordinance, Articles 19-9 and -10

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Module: Inspection and Enforcement

Findings

Question 4.1

Has the regulatory body established a systematic inspection programme for the fuel cycle facilities?

Answer

Yes

Finding

The regulatory body has established a systematic inspection programme for the fuel cycle facilities

Response

—

Subsidiary Question 4.1.1

What are the bases for establishing a graded approach to the inspection of fuel cycle facilities and how is the graded approach reflected in the scope of the inspection programmes and the frequency of inspections for the different installations?

Subsidiary Response

The Reactor Regulation Act prescribes inspection programs for nuclear fuel cycle facilities and their frequency in accordance with the estimated doses in the event of their loss of function and of potential risks of the escalation of any accidents, and their classification by importance of safety functions and seismic classification.

<Attachments>

Reactor Regulation Act, Article 46, Article 46-2, and Article 46-2-3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.2

What are the specific factors taken into account when preparing the inspection plans for a fuel cycle facility?

Subsidiary Response

The NRA has developed guidelines for conducting pre-service inspections, periodic facility inspections, and welding inspections by taking into account conformance to relevant technical standards. Planning of an operational safety inspection is made while taking into account the results of the preceding operational safety inspections.

<Attachments>

Reactor Regulation Act, Article 46, Article 46-2, Article 46-2-3, and Article 50

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.3

Please provide example of proactive and reactive inspections performed at fuel cycle facilities in the last 2 years.

Subsidiary Response

Proactive example: An auxiliary unit of the safety system experienced a shutdown in Unit 2 of Byron Nuclear Generating Station in the United States as a result of the loss of one phase. In response, the NRA amended the interpretation of standards for designation of reprocessing facilities in October 2014. More specifically, additional requirements were posed to the prevention of shutdown of power supply to safety facilities even when one phase is lost. Compliance with the requirement was verified through operational safety inspections, etc.

Reactive example: In July 2012, contamination was identified beyond the controlled area of the Tokai Reprocessing Plant. In response, the NRA requested the licensee to inspect the entire piping of the reprocessing facility. The inspection spotted contamination caused by corrosion in another section. The corrective measures taken by the licensee to address these problems were verified through operational safety inspections, etc.

Subsidiary Question 4.1.4

What kind of inspections does the regulatory body perform in order to assess the management for safety at fuel cycle facilities, including aspects related to safety culture?

Subsidiary Response

By conducting operational safety inspection, the Reactor Regulation Act verifies and evaluates the compliance with the operational safety program defined by each licensee regarding the operational safety training for the handling of nuclear fuel materials, promotion of a safe environment, and so forth.

<Attachments>

Reactor Regulation Act, Article 50

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.5

What kind of inspections does the regulatory body perform in connection with the different stages of the licensing / authorisation process for fuel cycle facilities?

Subsidiary Response

The NRA conducts pre-service inspections at each nuclear fuel cycle facility after permit was issued in order to verify compliance with the design and construction method as approved by the NRA with respect to the potential hazards that the facility poses. Welding inspections are conducted at particular facilities. Once authorization is issued for a facility, periodic facility inspections are conducted along with operational safety inspections to verify compliance with the operational safety program including the provisions on operational safety training for handling of nuclear fuel materials.

<Attachments>

Reactor Regulation Act, Article 46, Article 46-2, Article 46-2-3, and Article 50

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.6

How does the regulatory body determine which aspects would warrant the performance of unannounced inspections at fuel cycle facilities?

Subsidiary Response

On-site inspections with nuclear fuel cycle facilities are conducted as deemed necessary by the NRA and there are some provisions regarding the identification documents issued to the employees in accordance with the existing regulatory system under the Reactor Regulation Act. However, there are no regulatory bylaws defining the circumstances requiring on-site inspections and their procedure. In practice, no on-site inspections have been conducted.

<Attachments>

Reactor Regulation Act, Article 68

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.7

What inspection activities does the regulatory body perform in order to assess the adequacy of the resources available for ensuring the safety of a fuel cycle facility?

Subsidiary Response

In terms of financial base of each nuclear fuel cycle licensee, the NRA only conducts a review during the permit phase in accordance with the potential hazard posed by the facility without making any further inspections during the operation phase.

In terms of human resources, operational safety inspections are conducted according to the potential hazard posed by the facility to verify compliance with the operational safety program that defines the personnel assignment system, operational safety training for handling of fuel materials, and so forth.

In terms of equipment, operational safety inspections are conducted according to the potential hazard posed by the facility to verify compliance with the operational safety program that defines matters related to regular voluntary facility inspections. The NRA also conducts periodic facility inspections to verify that the facility performance is maintained to comply with relevant standards.

<Attachments>

Reactor Regulation Act, Article 44-2, Article 46-2-3, and Article 50

Reprocessing Ordinance, Article 12

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 4.1.8

What inspection activities does the regulatory body perform in order to assess the use of contractors at a fuel cycle facility and the arrangements put in place to ensure that workers are suitably qualified and experienced to perform their safety related tasks?

Subsidiary Response

The Reactor Regulation Act requires licensees to develop operational safety programs defining matters related to quality assurance for their nuclear fuel cycle facilities according to the potential hazards they pose and to seek approval from the NRA. In reviewing operational safety programs, the NRA verifies that the programs stipulate necessary requirements in case of any outsourcing of services and methods for properly controlling the process to comply with the requirements.

Operational safety inspections are conducted with approved operational safety programs to verify proper procurement management for the utilization of contractors.

<Attachments>

Reactor Regulation Act, Article 50

Reprocessing Ordinance, Article 8-7 and Article 17

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 4.1.9

What are the policies and procedures used by the regulatory body when taking enforcement actions for fuel cycle facilities in cases of non-compliance with regulatory requirements or licence conditions?

Subsidiary Response

In case of any violation of the provisions or orders based on the Reactor Regulation Act, depending on the gravity of the violation, the NRA can order a licensee to take operational safety measures, shut down the facility, or resort to administrative sanctions such as revocation of the permit. Corresponding penalties are defined by the Reactor Regulation Act.

<Attachments>

Reactor Regulation Act, Article 46-7, Article 49, Article 50, Article 50-2, Article 50-4-2, Article 50-5, and Article 77 to 83

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.10

How does the regulatory body document the results / findings of the inspections performed at fuel cycle facilities and how are these fed back, for a follow-up, in the inspection programme?

Subsidiary Response

The NRA documents results and other relevant information from pre-service inspections, welding inspections, and periodic facility inspections based on the inspection procedure developed according to the application submitted from a licensee.

If a licensee fails to pass an inspection, the inspection period is extended. The facility may not be used until the licensee passes the pre-service inspection or welding inspection. If a licensee fails to pass a periodic facility inspection, the NRA may order measures such as shutdown of the facility as necessary.

The NRA documents the results of an operational safety inspection in a report.

The report is sent to the licensee with a request to make any improvements as necessary.

In case any matters for improvements were identified in an inspection, the NRA will focus on them as follow-up items in the planning process for the next operational safety inspection.

<Attachments>

Reactor Regulation Act, Article 46, Article 46-2, Article 46-2-3, Article 49, and Article 50

Reprocessing Ordinance, Article 6-4, Article 7-7-2, and Article 7-10-3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 4.1.11

What are arrangements under which the licensees for fuel cycle facilities are required to report safety related events or other events of interest for the regulatory body?

Subsidiary Response

Licensees are obliged to report any trouble they experience to the NRA pursuant to the Reactor Regulation Act. The NRA can request reports from licensees regarding their operation within the extent necessary for enforcement of the Reactor Regulation Act.

Licensees shall perform periodic safety assessment of continuous improvement according to the potential hazard posed by them and report those findings to the NRA.

<Attachments>

Reactor Regulation Act, Article 50-4-2, Article 62-3, and Article 67

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.12

What are the actions that a regulatory inspector is authorised / empowered to take upon discovery of a situation of serious non-compliance with regulatory requirements and / or licence conditions?

Subsidiary Response

In case any severe violation of laws and regulations is identified with a facility, the NRA can send personnel to visit the facility and conduct an on-site inspection within the extent necessary for enforcement of the Reactor Regulation Act. The personnel conducting such an inspection has the following authority:

- Access to the office, plant, or site*
- Inspection of accounting books, documents, and other relevant properties*
- Inquiry to stakeholders*
- Removal of the necessary minimum amount of samples of nuclear source materials, nuclear fuel materials, and other necessary items for conducting tests*

<Attachments>

Reactor Regulation Act, Article 68

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.13

How does the regulatory body inform the licensees of the inspection findings and what is the input of the regulatory body to the establishment of the corrective actions and of the timelines for implementation?

Subsidiary Response

The NRA makes a report after each operational safety inspection stating any violations identified by the inspection, and such reports are notified to the licensee.

In case compliance is verified in a pre-service inspection, welding inspection, or periodic facility inspection according to the judgment criteria, an inspection certificate is issued and the fact is notified to the licensee. The NRA interrupts an inspection in case inadequacies in the conditions or other problems are identified beforehand and it is clear that the standards for the inspection cannot be satisfied. The NRA then notifies the licensee that the problems need to be addressed before attempting to pass another inspection.

In such an event, the licensee needs to address the identified problems, revise the inspection plan while taking into account the necessary period and so forth, and then undergo another inspection.

<Attachments>

Reactor Regulation Act, Article 46, Article 46-2, and Article 46-2-3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.14

What is the scope of inspections performed by the regulatory body during the construction of fuel cycle facilities?

Subsidiary Response

The NRA conducts a pre-service inspection with the licensee of a nuclear fuel cycle facility in accordance with the potential hazard it poses to examine if the construction work is being carried out according to the approved design and method for each phase of construction work, and if the performance satisfies the technical standards. In addition, a welding

inspection is conducted to examine if welding is being performed according to the method approved by the NRA and if the facility's performance satisfies the required technical standards.

<Attachments>

Reactor Regulation Act, Article 46 and Article 46-2

Reprocessing Ordinance, Article 6, Article 7-2, and Article 7-4

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 4.1.15

What is the scope of inspections performed by the regulatory body during the commissioning of fuel cycle facilities?

Subsidiary Response

The NRA conducts a pre-service inspection with the licensee of a nuclear fuel cycle facility in accordance with the potential hazard it poses to examine if the construction work is being carried out according to the approved design and method for each phase of construction work, and if the performance satisfies the required technical standards.

The NRA also performs operational safety inspections to verify compliance with operational safety programs in accordance with the potential hazard it poses.

<Attachments>

Reactor Regulation Act, Article 46 and Article 50

Reprocessing Ordinance, Article 6

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 4.1.16

What is the scope of inspections performed by the regulatory body during the decommissioning of fuel cycle facilities?

Subsidiary Response

> Periodic facility inspection

- In any of the following circumstances, the NRA regularly conducts an inspection once a year with a reprocessing facility to examine if the facility's performance satisfies the required technical standards or namely, if:

- 1. there is spent fuel in a facility to be decommissioned*
- 2. nuclear fuel material in a facility to be decommissioned has reached or may reach criticality*
- 3. inside a facility to be decommissioned, there is a residual liquid or vitrified waste after separating nuclear fuel materials or other useful materials from a solution of spent fuel*

> Operational safety inspection

- Inspection of compliance status of an operational safety program: The NRA conducts regular inspections (up to four times a year) of the compliance status with an operational safety program with respect to the process of decommissioning.

> Pre-service inspection

- Pre-service inspection: In case a new facility is newly installed or an existing facility is modified, the NRA conducts a pre-service inspection in a manner similar to normal operation.

> On-site inspections

These are equivalent to those performed during the operation stage.

> Confirmation of completion of decommissioning

In confirmation of completion of decommissioning, which is based on Article 50-5 of the Act, the NRA shall confirm that the results of decommissioning satisfy the criteria for confirming completion of decommissioning; these are defined in Article 19-10 of the Reprocessing Ordinance.

<Attachments>

> Periodic facility inspections

Reactor Regulation Act, Article 46-2-3

Reprocessing Ordinance, Article 7-10-2

> Operational safety inspections

Reactor Regulation Act, Article 50

Reprocessing Ordinance, Article 17-2

> Pre-service inspections

Reactor Regulation Act, Article 46

> On-site inspections

Reactor Regulation Act, Article 68

> Confirmation of completion of decommissioning

Reactor Regulation Act, Article 50-5

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Module: Regulation of FCF

Findings

Question 5.1

Does the legal and regulatory framework require a site evaluation to the extent that is appropriate for the potential hazards presented by the facility?

Answer

Yes

Finding

The legal and regulatory framework does require a site evaluation to the extent that is appropriate for the potential hazards presented by the facility.

Response

—

Subsidiary Question 5.1.1

How does the legal and regulatory framework ensure that the operating organisation performs a site evaluation?

Subsidiary Response

Under the regulatory framework of the Reactor Regulation Act, the NRA reviews the siting evaluation for a facility conducted by a nuclear fuel cycle licensee in order to verify that the evaluation is conducted with respect to the siting conditions.

Permit standards and other relevant standards for such a review are established by the national government.

<Attachments>

Article 44 of the Reactor Regulation Act

Reprocessing Permit Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Question 5.2

Does the legal and regulatory framework for site selection require an evaluation against defined criteria?

Answer

Yes

Finding

The legal and regulatory framework for site selection does require an evaluation against defined criteria

Response

—

Subsidiary Question 5.2.1

How does the legal and regulatory framework ensure that the site selection is evaluated against defined criteria?

Subsidiary Response

An evaluation is conducted to ensure that the location, structures, and equipment of each facility do not impair prevention of disasters caused by nuclear fuel materials, etc., as well as to ensure that protective measures are taken against earthquakes, tsunamis, tornadoes that can be anticipated based on the natural environment of the site, volcanic activities, wild fire, crashing of an airplane or other flying object, fire from nearby plants, etc.

<Attachments>

Article 44 of the Reactor Regulation Act

Articles 6-9 of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 5.2.2

What criteria has the regulatory body established to address natural and man-made external hazards in the evaluation of a site?

Subsidiary Response

The NRA sets forth standards for addressing natural and human-induced hazards in the evaluation of a site.

More specifically, the requirements include protective measures against earthquakes, tsunamis, tornadoes, volcanic activities, and forest fire that can be anticipated based on the natural environment of the site, crashing of an airplane or other flying object, and fire from nearby plants.

<Attachments>

Articles 6-9 of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 5.2.3

What criteria has the regulatory body established to address releases of radioactive and chemically hazardous materials in the evaluation of a site?

Subsidiary Response

The NRA requires each nuclear fuel cycle licensee to process gaseous and liquid effluents appropriately to keep the dose outside the environmental monitoring area below the dose limits prescribed by the NRA.

Dose evaluation is required for external exposure from radioactive plume in the exhaust, internal exposure from inhalation or ingestion of radioactive materials in the exhaust, external exposure from radioactive materials that are deposited on the ground surface, internal exposure from ingestion of agricultural and livestock products, external exposure of radioactive materials in the wastewater, internal exposure from ingestion of radioactive materials in wastewater that remain in seafood, and external exposure to gamma rays from storage facilities of radioactive waste, etc. These points are also examined in the evaluation of a site.

In addition, uranium hexafluoride is also checked for.

<Attachments>

Article 21 of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

Articles 4 and 22 of the Fuel Fabrication Permit Ordinance (including the Fuel Fabrication Permit Guide)

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

Question 5.3

Does the legal and regulatory framework require an on-going programme of monitoring throughout the lifetime of the facility to evaluate natural and human-made changes in the area and their impacts on the site characteristics?

Answer

Yes

Finding

The legal and regulatory framework does require an on-going programme of monitoring throughout the lifetime of the facility to evaluate natural and human-made changes in the area and their impacts on the site characteristics.

Response

—

Subsidiary Question 5.3.1

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation informs the regulatory body of any natural or human-made changes in the area and on their impact on safety?

Subsidiary Response

The Reactor Regulation Act and the relevant NRA ordinances requires each licensee to evaluate natural or human-induced hazards of nuclear fuel cycle facilities prior to the permit application (i.e., before construction) in accordance with the potential hazards posed by the facilities. Once operation starts, each licensee is required to periodic safety assessment of continuous improvement according to the potential hazard level. In periodic safety assessment of continuous improvement, each licensee is required to conduct a study on the site characteristics and evaluate the safety of the fuel cycle facility while taking into account their changes.

However, currently only seismic and tsunami hazards are reassessed in the Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

<Attachments>

Articles 44 and 50-4-2 of the Reactor Regulation Act,

Articles 6-9 of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Question 5.4

Does the legal and regulatory framework require the design of the facility to achieve the fundamental safety objective and safety principles established in IAEA Safety Fundamentals SF-1?

Answer

Yes

Finding

The legal and regulatory framework does require the design of the facility to achieve the fundamental safety objective and safety principles established in IAEA Safety Fundamentals SF-1.

Response

—

Subsidiary Question 5.4.1

How does the legal and regulatory framework ensure that the design of the facility satisfies the fundamental safety objective and safety principles established in IAEA Safety Fundamentals SF-1?

Subsidiary Response

Compliance is ensured by the Reactor Regulation Act and other relevant laws and regulations.

(See Section 9.4 (Nuclear Fuel Cycle Regulation in Japan) in "Outline of Nuclear Regulation of Japan".)

Question 5.5

Does the legal and regulatory framework require the establishment of a design basis for the facility?

Answer

Yes

Finding

The legal and regulatory framework does require the establishment of a design basis for the facility.

Response

—

Subsidiary Question 5.5.1

What regulatory requirements have been established by the regulatory body on the scope, content and detail to be included in the design basis for the facility?

Subsidiary Response

The NRA regulates nuclear fuel cycle facilities in accordance with the potential risks they pose. For instance, review items for reprocessing facilities include:

Prevention of criticality of nuclear fuel materials

Shielding, etc.

Confinement functions

Prevention of damage caused by fire, etc. (including analysis and evaluation of impact of fire)

Ground under the facility

Prevention of damage due to earthquakes

Prevention of damage caused by tsunamis

Prevention of damage caused by external impacts

Prevention of unauthorized access to reprocessing plants

Prevention of damage caused by flooding

Prevention of damage caused by leakage of chemicals Agents

Prevention of misoperation

Safe evacuation routes, etc.

Storage facilities of spent fuel, etc.

Facilities of measurement control systems

Safety protection circuit

Control room, etc.

Radioactive waste Processing facilities

Radioactive waste storage facilities

Radiation management facilities

Monitoring and measurement equipment

Power supply equipment

Emergency station

Communication equipment

Equipment for responding to severe accidents

Equipment for preventing escalation of criticality accidents

Equipment for responding to evaporation to dryness as a result of the loss of cooling function

Equipment for responding to hydrogen explosion as a result of radiolysis

Equipment for responding to fire or explosion caused by organic solvents, etc.

Equipment for cooling storage tanks of spent fuel

Equipment for responding to leakage of radioactive materials

Equipment for containing the release of radioactive materials beyond the plant, etc.

Water supply equipment for responding to severe accidents, etc.

Evaluation of abnormal transients during operation and design standard accidents

Evaluation of severe accidents, etc.

<Attachments>

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 5.5.2

What regulatory requirements have been established by the regulatory body for limits and acceptance criteria for radiological and chemical hazards and risk?

Subsidiary Response

The NRA requires nuclear fuel cycle licensee to establish safety criteria in accordance with the facility's potential hazards, based on statutory standards under the Reactor Regulation Act and other laws, as well as radiation protection targets. Specific requirements are as follows:

- Public exposure

(1) Dose limits outside the environmental monitoring area at normal operation include an annual effective dose of 1 mSv. There are also limits on the concentrations of radioactive material in the air and water outside the environmental monitoring area arising from radioactive material discharged to the surrounding environment.

(2) For accidents, the dose limit outside the environmental monitoring area for design basis accidents is set to an effective dose of 5 mSv. In severe accident, the release of radioactive material must be below 100 terabecquerel in terms of cesium 137.

- Occupational exposure

(1) Dose limits at normal times include a five-year effective dose of 100 mSv. There are also limits on the concentrations of radioactive material in the air breathed by radiation workers.

(2) Dose limits for accidents include an effective dose of 100 mSv per accident during emergency work in an accident. In severe accident at a fuel facility, chemical impacts of leaked uranium hexafluoride must be small enough to ensure work safety for radiation workers.

<Attachments>

Reprocessing Ordinance, Article 10

the Fuel Fabrication Dose Limit Notice

Fuel Fabrication Permit Ordinance (including Fuel Fabrication Permit Guide), Article 16, 28

Reprocessing Permit Ordinance (including Reprocessing Permit Guide), Article 15, 22

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

Question 5.6

Does the legal and regulatory framework place responsibility for the production of a safe facility design with the operating organization?

Answer

Yes

Finding

The legal and regulatory framework does place responsibility for the production of a safe facility design with the operating organization.

Response

Pursuant to the Reactor Regulation Act, each licensee is solely responsible for safe facility design.

Question 5.7

Does the legal and regulatory framework require the specification of criteria and rules, and codes and standards, for the design of items important to safety in operational states and accident conditions and justify their application?

Answer

Yes

Finding

The legal and regulatory framework does require the specification of criteria and rules, and codes and standards, for the design of items important to safety in operational states and accident conditions and to justify their application.

Response

—

Subsidiary Question 5.7.1

How does the legal and regulatory framework ensure that the specification of criteria and rules, and codes and standards, for the design of items important to safety in operational states and accident conditions are justified?

Subsidiary Response

Ordinances for nuclear fuel cycle facilities are performance-based. The NRA uses voluntary consensus standards after endorsing those standards if the NRA can confirm by technical assessment that those standards satisfy the performance codes.

<Attachments>

Chapter 1 of the Reprocessing Permit Guide

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 5.7.2

What, if any, engineering rules including relevant codes and standards have been explicitly required by the regulatory body in the design of items important to safety?

Subsidiary Response

For fuel cycle facilities, there are no endorsed voluntary consensus standards because of their diversity that needs to assess too many things specific to individual facilities.

Question 5.8

Does the legal and regulatory framework require the consideration of ergonomics and human factors in the design of the facility?

Answer

Yes

Finding

The legal and regulatory framework does require the consideration of ergonomics and human factors in the design of the facility.

Response

—

Subsidiary Question 5.8.1

What regulatory requirements have been established by the regulatory body to ensure that ergonomics and human factors are considered in the design of control rooms and panels?

Subsidiary Response

The NRA sets forth standards and rules for licensees conducting each type of business as regulatory requirements to ensure that ergonomics and human factors are considered in the design of a nuclear fuel facility in accordance with the potential risks posed by the facility. The Reprocessing Permit Ordinance stipulates that the design give due consideration to the panel layout, operability of actuators and valves, displays of instruments and alarms for

accurate and swift assessment of the status of reprocessing facilities, and prevention of mistakes in maintenance and inspections.

<Attachments>

Article 13 of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Question 5.9

Does the legal and regulatory framework require specification of design safety margins to accommodate the anticipated material properties at the end of their useful life?

Answer

Yes

Finding

The legal and regulatory framework does require specification of design safety margins to accommodate the anticipated material properties at the end of their useful life.

Response

—

Subsidiary Question 5.9.1

What regulatory requirements have been established by the regulatory body to ensure that the design of the facility takes full account of the ageing of materials over the lifetime of the facility?

Subsidiary Response

Materials and structures of important SCCs for ensuring safety must satisfy the design requirements in terms of their strength and corrosion resistance. At the review of the detailed design by the NRA, it is verified that those SCCs are designed considering with chemical corrosion, fatigue, and so on.

<Attachments>

Article 6 of the Reprocessing Design Construction Ordinance

Subsidiary Attachments

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 5.9.2

What regulatory requirements have been established by the regulatory body to ensure that the design of the facility takes full account of the degradation of items important to safety over the lifetime of the facility?

Subsidiary Response

The ordinances relevant to permit for fuel cycle facilities stipulates that SSCs with safety function shall be able to be maintained through maintenance and repair in order to the

integrity of the safety functions. Measures against age deterioration are ensured by satisfying this requirement.

<Attachments>

Article 15 of the Reprocessing Permit Ordinance

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Question 5.10

Does the legal and regulatory framework require the justification of the design of items important to safety?

Answer

Yes

Finding

The legal and regulatory framework does require the justification of the design of items important to safety.

Response

—

Subsidiary Question 5.10.1

What regulatory requirements have been established by the regulatory body relating to the reliability, segregation and tolerance to common mode failures in the design of items important to safety?

Subsidiary Response

The ordinances relevant to permit for fuel cycle facilities requirement on resistance to failures caused by the following common factors (factors affecting two or more systems or devices leading to the loss of their functions) among other basic design standards for facilities with safety functions in accordance to the potential risks posed by nuclear fuel cycle facilities.

<Attachments>

Article 15 of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 5.10.2

What regulatory requirements have been established by the regulatory body relating to the development, reliability and testing of computer based systems used as an item important to safety?

Subsidiary Response

In safety reviews of individual facilities, to ensure quality among other reasons, the NRA reviews the appropriateness of SCCs that are important for safety, including computer systems such as instrumentation and control systems and safety protection circuits.

<Attachments>

Article 37 of the Reprocessing Design Construction Ordinance

Reprocessing QMS Ordinance

Subsidiary Attachments

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Question 5.11

Does the legal and regulatory framework require, at the design stage, the prevention of criticality accidents to be addressed?

Answer

Yes

Finding

The legal and regulatory framework does require, at the design stage, the prevention of criticality accidents to be addressed.

Response

—

Subsidiary Question 5.11.1

What regulatory requirements have been established by the regulatory body to ensure that, at the design stage, criticality hazards are addressed based on an appropriate hierarchy of control?

Subsidiary Response

The NRA requires each nuclear fuel cycle facility to select shapes and dimensions for ensuring nuclear safety, and take other appropriate measures as early as the basic design phase to prevent nuclear fuel materials from reaching criticality in accordance with potential risks posed by the facility. During operation, each facility is required to eliminate any risks of criticality. In the detailed design phase of a facility, adequate design of specific shapes and dimensions of devices are required by performing detailed calculation related to criticality on the basis of the approved basic design. In addition, the installation of equipment for bringing nuclear fuel material that has reached criticality back to subcriticality and maintaining that condition is required.

<Attachments>

Articles 2 and 34 of the Reprocessing Permit Ordinance

Articles 3 and 28 of the Reprocessing Design Construction Ordinance

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 5.11.2

What regulatory requirements have been established by the regulatory body to ensure, at the design stage, the application of the double contingency principle?

Subsidiary Response

The regulatory framework under the Act for Reactor Regulation requires selection of shapes and dimensions for ensuring nuclear safety and other appropriate measures to be taken as early as the basic design phase of a nuclear fuel cycle facility to avoid criticality in any situation. The double contingency principle is ensured by the fact that multiple failures naturally triggered by a single event are already addressed in the requirement. In the detailed design phase of the facility, adequate design of specific shapes and dimensions of devices are required on the basis of the approved basic design.

<Attachments>

Articles 2 and 34 of the Reprocessing Permit Ordinance

Articles 3 and 28 of the Reprocessing Design Construction Ordinance

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Question 5.12

Does the legal and regulatory framework require consideration, at the design stage, of contamination control, protection against internal and external radiation exposure and exposures to chemicals?

Answer

Yes

Finding

The legal and regulatory framework does require consideration, at the design stage, of contamination control, protection against internal and external radiation exposure and exposures to chemicals

Response

—

Subsidiary Question 5.12.1

What regulatory requirements have been established by the regulatory body to ensure that, at the design stage, consideration is given to the protection of workers, the public and the environment against internal and external radiation exposure?

Subsidiary Response

The NRA sets forth regulatory requirements for each nuclear fuel cycle licensee regarding confinement, shielding, and other means of protection of the environment, workers, and general public from exposure to radiation in accordance with potential risks posed by their facilities. Specific examples of such regulatory requirements include:

- Protection against internal exposure

Negative pressure must be maintained for protective cells and gloveboxes. Any cell containing equipment for handling liquid spent fuel or the like must be designed to enable

monitoring of material leakage from the equipment and safe intervention to stop any such leakage, and to eliminate any risks of leakage of the material outside of the cell. Necessary information for radiation control must be displayed where needed.

- Protection against external exposure

Both the direct radiation from each facility and skyshine radiation must be sufficiently below the dose limit during operation and when shut down. Shielding equipment with sufficient performance needs to be installed to prevent radiation damage caused by external radiation in the plant, etc. If the shielding equipment has an opening, piping, or other kinds of through-holes, and radiation damage needs to be prevented, measures need to be taken to prevent leakage of radiation.

<Attachments>

Articles 7, 8, and 18 of the Reprocessing Design Construction Ordinance

Subsidiary Attachments

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Subsidiary Question 5.12.2

What regulatory requirements have been established by the regulatory body to ensure that, at the design stage, consideration is given to the protection of workers, the public and the environment against exposures to chemicals?

Subsidiary Response

Regulations require that in a severe accident at a fuel facility, chemical impacts of leaked uranium hexafluoride must be small enough to ensure work safety for radiation workers.

There are other regulatory requirements applicable to exposures to chemicals, although they are defined by agencies other than the NRA. These include the Industrial Safety and

Health Act (for workers), the High Pressure Gas Safety Act (for facilities), and the Basic Environment Act (for the public and the environment).

<Attachments>

Fuel Fabrication Permit Ordinance (including Fuel Fabrication Permit Guide), Article 22

Subsidiary Attachments

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

Subsidiary Question 5.12.3

What regulatory requirements have been established by the regulatory body to ensure that, at the design stage, confinement, i.e. dynamic and/or static, is commensurate with the potential hazard?

Subsidiary Response

In the regulatory framework under the Reactor Regulation Act, regulatory requirements on confinement functions are set forth according to potential risks posed by nuclear fuel cycle facilities.

Requirements on confinement functions are defined in the standards and rules for approval of design and construction plans. Specific examples are as follows:

- A reflux-free structure is adopted with a pipe containing no nuclear fuel materials connected to a container or pipe containing a fluid nuclear fuel material lest the fluid nuclear fuel material flow back to the pipe without any nuclear fuel material.*
- Negative pressure can be constantly maintained in a glovebox for handling plutonium, compounds of plutonium, or materials containing one or more of these materials. In addition, the glovebox can be completely sealed except for the air supply and exhaust openings.*

- A barrier is installed around equipment for handling liquid spent fuel, the access point to the facility, or the area around the access point to prevent liquid spent fuel from leaking outside the facility.

<Attachments>

Article 7 of the Reprocessing Design Construction Ordinance

Subsidiary Attachments

K08The NRA Ordinance on Technical Standards for Design and Construction Method of Reprocessing Facilities

Question 5.13

Does the legal and regulatory framework require, at the design stage, the avoidance or optimisation of the generation of radioactive waste, including discharges?

Answer

Yes

Finding

The legal and regulatory framework does require, at the design stage, the avoidance or optimisation of the generation of radioactive waste, including discharges

Response

However, the Reactor Regulation Act does not require that control the generation volume of radioactive waste should be considered at the design phase.

Subsidiary Question 5.13.1

What regulatory requirements have been established by the regulatory body to ensure, at the design stage, compliance with authorized discharge limits?

Subsidiary Response

The NRA requires each nuclear fuel cycle licensee to comply with the discharge limits for liquid and gaseous waste by processing them to adjust their concentration before they are discharged into the environment in accordance with the principles of ALARA.

<Attachments>

Article 21 of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Question 5.14

Does the legal and regulatory framework require, at the design stage, accident conditions to be taken into account?

Answer

Yes

Finding

The legal and regulatory framework does require, at the design stage, accident conditions to be taken into account

Response

—

Subsidiary Question 5.14.1

How does the legal and regulatory framework ensure that, at the design stage, accident conditions and related contingency provisions are taken into account?

Subsidiary Response

The regulatory framework under the Reactor Regulation Act requires appropriate measures to be taken in the basic design phase of a nuclear fuel cycle facility to address the risk of releasing a large amount of radioactive materials by taking the design standard accidents and severe accidents into account in the safety design in accordance with the potential risks posed by the facility.

<Attachments>

Articles 16 and 28 of the Reprocessing Permit Ordinance

Subsidiary Attachments

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Question 5.15

Does the legal and regulatory framework require, at the design stage, consideration of the decommissioning of the facility?

Answer

No

Finding

The legal and regulatory framework does require, at the design stage, consideration of the decommissioning of the facility

Response

—

Subsidiary Question 5.15.3

What are the reasons for the legal or regulatory framework not requiring, at the design stage, consideration of the decommissioning of the facility?

Subsidiary Response

Nuclear safety in Japan is ensured in accordance with the principle of phased regulation achieved by appropriate regulation in the design, construction, operation, and decommissioning phases.

Subsidiary Question 5.15.4

What actions are planned or are in progress to develop the legal and regulatory framework to require consideration, at the design stage, of decommissioning of the facility?

Subsidiary Response

The necessity of requiring an initial decommissioning plan developed in the design phase and the items it must contain are to be discussed in the future.

Question 5.16

Does the legal and regulatory framework allow for regulatory oversight and control during construction to ensure compliance with design and regulatory requirements?

Answer

Yes

Finding

The legal and regulatory framework does allow for regulatory oversight and control during construction to ensure compliance with design and regulatory requirements.

Response

—

Subsidiary Question 5.16.1

What holds points, if any, has the regulatory body specified to ensure regulatory control during construction?

Subsidiary Response

The NRA sets the timing for inspecting the performance of each nuclear fuel cycle facility as required in the design in accordance with the potential risks posed by the facility. The licensee may not use the facility unless it passes the inspection. This pre-service inspection serves as a hold point.

For instance, licensees must undergo pre-service inspections for reprocessing facilities in the following circumstances:

- Matters concerning radiation shielding materials, or materials or parts that require special airtight, watertight, or anti-corrosive performance: When chemical analysis tests, non-destructive tests, mechanical tests, pressure tests, or leakage tests are conducted, or whenever the NRA deems it appropriate*
- Matters concerning the assembly of facilities for accepting or storing spent fuel, main reprocessing units, product storage facilities, and predisposal facilities for radioactive waste: When key dimensions of respective facilities can be measured, or when non-destructive tests, mechanical tests, pressure tests, or leakage tests are conducted*
- Matters concerning assembly of facilities for instrumentation and control systems, radiation management facilities, and other reprocessing facilities: When respective facilities are completed*
- Matters concerning the performance of reprocessing facilities: When test operation is conducted on a reprocessing facility at the maximum reprocessing capacity and whenever the NRA deems it appropriate*

<Attachments>

Article 6 of the Reprocessing Ordinance

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 5.16.2

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation has adequate management control of contractors?

Subsidiary Response

The Reactor Regulation Act requires each licensee to comply with technical standards for quality control methods for the design and construction of nuclear fuel facilities in accordance with the risks their facilities pose. Compliance is verified in the reviews for granting approval of the design and construction methods. The technical standards include the requirement to cover necessary items related to activities for cultivating safety culture in the information to be provided when services are outsourced.

<Attachments>

Articles 36, 37, and 38 of the Reprocessing QMS Ordinance

Subsidiary Attachments

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Subsidiary Question 5.16.3

What regulatory requirements have been established by the regulatory body to ensure regulatory control of design changes made during construction?

Subsidiary Response

Pursuant to the Reactor Regulation Act, in the event a design needs to be changed, each licensee must receive approval for altering the design and construction method in the same manner as filing an application for the original approval.

<Attachments>

Article 45 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.17

Does the legal and regulatory framework require the establishment of a commissioning programme?

Answer

Yes

Finding

The legal and regulatory framework does require the establishment of a commissioning programme.

Response

—

Subsidiary Question 5.17.1

What hold points, if any, has the regulatory body specified to ensure regulatory control prior to and during commissioning?

Subsidiary Response

The Reactor Regulation Act requires each nuclear fuel cycle licensee to gain approval for the design and construction method prior to the pre-service inspection in accordance with potential risks posed by each facility. This serves as a hold point before any pre-service inspection.

The answer to the question regarding hold points during pre-service inspections was already given in SQID16.1.

Phased testing was required for the Rokkasho Reprocessing Plant prior to conducting a pre-service inspection when the facility was almost complete, which included flow tests, tests with uranium nitrate and uranium, and active tests.

<Attachments>

Articles 45 and 46 of the Reactor Regulation Act

Article 6 of the Reprocessing Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 5.17.2

What regulatory requirements have been established by the regulatory body to ensure regulatory control of deviations, modifications and corrective actions during commissioning?

Subsidiary Response

If inadequacies or defects are discovered during a pre-service inspection mandated for nuclear fuel cycle facilities based on the potential hazards for the facilities, the NRA requires facility operators to take corrective measures in accordance with Operational Safety Programs or quality assurance plans.

<Attachments>

Articles 8-3 and 17 of the Reprocessing Ordinance

Reprocessing QMS Ordinance

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K16The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Reprocessing Facilities for licensee of Reprocessing Activity and System for their Inspection

Question 5.18

Does the legal and regulatory framework require the operating organization to establish, implement, assess and continually improve a management system that integrates safety, health and environmental elements to ensure safe operation?

Answer

Yes

Finding

The legal and regulatory framework does require the operating organization to establish, implement, assess and continually improve a management system that integrates safety, health and environmental elements to ensure safe operation.

Response

—

Subsidiary Question 5.18.1

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation uses operating feedback, both national and international, within the management system?

Subsidiary Response

The Reactor Regulation Act and the Reprocessing Ordinance require each licensee of nuclear fuel cycle facilities to stipulate provisions related to the evaluation and continued improvement of quality assurance activities in line with the quality assurance plan in accordance with potential risks posed by the facilities, as well as to gain approval for such provisions. Feedback of the experience from operating the facilities takes place as a part of the quality assurance activities.

In addition, lessons learned from the experience gained from operating nuclear facilities both in Japan and abroad must be reflected in periodic safety assessment of continuous improvement in consideration of the potential risks they pose.

<Attachments>

Articles 50-4-2 and 57-9 of the Reactor Regulation Act

Article 17 of the Reprocessing Ordinance

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K17The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Question 5.18.2

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation establishes a safety committee?

Subsidiary Response

The Reactor Regulation Act requires each licensee to gain approval for the operational safety program prior to using any nuclear fuel materials in nuclear fuel cycle facilities in accordance with the potential risks the facilities pose. Requirements for granting approval for an operational safety program are also defined by the NRA. In the operational safety program, for example, the duties and organization of personnel involved in the management of the facility must be defined along with matters for ensuring quality, and an appropriate meeting committee must be established.

<Attachments>

Article 50 of the Reactor Regulation Act

Article 17 of the Reprocessing Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 5.18.3

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation determines the minimum staffing levels in operational states and accident conditions?

Subsidiary Response

The NRA sets forth an ordinance that requires each licensee to take potential risks posed by respective nuclear fuel cycle facilities into account and refrain from operating equipment unless necessary members are present, deploy necessary personnel to carry out maintenance of a facility in the event of a severe accident, etc.

<Attachments>

Articles 12-4 and 13 of the Reprocessing Ordinance

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Question 5.19

Does the legal and regulatory framework require the operating organisation to specify a competence framework for posts which may affect safety?

Answer

Yes

Finding

The legal and regulatory framework does require the operating organisation to specify a competence framework for posts which may affect safety.

Response

—

Subsidiary Question 5.19.1

What regulatory requirements have been established by the regulatory body to ensure that the operating organisations staff that may affect safety are competent, i.e. the use of suitably qualified and experienced personnel?

Subsidiary Response

The NRA holds each nuclear fuel cycle licensee accountable for acquiring engineers with necessary expertise, skills, and competence for carrying out tasks involved in the design, construction, operation, and maintenance as described in the permit application in accordance with the potential risks posed by their facilities. The adequacy of staffing (e.g., number of engineers) is verified in the review of the technical competence of each licensee.

<Attachments>

Article 1-2 of the Reprocessing Ordinance

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Question 5.20

Does the legal and regulatory framework require the operating organization to develop operating instructions and procedures before operation commences?

Answer

Yes

Finding

The legal and regulatory framework does require the operating organization to develop operating instructions and procedures before operation commences.

Response

—

Subsidiary Question 5.20.1

What regulatory requirements have been established by the regulatory body to ensure that the operating instructions and procedures address operational limits and conditions and cover operational states and accident conditions?

Subsidiary Response

The Reactor Regulation Act and the Reprocessing Ordinance require each applicant for permit to attach a document describing the safety design of their nuclear fuel cycle facility. In the review of the application, the adequacy of the safety evaluation is examined, for example, in terms of the preconditions for conducting analysis for validating the design.

Nuclear limits, thermal limits, and other operational limits need to be stated in the application for approval of the design and construction method and specified in the operational safety program. The NRA additionally requires the licensee to ensure that these values are consistent with the preconditions for safety evaluation as stated in the application for permit.

In addition, in the operational safety program, each licensee is required to define and comply with requirements related to measures to be taken during the facility's operation and in the event of an accident, as well as requirements related to the development of the necessary system.

<Attachments>

Article 50 of the Reactor Regulation Act

Articles 1-2, 2, and 17 of the Reprocessing Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 5.20.2

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation conducts periodic reviews and updating of operating instructions and procedures?

Subsidiary Response

The Reactor Regulation Act requires each licensee to develop an operational safety program in accordance with potential risks posed by nuclear fuel cycle facilities.

In order to comply with operating procedures and the like, each operational safety program requires clarification of the respective roles of the hierarchy of documents related to quality assurance. Accordingly, each licensee revises relevant procedures as necessary in line with improvements made in operational safety activities.

<Attachments>

Articles 8-3 and 17 of the Reprocessing Ordinance

Reprocessing Operational Safety Program Standards

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K12The Standard Review Plan on Approval of Operational Safety Program of Reprocessing Facilities

Question 5.21

Does the legal and regulatory framework require the operating organization to conduct maintenance, calibration, periodic testing and inspection to ensure that items important to safety are able to function in accordance with the design intent and with safety requirements?

Answer

Yes

Finding

The legal and regulatory framework does require the operating organization to conduct maintenance, calibration, periodic testing and inspection to ensure that items important to safety are able to function in accordance with the design intent and with safety requirements

Response

—

Subsidiary Question 5.21.1

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation establishes a programme, both preventative and corrective, to maintain, inspect, test, repair and replace items important to safety to ensure that they are able to function in accordance with the design intent and with safety requirements?

Subsidiary Response

In accordance with potential risks posed by a nuclear fuel cycle facility, the Reactor Regulation Act requires the licensee to maintain the performance of the facility as approved and to conduct voluntary inspections, etc.

In terms of the performance of the facility, important safety-related items of the facility are examined in regular facility inspections to ensure that the performance is maintained at the required standard level. In terms of the operation of the facility, operational safety inspections are conducted to verify compliance with the operational safety program.

<Attachments>

Articles 46-2-2, 46-2-3, and Article 50 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.21.2

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation maintains configuration control before, during and after maintenance, inspection and testing activities?

Subsidiary Response

The Reactor Regulation Act requires each licensee to develop an operational safety program with respect to maintenance and management of the nuclear fuel cycle facilities in accordance with potential risks these facilities pose. In addition, each licensee is required to define specific management measures in the subordinate regulations of the operational safety program with respect to maintenance and management in general. Operational safety inspections are conducted to examine if these regulations are adequately maintained in quality assurance activities.

<Attachments>

Article 50 of the Act for Reactor Regulation

Article 17 of the Reprocessing Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Question 5.22

Does the legal and regulatory framework require the operating organisation to establish procedures for the control of modifications which may affect safety?

Answer

Yes

Finding

The legal and regulatory framework does require the operating organisation to establish procedures for the control of modifications which may affect safety.

Response

—

Subsidiary Question 5.22.1

What regulatory requirements have been established by the regulatory body relating to the procedures to be developed by the operating organisation to control modifications that may affect safety and the involvement of the safety committee?

Subsidiary Response

The Reactor Regulation Act requires each licensee to develop an operational safety program in accordance with potential risks posed by nuclear fuel cycle facilities. The operational safety program must define, for example, the duties and organization of personnel involved in management of the facilities and matters related to planning, implementation, evaluation, and improvement of operational safety activities. Compliance with these requirements is verified in the review for approval of the operational safety program.

<Attachments>

Article 50 of the Reactor Regulation Act

Article 17 of the Reprocessing Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 5.22.2

What regulatory requirements have been established by the regulatory body for the operating organisation to notify the regulatory body about modifications which may affect safety?

Subsidiary Response

Each licensee is required to file an application to the NRA in accordance with the statutory procedure in order to make any modifications. Specific examples include:

- Reporting of accidents involving health damage and any other events defined by ordinances issued by competent ministries*
- Application for modification of permit*
- Application for modification of design and construction method*
- Application for modification of an operational safety program*

<Attachments>

Articles 44-4, 45, 50, and 62-3 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.23

Does the legal and regulatory framework require the operating organization to establish and implement a radiation protection programme to ensure that all activities involving potential radiation exposure are planned, supervised, executed and monitored?

Answer

Yes

Finding

The legal and regulatory framework does require the operating organization to establish and implement a radiation protection programme to ensure that all activities involving potential radiation exposure are planned, supervised, executed and monitored.

Response

—

Subsidiary Question 5.23.1

What regulatory requirements have been established by the regulatory body on the scope, content and detail to be included in the radiological protection programme?

Subsidiary Response

The Reactor Regulation Act requires each licensee to develop an operational safety program in accordance with potential risks posed by nuclear fuel cycle facilities. Requirements in the operational safety program include matters related to an operational safety training program for radiation workers, zoning of controlled areas and environmental surveillance areas, and access restriction to these areas, which are reviewed by the NRA.

<Attachments>

Article 50 of the Reactor Regulation Act

Article 17 of the Reprocessing Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Subsidiary Question 5.23.2

What regulatory requirements have been established by the regulatory body setting limits for radiation exposure of workers and the public?

Subsidiary Response

The NRA requires nuclear fuel cycle licensee to establish safety criteria in accordance with the facility's potential hazards, based on statutory standards under the Reactor Regulation Act and other laws, as well as radiation protection targets. Specific requirements are as follows:

- Public exposure

(1) Dose limits outside the environmental monitoring area at normal operation include an annual effective dose of 1 mSv. There are also limits on the concentrations of radioactive material in the air and water outside the environmental monitoring area arising from radioactive material discharged to the surrounding environment.

(2) For accidents, the dose limit outside the environmental monitoring area for design basis accidents is set to an effective dose of 5 mSv. In a major accident, the release of radioactive material must be below 100 terabecquerels in terms of cesium 137.

- Occupational exposure

(1) Dose limits at normal operation include a five-year effective dose of 100 mSv. There are also limits on the concentrations of radioactive material in the air breathed by radiation workers.

(2) Dose limits for accidents include an effective dose of 100 mSv per accident during emergency work in an accident. In a major accident at a fuel facility, chemical impacts of leaked uranium hexafluoride must be small enough to ensure work safety for radiation workers.

<Attachments>

Reprocessing Ordinance, Article 10

the Fuel Fabrication Dose Limit Notice

Fuel Fabrication Permit Ordinance (including Fuel Fabrication Permit Guide), Article 16, 28

Reprocessing Permit Ordinance (including Reprocessing Permit Guide), Article 15, 22

Subsidiary Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

K06The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Fuel Fabrication Facilities

Question 5.24

Does the legal and regulatory framework require the operating organization to establish and implement arrangements to control and minimize, as far as reasonably practicable, the generation of radioactive waste, to ensure that radioactive releases to the environment are as low as reasonably achievable, to facilitate the handling and disposal of waste, and to facilitate the decommissioning of the facility?

Answer

No

Finding

The legal and regulatory framework does not require the operating organization to establish and implement arrangements to control and minimize, as far as reasonably practicable, the generation of radioactive waste, to ensure that radioactive releases to the environment are as low as reasonably achievable, to facilitate the handling and disposal of waste, and to facilitate the decommissioning of the facility.

Response

—

Subsidiary Question 5.24.3

What are the reasons for the legal or regulatory framework not requiring the operating organization to establish and implement arrangements to control and minimize, as far as reasonably practicable, the generation of radioactive waste, to ensure that radioactive releases to the environment are as low as reasonably achievable, to facilitate the handling and disposal of waste, and to facilitate the decommissioning of the facility?

Subsidiary Response

The Reactor Regulation Act requires installation of predisposal facilities for radioactive waste according to the potential risks they pose. The installed facilities for discharge of radioactive effluent must be designed under the principles of ALARA to minimize as much as reasonably possible radiation dose to the public from radioactive materials released to the environment. In the operation phase of each nuclear fuel cycle, the NRA requires the licensee to keep records of the concentration of discharged radioactive materials and archive the records.

<Attachments>

Article 21 of the Reprocessing Permit Ordinance (including the Reprocessing Permit Guide)

Article 47 of the Reactor Regulation Act

Article 8 of the Reprocessing Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K05The Regulatory Guide of the NRA Ordinance on Standards for the Location Structures and Equipment of Reprocessing Facilities

Subsidiary Question 5.24.4

What actions are planned or are in progress to develop the legal and regulatory framework to require the operating organization to establish and implement arrangements to control and minimize, as far as reasonably practicable, the generation of radioactive waste, to ensure that radioactive releases to the environment are as low as reasonably achievable, to facilitate the handling and disposal of waste, and to facilitate the decommissioning of the facility?.

Subsidiary Response

Regulatory requirements to control and minimize the amount of generated radioactive waste as much as possible will be discussed while taking into account potential risks posed by nuclear fuel cycle facilities and their characteristics.

Question 5.25

Does the legal and regulatory framework require, where relevant, the operating organisation to implement arrangements to ensure that criticality safety is addressed during operation of the facility?

Answer

Yes

Finding

The legal and regulatory framework does require, where relevant, the operating organisation to implement arrangements to ensure that criticality safety is addressed during operation of the facility.

Response

—

Subsidiary Question 5.25.1

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation implements adequate arrangements to ensure that criticality safety is addressed during operation of the facility?

Subsidiary Response

The NRA requires each licensee to maintain nuclear fuel cycle facilities in accordance with the potential risks the facilities pose in order to prevent criticality of nuclear fuel materials triggered by a single failure or malfunction that are foreseeable during operation, or a single misoperation by an operator. Additional operational requirements include exclusion of risks of criticality of nuclear fuel materials triggered by any operation of equipment, as well as specification of rules on the operation in the operational safety program.

<Attachments>

Article 3 of the Reprocessing Technical Standards Ordinance

Articles 13 and 17 of the Reprocessing Ordinance

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

K15The NRA Ordinance on Technical Standards for the Capabilities of Reprocessing Facilities

Subsidiary Question 5.25.2

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation appoints nuclear criticality safety staff that is competent, i.e. the use of suitably qualified and experienced personnel?

Subsidiary Response

The NRA sets forth requirements related to the mandatory review of technical competency of a nuclear fuel cycle licensee in permit process in accordance with the potential risks of the licensee's facility. The review is conducted to ensure that engineers with the necessary expertise, skills, and competence for designing, constructing, operating, and maintaining the facility are adequately acquired. In addition, provisions regarding the organizational structure of a licensee in the operational safety program ensure that qualified staff is recruited in accordance with permit.

<Attachments>

Articles 1-2 and 17 of the Reprocessing Ordinance

Subsidiary Attachments

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Question 5.26

Does the legal and regulatory framework require the operating organization to have access to the necessary expertise and introduce arrangements to minimise risks posed by chemical and industrial hazards to the public, the workforce and the environment?

Answer

Yes

Finding

The legal and regulatory framework does require the operating organization to have access to the necessary expertise and introduce arrangements to minimise risks posed by chemical and industrial hazards to the public, the workforce and the environment.

Response

—

Subsidiary Question 5.26.1

What regulatory requirements have been established by the regulatory body to ensure that the operating organisation operates the facility to minimise the risk posed by chemical and industrial hazards?

Subsidiary Response

In addition to the Reactor Regulation Act, operators of nuclear fuel cycle facilities are required to comply with legislation applicable to general industrial operators, such as the High Pressure Gas Safety Act, Poisonous and Deleterious Substances Control Act, Industrial Safety and Health Law, and Fire Protection Law.

Question 5.27

Does the legal and regulatory framework require the operating organization to develop an emergency plan in coordination with other bodies with responsibilities in an emergency and to assign responsibilities for managing emergency response?

Answer

Yes

Finding

The legal and regulatory framework does require the operating organization to develop an emergency plan in coordination with other bodies with responsibilities in an emergency and to assign responsibilities for managing emergency response.

Response

The Nuclear Emergency Act requires licensees to prepare an emergency preparedness action plan for every place of activity and review it annually. Licensees must appropriately coordinate with national and local governments in preparing and revising their emergency preparedness action plans. The Nuclear Emergency Act also requires licensees to report the results of disaster prevention drills. If drills are found to be insufficient to prevent the occurrence or progression of a nuclear disaster, the NRA may order the licensee to improve the drill procedure or take other necessary measures.

<Attachments>

Nuclear Emergency Act, Article 7 and Article 13-2

Attachments

C02 Nuclear Emergency Act

Question 5.28

Does the legal and regulatory framework require the operating organization to conduct a systematic review of the safety of the facility at regular intervals?

Answer

Yes

Finding

The legal and regulatory framework does require the operating organization to conduct a systematic review of the safety of the facility at regular intervals?

Response

—

Subsidiary Question 5.28.1

What regulatory requirements have been established by the regulatory body on the scope, content and detail of the regular systematic reviews of safety by the operator?

Subsidiary Response

The Reactor Regulation Act and the Reprocessing Ordinance require each licensee to conduct technical evaluations of age deterioration and develop a 10-year plan for necessary measures for maintaining reprocessing facilities based on the technical evaluation in accordance with the potential risks posed by the nuclear fuel cycle facilities. If a licensee conducts periodic safety assessment of continuous improvement, the results must be reported to the NRA. Assessment items are presented in the Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities. For instance, assessment targets specified in the guidelines include overview of a facility, site characteristics, the latest conditions of the structures, systems, and components, management system and items for ensuring operational safety, verification of compliance with laws, and voluntary measures for enhancing safety.

<Attachments>

Article 50-4-2 of the Reactor Regulation Act

Articles 16-2 and 19-3-2 of the Reprocessing Ordinance

The Guideline for Periodic Safety Assessment of Continuous Improvement of Fuel Fabrication and Reprocessing Facilities

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

Question 5.29

Does the legal and regulatory framework require arrangements to be put in place for the eventual decommissioning of the facility?

Answer

Yes

Finding

The legal and regulatory framework does require arrangements to be put in place for the eventual decommissioning of the facility.

Response

However, the Reactor Regulation Act does not require that an initial decommissioning plan should be developed at the time of establishment.

Subsidiary Question 5.29.1

What regulatory requirements have been established by the regulatory body on the scope, content and detail of the decommissioning plan, including its funding arrangements, of the facility?

Subsidiary Response

Whenever a nuclear fuel cycle facility is to be decommissioned, the Reactor Regulation Act requires the licensee to prepare a decommissioning plan and gain approval for the plan from the regulatory body in advance. The application must be filed along with relevant drawings and attachments that cover the facilities to be dismantled, dismantling methods, control and transfer methods of nuclear fuel materials and substances separated from spent fuel, decontamination of spent fuel or nuclear fuel materials, as well as disposal of spent fuel, nuclear fuel materials, substances separated from spent fuel, or any items contaminated therewith, and decommissioning process, etc.

In addition, modification of any plan requires that approval be obtained in a similar manner. The standards for such approval are also established by the NRA.

(The financial sources for decommissioning are not subject to the regulatory requirements as they are independent from the financial base specified in permit process for establishing the facility.)

<Attachments>

Article 50-5 of the Reactor Regulation Act

Articles 19-5, 19-6, and 19-8 of the Reprocessing Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

K01The NRA Ordinance on Activity of Spent Fuel Reprocessing

OUTCOMES OF THE SELF-ASSESSMENT FOR REGULATION OF NUCLEAR POWER PLANTS

Module: Licensing of NPPs

Findings

Question 1.1

Has the regulatory body established a system for the authorisation / licensing of nuclear power plants?

Answer

Yes

Finding

The regulatory body has established a system for the authorisation / licensing of nuclear power plants.

Response

-

Subsidiary Question 1.1.1

What are the relevant legal provisions regarding the licensing process for nuclear power plants?

Subsidiary Response

The legal provisions for the licensing are the Reactor Regulation Act; the Reactor Regulation Enforcement Cabinet Order; and the Commercial Reactors Ordinance.

<Attachments>

- *the Reactor Regulation Act, Chapter 4, Section 2*
- *the Reactor Regulation Enforcement Cabinet Order, Chapter 3, Section 2*
- *the Commercial Reactors Ordinance*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.1.2

Is the regulatory body empowered to issue licences and authorisations for nuclear power plants?

Subsidiary Response

Yes.

The Nuclear Regulation Authority(NRA) has the authority to permit installation of nuclear power plants pursuant to Article 43-3-5 of the Reactor Regulation Act, the authority to approve plan for construction work pursuant to Article 43-3-9 of the Reactor Regulation Act, the authority to approve operational safety program pursuant to Article 43-3-24 of the

Reactor Regulation Act, and the authority to approve extension of operation periods of nuclear power plants pursuant to Article 43-3-32 of the Reactor Regulation Act.

<Attachments>

- *the Reactor Regulation Act, Article 43-3-5*
- *the Reactor Regulation Act, Article 43-3-9*
- *the Reactor Regulation Act, Article 43-3-24*
- *the Reactor Regulation Act, Article 43-3-32*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 1.2

Does the regulatory body grant authorisations for nuclear power plants?

Answer

Yes

Finding

The regulatory body grants authorisations for nuclear power plants.

Response

-

Subsidiary Question 1.2.1

What are the stages of the authorisation / licensing process for a nuclear power plant project?

Subsidiary Response

The process provided in the Reactor Regulation Act includes the stages of permission for the installation, approval of plan for construction work, issuance of pre-service inspection certificate, approval of operational safety program, approval of extension of the operation period, and approval of decommissioning plan.

(Refer to mod 9.2 regarding pre-service inspection.)

<Attachments>

the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.2.2

What are the regulatory requirements related to the preparation, content and format of the safety analysis reports that have to be submitted by the applicant or by the licensee at the different stages of the licensing process for a nuclear power plant?

Subsidiary Response

[Permission for the installation]

Required items in the application to be submitted by an applicant are defined in Article 43-3-5 of the Reactor Regulation Act. Necessary attachments to the application are defined in Article 20-2 of the Reactor Regulation Enforcement Cabinet Order. Necessary contents and types of attachments are defined in Article 3 of the Commercial Reactors Ordinance. In addition, Operational Guidelines concerning Licensing Application for Establishment (Alteration) of Nuclear Power Reactors clarifies the terminology and operational approach in accordance with relevant laws and regulations.

[Approval of plan for construction work]

Article 43-3-9 of the Reactor Regulation Act requires an applicant to follow the NRA's rules while filing an application. The NRA's rules include Article 9 of the Commercial Reactors Ordinance and the Annexed Table 2 which defines the required items, contents, and attachments to the application. In addition, the Procedure Guidelines for Construction Plans for Nuclear Power Reactor Facilities clarifies the terminology and operational approach in accordance with relevant laws and regulations.

[Operation]

Safety analysis reports are not subject to any reviews at this stage. Nevertheless, relevant reviews are carried out as a technical evaluation of plant life management (PLM) at nuclear power reactors at 30 years after the installation and every 10 years afterward, as well as periodic safety assessment of continuous improvement whose report is drafted whenever a periodic inspection is carried out pursuant to Article 43-3-29 of the Reactor Regulation Act.* Conventional periodic safety reviews had to be carried out at least every 10 years until the first periodic assessment of continuous improvement is carried out after enforcement of new regulatory standards on July 8, 2013.*

<Attachments>

[Permission for the installation]

- *the Reactor Regulation Act, Article 43-3-5*
- *the Reactor Regulation Enforcement Cabinet Order, Article 20-2*
- *the Commercial Reactors Ordinance, Article 3*

[Approval of plan for construction work]

- *the Reactor Regulation Act, Article 43-3-9*
- *the Commercial Reactors Ordinance, Article 9 and the Annexed Table 2*

[Operation]

- the Reactor Regulation Act, Article 43-3-29

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.2.3

Does the regulatory body require that the safety analysis reports for nuclear power plants cite the technical literature in the form of references that may be necessary for a thorough review and assessment process?

Subsidiary Response

[Permission for the installation]

An instruction is given to specify necessary sources for technical reference in the application documents to be submitted for the review of permission for the installation of a nuclear power plant.

[Approval of plan for construction work]

Applied criteria and standards is required to be described in the application documents for approval of plan for construction work in accordance with the provisions of Annexed Table 2 pursuant to Article 9 of the Commercial Reactors Ordinance.

** Safety analysis reports are not reviewed in an operational safety program.*

<Attachments>

[Approval of plan for construction work]

- *the Commercial Reactors Ordinance, Article 9 and the Annexed Table 2*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 1.2.4

Does the regulatory body have internal guidance regarding the review and assessment of safety submissions in support of licence applications?

Subsidiary Response

Yes - as presented in mod 1.1.

Subsidiary Question 1.2.5

What is the legal status of the authorisations granted by the regulatory body in the licensing process for a nuclear power plant?

Subsidiary Response

The relevant legal status is given pursuant to the following provisions.

[Permission for the installation]

the Reactor Regulation Act, Article 43-3-5

[Approval of plan for construction work]

the Reactor Regulation Act, Article 43-3-9

[Approval of operational safety program]

the Reactor Regulation Act, Article 43-3-24

[Approval for extension of operation period]

the Reactor Regulation Act, Article 43-3-32

<Attachments>

[Permission for the installation]

the Reactor Regulation Act, Article 43-3-5

[Approval of plan for construction work]

the Reactor Regulation Act, Article 43-3-9

[Approval of operational safety program]

the Reactor Regulation Act, Article 43-3-24

[Approval for extension of operation period]

the Reactor Regulation Act, Article 43-3-32

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.2.6

What is the procedure for amending / modifying the authorisations / licences for nuclear power plants?

Subsidiary Response

[Permission for the installation]

Any alteration to the following items in permission for the installation of a nuclear power plant must be approved by the NRA pursuant to Article 43-3-8 of the Reactor Regulation Act.

- The purpose for which the power reactors are to be used*
- The type, thermal output and number of the power reactors*
- The name and address of the site where the power reactors are to be installed*
- The location, structure and equipment of the power reactors and their auxiliary facilities*
- The method for disposing spent fuel*
- The matters concerning the radiation management at the power reactors*
- The matters concerning the development of facilities and systems necessary for taking responses in the event of significant damage to the core of the power reactors or other accidents*

A notification must be made pursuant to the same article following any changes in 'the name and address of the licensee and in the case the licensee is a juridical person, the name of its representative', 'the construction plan for the power reactors', 'the type and amount of nuclear fuel material scheduled to be used annually as fuel for the power reactors', or 'the name of the site', or prior to any changes in the location, structures, or equipment of a nuclear power reactor or their auxiliary facilities that do not affect the prevention of disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material, or the power reactors.

[Approval of plan for construction work]

Any changes in the approved or notified plan for construction work require prior application for the approval of any alteration or notification of the intended alteration pursuant to Article 43-3-9 and -10 of the Reactor Regulation Act. Minor changes that do not require approval must be notified in accordance with Article 43-3-9, paragraph (6) of the Reactor Regulation Act. No particular procedure is necessary for minor changes that do not require notification.

[Operational safety program]

Any changes in the description of an approved operational safety program require prior application for the approval of the alteration pursuant to Article 43-3-24, paragraph (1) of the Reactor Regulation Act.

[Extension of operation period]

The operation period of a nuclear power reactor is limited to 40 years. To extend this limit of operation period, the licensee is required to file an application and get approval from the NRA pursuant to Article 43-3-32, paragraph (4) of the Reactor Regulation Act.

<Attachments>

[Permission for the installation]

- *the Reactor Regulation Act, Article 43-3-8*

[Approval of plan for construction work]

- *the Reactor Regulation Act, Article 43-3-9*
- *the Reactor Regulation Act, Article 43-3-10*

[Operational safety program]

- *the Reactor Regulation Act, Article 43-3-24, paragraph (1)*

[Extension of operation period]

- *the Reactor Regulation Act, Article 43-3-32, paragraph (4)*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.2.7

Please provide an example of a set of conditions attached to a licence for a nuclear power plant.

Subsidiary Response

[Permission for the installation]

There have not been any actual examples of conditions yet since the NRA was established in September 2012 although Article 62-2 of the Reactor Regulation Act stipulates how conditions should be attached.

[Plan for construction work & operational safety program]

The Act on Reactor Regulation does not stipulate how conditions should be attached.

[Extension of operation period]

The Act on Reactor Regulation does not stipulate how conditions should be attached.

<Attachments>

[Permission for the installation]

- *the Reactor Regulation Act, Article 62-2*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.2.8

What are the arrangements in place for the regulatory reviews necessary to be performed prior to granting an authorisation / licence for a nuclear power plant?

Subsidiary Response

[Permission for the installation]

The NRA conducts a review in terms of conformance to respective criteria of Article 43-3-6, paragraph (1) of the Reactor Regulation Act by examining relevant documents and interviewing the licensee, as well as by the analysis to confirm validity of the evaluation methods as necessary . Before granting any permission, the NRA must seek opinions from the Atomic Energy Commission regarding the application of standards for granting permissions to ensure nuclear power reactors are used exclusively for peaceful purposes pursuant to Article 43-3-6 of the Reactor Regulation Act. Similarly, the NRA must seek opinions from the Minister of Economy, trade and Industry pursuant to Article 71 of the Reactor Regulation Act. In addition to notification of the decision in writing to the applicant, the NRA also publicizes the decision on the official website in accordance with the basic policy to ensure transparency. As necessary, the NRA conducts on-site surveys and solicits public comments.

[Approval of plan for construction work]

The NRA conducts a review in terms of conformance to respective items of Article 43-3-9, paragraph (3) of the Reactor Regulation Act by examining relevant documents and interviewing the licensee, as well as by analysis to confirm validity of the evaluation methods as necessary. In addition to notification of the decision in writing to the applicant, the NRA also publicizes the decision on the official website in accordance with the basic policy to ensure transparency.

[Operational safety program]

Applications are reviewed by using relevant guidelines and conducting interviews as necessary to verify that the operational safety programs are not insufficient for preventing disasters as stipulated in Article 43-3-24, paragraph (2) of the Reactor Regulation Act. In addition to notification of the decision in writing to the applicant, the NRA also publicizes the decision on the official website in accordance with the basic policy to ensure transparency.

[Extension of operation period]

Approval is granted only when the application conforms with the Ordinance of the NRA established as the standards for ensuring the safety during the period to be extended pursuant to Article 43-3-32, paragraph (5) of the Reactor Regulation Act by referring to guidelines and conducting interviews as necessary.

<Attachments>

[Permission for the installation]

- *the Reactor Regulation Act, Article 43-3-6*
- *the Reactor Regulation Act, Article 71*

[Approval of plan for construction work]

- *the Reactor Regulation Act, Article 43-3-9, paragraph (3)*

[Operational safety program]

- *the Reactor Regulation Act, Article 43-3-24, paragraph (2)*

[Extension of operation period]

- *the Reactor Regulation Act, Article 43-3-32, paragraph (5)*

Subsidiary Attachments

Subsidiary Question 1.2.9

Does the regulatory body require or provide a schedule for the submission of documents necessary to be reviewed at the appropriate times in the licensing process?

Subsidiary Response

Yes.

[Permission for the installation]

The NRA requires the applicant to submit the application along with necessary attachments to be reviewed before granting permission for the installation of a nuclear power plant pursuant to Article 20-2 of the Reactor Regulation Enforcement Cabinet Order and Article 3 of the Commercial Reactors Ordinance.

[Approval of plan for construction work]

The NRA requires the applicant to submit the application along with the necessary attachments to be reviewed before granting approval of a plan for construction work pursuant to Article 9 of the Commercial Reactors Ordinance.

[Operational safety program]

The NRA requires the applicant to submit the application, along with necessary attachments to be reviewed before granting approval of an operational safety program pursuant to Article 92, paragraph (2) of the Commercial Reactors Ordinance.

[Extension of operation period]

Article 113 of the Commercial Reactors Ordinance requires any licensee seeking approval for extension of operation period to submit an application to the NRA no later than one year and no earlier than one year and three months before the expiration of the original operation period.

<Attachments>

[Permission for the installation]

- *the Reactor Regulation Enforcement Cabinet Order, Article 20-2*
- *the Commercial Reactors Ordinance, Article 3*

[Approval of plan for construction work]

- *the Commercial Reactors Ordinance, Article 9*

[Operational safety program]

- *the Commercial Reactors Ordinance, Article 92, paragraph (2)*

[Extension of operation period]

- *the Commercial Reactors Ordinance, Article 113*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.2.10

Does the regulatory body provide the applicants with acceptance criteria for the review and assessment process as part of the licensing process for nuclear power plants?

Subsidiary Response

Yes.

The NRA publicizes the rules mentioned in the answer to SQID2.4 on its official website, etc.

Question 1.3

Does the regulatory body require the applicant to submit a detailed demonstration of safety of the facility and the activity, commensurate with the potential magnitude and nature of the hazards, prior to issuing authorization/licence?

Answer

Yes

Finding

The regulatory body requires the applicant to submit a detailed demonstration of safety of the facility and the activity, commensurate with the potential magnitude and nature of the hazards, prior to issuing authorization/licence.

Response

-

Subsidiary Question 1.3.1

How does the regulatory body specify the requirements for the safety submissions in support of an application for a licence taking into consideration the potential magnitude and nature of hazards associated with the nuclear installation ?

Subsidiary Response

[Permission for the installation]

Pursuant to Article 3, paragraph (1), item (vi) of the Commercial Reactors Ordinance, the NRA requires the applicant to submit the matters concerning the radiation management at the power reactors in the application for permission for the installation, and pursuant to

Article 43-3-5 of the Reactor Regulation Act, the NRA requires the applicant to submit the following matters:

- Method of controlling radiation exposure by nuclear fuel material and material contaminated by nuclear fuel material*
- Matters regarding disposal of radioactive waste*
- Conditions for determining effective dose outside the surrounding monitored area and the results*

In addition, pursuant to Article 3, paragraph (1), item (vii) of the Commercial Reactors Ordinance, the NRA requires the applicant to submit the following matters concerning the development of facilities and systems necessary for taking responses in the event of the significant damage to the core of the power reactors or other accidents:

- For accidents due to abnormal transient events during operation: facilities necessary for implementing measures against such accidents as well as conditions set to evaluate the size and impact of accidents assumed to occur and the results of such evaluation*
- For design basis accidents: necessary facilities for implementing measures against such accidents as well as conditions set to evaluate the size and impact of accidents assumed to occur and the results of such evaluation*
- For accidents that leads to a severe accident or any severe accident: necessary facilities and systems for implementing measures against such accidents as well as conditions set to evaluate the size and impact of accidents assumed to occur and the results of such evaluation*

<Attachments>

[Permission for the installation]

- the Reactor Regulation Act, Article 43-3-5*
- the Commercial Reactors Ordinance, Article 3, paragraph (1), item (vi)*
- the Commercial Reactors Ordinance, Article 3, paragraph (1), item (vii)*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 1.4

Does the Regulatory Body perform an adequate review and assessment of submissions made by the applicants during the authorisation/licensing process for nuclear power plants?

Answer

Yes

Finding

The Regulatory Body performs an adequate review and assessment of submissions made by the applicants during authorisation/licensing process for nuclear power plants.

Response

-

Subsidiary Question 1.4.1

Has the regulatory body established a written procedure for the review and assessment of submissions made by the applicant during the authorization/licensing process for nuclear power plants?

Subsidiary Response

Yes.

Required procedures are established in the Reactor Regulation Act and the Commercial Reactors Ordinance. Guidelines and other relevant documents are prepared to define specific review and evaluation methods.

<Attachments>

- *the Reactor Regulation Act*

- *the Commercial Reactors Ordinance*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.4.2

Does the regulatory body make publicly available (e.g. on a website) its procedures for the review and assessment of applications for authorisation of nuclear installations?

Subsidiary Response

Yes.

Guidelines and other relevant documents are publicized on the official website of the NRA. In accordance with the basic policy to ensure transparency, the NRA organizes public meetings to review the applications filed by applicants. As a general rule, the video recording and minutes from the meetings are publicized. Moreover, interviews of the applicant are organized for fact-finding. The proceedings of the interviews are summarized and publicized.

Subsidiary Question 1.4.3

If the authorisation process for a nuclear installation is carried out in several stages, how it is ensured that these procedures for review and assessment adequately cover all these stages or are supplemented as necessary?

Subsidiary Response

[Permission for the installation]

Permission for the installation is the basis of the permission and approval process concerning reactors and the starting point for the following regulatory procedure.

[Approval of plan for construction work]

The NRA grants approval of plan for construction work following the permission for the installation after verifying that the plan for construction work is based on the permission for the installation pursuant to Article 43-3-9 of the Reactor Regulation Act. Application for approval or alteration of a plan for construction work may be filed in segments with a statement of the reason why application cannot be filed at once for the entire plan in accordance with Article 9, paragraph (4) of the Commercial Reactors Ordinance.

[Operational safety program]

The NRA grants approval of an operational safety program following the permission for the installation after verifying that the operational safety program is based on the permission for the installation pursuant to Article 43-3-24 of the Reactor Regulation Act.

<Attachments>

[Approval of plan for construction work]

- *the Reactor Regulation Act, Article 43-3-9*
- *the Commercial Reactors Ordinance, Article 9, paragraph (4)*

[Operational safety program]

- *the Reactor Regulation Act, Article 43-3-24*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.4.4

What are the arrangements in place to ensure that the regulatory body has enough expertise to perform an independent review and assessment for all the areas covered in the safety demonstration submissions for a nuclear power plant?

Subsidiary Response

The NRA conducts training to enhance the capabilities of the staff, including:

- *Basic training for nuclear safety examiners*
- *Training of probabilistic risk assessment (PRA) for its effective application*

In order to ensure an independent review and evaluation, the NRA recruits mid-career workers from the private sector (e.g., from manufacturers, operators, designers, academic institutions, and research institutes), who have substantial experience or expertise related to nuclear power.

Subsidiary Question 1.4.5

How does the regulatory body review and use the assessments/evaluations performed by consultants or technical support organizations or by other regulatory authorities?

Subsidiary Response

In March 2014, the NRA incorporated the Japan Nuclear Energy Safety Organization (JNES), which used to provide the NRA with technical assistance. The incorporated resources and

knowledge of JNES are utilized in conducting reviews. The NRA can seek technical assistance from both the Japan Atomic Energy Agency and the National Institute of Radiological Sciences as necessary.

Subsidiary Question 1.4.6

How has the regulatory body established and made clear the roles and responsibilities of the different (technical, legal, etc.) departments and units in its organisation that are involved in the review and assessment of a licensing submission?

Subsidiary Response

The NRA clearly defines the roles and responsibilities of respective departments within the regulatory body with the NRA Organization Cabinet Order and the NRA Organization Ordinance. The following provisions of Articles 11 through 13 of the NRA Organization Ordinance define the roles and responsibilities of the Nuclear Regulation Department responsible for the regulation of nuclear facilities.

Article 11 (Divisions, etc. under the Nuclear Regulation Department); The Nuclear Regulation Policy Planning Division and seven Directors of Divisions of Regulation are deployed/assigned under the Nuclear Regulation Department.

Article 12 (Tasks of the Nuclear Regulation Policy Planning Division); The Nuclear Regulation Policy Planning Division is responsible for the following matters:

(i) Overall coordination of tasks handled by the Nuclear Regulation Department

(ii) Overall management of enforcement of the Reactor Regulation Act

(iii) General affairs involving the Reactor Safety Examination Committee and Nuclear Fuel Safety Examination Committee

(iv) Any other tasks handled by the Nuclear Regulation Department that are not handled by any other divisions

Article 13 (Duties of the Directors of Divisions of Regulation); The Directors of Divisions of Regulation carry out the assignments related to the following matters according to relevant instructions.

(i) Regulation of refining, processing, storage, reprocessing, and disposal activities involved in nuclear power generation, regulation of reactors, as well as measures to ensure their

safety (excluding assignments carried out by the Secretary-General's Secretariat, and the Nuclear Regulation Policy Planning Division)

(ii) Regulation of the use of nuclear source materials and nuclear fuel materials, as well as measures to ensure their safety (excluding assignments carried out by the Secretary-General's Secretariat, and the Nuclear Regulation Policy Planning Division)

(iii) Investigation into the causes of any nuclear accidents and resulting damage

As necessary, in accordance with the following provisions of Articles 2 and 10 of the NRA Organization Ordinance, the NRA use the resources and knowledge of the Japan Nuclear Energy Safety Organization (JNES) for conducting reviews, which was incorporated into NRA in March 2014.

Article 2 (Divisions, etc. deployed for the Secretary-General's Secretariat)

The following six divisions are deployed, along with one Counsellor and four Directors of Divisions of Research for the Secretary-General's Secretariat

Policy Planning and Coordination Division

Personnel Division

Regulatory Standard and Research Division

Emergency Preparedness/Response and Nuclear Security Division

Radiation Monitoring Division

Radiation Protection and Safeguards Division

Article 10 (Duties of the Directors of Divisions of Research)

Directors of Divisions of Research carry out the assignments related to the following matters according to relevant instructions.

(i) Technical investigation and research related to regulation of refining, processing, storage, reprocessing, and disposal activities involved in nuclear power generation, regulation of reactors, as well as measures to ensure their safety

(ii) Technical investigation and research related to regulation of the use of nuclear source materials and nuclear fuel materials, as well as measures to ensure their safety

Subsidiary Question 1.4.7

Please provide the regulatory procedures for review and assessment of the applications for authorisation / licensing of nuclear power plants.

Subsidiary Response

The NRA does not provide a procedure manual, but the regulatory procedure is outlined in the attached document.

<http://www.nsr.go.jp/data/000067212.pdf> (P22,23)

Question 1.5

Has the Regulatory Body issued guidance on the format and content of documents to be submitted in support of an application for an authorisation / licence for a nuclear power plant?

Answer

Yes

Finding

The regulatory body has issued guidance on the format and content of documents to be submitted in support of an application for an authorisation / licence for a nuclear power plant.

Response

-

Subsidiary Question 1.5.1

How does the guidance cover all the documents required to be submitted to the regulatory body for obtaining authorization/licence during various stages of a nuclear power plant project? Please provide the relevant documents containing the regulatory requirements and guidance on licensing submissions.

Subsidiary Response

Documents that need to be submitted to the NRA by an applicant seeking a permission or approval for nuclear power facilities are defined in the Reactor Regulation Act, relevant cabinet orders, ordinances, and so forth.

<Attachments>

- the Reactor Regulation Act, Article 43-3-5, paragraph (2)*
- the Commercial Reactors Ordinance, Article 3*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 1.6

Is the applicant for an authorisation required to submit or make available within an agreed time scale all the information that is specified and requested by the Regulatory Body?

Answer

Yes

Finding

The applicant for an authorisation is required to submit or make available within an agreed time scale all the information that is specified and requested by the regulatory body.

Response

-

Subsidiary Question 1.6.1

Please explain the factors considered in determining the time scale for the submission of all the information necessary to enable an adequate regulatory review and assessment of an application for an authorisation / licence.

Subsidiary Response

Each applicant must submit the necessary attachments along with the application for the review process. Individual interviews are conducted as necessary to obtain supplemental information. Therefore, there is no other factors that need to be considered.

Subsidiary Question 1.6.2

Does the regulatory body consider other day-to-day and routine activities in determining the time scale for the regulatory review and assessment of an application for an authorisation / licence?

Subsidiary Response

The standard period for the NRA to make a decision regarding a filed application is set in accordance with the review standards pursuant to the Act on Reactor Regulation, etc. However, this does not constitute a deadline.

Subsidiary Question 1.6.3

Please explain how the uncertainties involved in the authorization/licensing process (such as delays in responses, justifications, hearings) are catered for in determining the time scale for the entire regulatory review and assessment of an application for an authorisation / licence for a nuclear power plant.

Subsidiary Response

The review process involves uncertainties. That is why no particular deadlines are defined as mentioned in the response to SQID 6.2.

Subsidiary Question 1.6.4

If the internal procedures of the regulatory body require applications to be reviewed and assessed within a specified time frame(s), how it is ensured that due account has been taken to the complexity of the review process associated with particular applications?

Subsidiary Response

There is no such requirement.

Question 1.7

Does the Regulatory Body impose conditions and limitations on the applicant's activities, as appropriate, when granting an authorisation / licence?

Answer

Yes

Finding

The regulatory body imposes conditions and limitations on the applicant's activities, as appropriate, when granting an authorisation / licence.

Response

-

Subsidiary Question 1.7.1

What are the limits and conditions typically attached to an authorisation / licence for a nuclear power plant?

Subsidiary Response

[Permission for the installation]

The NRA can set conditions for permission for the installation in accordance with Article 62-2 of the Reactor Regulation Act. However, there is no such actual precedent to set conditions for power reactors yet.

[Approval of plan for construction work]

Review is conducted exclusively in terms of conformity to the Commercial Reactor Technical Standards Ordinance and the Commercial Reactors QMS Ordinance. Due to such characteristics of the system, no additional conditions can be set.

[Operational safety program]

Due to such characteristics of the approval procedure, no additional conditions can be set.

[Extension of operation period]

Due to such characteristics of the approval procedure, no additional conditions can be set.

<Attachments>

[Permission for the installation]

- *the Reactor Regulation Act, Article 62-2*

[Approval of plan for construction work]

- *the Commercial Reactor Technical Standards Ordinance*
- *the Commercial Reactors QMS Ordinance*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Subsidiary Question 1.7.2

How is it ensured that the limits and conditions attached to an authorisation / licence for a nuclear power plant are adequate for the respective stage during the lifetime of the installation?

Subsidiary Response

In the case the NRA have attached conditions to a license, the NRA checks the licensee's compliance with the conditions in the later regulatory activities.

Subsidiary Question 1.7.3

Please provide examples of conditions imposed during the various stages of the authorisation / licensing process for a nuclear power plant.

Subsidiary Response

There is no such actual precedent to set conditions to permission for the installation yet.

Subsidiary Question 1.7.4

Does the regulatory body use a standardised format and content of licences for nuclear installations/nuclear power plants, depending on the stage of authorisation process?

Subsidiary Response

No.

[Permission for the installation, approval of plan for construction work, operational safety program]

The NRA gives written notification to applicants regarding licenses and approval although no specific formats are defined by relevant laws, regulations and guidelines.

Subsidiary Question 1.7.5

Please provide examples of typical formats and contents of authorisations / licences for nuclear power plants.

Subsidiary Response

[Permission for the installation]

Approval of alteration in the permission for the installation Units 1 and 2 of the Sendai Nuclear Power Station, Kyushu Electric Power Company (September 10, 2014)

http://www.nsr.go.jp/disclosure/law/PWR/h26fy/0910_01.html

[Approval of plan for construction work]

Approval of construction plan for Unit 1 of the Sendai Nuclear Power Station, Kyushu Electric Power Company (March 18, 2015)

<http://www.nsr.go.jp/disclosure/law/PWR/00000010.html>

[Operational safety program]

Approval of modification of the operational safety program for Mihama, Ohi, and Takahama Nuclear Power Stations, Kansai Electric Power Company (June 9, 2014)

http://www.nsr.go.jp/disclosure/law/PWR/h26fy/0609_02.html

Question 1.8

Does the Regulatory Body formally document the basis for its decisions in the authorisation / licensing process for nuclear power plants?

Answer

Yes

Finding

The regulatory body formally documents the basis for its decisions in the authorisation / licensing process for nuclear power plants.

Response

-

Subsidiary Question 1.8.1

What are the formal records / documentation containing the basis for a regulatory decision for granting (or refusing) an authorization / licence for a nuclear power plant?

Subsidiary Response

Written approval including the results of the examination in terms of conformity to relevant laws, regulations, and standards serve as the formal record along with the application.

Subsidiary Question 1.8.2

How does the regulatory body inform the applicant of its decisions in relation to the granting or refusal of an authorisation / licence?

Subsidiary Response

Written notification is issued to each applicant.

Subsidiary Question 1.8.3

How does the regulatory body inform the public of its decisions (and of the bases thereof) for granting or refusing an authorisation / licence for a nuclear power plant?

Subsidiary Response

The NRA publicizes each decision on the official website in accordance with the basic policy to ensure transparency.

Subsidiary Question 1.8.4

For how long does the regulatory body keep the records related to its decisions made in the authorisation / licensing process for a nuclear power plant?

Subsidiary Response

The records are kept for 5 years from April 1 of the fiscal year following the expiration of each permission or approval.

Question 1.9

Does the regulatory body have clearly defined and established procedures for any subsequent amendment, renewal, suspension or revocation of authorisations / licences for nuclear power plants?

Answer

Yes

Finding

The regulatory body has clearly defined and established procedures for any subsequent amendment, renewal, suspension or revocation of authorisations / licences for nuclear power plants.

Response

-

Subsidiary Question 1.9.1

What are typical situations for which amendment of an authorisation is deemed necessary?

Subsidiary Response

[Permission for the installation]

Any alteration to the following items in the permission for the installation of a nuclear power plant must be approved by the NRA pursuant to Article 43-3-8 of the Reactor Regulation Act.

- The purpose for which the power reactors are to be used*
- The type, thermal output and number of the power reactors*
- The name and address of the site where the power reactors are to be installed*
- The location, structure and equipment of the power reactors and auxiliary facilities*
- The method for disposing of spent fuel*
- The matters concerning the radiation management at the power reactor facilities*
- The matters concerning the development of facilities and systems necessary for taking responses in the event of the significant damage to the core of the power reactors or other accidents*

A notification must be made pursuant to the same article following any changes in 'the name and address of the applicant and in the case the licensee is a juridical person, the name of its representative', 'the construction plan for the power reactor facilities', 'the type and amount of nuclear fuel material scheduled to be used annually as fuel for the power reactors', or 'the name of the site', or prior to any changes in the location, structures, or equipment of a nuclear power reactor or their auxiliary facilities that do not affect the prevention of disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material, or the power reactors.

[Approval of plan for construction work]

Any changes in the approved or notified plan for construction work require prior application for the approval of any alteration or notification of the intended alteration pursuant to Article 43-3-9 and -10 of the Reactor Regulation Act. Minor changes that do not require approval must be notified in accordance with Article 43-3-9, paragraph (6) of the Reactor Regulation Act. No particular procedure is necessary for minor changes.

[Operational safety program]

Any organizational change or rezoning of controlled areas, etc. needs to be approved by the NRA in accordance with Article 43-3-24 of the Reactor Regulation Act.

[Extension of operation period]

A nuclear power reactor can be operated for 40 years. Application must be filed for any extension of the operation period for approval by the NRA in accordance with the provisions of Article 43-3-32, paragraph (4) of the Reactor Regulation Act.

<Attachments>

[Permission for the installation]

- *the Reactor Regulation Act, Article 43-3-8*

[Approval of construction plan]

- *the Reactor Regulation Act, Article 43-3-9*
- *the Reactor Regulation Act, Article 43-3-10*

[Operational safety program]

- *the Reactor Regulation Act, Article 43-3-24*

[Extension of operation period]

- *the Reactor Regulation Act, Article 43-3-32, paragraph (4)*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.9.2

Have any amendments for an authorisation been requested by the operators? If yes, please provide examples of such situations and of the reasons for requesting an amendment to an authorisation.

Subsidiary Response

Yes.

[Permission for the installation]

Example: Units 1, 2 of the Sendai Nuclear Power Station in July 2013

The license needs to be changed in line with the amendment of the Reactor Regulation Act. More specifically, following changes must be reflected on the license: expansion of the facilities for design basis accidents, installation of necessary facilities and development of necessary system to respond to severe accidents, and change in the disposal of spent fuel given that there is no specific plan for the reprocessing of spent fuel abroad.

[Approval of plan for construction work]

Example: Unit 3 of the Shimane Nuclear Power Station in May 2013

In order to enhance the seismic tolerance, a damping device is installed to the exhaust stack, construction plan of which was the first part out of five segmented application.

[Operational safety program]

Example: The Sendai Nuclear Power Station in July 2013

Relevant provisions of the operational safety program are changed or added in line with the amendment of the Commercial Reactors Ordinance and other related rules associated with the enforcement of the NRA Establishment Act.

Subsidiary Question 1.9.3

What are the regulatory criteria for deciding whether a certain authorisation needs to be amended or renewed / re-issued?

Subsidiary Response

Same as the response to SQID 9.1.

Subsidiary Question 1.9.4

What are the similarities and differences between the process for granting authorisations and the process for subsequently renewing and / or amending the existing authorisations?

Subsidiary Response

[Permission for the installation]

<Similarity>

The criteria and process for permission are the same.

<Difference>

As mentioned in the response to SQID9.1, minor modifications can be made by submitting the required notification in accordance with Article 43-3-8 of the Reactor Regulation Act.

[Approval of plan for construction work]

<Similarity>

The criteria and process for approval are the same.

<Difference>

In accordance with Article 8 of the Commercial Reactors Ordinance, the application must clearly describe the difference between the licenses before and after the change. As mentioned in the response to SQID9.1, minor modifications can be made by submitting the required notifications in accordance with Article 43-3-9 of the Reactor Regulation Act.

[Operational safety program]

The review process is identical except that the standard period for processing is different (new application: within 6 month, alteration: within 3 month (excluding some exceptions)).

<Attachments>

[Permission for the installation]

- *the Reactor Regulation Act, Article 43-3-8*

[Approval of plan for construction work]

- the Commercial Reactors Ordinance, Article 8
- the Reactor Regulation Act, Article 43-3-9

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.9.5

How is it ensured that the existing procedures for amending and renewing authorisations are adequate for reasonably foreseeable occasions?

Subsidiary Response

[Permission for the installation, Approval of plan for construction work]

There are regulations as mentioned in the response to SQID9.1.

[Operational safety program]

There are regulations as mentioned in the response to SQID9.1.

Subsidiary Question 1.9.6

How is the transfer of responsibilities between successive operators of the same facility/installation dealt with in the authorisation process? Does this imply an amendment to an existing authorisation or the granting of a new authorisation?

Subsidiary Response

The licensee's status as power reactor operator is succeeded when it is permitted by the NRA in case of the transfer of a nuclear power reactor in accordance with Article 43-3-25 of the Reactor Regulation Act, when it is approved by the NRA in case of the merger or the split of the licensee in accordance with Article 43-3-18 of the Reactor Regulation Act, or when it is notified to the NRA in case of the inheritance of the licensee's status in accordance with Article 43-3-19 of the Reactor Regulation Act.

<Attachments>

- *the Reactor Regulation Act, Article 43-3-25*
- *the Reactor Regulation Act, Article 43-3-18*
- *the Reactor Regulation Act, Article 43-3-19*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.9.7

What are the general policies and criteria (and guidance) established in the regulatory procedures to support decisions on whether suspension or revocation of an authorisation is warranted?

Subsidiary Response

[Permission for the installation]

Orders on suspension of use of a facility are carried out in accordance with Article 43-3-23 of the Reactor Regulation Act. Orders on rescission of the permission are carried out in accordance with Article 43-3-20 of the Reactor Regulation Act.

[Operational safety program]

In accordance with Article 43-3-24, paragraph (3) of the Reactor Regulation Act, the NRA may order the licensee of power reactor to amend the operational safety programs, when the NRA finds that the operational safety programs need to be amended for preventing disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material, or power reactors.

<Attachments>

[Permission for the installation]

- *the Reactor Regulation Act, Article 43-3-23*
- *the Reactor Regulation Act, Article 43-3-20*

[Operational safety program]

- *the Reactor Regulation Act, Article 43-3-24, paragraph (3)*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.9.8

How it is ensured that, in the establishment and application of the regulatory policies and criteria for suspension and revocation of authorizations, due account is taken of the potential magnitude and hazard associated with particular facilities and activities?

Subsidiary Response

Orders can be chosen in accordance with the significance of the situation. Those on rescission of the permission or suspension of operation are carried out in accordance with Article 43-3-20 of the Reactor Regulation Act, and those on suspension of the use, remodel and repair are carried out in accordance with Article 43-3-23 of the Reactor Regulation Act.

<Attachments>

- the Reactor Regulation Act, Article 43-3-20
- the Reactor Regulation Act, Article 43-3-23

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.9.9

How it is ensured that suspension or revocation of an authorisation does not relieve the operator of its prime responsibility for the safety of the nuclear installation?

Subsidiary Response

In case the operation is temporarily suspended (in response to an order to suspend the operation pursuant to Article 43-3-20, paragraph (2) of the Reactor Regulation Act), the permission for the installation is still valid, and the licensee is not exempt from any responsibilities in accordance with the Reactor Regulation Act.

In case of rescission of the permission in accordance with Article 43-3-20, paragraph (1) or (2) of the Reactor Regulation Act, the measures involved in the rescission of the permission is defined in Article 43-3-34 of the Reactor Regulation Act and the licensee is not exempt from any responsibilities because the licensee that installed a nuclear power reactor is still regarded as the licensee of the reactor until the decommissioning of the reactor has been completed.

<Attachments>

- the Reactor Regulation Act, Article 43-3-20
- the Reactor Regulation Act, Article 43-3-34

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.9.10

Are there any specific procedures for suspension and revocation of licences for nuclear installations? If yes, please provide evidence.

Subsidiary Response

No.

As mentioned in the response to SQID9.7, the process is handled in accordance with the Reactor Regulation Act (with no particularly defined procedure).

Subsidiary Question 1.9.11

Please provide examples, if any, of situations when an authorisation has been suspended or revoked. Mention the legal bases and the procedures used, as well as any subsequent conditions imposed on the operator.

Subsidiary Response

There is no example yet after the establishment of the NRA in September 2012. There were the following relevant cases prior to the NRA establishment.

- *Example: Unit 1 of the Fukushima Dai-ichi Nuclear Power Station, November, 2002*

Periodic inspections in 1991 and 1992 were found to be conducted inappropriately as a result of improper practices during the leakage test of the containment (e.g., injection of compressed air to the containment). This violation of Article 37, paragraph (4) of the

Reactor Regulation Act compelled administrative punishment pursuant to Article 33, paragraph (2) of the Reactor Regulation Act. The operation of the reactor was suspended for 1 year.

- *Example: Unit 1 of the Tsuruga Power Station in June, 1981*

In January and April 1981, leakage of drain water from feed water heater and leakage of radioactive materials into the general drainage channel occurred. On-site inspection upon these events in accordance with Article 68, paragraph (1) of the Reactor Regulation Act revealed a violation of the operational safety program. Pursuant to Article 33, paragraph (2) of the Reactor Regulation Act, the licensee was ordered to suspend operation of the reactor for 6 months.

<Attachments>

- *the Reactor Regulation Act, Article 37, paragraph (4)*
- *the Reactor Regulation Act, Article 33, paragraph (2)*
- *the Reactor Regulation Act, Article 68, paragraph (1)*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.9.12

Is the regulatory body (nuclear safety authority) empowered by legislation to suspend or revoke licences for nuclear installations? If no, what is the national authority empowered to do this? Please describe the process to be followed by the regulatory body in order to advise the government on matters related to the safety of facilities and activities when it considers that suspension or revocation of an authorisation should be pursued.

Subsidiary Response

Yes.

The NRA has authority to temporarily suspend or rescind the license of nuclear facilities including nuclear reactors, etc. pursuant to Article 43-3-23 of the Reactor Regulation Act (for suspension of the use of facilities) and Article 43-3-20 of the Reactor Regulation Act (for rescission of the permission). When the NRA intends to order the suspension of operations or the use of nuclear fuel materials, etc., a hearing shall be held pursuant to Article 69 of the Reactor Regulation Act, irrespective of the categories of procedures for hearing of opinion under the Administrative Procedure Act.

<Attachments>

- *the Reactor Regulation Act, Article 43-3-23*
- *the Reactor Regulation Act, Article 43-3-20*
- *the Reactor Regulation Act, Article 69*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 1.10

test

Answer

Yes

Finding

test

Response

-

Module: Inspection and Enforcement

Findings

Question 2.1

Does the regulatory body carry out inspections of nuclear power plants to verify that the authorized party is in compliance with the regulatory requirements and with the conditions specified in the authorization?

Answer

Yes

Finding

The regulatory body carries out inspections of nuclear power plants to verify that the authorized party is in compliance with regulatory requirements and with the conditions specified in the authorization.

Response

The Reactor Regulation Act (hereinafter 'Act' in this module) stipulates that the Nuclear Regulation Authority (NRA), as a regulatory body, carries out regulatory inspections of nuclear power facilities and licensees who have received permission for the installation, approval for their construction plans or operational safety programs in order to verify that they conform with the conditions of approval and technical standards stipulated by the NRA.

Addressing challenges from developed Action Plan are as follows;

- *Regulatory inspection should be improved so that they do not substitute for the control, supervision and verification activities conducted by the authorized party itself. For confirmation of waste disposal facilities and the package for waste, it should be improved in order not to merely act as a substitute for licensees' own confirmation.*
- *The scope of regulatory inspections should cover all safety activities of licensees.*
- *The inspection approach should be more effective by applying risk informed or performance basis inspections.*
- *The inspection framework should be simplified, flexible and effective by streamlining the scope of various regulatory inspections.*
- *Competency of inspectors should be further enhanced with the improvement of the framework.*

< Attachments >

(Legislation on regulatory inspections related to nuclear power reactor facilities)

- *Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors (Reactor Regulation Act)*
- *Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Nuclear Reactors (Reactor Regulation Enforcement Cabinet Order)*
- *NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors (Commercial Reactors Ordinance)*
- *NRA Ordinance on Technical Standards for Commercial Power Reactor Facilities (Commercial Reactors Technical Standard Guide)*

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.1

Please indicate the legal basis for carrying out regulatory inspections of nuclear power plants.

Subsidiary Response

The legal basis for regulatory inspections for nuclear power plants is as follows.

As the legal basis, the Act, the Cabinet order for the enforcement of that act and the NRA ordinances provide legal basis for the regulatory activities. In addition, regulatory guides, standards review plans, and other guides provide further details on the legal requirements. The NRA Ordinances applicable to the regulations include Commercial Reactors Ordinance, Commercial Reactor Technical Standards Ordinance, and Ordinances on Technical Standards for Nuclear Fuel Material Being Used as a Fuel in Commercial Power Reactors (Commercial Reactors Fuel Technical Standard Ordinance).

The Act sets forth obligations for licensees to receive regulatory inspections, and to comply with the NRA technical standards, during each stage from construction to decommissioning. The NRA ordinances provide details on regulatory inspections such as the scope of each regulatory inspection, time to receive regulatory inspections, items for regulatory inspections, procedures for applying to inspections, manuals for regulatory inspections, and issuance of inspection certificates.

Regulatory inspections for commercial power reactors have the following types of inspections. The list of regulatory inspections and its legal basis, with the categorization according to the stage, is as follows:

(Inspections during the construction stage)

*(1) Pre-service inspections (including during the commissioning stage) *1: Article 43-3-11, paragraph 1 of the Act*

(2) Fuel assembly inspections: Article 43-3-12, paragraphs 1 and 4

(As these inspections are against fuel assembly fabricators, the inspections will not be referred to in the responses to questions regarding the regulation of nuclear power plants.

However, SQUID2.2. will be answered because it is regarding the inspection against vendors.)

(3) Welding safety management review : Article 43-3-13, paragraph 3

(4) Operational safety inspections (during the commissioning stage): Article 43-3-24, paragraph 5

(Inspections during the operation stage)

(1) Periodic facility inspections: Article 43-3-15

(2) Periodic safety management review: Article 43-3-16, paragraph 4

(3) Operational safety inspections: Article 43-3-24, paragraph 5

(4) On-site inspections: Article 68, paragraphs 1, 2, and 3

(Inspections during the decommissioning stage)

(1) Periodic facility inspections: Article 43-3-15

(2) Operational safety inspections: Article 43-3-24, paragraph 5

(3) On-site inspections: Article 68, paragraphs 1, 2, and 3

(4) Confirmation of completion of decommissioning: Article 12-6, paragraph 8, applied in accordance with Article 43-3-33, paragraph 3

**1: Article 49, paragraph 1 of the Electricity Business Act also sets forth an obligation to undergo regulatory inspections, but Article 112-3, paragraph 3 of the said Act stipulates that such inspections shall not duplicate with the pre-service inspections stipulated in Article 43-3-11 of the Reactor Regulation Act.*

< Attachments >

(Legislative provisions on regulatory inspections related to nuclear power reactor facilities)

- Reactor Regulation Act, Articles 12-6, 43-3-11, 43-3-12, 43-3-13, 43-3-14, 43-3-15, 43-3-16, 43-3-24, 43-3-33, 67-2, and 68

- Reactor Regulation Enforcement Cabinet Order, Article 60

- Commercial Reactors Ordinance, Articles 15, 16, 19, 21, 23, 24, 26, 28, 30, 35, 36, 39, 40, 41, 42, 45, 46, 47, 48, 51, 53, 54, 55, 56, 59, 60, 61, 92, 93, 120, 121, 122, 126, and 138

- *Commercial Reactor Technical Standards Ordinance*
- *Commercial Reactors Fuel Technical Standard Ordinance*
- *Electricity Business Act, Articles 49-1 and 112-3*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H04Electricity Business Act

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.2

How is it ensured that the applicants/licensees provide regulatory inspectors with free and prompt access to any area of the facility, to all personnel of the facility and to all relevant documentation for the purposes of regulatory inspections?

Subsidiary Response

((Classification of regulatory inspections of nuclear power plants))

In addition to the aforementioned classification by stages, regulatory inspections of nuclear power plants may be classified into (1) programmed inspections for which the timing and inspection items are specified by law (hereinafter referred to as 'programmed inspections') or (2) reactive inspections conducted as necessary in response to events (hereinafter referred to as 'reactive inspections').

The programmed inspections are classified into (3) facility inspections for verifying a facility's conformance to its approved conditions and the Commercial Reactor Technical Standards Ordinance (hereinafter referred to as 'facility inspections') and (4) operational

safety inspections for checking a licensee's operational activities (hereinafter referred to as 'operational safety inspections'), based on the inspection targets.

The facility inspections are further classified into (5) direct facility inspections for checking a facility's conformance to the approved conditions and the Commercial Reactor Technical Standards Ordinance (hereinafter referred to as 'direct facility inspections') and (6) safety management review for verifying the implementing system of a licensee's inspections (hereinafter referred to as 'safety management review').

(Method for ensuring access to inspection sites and documentation in the aforementioned reactive inspections)

For the on-site inspections mentioned which is regarded as reactive inspections, Article 68, paragraphs 1 through 3 of the Act provides that the NRA may enter the plants or other facilities of licensees, manufacturers who install nuclear facilities, and concerned parties; inspect records and documentation; and interview with concerned persons. Normally, the NRA conducts announced inspections in which the licensee is given advance notice. However, the NRA may also conduct 'unannounced inspections' by giving such a notice just before the inspection and allowing no time for preparation for the licensees. In general, the NRA conducts on-site inspections, one of unannounced inspections, with notifying the name of inspectors and the scope of the inspections in advance. [This applies also to the on-site inspections during the operation stage and on-site inspections during the decommissioning stage mentioned in SQID 1.1.]

(Method for ensuring access to inspection sites and documentation in the aforementioned operational safety inspections)

Concerning the operational safety inspections, Article 43-3-24, paragraph 5 of the Act and Article 93, paragraph 3 of the Commercial Reactors Ordinance, like the on-site inspection, provide that the NRA may enter the licensees' sites; check records and documentation; inspect the facilities and equipment; interview with persons concerned; and request the licensees to submit related materials. The 'Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities (Commercial Reactors Safety Inspection Guide)' provide that, for quarterly scheduled inspections, the NRA needs to notify its inspection plans in advance to the licensee, while inspection plan includes (inspection location, implementation period, personnel in charge of the inspection, and inspection items. However, the NRA may not notify some items for the inspection in advance.

The NRA may conduct an additional operational safety inspection at a time other than quarterly scheduled inspection periods, and may check the management of the operation, patrol facilities, or observe licensee's surveillance tests. Under these operational safety inspections, the NRA may have a free access to the sites and documentation by conducting

an unannounced and unescorted inspection, allowing the licensee no time to prepare, based on an agreement concluded with licensees. The unescorted access has been fully implemented since May 2007.

[This applies to the operational safety inspections during the construction stage, operational safety inspections during the operation stage, and operational safety inspections (2) during the decommissioning stage mentioned in SQID 1.1.]

(Method for ensuring access to inspection sites and documentation in the aforementioned direct facility inspections)

For direct facility inspections, the Act requires the NRA to conduct inspections of important facilities and equipment specified by the Act, and with the scope and timing specified by the Commercial Reactors Ordinance. The Act requires the NRA to conduct planned inspections, and to confirm their conformance to the approved conditions and requirements of the relevant NRA Technical Standards. The inspections are conducted as witnessed inspections of the selected items or review of records, based on the bylaws described in SQID 1.5 through 1.8. However, the legal framework does not provide free access to sites or documentation beyond the inspection scope.

[This applies to pre-service inspections during the construction stage, periodic facility inspections during the operation stage, and periodic facility inspections as well as confirmation of completion of the decommissioning during the decommissioning stage.]

(Method for ensuring access to inspection sites and documentation in the aforementioned safety management review)

In safety management review, the Act requires the NRA to inspect the licensees' implementation system for inspections. The timing of these reviews are specified in Articles 41 and 60 of the Commercial Reactors Ordinance, and the item to be reviewed are specified in Articles 42 and 61 of the said Ordinance, and the scope of these reviews are specified in Article 43-3-13, paragraph 3 and Article 43-3-16, paragraph 4 of the Act.

Such inspections are conducted within the scope determined in advance; therefore, access to the site and related documentation within the inspection scope is possible, but the legal framework does not provide free access to sites or documentation beyond the inspection scope.

< Attachments >

- *Reactor Regulation Act, Articles 43-3-11, 43-3-12, 43-3-13, 43-3-14, 43-3-15, 43-3-16, 43-3-24, 43-3-33, and 68*
- *Commercial Reactors Ordinance, Articles 16, 19, 24, 28, 35, 36, 40, 41, 42, 45, 47, 48, 51, 54, 55, 56, 60, 61, 93, 121, 122, 126, and 138*
- *Guide for Pre-Service Inspection of Commercial Power Reactors*
- *Guide for Periodic Facility Inspection of Commercial Power Reactors*
- *Guide for Welding Safety Management Review*
- *Guide for Periodic Safety Management Review*
- *Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities (Commercial Reactors Safety Inspection Guide)*
- *On-Site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F14The On-site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.3

What are the methods of inspection used by the regulatory inspectors?

Subsidiary Response

(Inspection method for reactive inspections (2) in SQID 1.2)

The Act provides that the NRA may enter the plants or other facilities of licensees, manufacturers who install nuclear facilities, concerned parties; inspect related records and documentation; and interview with the concerned persons. Normally, the NRA conducts on-site inspections within an inspection scope determined in advance and gives advance notice. However, the NRA may also conduct unannounced inspections for which the licensee is given no such advance notice. Also, the NRA may conduct on-site inspections without advance notice if it receives a report of deviation from the Limits of Conditions for Operation (LCO) pursuant to the NRA's bylaw 'On-Site Inspection Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits'.

(Inspection method for facility inspections)

Regulatory inspections of nuclear power facilities may be classified according to their applicable stages and their types described in SQID 1.1 and 1.2. With respect to the facility inspections, such inspections may be further classified into (5) direct facility inspections and (6) safety management review. For direct facility inspections, the NRA conducts inspections to verify their facilities' conformance to their approved conditions and the relevant technical standards by directly checking the facility. For safety management review, the NRA conducts inspections of the licensee's implementing system for inspections (refer to SQID 1.5 through 1.9 below).

(Inspection method for direct facility inspections in SQID 1.2)

For direct facility inspections, the NRA inspectors directly conduct inspections of facilities and determine the conformance to the requirements pursuant to the Act. In implementing these inspections, as a general rule, the NRA inspectors observe the licensees' test for the selected items, and review the record on the items, where the scope of inspection items are determined in advance. In order to ensure the thoroughness of inspections, advance notice is given to licensees. However, in conducting periodic facility inspections during the operation stage, the NRA may not notify individual items to be inspected in advance (refer to SQID 1.5 through 1.8 below).

Concerning direct facility inspections, the requirements for implementation timing (process), target facilities, equipment, devices, and items to be inspected are set forth in the Commercial Reactors Ordinance, and on-site observations, interviews with related parties, and review of related documentation and records are implemented pursuant to the relevant NRA Ordinances (refer to SQID 1.5 through 1.8).

(Inspection method for safety management reviews)

Concerning the safety management review, the NRA observes licensees' inspection on-site by sampling the items to be observed, where some of the items may be notified in advance and others may not based on the bylaws (refer to SQID 1.5 and 1.7).

In this type of inspection, the inspection scope (implementation of licensees' inspections), timing, and items are specified in details in the Commercial Reactors Ordinance, and based on this Ordinance, the NRA implements observation of the licensees' inspection, interview with the concerned persons, and review of related documentation and records (refer to SQID 1.5 and 1.7).

(Inspection method for operational safety inspections)

For operational safety inspections, Article 93, paragraph 3 of the Commercial Reactors Ordinance stipulates that the NRA may enter plants and offices; inspect records, documents, and other necessary materials; interview with the concerned persons; and require licensees to submit samples such as nuclear source materials, nuclear fuel materials (though limited to the minimum amount necessary for testing).

Based on the NRA's 'Commercial Reactors Safety Inspection Guide', the inspectors conduct interviews on the situation of operational management, record reviews, patrols of power reactor facilities, observation of surveillance tests, and so on with advance notice. The NRA inspectors may not provide the details of the items for inspection, which may have the same conditions as unannounced inspections. (refer to SQID 1.5 and 1.6 below for details).

< Attachments >

- Reactor Regulation Act, Articles 43-3-11, 43-3-12, 43-3-13, 43-3-14, 43-3-15, 43-3-16, 43-3-24, 43-3-33, and 68

- Commercial Reactors Ordinance, Articles 16, 19, 24, 28, 35, 36, 40, 41, 42, 45, 47, 48, 51, 54, 55, 56, 60, 61, 93, 121, 122, 126, and 138

- Guide for Pre-Service Inspection of Commercial Power Reactors

- Guide for Periodic Facility Inspection of Commercial Power Reactors

- Guide for Welding Safety Management Review

- Guide for Periodic Safety Management Review

- Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities (Commercial Reactors Safety Inspection Guide)

- On-Site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F14The On-site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.4

Please explain how has the regulatory body ensured and made it clear to the applicants and licensees that the regulatory inspections do not diminish the prime responsibility of the applicant/ licensee for the safety of the nuclear power plant and that the regulatory inspections do not substitute for the control, supervision and verification activities that the applicant/licensee must carry out.

Subsidiary Response

(Since the answer to QID 1 is 'Yes,' the answer to SQID 1.4 is as follows.)

(Clarification of licensees' responsibilities)

Article 57-9 of the Act requires licensees: to take necessary measures for enhancing safety, such as: installation of equipment and systems, strengthening education on operational safety.

(Clarification of the obligation of maintaining conformance to the Commercial Reactor Technical Standards Ordinance)

Article 43-3-14 of the Act requires that licensees have their nuclear power reactor facilities maintained in conformance to the Commercial Reactor Technical Standards Ordinance.

(Clarification of the obligation to observe an operational safety program)

Article 43-3-24 of the Act requires that licensees develop and observe an operational safety program. The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities (Commercial Reactors Operational Safety Program Standard) requires that operational activities be implemented based on a safety culture, in accordance with the basic policy on radiation protection (ALARA: as low as reasonably achievable), and under an appropriate quality assurance program, for preventing nuclear disasters. It also requires these to be stipulated as the basic policy of operational safety program.

(Clarification of licensees' obligations to conduct facility patrols and inspections)

Article 80 of the Commercial Reactors Ordinance requires licensees to have the maintenance staff of reactor facilities patrol the relevant facilities and inspect the facilities and equipment at least once a day.

(Clarification of obligations of licensees for inspections and verifications)

Concerning the safety management review, the Act obliges licensees to conduct self-inspections.

Licensees' obligation to conduct self-inspections is not clearly stipulated by law for pre-service inspections during the construction stage. However, the licensees are obliged to carry out the activities specified in approved construction plans based on Article 43-3-9 of the Act, which is a regulation targeting the stage prior to the construction stage.

(Clarification of the decommissioning obligations of licensees)

Articles 43-3-24 and 43-3-33 of the Act oblige licensees to formulate a decommissioning plan for dismantling their nuclear power reactor facilities, to formulate an operational safety program during the decommissioning process, and to adhere to the said operational safety program.

< Attachments >

- Reactor Regulation Act, Articles 43-3-9, 43-3-14, 43-3-24, 43-3-33, and 57-9

- *Commercial Reactors Ordinance, Article 80*
- *Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities (Commercial Reactors Operational Safety Program Standard)*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.5

What inspections does the regulatory body perform at a nuclear power plant during the construction phase?

Subsidiary Response

(Types of inspections during construction stage [excluding the commissioning])

The Act requires implementation of pre-service inspections and welding safety management review as regulatory inspections during the construction stage. These inspections are conducted after the approval of construction plans.

(Outline of pre-service inspections)

For pre-service inspections, Article 43-3-11, paragraph 1 of the Act requires the NRA to directly verify that the nuclear power reactor facilities conform to the approved (or notified) conditions of the construction plan and requirements of the Commercial Reactor Technical Standards Ordinance. These inspections are grouped into direct facility inspections.

Article 16 of the Commercial Reactors Ordinance stipulates the following five stages and requires completing pre-service inspections in each stage.

- (1) When ready to test the structure, strength, or leakage of nuclear power reactor equipment*
- (2) Upon completing installation of the lower half of a steam turbine compartment, etc.*
- (3) When a nuclear power reactor is ready for receiving fuel assemblies*
- (4) When a nuclear power reactor is ready for criticality in the reactor*
- (5) When construction is fully completed*

The amended act that came into force in July 2013 requires that, in addition to inspections to check that the facilities' conformance to the technical standards (tangible aspects), matters related to the licensee's quality control during construction (intangible aspects) shall also be checked by inspection.

Article 43-3-11 of the Act requires that the NRA' certificates of pre-service inspections are conditions to allow the nuclear power plants or individual facilities to be in service.

[Facilities to be inspected]

Reactors, nuclear fuel material handling facilities and storage facilities, reactor cooling system, instrumentation and control system, radioactive waste disposal facilities, radiation management facilities, containment facilities, and so on

[Items to be inspected]

Material, dimension, appearance, condition of assembly and installation, pressure resistance, leakage, foundation , items necessary to check once a fuel assembly has been loaded, items necessary to check once the core reached critical, , and the completion of the construction including comprehensive performance during operation

[Inspection manual prepared in advance]

Article 19 of the Commercial Reactors Ordinance stipulates inspection methods and other necessary matters concerning the aforementioned inspection items.

(Outline of welding safety management review)

For welding safety management review, Article 43-3-13, paragraph 3 of the Reactor Regulation Act requires the NRA to confirm that the licensee has an ongoing quality assurance system and maintains the system sufficiently by inspecting the following items

specified in Article 43-3-13, paragraph 4 of the Reactor Regulation Acts and Article 42 of the Commercial Reactors Ordinance.

[Items to be inspected]

- Organization for implementing licensee inspections*
- Inspection methods*
- Process management*
- Management of contracted parties*
- Management of inspection records*
- Education and training*

These inspections shall be done by using the following implementation method specified in Article 40 of the said Ordinance at the following implementation timing specified in Article 41.

[Timing of implementation]

(For organizations having sufficient systems for licensees' inspections)

- Upon conducting a pressure test*
- Within three months past three years from the date of the notification of the previous inspection results*

(Organizations other than the above)

- Upon a licensee's inspection*

[Methods of inspection]

- Checking the management system for licensee inspections*
- Checking whether ongoing quality assurance is ensured*

This inspection system gives the licensees incentives based on the previous inspection results, and Article 41 of the Commercial Reactors Ordinance requires that the timing and the method of subsequent inspections be determined based on the evaluation results.

During this inspection through checking the licensee's management system of inspections, the NRA checks whether the licensee validly judges the welding of nuclear power reactor facilities conforming to the Commercial Reactor Technical Standards Ordinance, which means the inspection covers both facilities and the licensee's operational activities.

< Attachments >

(Inspections during the construction stage)

Pre-service inspections:

- *Reactor Regulation Act, Article 43-3-11, paragraphs 1 and 2*
- *Commercial Reactors Ordinance, Article 16*
- *Commercial Reactors Ordinance, Article 19*
- *Guide for Pre-Service Inspection of Commercial Power Reactors III 5. (3)*

Welding safety management review :

- *Reactor Regulation Act, Article 43-3-13, paragraphs 3 and 4*
- *Reactor Regulation Act, Article 43-3-13, paragraph 4*
- *Commercial Reactors Ordinance, Article 42*
- *Commercial Reactors Ordinance, Article 41*
- *Commercial Reactors Ordinance, Article 40*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.6

What inspections does the regulatory body perform during the commissioning of a nuclear power plant?

Subsidiary Response

(Types of inspections during commissioning)

Inspections during commissioning are classified as the inspections during the construction stage, and the pre-service inspections and operational safety inspections are conducted.

(Outline of pre-service inspections during commissioning)

Among the pre-service inspections based on Article 43-3-11 of the Act, whose outline is described in SQID 1.5., the inspections during fuel loading, inspections regarding the loss of off-site power, load tests, and so on which are conducted during construction processes (4) and (5), correspond to the inspections during commissioning.

(Outline of operational safety inspections during commissioning)

The operational safety inspections based on Article 43-3-24, paragraph 5 of the Act consist of (a) inspections conducted periodically and (b) inspections conducted when activities significant to safety are conducted.

[Activities significant to safety to be inspected]

(1) Operations related to start-up and shut-down of reactors

(2) Operations related to refueling

(3) Operation to switch reactor seawater system(only for BWR)

(4) Mid-loop operation (primary cooling system with low water level : only for PWR)

(5) Training of personnel who engage in the measures to handle severe accidents or large-scale damage

Article 43-3-24, paragraph 1 of the Act stipulates that licensees shall include operational measures for safety (operational management, maintenance management, fuel management, radiation management, radioactive waste management, and emergency measures) in their operational safety programs before starting reactor operation, and Article 43-3-24, paragraph 5 of the Act stipulates that the NRA may enter licensees' offices; inspect records documentation and other necessary materials; interview with the concerned persons; and require licensees to submit samples such as nuclear source materials, nuclear fuel material, in order to check a licensee's observance of the approved operational safety program.

During the period when the operational safety inspections (quarterly) are not conducted, the NRA inspectors check the management of the operation, patrol facilities, observe

surveillance tests and attend the licensee's meetings as an observer, as daily routines, in order to grasp the actual conditions of licensees' operational safety activities.

During commissioning, the NRA inspectors check the licensee's observance of the operational safety program applicable at the time.

< Attachments >

○ Pre-service inspections:

- Reactor Regulation Act, Article 43-3-11, paragraphs 1 and 2*
- Commercial Reactors Ordinance, Article 16*
- Commercial Reactors Ordinance, Article 19*
- Guide for Pre-Service Inspection of Commercial Power Reactors III 5. (3)*

○ Operational safety inspections:

- Reactor Regulation Act, Article 43-3-24, paragraphs 1 and 5*
- Commercial Reactors Ordinance, Article 93*
- Commercial Reactors Ordinance, Article 93*
- Commercial Reactors Safety Inspection Guide*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.7

What inspections does the regulatory body perform at an operating nuclear power plant?

Subsidiary Response

(Types of inspections during the operation stage)

Inspections during the operation stage may be classified into periodic facility inspections, periodic safety management review, operational safety inspections, and on-site inspections conducted as necessary.

(Outline of periodic facility inspections)

For the periodic facility inspections, Article 43-3-15 of the Act requires the NRA to witness the licensee's inspections or review the licensee's records for each of the following facility types specified in Article 47 of the Commercial Reactors Ordinance at the following timing specified in Article 48 of that Ordinance.

The completion of these inspections is a condition for continuing operation.

[Timing of periodic facility inspections]

Article 48 of the Commercial Reactors Ordinance sets the timing, for 3 categories

- No later than 13 months after the completion of a periodic facility inspection*
- No later than 18 months after the completion of a periodic facility inspection*
- No later than 24 months after the completion of a periodic facility inspection*

[Facilities subject to periodic facility inspection]

Article 45, paragraph 1 of the Commercial Reactors Ordinance specifies the following facilities to be subject to the inspection (defined as specified major nuclear power reactor facilities in Article 43-3-15 of the Act).

- Reactors, nuclear fuel material handling facilities and storage facilities, reactor cooling system, instrumentation and control system, radioactive waste disposal facilities, radiation management facilities, containment facilities, and emergency power supply facilities*
- Steam turbines and their auxiliary facilities*

[Items subject to periodic facility inspection]

Article 47 of the Commercial Reactors Ordinance stipulates the following items:

- Check the functions for shutting down, cooling and confining.*
- Non-destructive inspections, leakage test, and so on of specified major nuclear power reactor facilities, etc.*

[Inspection manuals prepared in advance]

Article 51 of the Commercial Reactors Ordinance stipulates that inspection manuals that prescribe inspection methods and other important matters shall be prepared before inspections.

(Outline of periodic safety management review)

As periodic safety management review based on Article 43-3-16, paragraph 4 of the Act, the NRA check the items regarding implementation system of the licensee's periodic inspections, based on Article 43-3-16, paragraph 5 of the Act and Article 61 of the Commercial Reactors Ordinance, at the timing specified in Article 60 of the NRA Ordinance. These inspections give incentives to the licensees based on the results of the previous reviews. Article 61, paragraph 2 of the Commercial Reactors Ordinance provides that if a review results are good, some inspection items may be exempted in the following review.

(Operational safety inspections)

The outline of operational safety inspections (Article 43-3-24, paragraph 5 of the Act) is described in SQID 1.6.

(On-site inspections)

The outline of on-site inspections (Article 68, paragraphs 1, 2, and 3 of the Act) is described in SQID 1.2 and 1.3

< Attachments >

(Inspections during the operation stage)

○ Periodic facility inspections:

- *Reactor Regulation Act, Article 43-3-15*
- *Commercial Reactors Ordinance, Article 45, paragraph 1*
- *Commercial Reactors Ordinance, Article 48*
- *Commercial Reactors Ordinance, Article 47, paragraph 1*
- *Commercial Reactors Ordinance, Article 51*
- *Guide for Periodic Facility Inspection of Commercial Power Reactors 3*

○ *Periodic safety management review:*

- *Reactor Regulation Act, Article 43-3-16, paragraphs 4, 5, and 6*
- *Commercial Reactors Ordinance, Articles 55, 60, 61*
- *Guide for Periodic Facility Inspection of Commercial Power Reactors 7.3*

○ *Operational safety inspections:*

- *Reactor Regulation Act, Article 43-3-24, paragraphs 1 and 5*
- *Commercial Reactors Ordinance, Article 93*
- *Commercial Reactors Safety Inspection Guide*

○ *On-site inspections:*

- *Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3*
- *On-Site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F14The On-site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.8

What inspections does the regulatory body perform during the decommissioning of a nuclear power plant?

Subsidiary Response

(Types of regulatory inspections during the decommissioning stage)

Periodic facility inspections, operational safety inspections, on-site inspections, and confirmation of completion of decommissioning are conducted during the decommissioning stage.

(Outline of periodic facility inspections)

For periodic facility inspections, Article 43-3-15 of the Reactor Regulation Act requires the NRA to inspect the facilities defined in Article 45, paragraph 2 of the Commercial Reactors Ordinance when nuclear fuel materials exist in the facilities, and to confirm that the facilities and their functions are maintained as required taking the progress of decommissioning (specified in the decommissioning plan) into account. The NRA inspectors observe the licensees' inspections, and verify the records of such inspections, regarding items defined in Article 47, paragraph 2 of the Commercial Reactors Ordinance. The timing of the inspections is defined in Article 48, paragraph 3 of the Commercial Reactors Ordinance.

(Outline of operational safety inspections)

Operational safety inspections (Article 43-3-24, paragraph 5 of the Act) are basically the same as during the operation stage. However, Article 93, paragraph 1 of the Commercial Reactors Ordinance requires such inspections to be carried out four times a year or less instead of four times a year, depending on the progress of decommissioning work.

(On-site inspections)

They are equivalent to those conducted during the operation stage.

(Confirmation of completion of decommissioning)

Based on Article 43-3-33 of the Act, the NRA confirms the completion of decommissioning by confirming the results of decommissioning conforms to the following criteria which are defined in Article 121 of the Commercial Reactors Ordinance.

- Transfer of nuclear fuel materials has been completed.*
- No radioactive hazard prevention measures are required for the soil of the sites where the facilities to be decommissioned exist or facilities remaining on such sites.*
- Disposal of nuclear fuel materials and objects contaminated with nuclear fuel materials has been completed.*
- Radiation management records (Article 67, paragraph 1) have already been passed on to the agency specified by the NRA (Article 67, paragraph 5).*

< Attachments >

(Inspections during the decommissioning stage)

Periodic facility inspections:

- Reactor Regulation Act, Article 43-3-15*
- Commercial Reactors Ordinance, Article 45, paragraph 2*
- Commercial Reactors Ordinance, Article 48, paragraph 3*
- Commercial Reactors Ordinance, Article 47, paragraph 2*

Operational safety inspections:

- Reactor Regulation Act, Article 43-3-24, paragraphs 1 and 5*
- Commercial Reactors Ordinance, Article 93*

On-site inspections:

- Reactor Regulation Act Article 68, paragraphs 1, 2, and 3*

- On-Site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

Confirmation of completion of decommissioning:

- Reactor Regulation Act, Article 43-3-33, paragraph 3 (Article 12-6, paragraph 8 of the same Act applied with modifications)

Commercial Reactors Ordinance, Article 121

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F14The On-site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.1.9

Does the regulatory body carry out inspections of facilities and activities to verify that the authorized party is in compliance with safety requirements and the conditions upon which authorization is granted?

Subsidiary Response

Yes.

Through regulatory inspections, the NRA inspects both facilities and operational activities, and confirms their conformance to conditions for authorizations and required standards.

(Inspections of facilities and operational activities)

- *On-site inspections (reactive inspections) are conducted during the operation stage and during the decommissioning stage, aim to check both facilities and activities to the extent necessary to enforce the Act.*
- *Operational safety inspections, which are described in SQID 1.6 and 1.7, mainly verify licensees' operational activities conforming to the operational safety programs. In such inspections, patrolling of facilities is also carried out by the NRA inspectors, through which both activities and facilities are verified.*
- *Pre-service inspections verify both facilities and activities (SQID 1.1). These inspections are described as the direct facility inspections specified in SQID 1.2, and are described as those during the construction stage in SQID 1.1.*
- *A combination of periodic facility inspections and periodic safety management review, which are included in the inspections during the operation stage, verifies both facilities and activities.*
- *Welding safety management reviews mainly verify the implementation system of inspection activities carried out by the licensee. But they also verify the actual conditions of those activities by confirming processes of welding at the facilities. So, both activities and facilities are verified.*
- *In the decommissioning stage, operational safety inspections and periodic facility inspections cover both facilities and activities.*

(Conformance to safety requirements (Commercial Reactor Technical Standards Ordinance) and conditions of authorization)

- *On-site inspections allow inspectors to review the compliance with both the Commercial Reactor Technical Standards Ordinance and the conditions of authorization, to the extent necessary to enforce the Act.*
- *Pre-service inspections conducted during the construction stage verify compliance with the Commercial Reactor Technical Standards Ordinance and the conditions of authorization. .*
- *The operational safety inspections verify conformance to the approved operational safety program.*
- *Periodic facility inspections during the operation stage verify conformance to the Commercial Reactor Technical Standards Ordinance through witnessing licensees' inspections.*
- *Welding safety management review during the construction stage and periodic safety management review during the operation stage verify the conformance to the Commercial*

Reactor Technical Standards Ordinance through reviewing the implementation system of licensee's inspection.

-In decommissioning stage, operational safety inspections verify the compliance to the approved operational safety program, while periodic facility inspections verified, the compliance with the approved decommissioning plans.

< Attachments >

On-site inspections:

- Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3*
- On-Site Inspection Implementation Guideline (Instruction) upon Receipt of Reaports on Deviations from Power Reactor Facility Operation Limits*

Operational safety inspections:

- Reactor Regulation Act, Article 43-3-24, paragraphs 1 and 5*
- Commercial Reactors Ordinance, Article 93*
- Commercial Reactors Safety Inspection Guide*

Pre-service inspections:

- Reactor Regulation Act, Article 43-3-11, paragraph 2*
- Commercial Reactors Ordinance, Article 16, paragraph 1*

Periodic facility inspections:

- Reactor Regulation Act, Article 43-3-15*
- Commercial Reactors Ordinance, Article 45, paragraph 1*
- Commercial Reactors Ordinance, Article 47, paragraph 1*

Periodic safety management review :

- Reactor Regulation Act, Article 43-3-16, paragraphs 4, 5, and 6*

- *Commercial Reactors Ordinance, Article 61*

Welding safety management review:

- *Reactor Regulation Act, Article 43-3-13, paragraphs 3 and 4*

- *Commercial Reactors Ordinance, Article 35 and 42*

Inspections during the decommissioning stage:

The same as the aforementioned evidence for on-site inspections, operational safety inspections, and periodic facility inspections.

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F14The On-site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 2.2

Do regulatory inspections of nuclear power plants cover all areas under the regulatory body's responsibility?

Answer

Yes

Finding

The regulatory inspections of nuclear power plants cover all areas under the regulatory body's responsibility.

Response

-

< Attachments >

(During the siting & basic design stage)

- As described in Module 9-3.

(During the detailed design stage)

- As described in Module 9-3.

(Inspections during the construction stage) The same as SQID 1.5.

Pre-service inspections:

- Reactor Regulation Act, Article 43-3-11 paragraphs 1 and 2

Welding safety management review:

- Reactor Regulation Act, Article 43-3-13, paragraph 3

(Inspections during the operation stage)

Periodic facility inspection:

- Reactor Regulation Act, Article 43-3-15

- Commercial Reactors Ordinance, Article 45, paragraph 1

Periodic safety management review:

- *Reactor Regulation Act, Article 43-3-16, paragraph 4*

Operational safety inspections:

- *Reactor Regulation Act, Article 43-3-24, paragraph 5*

On-site inspections:

- *Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3*

(Inspections during the decommissioning stage)

Periodic facility inspections:

- *Reactor Regulation Act, Article 43-3-15*
- *Commercial Reactors Ordinance, Article 45, paragraph 2*

Operational safety inspections:

- *The same as during the operation stage.*

On-site inspections:

- *The same as during the operation stage.*

Confirmation of completion of decommissioning:

- *Reactor Regulation Act, Article 12-6, paragraph 8, which is applied with the modifications in Article 43-3-33, paragraph 3 of the same Act*

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 2.2.1

How has the regulatory body ensured that its inspection activities cover all areas relevant for the safety of nuclear power plants?

Subsidiary Response

(Types of regulatory inspections during each stage)

General regulatory inspections: As described in SQID 1.1 above, the Act requires that (1) inspections during the construction stage (including commissioning), (2) inspections during the operation stage, and (3) inspections during the decommissioning stage should be carried out as regulatory inspections of nuclear power plants.

(Scope of inspection)

The Act defines the scope of regulatory inspections as follows.

As described in SQID 1.5 above, the facilities to be inspected in pre-service inspections are those for which construction plans have been authorized in a preceding stage as defined in Article 43-3-11, paragraph 1 of the Act. In addition, as described in SQID 1.7 above, the facilities to be inspected in periodic facility inspections are the specified major nuclear power reactor facilities that have passed their pre-service inspections and are defined in Article 43-3-15 of the Act and Article 45 of the Commercial Reactors Ordinance.

As described in SQID 1.7 above, the scope of operational safety inspections is the compliance with the operational safety program, which defines operational safety activities and is authorized before the start of operation based on Article 43-3-24 of the Act.

As described in SQID 1.8 above, the scopes of periodic facility inspections during the decommissioning stage are the nuclear power reactor facilities defined in Article 45, paragraph 2 of the Commercial Reactors Ordinance and operational safety inspections during the decommissioning stage are the compliance with the operational safety program.

< Attachments >

<Legislative provisions on regulatory inspections related to nuclear power reactor facilities>

- Reactor Regulation Act, Articles 43-3-5, 43-3-9, 43-3-11, 43-3-12, 43-3-13, 43-3-15, 43-3-16, 43-3-24, 43-3-33, and 68

- Commercial Reactors Ordinance, Articles 3, 9, 15, 16, 23, 24, 26, 35, 36, 39, 40, 42, 45, 47, 54, 56, 61, 92, 93, 116, 120, 121, and 126

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.2.2

Please provide information on the regulatory inspection activities covering the safety related activities of suppliers of services and products to the applicant / licensee.

Subsidiary Response

(Inspections of fuel assembly vendors)

By Fuel assembly inspections, Article 43-3-12 of the Act requires to verify the compliance of fuel assemblies to the approved design and to the Commercial Reactors Fuel Technical Standard Ordinance during each processes of fuel assembly fabrication bellow stipulated in Article 24 of the Commercial Reactors Ordinance. These inspections are regarded as direct facility inspections.

<Fuel assembly fabrication processes>

(1) When ready to test the composition, structure, or strength of fuel materials, fuel cladding materials, and other parts

(2) Upon completion of fabrication of fuel elements

(3) Upon completion of fabrication of fuel assemblies

(Inspections to verify commercial reactor licensees' procurement management)

The following inspections cover the licensees' management of procurement activities (supply of products, services such as inspections, tests or maintenance).

- Pre-service inspections and welding safety management inspections during the construction stage*
- Periodic safety management review and operational safety inspections during the operation stage*
- Operational safety inspections during the decommissioning stage*

(Reactive inspections for vendors supplying nuclear power equipment)

Based on Article 68, paragraphs 2 and 3 of the Act, the NRA may enter the offices or factories of suppliers (e.g. welding suppliers, construction companies, equipment manufacturers), and inspect records, documents, and other necessary materials; and interview concerned persons to the extent necessary.

< Attachments >

Fuel assembly inspections:

- Reactor Regulation Act, Article 43-3-12*
- Commercial Reactors Ordinance, Article 24*
- Commercial Reactors Fuel Technical Standard Ordinance*

Pre-service inspections:

- Reactor Regulation Act, Article 43-3-11, paragraphs 1 and 2*
- Guide for Pre-Service Inspection of Commercial Power Reactors 5. (3)*

Welding safety management review:

- Reactor Regulation Act, Article 43-3-13, paragraph 4*
- Commercial Reactors Ordinance, Article 42*

Periodic safety management review:

- *Reactor Regulation Act, Article 43-3-16, paragraph 5*
- *Commercial Reactors Ordinance, Article 61, paragraph 1, subparagraph 1*

Operational safety inspections:

- *Reactor Regulation Act, Article 43-3-24, paragraph 5*

On-site inspections:

- *Reactor Regulation Act, Article 68, paragraphs 2 and 3*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 2.3

Has the Regulatory Body established a systematic inspection programme for nuclear power plants?

Answer

Yes

Finding

The regulatory body has established a systematic inspection programme for nuclear power plants.

Response

-

< Attachments >

(Inspections during the construction stage [including the commissioning stage])

Pre-service inspections:

- *Reactor Regulation Act, Article 43-3-11, paragraphs 1 and 2*
- *Commercial Reactors Ordinance, Articles 15, 16, and 19*

Welding safety management review:

- *Reactor Regulation Act, Article 43-3-13, paragraphs 3, 4, and 5*
- *Commercial Reactors Ordinance, Articles 35, 39, 40, 41, and 42*

Operational safety inspections:

- *Reactor Regulation Act, Article 43-3-24, paragraph 5*
- *Commercial Reactors Ordinance, Article 93*

(Inspections during the operation stage)

Periodic facility inspections:

- *Reactor Regulation Act, Article 43-3-15, paragraph 1*
- *Commercial Reactors Ordinance, Articles 45, 46, 48, and 51*

- Guidelines for Commercial Reactors Facilities on Pre-Service Inspection, Periodic Facility Inspection and Periodic Licensee's Inspection (Commercial Reactors Inspections Guide)

[II. 2.(2) Items to describe in the attachments to the periodic facility inspection application form]

[II. 3 Periodic licensee check subject to periodic facility inspection (Commercial Reactors Ordinance Article 47)]

Periodic safety management review:

- Reactor Regulation Act, Articles 43-3-16, paragraphs 4, 5, and 6*
- Commercial Reactors Ordinance, Articles 55, 59, 60, and 61*

Operational safety inspections:

- Reactor Regulation Act, Article 43-3-24, paragraph 5*
- Commercial Reactors Ordinance, Article 93*

On-site inspections:

- Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3*

(Inspections during the decommissioning stage)

Operational safety inspections:

The same as during the operation stage.

On-site inspections:

The same as during the operation stage.

Periodic facility inspections:

Refer to SQID 1.8 above.

Confirmation of completion of decommissioning:

- Reactor Regulation Act, Article 12-6, paragraph 8, which is applied with the modifications in Article 43-3-33, paragraph 3 of the same Act*

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.3.1

Please explain how the regulatory body determines the frequency and extent of inspections for nuclear power plants.

Subsidiary Response

(Timing, scope and items for regulatory inspections)

The scope of regulatory inspections basically covers important SSCs (system, structure and components) and operational activities as defined in the relevant Ordinances. The timing of programmed inspections is legally defined according the progress of construction and periodic maintenance during operation.

- For regulatory inspections during the construction stage, timing, scope and items for programmed inspections are legally defined.

- For regulatory inspections during the operation stage, timing, scope, items and method of programmed inspections are legally defined..

In addition, licensees conduct their inspections based on their 'Maintenance Program' which includes the frequency of inspections

- For regulatory inspections during the decommissioning stage, timing, scope and items for programmed inspections are legally defined..

- For on-site inspections during the operation stage and the decommissioning stage, the NRA may conduct inspections to the extent necessary to enforce the Act.

< Attachments >

(Inspections during the construction stage)

Pre-service inspections:

- *Reactor Regulation Act, Article 43-3-11, paragraph 1*
- *Commercial Reactors Ordinance, Articles 15, 16, and 19*

Welding safety management review:

- *Reactor Regulation Act, Article 43-3-13, paragraphs 3, 4, and 5*
- *Commercial Reactors Ordinance, Articles 35, 39, 40, 41, and 42*

(Inspections during the operation stage)

Periodic facility inspections:

- *Reactor Regulation Act, Article 43-3-15*
- *Commercial Reactors Ordinance, Articles 45, 46, 47, 48, and 51*

Periodic safety management review:

- *Reactor Regulation Act, Article 43-3-16, paragraphs 4 and 5*
- *Commercial Reactors Ordinance, Articles 55, 59, 60, and 61*

Operational safety inspections:

- *Reactor Regulation Act, Article 43-3-24, paragraph 5*
- *Commercial Reactors Ordinance, Article 93, paragraphs 1 and 2*

On-site inspections:

- *Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3*

(Inspections during the decommissioning stage)

Operational safety inspections:

- *Commercial Reactors Ordinance, Article 93, paragraph 1*

On-site inspections:

- *The same as during the operation stage.*

Periodic facility inspections:

- *Refer to SQID 1.8 above.*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.3.2

What are the resources devoted by the regulatory body to the inspection programme for nuclear power plants?

Subsidiary Response

(Human resources)

Article 60 of the Cabinet Order for Enforcement of the Reactor Regulation Act (Reactor Regulation Enforcement Cabinet Order) stipulates the fixed number and required qualifications of Inspectors for facilities inspections, who may conduct pre-service inspections, welding safety management review, periodic facility inspections, and periodic safety management review.

That Article also stipulates the fixed number and required qualifications of Inspectors for operational activities who may conduct operational safety inspections.

Article 68 of the Act allows the NRA staff to conduct on-site inspections.

(Locations of the NRA regional offices)

22 NRA regional offices are located near nuclear facilities based on the NRA Organization Rule.

(Offices in nuclear facilities)

Though not clearly defined by law, the NRA has working offices on-site of nuclear power plants through the agreements with licensees. These offices are used during inspections for preparation, creation of records or check of licensees' records. Such offices are equipped with the infrastructure necessary for preparing inspections and creating records, etc.

(Financial measures [budget])

The state budget covers regulatory inspection activities.

(Inspection-related provisions and inspection manuals)

The NRA defines detailed operation methods related to regulatory inspections in the 'Guides'.

In addition, based on Articles 19, 28, and 51 of the Commercial Reactors Ordinance, the NRA conducts its inspections in accordance with manuals for regulatory inspection which are developed in advance

< Attachments >

Human resources:

- Reactor Regulation Enforcement Cabinet Order, Article 60*
- Ministry of the Environment Ordinance for Allowable Number of Employees, Article 1*
- Reactor Regulation Act, Article 68*

Establishment of offices:

- NRA Organization Internal Rule, Article 10*

Inspection implementation procedures:

- Commercial Reactors Ordinance, Articles 19, 28, and 51

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.3.3

How does the regulatory body ensure that the staff performing regulatory inspections has the necessary competence and has received adequate training?

Subsidiary Response

(Qualifications of inspectors and requirements for qualification)

Article 60, paragraphs 4 and 5 of Reactor Regulation Enforcemnet Cabinet Order stipulate that inspectors must have the following knowledge and experience to be qualified.

<Qualifications of inspectors and requirements for qualification >

(1) Qualifications: nuclear facility inspector and nuclear safety inspector

(2) Requirements for qualification of nuclear facility inspectors: The inspector shall have adequate knowledge and experience regarding the structures, performance, and safety of fabrication facilities, test/research reactors, nuclear power reactors, spent fuel interim storage facilities, reprocessing facilities, waste disposal facilities, waste storage facilities, and facilities using nuclear materials, etc.

(3) Requirements for Qualification of nuclear safety inspectors: The inspector shall have adequate knowledge and experience regarding safety measures (including education on safety) to be taken by licensees and regarding the structures and performance of refining facilities, fabrication facilities, test/research reactors, nuclear power reactors, spent fuel interim storage facilities, reprocessing facilities, and waste facilities.

(Organization for education and training)

The NRA has the Human Resource Development Centre based on NRA Organization Ordinance, in order to manage education and training for qualifications as well as maintaining and improving abilities.

< Attachments >

- Reactor Regulation Enforcement Cabinet Order, Article 60, paragraphs 4 and 5

- NRA Ordinance for Organization of the Nuclear Regulation Authority (NRA Organization Ordinance)

Chapter 2 "Organs such as Facilities (Duties Assigned to the Division for Planning Human Development and Training)"

Article 26

Article 27

Subsidiary Attachments

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.3.4

Does the regulatory body use consultants for performing inspections at nuclear power plants? If yes, how does the regulatory body verify the inspection work done by consultants and how does it make use of such work in its regulatory decision-making processes?

Subsidiary Response

Since March 2014, when JNES was merged into the NRA, only the inspectors or other staff of the NRA may conduct regulatory inspections based on the relevant legal provisions. Therefore, no technical support organizations or third-party organizations are involved in regulatory inspections.

< Attachments >

Reactor Regulation Act, Article 67-2 and Article 68, paragraphs 1, 2, and 3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 2.4

Does the Regulatory Body undertake both announced and unannounced inspections at nuclear power plants?

Answer

Yes

Finding

The regulatory body undertakes both announced and unannounced inspections at nuclear power plants.

Response

<Both inspections are carried out as overall regulatory inspections.>

The NRA generally conducts reactive inspections with advance notice. However, in the case when an on-site inspection is carried out following a report on a deviation from the limits of conditions for operation (LCO), the NRA may conduct on-site inspections without advance notice, based on the 'On-Site Inspection Implementation Guideline (instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits',

When conducting programmed regulatory inspections, the NRA may conduct either the inspections with advance notification or those without advanced notification which are appropriate for the situation.

< Attachments >

(Inspections during the construction stage)

Pre-service inspections:

- Reactor Regulation Act, Article 43-3-11, paragraph 1*
- Guide for Pre-Service Inspection of Commercial Power Reactors 5. (3)*

Welding safety management review:

- Reactor Regulation Act, Article 43-3-13, paragraphs 3, 4, and 5*
- Guide for Welding Safety Management Review 7.2*

(Inspections during the operation stage)

Periodic facility inspections:

- Reactor Regulation Act, Article 43-3-15*
- Commercial Reactors Ordinance, Article 47*
- Guide for Periodic Facility Inspection of Commercial Power Reactors II. 3*

Periodic safety management review systems:

- Reactor Regulation Act, Article 43-3-16, paragraphs 4 and 5*
- Guide for Periodic Safety Management Review 7.3*

Operational safety inspections:

- *Reactor Regulation Act, Article 43-3-24, paragraph 5*
- *Commercial Reactors Ordinance, Article 93*

On-site inspections:

- *Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3*
- *On-Site Inspection Implementation Guideline (instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits 3. (6)*

(Inspections during the decommissioning stage)

Periodic facility inspections:

- *Reactor Regulation Act, Article 43-3-15*
- *Commercial Reactors Ordinance, Article 47, paragraph 2*

Operational safety inspections:

- *The same as during the operation stage.*

On-site inspection:

- *The same as during the operation stage.*

Confirmation of completion of decommissioning:

- *Reactor Regulation Act, Article 12-6, paragraph 8, which is applied with the modifications in Article 43-3-33, paragraph 3 of the same Act*

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F14The On-site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.4.1

What is the proportion of announced and unannounced inspections at nuclear power plants?

Subsidiary Response

(Definitions of announced and unannounced inspections)

- In the answers hereafter, an announced inspection refers to one carried out with advance notice (thus, allowing the licensee time to prepare), while an unannounced inspection refers to one carried out without advance notice (thus, allowing the licensee no time to prepare).

(Announced inspections)

- In principle, the NRA conducts direct facility inspections as announced inspections, and inspects all the items to be inspected during the period defined in the Commercial Reactors Ordinance (except periodic facility inspections during the operation stage).

In verifying all the items, the NRA inspectors combine witnessing the selected licensees' tests and reviewing the records of licensees' tests.

However, as a graded approach, the inspectors witness all the tests of SSCs with high safety significance (safety class 1 such as reactor vessel or primary cooling system), while the frequency of inspectors' attendance may be reduced according to the level of safety significance.

- The NRA conduct welding safety management review by observing licensees' inspections, in principle as announced inspections, both regularly with three-year intervals (Commercial Reactors Ordinance) and at the time of licensees' final pressure resistance test.

(Announced or unannounced inspections)

- *The NRA conducts reactive inspections responding to accidents or incidents, in principle, as announced inspections, to the extent necessary to enforce the Act. However, the NRA may also conduct unannounced inspections.*

- *In conducting operational safety inspections, the NRA may conduct without notifying the items to be inspected in advance, which have the same conditions as unannounced inspections.*

- *In conducting periodic facility inspections during the operation stage, the timing and the items to be inspected are stipulated in Article 47 and 48 of the Commercial Reactors Ordinance, respectively. The inspector may witness licensees' tests with or without advance notice.*

- *In conducting periodic safety management review during the operation stage, which are programmed in every maintenance cycle (from the date starting periodic facility inspection to the date one day before starting the next periodic inspection) the inspector may observe the licensees' tests with or without advance announcement.*

< Attachments >

(Inspections during the construction stage)

Pre-service inspections:

- *Reactor Regulation Act, Article 43-3-11, paragraph 1*

- *Commercial Reactors Ordinance, Article 16*

- *Guide for Pre-Service Inspection of Commercial Power Reactors 5. (3) "Scopes and Methods of Inspections"*

Welding safety management review:

- *Reactor Regulation Act, Article 43-3-13, paragraphs 3, 4, and 5*

- *Commercial Reactors Ordinance, Articles 40, 41, and 42*

- *Guide for Welding Safety Management Review 7.2 "Methods, etc. of review"*

(Inspections during the operation stage)

Periodic facility inspections:

- *Reactor Regulation Act, Article 43-3-15*
- *Commercial Reactors Ordinance, Articles 47 and 48*
- *Guide for Periodic Facility Inspection of Commercial Power Reactors II. 3*

Periodic safety management review:

- *Reactor Regulation Act, Article 43-3-16, paragraphs 4 and 5*
- *Commercial Reactors Ordinance, Articles 55, 60, and 61*
- *Guide for Periodic Safety Management Review 7.3*

Operational safety inspections:

- *Reactor Regulation Act, Article 43-3-24, paragraph 5*
- *Commercial Reactors Ordinance, Article 93*
- *Commercial Reactors Safety Inspection Guide 5.*

On-site inspections:

- *Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3*
- *On-Site Inspection Implementation Guideline (Instruction) upon receipt of Reports on Deviations from Power Reactor Facility Operation Limits 3. (6)*

(Inspections during the decommissioning stage)

Periodic facility inspections:

- *Reactor Regulation Act, Article 43-3-15*
- *Commercial Reactors Ordinance, Article 47, paragraph 2 and Article 48, paragraph 3*

Operational safety inspections:

- *Reactor Regulation Act, Article 43-3-24, paragraph 5*
- *Commercial Reactors Ordinance, Article 93*

- On-Site Inspection Implementation Guideline (Instruction) upon receipt of Reports on Deviations from Power Reactor Facility Operation Limits 2.

On-site inspections:

The same as during the operation stage.

Confirmation of completion of decommissioning:

- Reactor Regulation Act, Article 12-6, paragraph 8, which is applied with the modifications in Article 43-3-33, paragraph 3 of the same Act

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F14The On-site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.4.2

What is the scope of unannounced inspections? Please explain also on what basis does the regulatory body decide to perform unannounced inspections.

Subsidiary Response

- In conducting on-site inspections following a reports of a deviation from the limits of conditions for operation (LCO), NRA may conduct unannounced inspections based on, On-

Site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits, in the event of LCO deviation.

This on-site inspections following LCO also reviews the appropriateness of the measures taken to address the deviation based on that manual.

Other on-site inspections are basically conducted as announced inspections because the planned items shall be checked completely in order to identify the facts.

- In conducting periodic facility inspections and the periodic safety management review, the NRA defines procedures of inspection and examination, etc. in the inspection manuals or review plans in advance, and then carries out the inspection in accordance with such inspection manuals or review plans. However, though the details of the inspection manuals or review plans are determined in accordance with the regulatory bylaw, that bylaw does not specify the items to be inspected which allow inspector to select the items by his judgment.

- In conducting periodic operational safety inspections, since these inspections cover all the items of approved operational safety program, the NRA defines an inspection plan in advance, then carry out such inspections in accordance with that plan. As the NRA bylaw stipulates the requirements for inspection plans but does not specify the items to be inspected, the NRA may conduct such inspections without notifying the items to be inspected to the licensees in advance.

- In conducting direct facility inspections (excluding periodic facility inspections), the NRA inspects all facilities to be inspected and directly judges whether they conform to the Commercial Reactor Technical Standards Ordinance (pass/fail). Therefore, the NRA does not carry out unannounced inspections.

< Attachments >

(Inspections during the construction stage)

Pre-service inspections:

- Guide for Pre-Service Inspection of Commercial Power Reactors 5. (3)

Welding safety management review:

- Guide for Welding Safety Management Review 7.2

(Inspections during the operation stage)

Periodic facility inspections:

- *Guide for Periodic Facility Inspection of Commercial Power Reactors II. 3.*

Periodic safety management review:

- *Guide for Periodic Safety Management Review 7.3*

Operational safety inspections:

- *Commercial Reactors Safety Inspection Guide 5.*

On-site inspections:

- *Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3*

(Inspections during the decommissioning stage)

Operational safety inspections:

- *Regulatory bylaw "Guide for Operational Safety Inspection for Nuclear Facilities under Decommissioning" 2*

Periodic facility inspections:

- *Reactor Regulation Act, Article 43-3-15*

On-site inspections:

The same as during the operation stage.

Confirmation of completion of decommissioning:

- *Reactor Regulation Act, Article 12-6, paragraph 8, which is applied with the modifications in Article 43-3-33, paragraph 3 of the same Act*

Subsidiary Attachments

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 2.5

Does the Regulatory Body undertake reactive inspections at short notice in response to abnormal events that warrant immediate investigation?

Answer

Yes

Finding

The regulatory body undertakes reactive inspections at short notice in response to abnormal events that warrant immediate investigation.

Response

-

< Attachments >

On-site inspections:

- Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3

- On-Site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

Attachments

F14The On-site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.5.1

Please explain how the Regulatory Body ensure that such inspections do not diminish the responsibility of the operator to perform an immediate investigation of any such occurrence.

Subsidiary Response

The Act clearly stipulates the following primary responsibilities of licensees and requires the NRA conducting regulatory inspections as required to verify licensees' fulfillment of said licensees' responsibilities.

(Responsibilities of licensees, etc.)

- Article 57-9 of the Act stipulates the responsibilities of licensees to install facilities and equipment that contribute to improving the safety of nuclear facilities so as to prevent nuclear disaster, to enrich education on safety, and to take other necessary measures while taking into account the latest knowledge.

(Maintaining conformance to the Commercial Reactor Technical Standards Ordinance)

- Article 43-3-14 of the Act requires licensees to maintain conformance to the Commercial Reactor Technical Standards Ordinance at nuclear power reactor facilities.

(Measures to be taken for safety and protection of specified nuclear fuel materials)

- Article 43-3-22 of the Act requires licensees to take necessary measures for maintenance and operation of nuclear power reactor facilities as well as those for transport, storage, and disposal of nuclear fuel materials (including measures for severe accidents).

(Operational safety program)

- Article 43-3-24 of the Act requires licensees to define basic items related to the operational safety of nuclear power reactor in their operational safety programs and to have the approval of the programs before starting reactors operation, as well as to observe their operational safety programs. Operational safety programs include items related to quality assurance; thus, implementation of non-conformance management is required.

(Reactive inspections)

- In the case of receiving a licensee's report of non-conformances, the NRA may conduct on-site inspections in principle as an announced inspection. (Article 68 of the Act). However, the NRA may conduct an unannounced inspection to the extent necessary to enforce the Act.

(Additional inspections, etc. for programmed inspections)

When a non-conformance is found in any programmed inspection, the NRA conducts an additional inspection (announced or unannounced) for follow-up as relevant inspections.

< Attachments >

Licensees' responsibilities:

- Reactor Regulation Act, Article 57-9

Maintenance of nuclear power reactor facilities:

- Reactor Regulation Act, Article 43-3-14

Measures for safety and protection of specified nuclear fuel materials:

- Reactor Regulation Act, Article 43-3-22

Operational safety program:

- Reactor Regulation Act, Article 43-3-24, paragraphs 1 and 4

On-site inspections:

- Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.5.2

How is the need for reactive inspections taken into account in the development and implementation of the inspection programme?

Subsidiary Response

(Reactive inspections according to an event's significance)

In the case of non-conformance to the Commercial Reactor Technical Standards Ordinance, occurrence of accidents or incidents required to report to the NRA, or non-compliance to the operational safety program, the NRA conducts reactive inspections as announced inspections in principle, but may conduct them as unannounced inspections if necessary.

(1) On-site inspections

In the case when the NRA is required to take measures, e.g. deviation from LCO, occurrence of the events which may affect safety or lead to emergency situation (including a violation of maintaining conformance to the required Technical Standards, or accidents or incidents required to report to the NRA, an event which may have social impacts, or non-conformance found in outside the period of programmed inspection), the NRA may switch the programmed inspection to the on-site inspection.

(2) Additional inspections, etc. to programmed inspections

In programmed inspections, when a non-conformance to the conditions authorized with respect to safety functions, radiation exposure, or quality assurance (including that of the operational safety program) or a non-conformance to the Commercial Reactor Technical Standards Ordinance is identified, the NRA may conduct an additional inspection to the programmed inspection for follow-up.

< Attachments >

(Inspections during the construction stage)

Pre-service inspections:

- Reactor Regulation Act, Article 43-3-11, paragraph 1*
- Commercial Reactors Ordinance, Article 16*
- Guide for Pre-Service Inspection of Commercial Power Reactors 5. (3)*

Welding safety management review:

- Reactor Regulation Act, Article 43-3-13, paragraphs 3, 4, and 5*
- Commercial Reactors Ordinance, Articles 40, 41, and 42*
- Guide for Welding Safety Management Review 7.2*

(Inspections during the operation stage)

Periodic facility inspections:

- Reactor Regulation Act, Article 43-3-15, paragraph 1*
- Commercial Reactors Ordinance, Articles 47 and 48*
- Guide for Periodic Facility Inspection of Commercial Power Reactors II. 3.*

Periodic safety management review:

- Reactor Regulation Act, Article 43-3-16, paragraphs 4 and 5*
- Commercial Reactors Ordinance, Articles 55, 60, and 61*
- Guide for Periodic Safety Management Review*

Operational safety inspections:

- Commercial Reactors Safety Inspection Guide 7.

On-site inspections:

- Reactor Regulation Act, Article Articles 43-3-4, 62-3 and 68, paragraphs 1, 2, and 3

- On-Site Inspection Implementation Guideline (instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F14The On-site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 2.6

Does the Regulatory Body require inspectors to prepare a report to document the results of their inspection activities and requirements for necessary corrective actions?

Does the Regulatory Body record the results of inspections and take appropriate action, including enforcement actions as necessary?

Answer

Yes

Finding

The regulatory body requires inspectors to prepare a report to document the results of their inspection activities and requirements for necessary corrective actions.

Response

Yes.

(Preparing inspection certificates, inspection reports, and inspection records)

When an NRA inspector conducts an inspection, the regulatory bylaw stipulates that the inspector shall prepare an inspection report.

In addition, when the non-conformance to the conditions upon which the authorization is granted or the non-conformance to the Commercial Reactor Technical Standards Ordinance is identified in programmed inspections, the NRA, according to the bylaw, requests the licensee to explain the results of the investigation of those non-conformance, and the status of corrective actions.

When any violation regarding the operational safety program is identified, the NRA decides on the administrative measures taking into accounts of the degree of malicious intent or significance of the event. Such measures include; an order to revoke the license (Article 43-3-20, paragraph 2 of the Act); an order to stop reactor operation (Article 43-3-23 of the Act); or administrative guidance.

When it is confirmed that a facility satisfies the requirements, the NRA issues Certificate of pre-service inspections (Article 43-3-11 of the Act and Article 21 of the Commercial Reactors Ordinance), or periodic facility inspections (Article 43-3-15 of the Act and Article 53 of the Commercial Reactors Ordinance).

< Attachments >

(Inspections during the construction stage)

Pre-service inspections:

- Reactor Regulation Act, Article 43-3-11, paragraph 1

- *Commercial Reactors Ordinance, Article 21*
- *Guide for Pre-Service Inspection of Commercial Power Reactors III. 5. (7) (8) and 6. (1)*

Welding safety management review:

- *Reactor Regulation Act, Article 43-3, paragraph 6*
- *Guide for Welding Safety Management Review 7.4, 7.5, and 8*

(Inspections during the operation stage)

Periodic facility inspections:

- *Reactor Regulation Act, Article 43-3-15*
- *Commercial Reactors Ordinance, Articles 47 and 53*
- *Guide for Periodic Facility Inspection of Commercial Power Reactors II. 3. (3) (4) (5), 4., and 5.*

Periodic safety management review:

- *Reactor Regulation Act, Article 43-3-16, paragraph 6*
- *Commercial Reactors Ordinance, Articles 55, 60, and 61*
- *Guide for Periodic Safety Management Review 7.5, 7.6, and 8*

(Violations of the conditions upon which authorization is granted)

Reactor Regulation Act, Article 43-3-20, paragraph 2 and Article 43-3-23

Operational safety inspections:

Commercial Reactors Safety Inspection Guide

12. "Preparing inspection reports"

14. "Announcing inspection results"

(1) "Posting on the NRA website"

(2) "Notification to licensees"

On-site inspections:

- *Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3*

(Inspections during the decommissioning stage)

Periodic facility inspections:

- *Commercial Reactors Ordinance, Article 53, paragraph 1*

Operational safety inspections:

- *Guide for Operational Safety Inspection for Nuclear Facilities under decommissioning*

On-site inspections: The same as during the operation stage.

Confirmation of completion of decommissioning:

- *Reactor Regulation Act, Article 12-6, paragraph 8, which is applied with the modifications in Article 43-3-33, paragraph 3 of the same Act*

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F14The On-site Inspection Implementation Guideline (Instruction) upon Receipt of Reports on Deviations from Power Reactor Facility Operation Limits

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.6.1

What is the typical content and format of a regulatory inspection report?

Subsidiary Response

(Examples of items to be described in inspection records)

‘Guide for Pre-Service Inspection of Commercial Power Reactors’ which is established by the NRA stipulates that the following items shall be described in pre-service inspection records’.

- Inspection date (year/month/day)*
- Power station, unit, and facility names*
- Inspection places*
- Inspectors’ names*
- Inspection processes*
- Items inspected*
- Inspection method*
- Inspection results*
- Responsible person of the licensee for attendance*
- Measuring equipment used in the inspection*
- Special instructions (including items requiring improvement)*

(Examples of descriptions in inspection reports)

‘Guide for Pre-Service Inspection of Commercial Power Reactors’ stipulates that the following items shall be described in inspection reports for pre-service inspections.

- Inspection date (year/month/day)*
- Power station, unit, and facility names*
- Inspectors’ names*

(Items to be described in operational safety inspection reports)

Commercial Reactors Safety Inspection Guide stipulates that the following items should be described in operational safety inspection reports.

- *Outline of the inspection (period of operational safety inspection, operational safety inspection inspectors)*
- *Outline of the power station's facilities and operations*
- *Details of the operational safety inspection*
- *Results of the operational safety inspection (comprehensive evaluation, inspection results, and any violations)*
- *Special instructions*

< Attachments >

- *Guide for Pre-Service Inspection of Commercial Power Reactors III. 5. (6), (7), Attachment-3, and Attachment-4*
- *Guide for Welding Safety Management Review 7.4*
- *Guide for Periodic Facility Inspection of Commercial Power Reactors II. 3. (4), (5), Attachment-10, and Attachment-12*
- *Guide for Periodic Safety Management Review 7.5*
- *Commercial Reactors Safety Inspection Guide 12*

Subsidiary Attachments

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

Subsidiary Question 2.6.2

How does the regulatory body communicate the results of the inspections to the applicant / licensee and to any other interested parties?

Subsidiary Response

((Inspection certificates, inspection completion certificates, and result notification, etc.))

Based on the Commercial Reactors Ordinance, the NRA issues the following documents to licensees when the required criteria are confirmed to be satisfied by the inspections or when pre-scheduled inspections are completed.

- Inspection certificates: Pre-service inspections*
- Inspection completion certificates: Periodic facility inspections*
- Evaluation result notification: Welding safety management review and periodic safety management review*
- Results notifications (sending of inspection reports): Operational safety inspections*
- Confirmation letters: Confirmation of completion of decommissioning*

When pre-scheduled operational safety inspections are completed, the NRA shall prepare inspection reports and notify the relevant licensee of the inspection results.

(Announcement on the NRA website)

According to the policies on ensuring transparency and those on the work procedures, information about the aforementioned issuance of inspection certificates, inspection completion certificates, evaluation result notification, and inspection results notification are publicized on the NRA website.

In addition, if disclosure of administrative documents is legally requested, in principle the NRA discloses such documents regarding inspections.

(Reporting to the NRA Commission and publication)

Outlines of the operational safety inspections results are reported to the NRA Commissioner meetings, which is open to the public.

Likewise, the results of reactive inspections (on-site inspections) are also reported to the NRA Commission.

< Attachments >

- Pre-service inspection certificates: Commercial Reactors Ordinance Article 21*

- *Fuel assembly inspection certificates: Commercial Reactors Ordinance, Articles 30 and 34*
- *Welding safety management review evaluation result notices: Reactor Regulation Act, Article 43-3-13, paragraph 6*
- *Periodic facility inspection completion certificates: Commercial Reactors Ordinance, Article 53*
- *Periodic safety management review evaluation result notices: Reactor Regulation Act, Article 43-3-16, paragraph 6*
- *Commercial Reactors Safety Inspection Guide 14.*
- *Guide for Operational Safety Inspection for Nuclear Facility under Decommissioning*
- *Confirmation of completion of decommissioning: By convention, a confirmation letter is issued.*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.6.3

How does the regulatory body specify the actions to be taken by the applicant / licensee in order to resolve non-conformances identified during regulatory inspections?

Subsidiary Response

(Responses to the items for corrective actions identified in the direct facility inspections)

In the direct facility inspections, when a non-conformance to the Commercial Reactor Technical Standards Ordinance (Article 43-3-14 of the Act) is identified, the NRA records the

event and suspends the inspection. Only after it is confirmed that the corrective actions have been taken, the inspection may be resumed. Upon resuming the inspection, licensees are required to report on corrective actions.

(Responses to the items for corrective actions identified in safety management review)

In conducting welding safety management inspections and periodic safety management review, when an item required for corrective actions is identified, the NRA requests the licensee to report to the NRA on the non-conforming events and corrective measures to be taken and the NRA verifies the appropriateness of such measure.

(Responses to the items for corrective actions in the operational safety inspections)

Article 92, Commercial Reactors Ordinance requires licensees to include the followings in the operational safety program:

- Elimination of non-conformances by themselves*
- Plan, implement, and evaluate corrective measures for such events and to observe such operational safety program.*

The NRA verifies the licensee's management status on the non-conformance and corrective measures in operational safety inspections.

In conducting operational safety inspections, when an event of non-compliance with the approved operational safety program (violation of the operational safety program) is identified, the NRA may issue an order or directive requesting the licensee to report the measures to be taken to prevent the recurrence within an appropriate period.

< Attachments >

- Guide for Pre-Service Inspection of Commercial Power Reactors III. 5. (6) and Attachment-4*
- Guide for Fuel Assembly Inspection of Commercial Power Reactors 2.4.3, 2.4.4, 3.2.4, 3.2.6 and Attachment-6*
- Guide for Welding Safety Management Review 7.5*
- Guide for Periodic Facility Inspection of Commercial Power Reactors II. 3. (4) and Attachment-11*
- Guide for Periodic Safety Management Review 7.6*
- Commercial Reactors Safety Inspection Guide 11.*

Subsidiary Attachments

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

Question 2.7

Does the Regulatory Body feed back the inspection findings into the regulatory process?

Answer

Yes

Finding

The regulatory body feeds back the inspection findings into the regulatory process.

Response

-

Subsidiary Question 2.7.1

Please describe how the inspection findings are being used in the regulatory process.

Subsidiary Response

(Proposals to the Examination Committee on Technical Information)

An Examination Committee on Technical Information is established within the NRA, consisting of NRA commissioner and its senior staff, and it aims to feedback operational experience of nuclear facilities to the regulations, through collecting and evaluating the information on nuclear safety.

(Operational safety inspections)

The NRA continuously reviews the past operational safety inspections and implements measures to improve operational safety inspections program.

(Periodic facility inspections)

In conducting periodic facility inspections, when any non-conformance is identified, the NRA suspends the inspections. The inspection may be resumed only after the licensees take corrective actions, and the follow-up of that non-conformance event will be conducted. In addition, based on the article 48 of Commercial Reactor Ordinance, the starting timing of the next periodic facility inspections is decided by confirming the validity of the licensees' maintenance program. So if an event which may affect the conformance period of the facilities to the Commercial Reactor Technical Standards Ordinance is identified, it will be considered in the judgment of the timing for the start of the next periodical facility inspections.

(Pre-service inspections)

In conducting pre-service inspections, when a non-conformance event is found and such event may affect the conformance to the Commercial Reactor Technical Standards Ordinance, the NRA suspends inspections, and only after the licensees take corrective actions, the inspections may be resumed, and the follow-up of that non-conformance event will be conducted

(Safety management review)

The Act stipulates safety management review as an incentive regulation which adjust inspection timing, items to be inspected, and the scope of inspection based on the evaluation of the performance of the licensee's inspection system. Therefore, when the performance of the licensee's inspection system is evaluated as requiring improvement, it will affect the timing of the next inspection and the items to be inspected, etc. In addition, when a non-conformance event is identified in an licensee's inspection, the NRA verifies licensee's corrective actions.

< Attachments >

Periodic facility inspections:

- *Guide for Periodic Facility Inspection of Commercial Power Reactors 3.*

Pre-service inspections:

- *Guide for Pre-Service Inspection of Commercial Power Reactors III 5. (3)*

Safety management review:

- *Commercial Reactors Ordinance, Articles 41, 55, and 61*

- *Guide for welding Safety Management Review 7.2*

- *Guide for Periodic Safety Management Review 7.6*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 2.8

Does the Regulatory Body take enforcement actions in the event of deviations from, or non-compliance with, the regulatory conditions and requirements?

Answer

Yes

Finding

The regulatory body takes enforcement actions in the event of deviations from, or non-compliance with, the regulatory conditions and requirements.

Response

-

Subsidiary Question 2.8.1

What are the administrative procedures and guidelines governing the use and implementation of enforcement actions by the regulatory body?

Subsidiary Response

The Reactor Regulation Act provides rules regarding the use and implementation of enforcement measures (adverse disposition) and the Administrative Procedure Act provides procedures for adverse disposition.

< Attachments >

- Reactor Regulation Act, Articles 41, 43-3-8, 43-3-10, 43-3-20, 43-3-23, 43-3-24, 43-3-26, 43-3-27, 43-3-28, 43-3-29, 43-3-30, 43-3-31, 43-3-33, 43-3-34, 64, and 67

- Administrative Procedure Act

- Commercial Reactors Safety Inspection Guide 11.

- Guide for Operational Safety Inspection for Nuclear Facilities under Decommissioning 2. 3

Subsidiary Attachments

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H11Administrative Procedure Act

Subsidiary Question 2.8.2

How is it ensured that the enforcement actions are commensurate with the gravity of the non-compliance?

Subsidiary Response

The Act defines the enforcement actions and conditions for such actions. The Administrative Procedure Act stipulates the procedure on these enforcement actions.

< Attachments >

- Reactor Regulation Act, Articles 41, 43-3-8, 43-3-10, 43-3-20, 43-3-23, 43-3-24, 43-3-26, 43-3-27, 43-3-28, 43-3-29, 43-3-30, 43-3-31, 43-3-33, 43-3-34, 64, and 67

- Administrative Procedure Act

- Commercial Reactors Safety Inspection Guide 11.

- Guide for Operational Safety Inspection for Nuclear Facilities under Decommissioning 2. 3

Subsidiary Attachments

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H11Administrative Procedure Act

Subsidiary Question 2.8.3

How has the regulatory body ensured that, for all cases of non-compliance with the regulatory requirements, the applicant/licensee is required to take remedial actions, perform a thorough investigation within agreed time-scale and take all necessary measures to prevent recurrence?

Subsidiary Response

Article 43-3-22 of the Act requires licensees to take necessary measures for ensuring safety.

More specifically, Article 75 of the Commercial Reactors Ordinance requires licensees to develop and take corrective measures, including measures to prevent recurrence. Therefore, licensees shall take corrective actions within the defined time limit. When the NRA requires a licensee to take corrective actions in a document, the NRA clearly specifies the deadline for completing corrective measures in the document.

In an operational safety inspection, the NRA shall verify the situation of the corrective measures taken by the licensee.

If the non-compliance is not improved even after taking such measures, the NRA may take enforcement actions.

< Attachments >

- Reactor Regulation Act

Article 43-3-22

- Commercial Reactors Ordinance

Article 75

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.8.4

Please specify the enforcement actions that the regulatory body may take in case of non-compliance or deviation from the regulatory requirements.

Subsidiary Response

The Reactor Regulation Act provides rules regarding the use and implementation of enforcement measures (adverse disposition) and the Administrative Procedure Act provides procedures for adverse disposition.

< Attachments >

- Reactor Regulation Act, Articles 41, 43-3-8, 43-3-10, 43-3-20, 43-3-23, 43-3-24, 43-3-26, 43-3-27, 43-3-28, 43-3-29, 43-3-30, 43-3-31, 43-3-33, 43-3-34, 64, and 67*
- Administrative Procedure Act*
- Commercial Reactors Safety Inspection Guide 11.*
- Guide for Operational Safety Inspection for Nuclear Facilities under Decommissioning 2. 3*

Subsidiary Attachments

F15The Implementation Guideline for Operational Safety Inspection for Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H11Administrative Procedure Act

Subsidiary Question 2.8.5

Has the Regulatory Body established formal arrangements with relevant government agencies where enforcement action requires the involvement of the police, justice ministry or other authorities? Please describe the arrangements in place.

Subsidiary Response

No.

The NRA has not established any formal arrangements with related agencies.

The penalty defined in Articles 77 to 83 of the Act may be applied after an accusation to a public prosecutor or judicial police official, and being sentenced by a court that accepted an indictment from the public prosecutor, as defined in the provisions of the Criminal Procedure Code. Article 239 of the said Act stipulates that a government clerk or employee shall make an accusation if the person finds the criminal act during carrying out his or her duties.

No other arrangements regarding enforcement actions based on the Reactor Regulation Act have been made with other agencies. The NRA shall communicate and coordinate with related agencies if necessary.

< Attachments >

Code of Criminal Procedure

Reactor Regulation Act, Articles 77, 78-1 to -4, 79, 80-1 to -4, 81, 82, and 83

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H03Code of Criminal Procedure (Part I and Part II)

Question 2.9

Does the Regulatory Body ensure that the licensee effectively implements any remedial actions arising from regulatory enforcement actions?

Answer

Yes

Finding

The regulatory body ensures that the licensee effectively implements any remedial actions arising from regulatory enforcement actions.

Response

-

Subsidiary Question 2.9.1

Please specify the mechanisms followed by the regulatory body for ensuring that the licensee effectively implements remedial actions arising from regulatory enforcement actions.

Subsidiary Response

Article 43-3-22 of the Act requires licensees to take necessary measures for ensuring safety.

More specifically, Article 75 of the Commercial Reactors Ordinance requires licensees to develop and take corrective measures.

In addition, Article 92, paragraph 1, item 3 of the Commercial Reactors Ordinance stipulates that matters regarding quality assurance, including corrective and preventive measures,

shall be described in the operational safety program. And in operational safety inspections, the NRA verifies the situation of corrective measures taken by licensees.

< Attachments >

- Reactor Regulation Act

Article 43-3-22

- Commercial Reactors Ordinance

Article 75

Article 92-1-3

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 2.10

On finding deviations from, or violations of, regulatory requirements, or unsatisfactory situations at the nuclear power plant or conduct of activities which have minor safety significance, does the Regulatory Body issue a written warning or directive that identifies the nature and importance of each violation?

Answer

Yes

Finding

Upon discovery of situations of non-compliance, the regulatory body issues a written warning or directive that identifies the nature and importance of each deviation from or violation of regulatory requirements

Response

-

Subsidiary Question 2.10.1

Does the written warning or directive issued by the regulatory body specify a period of time permitted for taking remedial action?

Subsidiary Response

Yes

Subsidiary Question 2.10.2

Please explain how the directive or warning is followed up by the regulatory body for completion of actions.

Subsidiary Response

Operational safety inspections verify the corrective actions taken by licensees (Article 43-3-24, paragraph 5 of the Act).

When a matter requiring improvement is identified during the period of a safety management review, the licensees are required to explain their responses and the validity of such responses is verified.

When the NRA issues an administrative document requiring licensee to take corrective measures, the NRA conducts on-site inspections to verify the implementation of them based on Article 68, paragraphs 1, 2 and 3 of the Act.

< Attachments >

- Reactor Regulation Act, Article 43-3-24, paragraph 5*
- Guide for Welding Safety Management Review 7.5*
- Guide for Periodic Safety Management Review 7.6*
- Reactor Regulation Act, Article 68, paragraphs 1, 2, and 3*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.10.3

Please explain the actions taken by the regulatory body if the applicant/licensee fails to complete the action within the permitted time.

Subsidiary Response

If a licensee fails to complete the actions required in enforcement actions within the designated period, the NRA may take additional measures according to the situation.

In addition, though the NRA does not operationally set a deadline for corrective measures to be taken during safety management review, if corrective measures are not completed within the period of that review, the NRA verifies the implementation status of those corrective measures in the subsequent safety management review.

< Attachments >

- *Reactor Regulation Act, Article 41 (Order for Restoring Certification of the Reactor Chief Engineer), 43-3-8 (Order for Notification of Changing the Establishment License), 43-3-10 (Order for Notification of Construction Plan Alteration), 43-3-20 (License Revocation), 43-3-23 (Order for Suspension of Use of Facilities, etc.), 43-3-24 (Order for Altering the Operational Safety Program), 43-3-26 (Order for Dismissal of the Nuclear Power Reactor Chief Engineer), 43-3-27 (Order for Altering the Physical Protection Program), 43-3-28 (Order for Dismissal of the Physical Protection Manager), 43-3-29 (Order for Altering Evaluations for Safety Improvement), 43-3-30 (Rescission of Model Certificates), 43-3-31 (Rescission of Specific Equipment Model Designation), 43-3-33 (Order for Measures Related to Decommissioning), 43-3-34 (Order for Necessary Measures for Former Commercial Power Reactor Establishers), 64 (Order for Emergency Actions), and 67 (Reporting)*

- *Guide for Welding Safety Management Review 7.5*

- *Guide for Periodic Safety Management Review 7.6*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.10.4

Provided that there is no immediate threat to safety, how does the regulatory body determine reasonable periods of time for the operator to complete corrective actions, considering the contribution of each deficiency for which corrective actions is required to the total risk for the facility?

Subsidiary Response

The NRA determines the period of time for the licensees to complete corrective actions, considering the degree of severity of the issue, the scope of the corrective actions, and so on.

For welding safety management review and periodic safety management review, since these reviews aim to verify the implementation systems (including quality assurance

program) of licensees' inspection, no specific period of time for the completion of corrective measures are specified.

< Attachments >

Same as SQID10.3

(- Reactor Regulation Act, Article 41 (Order for Restoring Certification of the Reactor Chief Engineer), 43-3-8 (Order for Notification of Changing the Establishment License), 43-3-10 (Order for Notification of Construction Plan Alteration), 43-3-20 (License Revocation), 43-3-23 (Order for Suspension of Use of Facilities, etc.), 43-3-24 (Order for Altering the Operational Safety Program), 43-3-26 (Order for Dismissal of the Nuclear Power Reactor Chief Engineer), 43-3-27 (Order for Altering the Physical Protection Program), 43-3-28 (Order for Dismissal of the Physical Protection Manager), 43-3-29 (Order for Altering Evaluations for Safety Improvement), 43-3-30 (Rescission of Model Certificates), 43-3-31 (Rescission of Specific Equipment Model Designation), 43-3-33 (Order for Measures Related to Decommissioning), 43-3-34 (Order for Necessary Measures for Former Commercial Power Reactor Establishers), 64 (Order for Emergency Actions), and 67 (Reporting)

- Guide for Welding Safety Management Review 7.5

- Guide for Periodic Safety Management Review 7.6

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 2.11

For situations deemed to be serious and considered to pose an imminent radiological hazard to workers, patients, the public or the environment, does the Regulatory Body require the operator to curtail activities and to take prompt actions necessary to restore an adequate level of safety?

Answer

Yes

Finding

For situations deemed to be serious and considered to pose an imminent radiological hazard to workers, patients, the public or the environment, the regulatory body requires the operator to curtail activities and to take prompt actions necessary to restore an adequate level of safety.

Response

Article 43-3-22 of the Act requires licensees to take necessary operational measures for safety. More specifically, Article 87 of the Commercial Reactors Ordinance requires licensees to provide measures to be taken in an emergency and to have operating staff implement such measures appropriately.

Based on Article 43-3-23 of the Act, if the NRA determines that these necessary operational measures for safety do not comply with a requirement, the NRA may issue an order to require licensees to take necessary operational measures for safety.

In addition, Article 64, paragraph 1 of the Act requires temporary measures to be taken in emergencies, and the details are defined in Article 135 of the Commercial Reactors Ordinance.

Article 64, paragraph 3 of the Act stipulates that the NRA may issue an order to request licensees to take necessary measures when the NRA determines that emergency measures are needed due to imminent danger in the case of a disaster caused by nuclear fuel materials/materials contaminated with nuclear fuel materials or by reactors.

< Attachments >

- Reactor Regulation Act

Articles 43-3-22, 43-3-23 and 64

- Commercial Reactors Ordinance

Articles 87 and 135

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 2.11.1

What are the situations for which the regulatory body would require the operator of a nuclear power plant to curtail activities and to take prompt actions for restoring an adequate level of safety?

Subsidiary Response

The NRA may require the licensees to curtail activities and to take prompt actions for restoring a level of safety when:

- The NRA confirms that safety measures to be taken violate a requirement (Article 43-3-23, paragraph 1 of the Act)*
- A disaster caused by nuclear fuel materials/materials contaminated by nuclear fuel materials, or by reactors occurred or are expected to occur due to earthquake, fire, or other disaster (Article 64, paragraph 1 of the Act); or-* *The is imminent danger due to disaster caused by nuclear fuel materials/materials contaminated by nuclear fuel materials, or reactors (Article 64, paragraph 3 of the Act)*

< Attachments >

- *Reactor Regulation Act*

Articles 43-3-23 and 64

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 2.12

In the event of continual, persistent or extremely serious non-compliance, or a significant release of radioactive material to the environment due to serious malfunctioning at or damage to a facility, does the Regulatory Body direct the operator to curtail activities or revoke the licence/authorization?

Answer

Yes

Finding

In the event of continual, persistent or extremely serious non-compliance, or a significant release of radioactive material to the environment due to serious malfunctioning at or damage to a facility, the Regulatory Body directs the operator to curtail activities or revokes the licence/authorization.

Response

-

Subsidiary Question 2.12.1

Please describe the process for suspension or revoking of the authorization/licence, to issue order to curtail activities and to direct the operator to eliminate unsafe conditions in the event of continual, persistent or extremely serious non-compliance, or a significant release of radioactive material to the environment due to serious malfunctioning at or damage to a facility.

Subsidiary Response

Based on Article 43-3-20, paragraph 2 of the Act, the NRA may issue an order to revoke a permit or an order to stop reactor operation up to a year when conditions defined in that Article are satisfied.

When enforcing such adverse disposition, hearings or opportunities for explanation shall be provided according to Article 13 of the Administrative Procedure Act. In particular, when the NRA issues an order to stop reactor operation (Article 43-3-20, paragraph 2 of the Act), Article 69 of the Act requires the NRA to have a hearing regardless the category of the procedures for statement as defined in Article 13, paragraph 1 of the Administrative Procedure Act.

As for the specific requirements defined in Article 43-3-20, paragraph 2 of the Act, refer to QID 16-6 in Module 1.3.

< Attachments >

- Reactor Regulation Act

Articles 43-3-20 and 69

- Administrative Procedure Act

Article 13

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 2.13

Does the regulatory body confirm all enforcement decisions in writing to the applicant/licensee?

Answer

Yes

Finding

The regulatory body confirms all enforcement decisions in writing to the applicant /licensee.

Response

-

Subsidiary Question 2.13.1

How are the enforcement actions confirmed in writing to the licensee?

Subsidiary Response

The 'NRA Transparency Policy' requires the NRA to document any actions, instructions, directives, and requests to regulated parties in order to enforce its regulations, as well as answers on legal interpretations. The policies also define that oral instructions and requests,

which are made for unavoidable reason, for example, at emergency, should also be documented afterward.

Therefore, when determining enforcement actions, the NRA shall notify licensees of the details and deadlines, etc. of enforcement actions in written form.

In addition, based on Article 6 of the Administrative Appeal Act, the NRA shall stipulate in written form that regulated parties may appeal to an administrative organization if they disagree with the aforementioned actions.

In general, adverse dispositions are notified in written form. Article 14, paragraph 3 of the Administrative Procedure Act stipulates that when adverse dispositions are notified in written form, the reasons for issuance should also be described.

< Attachments >

- Administrative Appeal Act, Article 6

- Administrative Procedure Act, Article 14, paragraph 3 (Providing a Reason for Adverse Disposition)

- Supreme Court legal precedent

1st Petty Bench of the Supreme Court, 1978, (Gyo-Tsu) No. 21, July 15, 1982

In order to make a disposition come into effect, the mere fact that a decision was made in a government agency or that a document that describes the details of the decision has been prepared is not sufficient; it is also required that said decision be presented externally in some form. If a disposition requires acceptance of the addressee (adverse party), said disposition shall come into effect only after it is announced or reaches the adverse party-- in other words, when the disposition is in a state in which the adverse party can know it. (Refer to the judgment of the Supreme Court 1951-(Re)-No. 754; the judgment of the 3rd Petty Bench of the Supreme Court dated August 24, 1954; and page 1372 of Keishu Vol. 8-8).

Subsidiary Attachments

H11Administrative Procedure Act

Question 2.14

Does the Regulatory Body provide authority to the inspectors to take on-the-spot enforcement actions?

Answer

No

Finding

The regulatory body does not provide authority to the inspectors to take on-the-spot enforcement actions.

Response

-

Subsidiary Question 2.14.2

Where on-the-spot enforcement authority is not granted to individual inspectors, are procedures in place to ensure that the transmission of information to the Regulatory Body is suited to the urgency of the situation, so that the necessary actions are taken in a timely manner?

Subsidiary Response

The NRA's bylaw stipulates that the Nuclear Safety Inspector should contact the competent NRA persons in the case of an emergency such as those defined in Article 134 of the Commercial Reactors Ordinance.

< Attachments >

- *Commercial Reactors Ordinance*

Article 134

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 2.15

If any risk in the event were identified, including risks unforeseen in the authorization process, does the regulatory body require corrective actions to be taken by nuclear power plants?

Answer

Yes

Finding

If any risk in the event were identified, including risks unforeseen in the authorization process, does the regulatory body require corrective actions to be taken by nuclear power plants?

Response

Article 43-3-22 of the Act requires licensees to take necessary operational measures for safety.

More specifically, Article 75 of the Commercial Reactors Ordinance requires licensees to appropriately reflect the knowledge gained both from their own nuclear power reactors and others facilities by implementing operational safety actions.

Article 57-9 of the Act also stipulates responsibilities of licensees to install facilities and equipment that contribute to improving the safety of nuclear facilities so as to prevent nuclear disasters caused by nuclear source materials/nuclear fuel materials, and by reactors; to enrich education on operational safety; and to take other necessary measures while taking into account the latest knowledge.

< Attachments >

- Reactor Regulation Act

Articles 43-3-22 and 57-9

- Commercial Reactors Ordinance

Article 75

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Module: Development of Regulations and Guides

Findings

Question 3.1

Does the legal and regulatory framework include specific provisions for the regulation of nuclear power plants?

Answer

Yes

Finding

The legal and regulatory framework includes specific provisions for the regulation of nuclear power plants.

Response

<ATTACHMENTS>

the Reactor Regulation Act and the Commercial Reactors Ordinance

Attachments

B01The Atomic Energy Basic Act

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.1.1

What is the legal status of nuclear safety regulations and guides issued by the regulatory body?

Subsidiary Response

The Japanese legal system for nuclear regulation is developed with the Atomic Energy Basic Act at the top, which defines the basic principles for utilizing nuclear energy. Under that Act, the Reactor Regulation Act stipulates the regulatory framework for nuclear energy and the NRA Establishment Act defines the mandate of the regulatory body.

The NRA develops regulations for implementing these laws in the form of the NRA ordinances.

In July 2013, the NRA developed the Commercial Reactor Establishment Permit Ordinance, the Commercial Reactor Technical Standards Ordinance, and other requirements as the NRA ordinances. These Ordinances and related guides are used in the conformity review of commercial reactors as the requirements.

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 3.1.2

What is the process in place for establishing regulations and guides in a timely manner?

Subsidiary Response

The NRA has an authority to regulations and guides for nuclear power plants based on safety related information.

The NRA has an established mechanism to collect operating and regulatory experiences, as well as its own safety research. Under this mechanism, the NRA collects such information in Japan and overseas, identifies those relevant to nuclear safety through primary screening, and receives advice from the Committee on Examination of Reactor Safety and the Committee on Examination of Nuclear Fuel Safety. Through this mechanism, any matters deemed to require regulatory action are classified as “technical information requiring action”, and are accordingly reflected in regulatory activities.

The NRA endorses industrial codes and quotes them in its regulatory guides. The NRA is endorsing the relevant industrial standards in accordance with “Use of industrial standards by the NRA” (June 19, 2013), which defines the way of endorsement and decides to have reviews only in terms of the appropriateness of the technical specifications of the industrial standards, and “Plan for endorsing industrial standards” (Aug. 28, 2013).

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 3.1.3

What other authorities (apart from the regulatory body) are involved in the development of nuclear safety regulations?

Subsidiary Response

Regulations for nuclear safety of nuclear power plants are solely developed by the NRA.

<ATTACHMENTS>

The NRA Establishment Act

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Question 3.2

Does the regulatory body have in place appropriate arrangements and resources for the elaboration of nuclear safety requirements for nuclear power plants?

Answer

Yes

Finding

The regulatory body has appropriate arrangements and resources for the elaboration of nuclear safety requirements for nuclear power plants.

Response

<ATTACHMENTS>

The NRA Establishment Act and the NRA Organizing Ordinance

Attachments

B01The Atomic Energy Basic Act

C12 NRA Organization Ordinance(For SARIS module 3)

H02The Act for Establishment of the Nuclear Regulation Authority

Subsidiary Question 3.2.1

What are the processes in place and the resources devoted by the regulatory body to the development of nuclear safety requirements for nuclear power plants?

Subsidiary Response

The Regulatory Standard and Research Division is responsible for the development of safety requirements by the NRA Organizing Ordinance.

In developing these requirements, the results of safety research, and the advice from external experts if necessary, are also reflected.

The NRA has an established mechanism to collect and utilize the information on operating and regulatory experiences, as well as its own safety research. The collected and evaluated information are regularly discussed in Technical Information Committee, and the Committee

on Examination of Reactor Safety and the Committee on Examination of Nuclear Fuel Safety in order to reflect them into regulations and follow up on the progress.

The appropriate number of personnel is assigned if necessary within the NRA Secretariat for the development of the requirements and guides. The NRA's activities are fully funded by the national government.

<ATTACHMENTS>

The NRA Establishment Act and the NRA Organizing Ordinance

Subsidiary Attachments

C12 NRA Organization Ordinance(For SARIS module 3)

H02The Act for Establishment of the Nuclear Regulation Authority

Question 3.3

Is the system of regulations in place commensurate with the complexity and risk of nuclear facilities, including nuclear power plants?

Answer

Yes

Finding

The system of regulations is commensurate with the complexity and risk of nuclear facilities, including nuclear power plants.

Response

<ATTACHMENTS> *The Atomic Energy Basic Act*

Attachments

B01The Atomic Energy Basic Act

Subsidiary Question 3.3.1

How has the regulatory body ensured that the regulations and guides cover all aspects (technical as well as administrative) important to the safety of nuclear power plants?:

Subsidiary Response

In July 2013, the NRA developed new regulatory requirements incorporating lessons learned from TEPCO Fukushima Dai-ichi Accidents. They require due consideration of severe natural hazards unique to Japan, and measures covering both design basis accidents and beyond design based accidents.

In the process of developing these new requirements, the NRA took the reference to IAEA Safety Standards and other member states' requirements, and confirmed that our requirements are in accordance with those references.

The Atomic Energy Basic Act explicitly stipulates that nuclear safety be ensured in accordance with established international standards.

The NRA continues to participate in all the activities under the IAEA's Commission on Safety Standards (CSS), CNRA of the OECD/NEA. The NRA also continues to invite review missions such as IRRS.

Subsidiary Attachments

B01The Atomic Energy Basic Act

C01 Basic Act on Disaster Control Measures

Subsidiary Question 3.3.2

How has the regulatory body established an adequate regulatory framework for all the stages of a nuclear power plant project (i.e. siting, design, construction, manufacturing and installation, commissioning, operation and decommissioning)?

Subsidiary Response

The Japanese legal system for use of nuclear energy is developed with the Atomic Energy Basic Act at the top, which defines the basic principles for utilizing nuclear energy.

The Reactor Regulation Act stipulates regulations for the facilities and activities associated with the use of nuclear energy at all the stages including siting and basic design, construction, manufacturing, commissioning, operation, decommissioning. The NRA Establishment Act defines the mandate of the regulatory body.

The NRA develops the necessary NRA ordinances to implement the Reactor Regulation Act.

<ATTACHMENTS> the Reactor Regulation Act

Subsidiary Attachments

C01 Basic Act on Disaster Control Measures

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.3.3

What are the regulatory requirements applied to the site evaluation in order to confirm the acceptability of a site and the related data to be used in the design of NPPs?

Subsidiary Response

The site-specific characteristics affecting the safety of a nuclear power plant are evaluated in the NRA's review for an establishment permit. Licensees are required to conduct a thorough investigation on possible external hazards, and to design the nuclear power plant by taking into account of the impact of those external hazards.

The Commercial Reactor Establishment Permit Ordinances requires that commercial reactor facilities shall be installed on the ground so that safety functions shall not fail when having the maximum estimated seismic forces. That ordinance stipulates the requirements for other external hazards such as tsunamis or external fires.

With regard to the effects of the release of radioactive materials at the site border, for example, under severe accidents, the NRA guideline requires to evaluate the effectiveness of measures for maintaining containment vessel function (e.g. use of venting system) with the conditions of the limited impacts at the site border (approximately 5 mSv).

With regard to the requirement to have an emergency plan for the external zone as required in NS-R-3, the Basic Act for Disaster Control Measures and the Act for Special Measures Concerning Nuclear Emergency Preparedness ensure the establishment of such emergency plan.

The emergency plan is developed with consideration of the evaluation of possible effects by the radioactive materials released from the nuclear power plant taking into accounts the site characteristics.

However, the following challenges are identified:

- Site characteristics which were applied for an establishment permit or equivalent authorization should be reassessed during the lifetime of a nuclear installation. However, currently, in conducting self-assessment for continuous improvement of safety, only seismic and tsunami hazards are required for reassessment.

- The potential risk of nuclear installation to the outside of its site should be assessed based on the investigations of the site characteristics covering sufficient areas outside the nuclear installations.

Subsidiary Attachments

C01 Basic Act on Disaster Control Measures

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L03 The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 3.3.4

What are the regulatory requirements concerning the design of NPPs?

Subsidiary Response

The Reactor Regulation Act (Article 43-3-6) requires licensees to have an NRA's permit for the establishment of a nuclear power plant in accordance with the relevant requirements. The requirements cover basic design of SSCs to prevent the accidents.

That act requires licensees to have an NRA's approval for construction plan of SSCs, following the establishment permit. These approvals are necessary for starting pre-service inspections of those SSCs.

However, the following challenge is identified.

The dismantling plan of the authorized SSCs should not be reviewed when that dismantling work may result in releasing nuclear materials with possible exposure beyond the dose limit to the public (1 mSv/year) at the site boarder.

<ATTACHMENTS> the Reactor Regulation Act

Subsidiary Attachments

C01 Basic Act on Disaster Control Measures

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.3.5

What are the regulatory requirements concerning the construction of NPPs?

Subsidiary Response

The Reactor Regulation Act requires to have an NRA's approval of construction plans, and construction plans are required to comply with the requirements of the Commercial Reactor Technical Standards Ordinance and with the establishment permit .

Before commissioning, SSCs which have approvals for their construction plans shall have NRA pre-service inspections.

The Reactor Regulation Act (Article 43-3-11) requires to have pre-service inspection, and its ordinance defines those regulatory inspections for the following 5 stages.

(1) When the structure, strength, or leakage of the reactors, fuel handling facilities, and reactor cooling system can be tested, inspections for materials, dimensions, external appearance, pressure resistance and leak test shall be conducted.

(2) When the installation of the lower half of the steam turbine compartment is installed, inspections for materials, dimensions, external appearance, pressure resistance and leak test shall be conducted.

(3) When fuel assemblies can be loaded into the core, inspections for SSCs shall be performed.

(4) When the criticality of the reactor becomes possible, performance test for main system which is necessary to reach criticality such as main reactor, coolant system and I&C system shall be performed.

(5) When the construction is completed, the final comprehensive performance test at power operating condition shall be performed.

Requirements for quality assurance at the detail design and construction phases are defined in the Commercial Reactors QMS Ordinance.

<ATTACHMENTS> the Reactor Regulation Act, Commercial Reactor Technical Standards Ordinance, the Commercial Reactors QMS Ordinance

Subsidiary Attachments

C01 Basic Act on Disaster Control Measures

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Subsidiary Question 3.3.6

What are the regulatory requirements concerning the commissioning of NPPs?

Subsidiary Response

Commissioning is subject to the same regulatory requirements as in the construction in SQID 3.5.

Licensee can commission after completing the pre-service inspection in Stage (2).

<ATTACHMENTS> the Commercial Reactor Ordinance

Subsidiary Attachments

B01The Atomic Energy Basic Act

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 3.3.7

What are the regulatory requirements concerning the operation of NPPs?

Subsidiary Response

The first cycle operation is subject to the same regulatory requirements as in the commission in SQID 3.6.

Operation can begin after confirmation of the final pre-service inspection (5) (comprehensive performance test) based upon the Commercial Reactor Ordinance, Article 16.

Prior to commencing the operation, the operational safety program including the operational limits and conditions need to be approved based upon the Reactor Regulation Act, Article 43-3-24.

The licensee must comply with the Operational Safety Program and its compliance is reviewed by the Operational Safety Program.

When a violation to the operational safety program, the NRA may order the licensee to take appropriate actions or order the licensee to shut down the plant depending on the situation.

As for the second and later cycle operation, Article 43-3-15 of the Reactor Regulation Act stipulates the periodic facility inspection, and Article 43-3-16 stipulate periodic safety management reviews.

The operation cannot resume without issuance of the certificate of completion for the periodic facility inspections. Under periodic safety management reviews, licenses are required to conduct their own inspections and to undergo the NRA's review for licensee's implementation system of the inspections.

<ATTACHMENTS> the Commercial Reactor Ordinance, the Reactor Regulation Act,

Subsidiary Attachments

C01 Basic Act on Disaster Control Measures

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.3.8

What are the regulatory requirements concerning the decommissioning of NPPs?

Subsidiary Response

Licensee shall develop a decommission plan and have an NRA's approval in order to dismantle a nuclear power plant facility, transfer nuclear fuel materials to another party, perform decontamination, or take other measures associated with decommissioning.

Prior to decommissioning for the plant, which includes dismantling of the plant, transfer of the fuel assemblies to another party, decontamination of the contaminated area, the decommissioning plan shall be submitted to and shall be approved by the NRA in accordance with Article 92, paragraph (3) of the Commercial Reactors Ordinance.

The Reactor Regulation Act requires to have an NRA's confirmation of the completion of decommissioning based on the NRA requirements (Article 43-3-33, paragraph (3) and its reference the article 12-6, paragraph (8)).

The regulatory framework for decommissioning is in principle well developed. However the specific criteria for confirming the completion of decommissioning (site release) of nuclear facilities and method to confirm compliance with these criteria should be developed.

<ATTACHMENTS> Commercial Reactors Ordinance, the Reactor Regulation Act

Subsidiary Attachments

C01 Basic Act on Disaster Control Measures

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.3.9

What are the regulatory requirements specifically addressing the management of safety for nuclear power plants?

Subsidiary Response

All the licensees' safety management activities shall comply with the operational safety program which is submitted to and approved by the NRA prior to the initiation of operation. The NRA regularly inspects its compliance status.

The operational safety program defines the operational limits, requirements for the operation, maintenance, inspections, and tests of SSCs, as well as the necessary responsive measures to accidents or foreseeable events associated with the operation.

<ATTACHMENTS>

The Reactor Regulation Act, Article 43-3-24

Subsidiary Attachments

C01 Basic Act on Disaster Control Measures

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.3.10

Has the regulatory body defined safety principles and associated criteria, including radiological protection targets and limits, for the nuclear power plants? Please provide the relevant regulatory requirements.

Subsidiary Response

Yes.

With regard to public exposure, Article 29 of the Commercial Reactor Establishment Permit requires that air dose rates around a plant caused by direct gamma rays be reduced adequately according to the ALARA concept.

With regard to occupational exposure, the Reactor Regulation Act and its ordinances and notices define the necessary radiation protection measures at nuclear power plants, and the licensees are required to maintain the occupational exposure below the defined dose limit. These requirements for radiation protection are developed while respecting the ICRP recommendations and the IAEA BSS.

<ATTACHMENTS> The Reactor Regulation Act, the Commercial Reactor Establishment Permit Ordinance

Subsidiary Attachments

B01The Atomic Energy Basic Act

C01 Basic Act on Disaster Control Measures

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 3.4

Do regulations provide a framework for more detailed conditions and requirements to be incorporated into individual authorizations/licences for nuclear power plants?

Answer

Yes

Finding

The regulations provide a framework for more detailed conditions and requirements to be incorporated into individual authorizations/licences for nuclear power plants.

Response

<ATTACHMENTS> *The Atomic Energy Basic Act, The Reactor Regulation Act*

Attachments

B01The Atomic Energy Basic Act

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 3.4.1

What are the typical requirements or categories of requirements established by means of conditions attached to an authorization/licence for a nuclear power plant?

Subsidiary Response

The approved construction plans and operational safety programs shall comply with the establishment permit.

Article 62-2 of the Reactor Regulation Act allows the NRA to attach conditions for issuing an authorization.

When some modifications are found necessary or preferable in a the review process, the licensees usually modify the application by reflecting the findings, rather than receiving some conditions for approval.

<ATTACHMENTS> *The Reactor Regulation Act*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 3.5

Does the regulatory body issue nuclear safety guides (non-mandatory), as necessary, to supplement the regulations for NPPs?

Answer

Yes

Finding

The regulatory body issues nuclear safety guides, as necessary, to supplement the regulations for NPPs.

Response

Regulations are supplemented by standards review plans or guides, which are developed in accordance with the Administrative Procedure Act (e.g. regulatory guide on the Commercial Reactor Establishment Permit, regulatory guide on the Commercial Reactor Technical Standards Ordinance), as well as guides for supplementing these regulatory guides (e.g., review guides for evaluating the effectiveness of measures to prevent core damage and containment failure of commercial reactors).

Attachments

B01The Atomic Energy Basic Act

H11Administrative Procedure Act

Subsidiary Question 3.5.1

What are the aspects covered by the nuclear safety guides issued by the regulatory body?

Subsidiary Response

The NRA establishes the NRA Ordinances necessary for implementing the Reactor Regulation Act. The relationship between the authorizations required by the Reactor Regulation Act and the requirements are presented in the appendix of SARIS summary report.

Various guides are developed for supplementing the review of the applications for an establishment permit, such as the regulatory guides the Commercial Reactor Establishment Ordinance, guides on fire protection, guides for evaluating volcanoes, or guides for evaluating the technical competences of licensees' in responding to severe accidents.

The NRA develops the regulatory guide on the Commercial Reactor Technical Standards, standards review plans for operational safety programs, and other supplementary guides, and these guides are applied for the approval of construction plans, pre-service inspections, periodic facility inspections, and approval of operational safety programs.

<ATTACHMENTS> The Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

Subsidiary Question 3.5.2

How are the regulatory guides on nuclear safety used in the licensing process?

Subsidiary Response

Licensees are required to show that their methodologies applied in the safety design are in accordance with the relevant regulatory guides.

If licensees decide to use different methodologies, the NRA reviews the adequacy of the methodologies on case by case basis with the reference to the relevant regulatory guides.

Subsidiary Attachments

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

Question 3.6

In the development of regulations and guides for NPPs, does the Regulatory Body take into consideration comments from interested parties and feedback based on experience?

Answer

Yes

Finding

In the development of regulations and guides for NPPs, the regulatory body takes into consideration comments from interested parties and feedback based on experience.

Response

<ATTACHMENTS> *The Administrative Procedure Act*

Attachments

B01The Atomic Energy Basic Act

H11Administrative Procedure Act

Subsidiary Question 3.6.1

What is the mechanism available for obtaining comments and feedback from interested parties (such as the public, industry, technical support organizations, other governmental bodies, etc.)?

Subsidiary Response

Any administrative measures, procedures for administrative guidance and notifications, and procedures for orders by administrative agencies of the government are subject to the Act for Administrative Procedure. The NRA solicits public comments in deciding on administrative measures, procedures for administrative guidance and notifications, and procedures for orders, pursuant to Article 39 of the Administrative Procedure Act, which enable the NRA to incorporate diverse opinions from various stakeholders.

The NRA may ask for opinions from other related government organizations.

The NRA makes efforts to expand opportunities to have opinions of the public, by soliciting public comments even when it is not required by the Administrative Procedure Act.

For instance, the NRA solicited public comments when it developed a draft outline of the new regulatory requirements in 2013, and a draft evaluation report for establishment permit modification, for the first time, based on the new regulatory requirements in 2014, although the Administrative Procedure Act does not require.

The NRA may request comments from licensee for the important matters. The NRA held several public hearings with licensees, when it was developing new regulatory requirements.

<ATTACHMENTS> the Administrative Procedure Act

Subsidiary Attachments

H11Administrative Procedure Act

Subsidiary Question 3.6.2

How are the interested parties informed of the mechanism for providing comments and feedback in the process of development of regulations and guides?

Subsidiary Response

The NRA commissioner meeting decides on a draft documents for public comments. These meetings are open to the public, broadcast live on the Internet and recorded video is available on the NRA web-site. Materials used for such meetings are instantly made available to the public and licensees via the NRA's website after their start, which gives licensees and the public instant access to the information.

The NRA website has the announcement for solicitation of public comments on its top page.

Subsidiary Attachments

H11Administrative Procedure Act

Subsidiary Question 3.6.3

Where nuclear, environmental, industrial safety and occupational health aspects are regulated by separate authorities, what are the arrangements for cooperation between these authorities?

Subsidiary Response

The NRA Establishment Act enables the NRA to undertake the tasks for nuclear safety regulations in an integrated manner. Therefore, there is no need for coordination with other agencies for nuclear safety in principle (Articles 1, 3, and 4).

If the same regulation is enforced by different authorities, then the necessary coordination is made among those authorities.

For instance, staff of other administrative agencies may participate to Radiation Council which aims to harmonize the technical standards on radiation protection.

<ATTACHMENTS> the NRA Establishment Act

Subsidiary Attachments

H02The Act for Establishment of the Nuclear Regulation Authority

Question 3.7

Does the regulatory body review and revise the regulations and guides to keep them up to date?

Answer

Yes

Finding

The regulations and guides are reviewed and revised and kept up to date.

Response

<ATTACHMENTS> the Atomic Energy Basic Act

Attachments

B01The Atomic Energy Basic Act

Subsidiary Question 3.7.1

How does the regulatory body take into account the relevant international safety standards in the review and revision of the national regulations and guides applicable to nuclear power plants?

Subsidiary Response

The NRA made due reference to and comparison of IAEA Safety Standards and other countries' regulatory criteria when it developed new regulatory standards while keeping in mind Article 2, Paragraph (2) of the Atomic Energy Basic Act which stipulates that "safety must be ensured in line with established international standards."

The NRA also participates in the revision process for IAEA Safety Standards through the Commission on Safety Standards (CSS) and the subordinate Nuclear Safety Standards Committee (NUSSC) in order to actively incorporate ideas from Japan into the revision. The NRA reflects the IAEA's concepts into Japanese safety standards in principle.

<ATTACHMENTS> the Atomic Energy Basic Act

Subsidiary Attachments

Subsidiary Question 3.7.2

How does the regulatory body ensure that the technological advances, research and development work, relevant operational lessons learned, and institutional knowledge, are taken into account in the review and revision of the regulations and guides applicable to nuclear power plants?

Subsidiary Response

(1) In order to reflect various experiences from the operation of nuclear power plants, the NRA collects the information on incidents and accidents shared by the U.S. NRC and IAEA, as well as non-conformance information in Japan, and identifies “technical information requiring action”. This information is discussed by the Technical Information Committee under the Secretariat of the NRA to compile a proposal of policies in response to these experiences. The Committee on Examination of Reactor Safety and Committee on Examination of Nuclear Fuel Safety deliberates on these information and provide advice. The NRA commissioner meeting decides on actions for the information taking into accounts their advice.

On 9 July 2014, the regulatory guides on the Commercial Reactor Establishment Permit and the Commercial Reactor technical standards were modified based on the NRC report which introduced the operation experience that involved the loss of one of the three phases of the offsite power circuit (single-phase open circuit condition) at Byron Station, Unit 2, in Jan. 2012.

(2) The NRA specifies key areas of safety research and sets priorities among them for addressing challenges to nuclear safety regulation. It conducts an annual evaluation of the progress in safety research and of the status of the incorporation of research outcomes into nuclear safety regulation, which enables the improvements of safety research when necessary. Thus safety research is effectively reflected in the regulatory framework.

(3) The NRA decides to use industrial standards by endorsing them and quote them in its regulatory guides, as the former NISA did since January 2006, while keeping the requirements as performance-based.

Subsidiary Attachments

Module: Review and Assessment

Findings

Question 4.1

Does the regulatory body perform reviews and assessments for each of the stages (siting, design, construction, commissioning, operation, decommissioning and release from regulatory control) of the lifetime of a nuclear power plant?

Answer

Yes

Finding

The regulatory body performs reviews and assessments for each of the stages of the lifetime of a nuclear power plant.

Response

-

Subsidiary Question 4.1.1

What are the legal provisions governing the review and assessment for nuclear power plants?

Subsidiary Response

the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.2

What are the licensing submissions required by the regulatory body for review and assessment during the various stages (siting, design, construction, commissioning, operation, decommissioning and release from regulatory control) of a nuclear power plant project?

Subsidiary Response

[Permission for the installation]

Regarding regulatory requirements on the items and contents to be provided by the applicants in the application for the permission for the installation of a nuclear power plants, Article 43-3-5 of the Reactor Regulation Act specifies what items to be included, Article 20-2 of the Reactor Regulation Enforcement Cabinet Order specifies that the required documents be attached and Article 3 of the Commercial Reactors Ordinance specifies what information to be included and what types of documents to be attached.

[Approval of plan for construction work]

Regarding regulatory requirements on the items and contents to be provided by the applicants in the application for the approval of plan for construction work of a nuclear power plants, Article 43-3-9 of the Reactor Regulation Act specifies that the application be made in accordance with the rules. Article 9 and Annexed Table 2 of the Commercial Reactors Ordinance specifies what items and contents to be included and what documents to be attached.

[Operational safety programs]

Paragraph 1 of Article 43-3-24 of the Reactor Regulation Act requires that the 'Application for the Approval of Operational Safety Programs (or amends to Operational Safety Programs) for Nuclear Power Reactors' be submitted. Article 92 of the Commercial Reactors Ordinance specifies what items to be included in the application.

[Decommissioning Plans]

Paragraph 1 of Article 116 of the Commercial Reactors Ordinance specifies what items to be included in the application and Paragraph 2 of Article 116 of the Commercial Reactors Ordinance specifies what types of documents to be attached to the application.

<Attachments>

[Permission for the installation]

- Article 43-3-5 of the Reactor Regulation Act*
- Article 20-2 of the Reactor Regulation Enforcement Cabinet Order*
- Article 3 of the Commercial Reactors Ordinance*

[Approval of plan for construction work]

- Article 43-3-9 of the Reactor Regulation Act*
- Article 9 and Annexed Table 2 of the Commercial Reactors Ordinance*

[Operational safety programs]

- Paragraph 1 of Article 43-3-24 of the Reactor Regulation Act*
- Article 92 of the Commercial Reactors Ordinance*

[Decommissioning measures]

- Article 116 of the Commercial Reactors Ordinance*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.3

What are the major areas of regulatory review and assessment during different stages of authorisation / licensing for nuclear power plants?

Subsidiary Response

[Permission for the installation]

The Reactor Regulation Act gives the following criteria on the regulatory review and assessment in the stage of permission for the installation of nuclear power plants:

- (i) The power reactors will not be utilized for non-peaceful purposes,*
- (ii) The applicant has sufficient technical capability and financial basis necessary for installing the power reactors,*
- (iii) The applicant has the technical capability required for taking measures necessary for preventing the occurrence and progression of a severe accident and has other technical capability sufficient for operating the power reactors competently,*
- (iv) The location, structure and equipment of the power reactors conform to the standards specified by the Ordinance of the NRA so as not to hinder the prevention of disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material, or the power reactors.*

[Approval of plan for construction work]

The Reactor Regulation Act gives the following criteria on regulatory review and assessment in the construction plan approval stage for nuclear power plants:

- (i) The plan for construction work is based on the permission for the installation,*
- (ii) Facilities of the power reactor conform to the technical standards,*
- (iii) The applicant's quality control of the design and the construction and the applicant's organization for inspections conform to the technical standards.*

[Operational safety programs]

Standard Review Plan for the Commercial Reactors Operational Safety Program specifies limiting conditions for operation, duties and organizations, quality assurance, and measures to be taken in case of emergency are specified.

[Decommissioning plans]

Article 119 of the Commercial Reactors Ordinance gives the following criteria on the regulatory review and assessment for the approval of decommissioning plans of nuclear power plants

(i) Spent fuel is removed from the core of the reactor being decommissioned.

(ii) The management and transfer of nuclear fuel material are appropriate.

(iii) The management, treatment and disposal of nuclear fuel material or material contaminated by nuclear fuel material are appropriate.

(iv) Implementation of the measures for decommissioning is appropriate to prevent disasters caused by nuclear fuel material, material contaminated by nuclear fuel material, or nuclear power reactor.

<Attachments>

[Permission for the installation]

- the Reactor Regulation Act

[Operational safety programs]

- the Commercial Reactors Operational Safety Program Standards

[Decommissioning measures]

- Article 119 of the Commercial Reactors Ordinance

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.4

How is it ensured that the staff of the regulatory body has capability to perform a thorough review of all the safety areas for a nuclear power plant project, for all the stages in the lifetime of the installation?.

Subsidiary Response

Training for new employees and training for acquiring basic knowledge and improving expertise are conducted annually in a planned manner.

The Reactor Regulation Enforcement Cabinet Order specifies the competence (knowledge and experience) required for nuclear safety inspectors and the nuclear safety inspectors who actually have the required competence conduct inspection.

To ensure the independence of the review and assessment, those who have outstanding experience and expertise in the field of nuclear power are recruited from the private sector (manufacturers, operators, engineers, academic institutions, and research institutions).

<Attachments>

- The Reactor Regulation Enforcement Cabinet Order

Subsidiary Attachments

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.1.5

What are the principles and criteria applied in the selection of technical organisations and consultants that provide support to the regulatory body for review and assessment of nuclear power plants?

Subsidiary Response

In March 2014, the NRA incorporated the Japan Nuclear Energy Safety Organization (JNES), which used to provide the NRA with technical assistance, as a result of the merger. The incorporated resources and knowledge of JNES are utilized in conducting reviews. The NRA can seek technical assistance from both the Japan Atomic Energy Agency and the National Institute of Radiological Sciences as necessary.

Subsidiary Question 4.1.6

If technical support organisations or consultants are involved in the regulatory review and assessment, what is the process used by the regulatory body for evaluating and accepting the contracted work?

Subsidiary Response

Implemented as per SQID1.5.

Question 4.2

Is the regulatory review and assessment performed taking account of the potential magnitude and nature of the hazards associated with nuclear power plants?

Answer

Yes

Finding

The regulatory review and assessment is performed taking into account the potential magnitude and nature of the hazards associated with nuclear power plants.

Response

-

Subsidiary Question 4.2.1

What types of postulated initiating events does the regulatory body require to be considered in the safety assessment of nuclear power plants?

Subsidiary Response

[Permission for the installation]The Commercial Reactors Ordinance and the Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities specify initiating events to be considered in the items concerning the provision of necessary facilities and systems to cope with the accidents with significant core degradation or other accidents provided in Item 10 of Paragraph 2 of Article 43-3-5 of the Reactor Regulation Act as follows.

○ Anticipated operational occurrences

(1) Abnormal change in reactivity or power distribution in the core

(2) Abnormal change in heat generation or heat removal in the core

(3) Abnormal change in reactor coolant pressure or reactor coolant inventory

(4) Other events necessary for assessment depending on the design of the nuclear reactor

○ Design basis accidents

(1) Loss of coolant accident or rapid change in core cooling

(2) Abnormal reactivity insertion or rapid change in reactor output

(3) Abnormal release of radioactive material to the environment

(4) Abnormal change in pressure, atmosphere, etc. of the containment

(5) Other events necessary for assessment depending on the design of the nuclear reactor

○ Accidents that may lead to severe accidents or severe accidents

(1) Significant core degradation

(2) Significant degradation of fuel assemblies or spent fuel stored in the nuclear fuel material storage facilities.

[Operational safety programs]

The system to maintain the safety of nuclear reactors in case of design basis accidents, fire, internal flooding, severe accident or large scale destruction is required to be provided in operational safety programs.

[Decommissioning Plans]

A document explaining type, severity, impact, and other details of accidents anticipated caused by mistakes during decommissioning, failures of machines or equipment, earthquakes, fire, etc. is required to be attached to the decommissioning plan.

<Attachments>

[Permission for the installation]

- Item 10 of Paragraph 2 of Article 43-3-5 of the Reactor Regulation Act

- the Commercial Reactors Ordinance

-the Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

[Operational safety programs]

- Article 92 of the Commercial Reactors Ordinance

[Decommissioning measures]

- Item 4 of Paragraph 2 of Article 116 of the Commercial Reactors Ordinance

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H24Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

Subsidiary Question 4.2.2

What are the main aspects of interest for the regulatory review and assessment of the adequacy of the design basis for a nuclear power plant?

Subsidiary Response

[Permission for the installation]

The adequacy of the design basis of a nuclear power plants is reviewed for plant states (1) Anticipated operational occurrence (AOO), (2) design basis accidents (DBA), and (3) accidents that may lead to severe accidents or severe accidents (SA) from the following viewpoints.

(1) AOO

Facilities necessary to implement measures and conditions set for the analysis of the progression and the consequence are evaluated based on Item 7-a of Paragraph 1 of Article 3 of the Commercial Reactors Ordinance for each events listed in the Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities which are categorized as listed below, for example:

- Abnormal change in reactivity or power distribution in the core*
- Abnormal change in heat generation or heat removal in the core*
- Abnormal change in reactor coolant pressure or reactor coolant inventory*

(2) DBA

Facilities necessary to implement measures and conditions set for the analysis of the progression and the consequence are evaluated based on Item 7-b of Paragraph 1 of Article 3 of the Commercial Reactors Ordinance for each events listed in the Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities which are categorized as listed below, for example:

- Loss of coolant accidents or rapid change in core cooling*
- Abnormal reactivity insertion or rapid change in reactor output*
- Abnormal release of radioactive material to the environment*
- Abnormal change in pressure, atmosphere, etc. of the containment*

(3) SA

Facilities necessary to implement measures and conditions set for the analysis of the progression and the consequence are evaluated based on Item 7-c of Paragraph 1 of Article 3 of the Commercial Reactors Ordinance for each events, listed below, for example:

- The effectiveness of measures to prevent degradation of the core and the containment*
- The effectiveness of measures to prevent degradation of fuel in the spent fuel pool*
- The effectiveness of measures to prevent degradation of fuel while the reactor not in operation*

In addition, based on Item 3 of Article 43-3-6 of the Reactor Regulation Act, it is verified whether the applicant has the technical capabilities required for taking measures to prevent the progression of a severe accident (significant degradation of the core or other severe accidents specified by the Ordinance of the NRA) and those sufficient to operate power reactors competently.

[Approval of plan for construction work]

It is verified whether the detailed designs conform to the technical standards pursuant to Article 43-3-14 of the Reactor Regulation Act and whether the safety functions verified in the stage of permission for the installation are realized.

[Operational safety programs]

A review is conducted whether the operational safety programs conform to the Standard Review Plan on Commercial Reactors Operational Safety Program Standards and whether they are not insufficient for the prevention of disasters.

[Decommissioning plans]

With regard to decommissioning plans, review and assessment on the conformance to the following approval criteria are conducted:

- (i) Spent fuel is removed from the core of the reactor being decommissioned.*
- (ii) The management and transfer of nuclear fuel material are appropriate.*
- (iii) The management, treatment and disposal of nuclear fuel material or material contaminated by nuclear fuel material are appropriate.*
- (iv) Implementation of the measures for decommissioning is appropriate to prevent disasters caused by nuclear fuel material, material contaminated by nuclear fuel material, or nuclear power reactor.*

(Article 119 of the Commercial Reactors Ordinance)

[Operational safety programs]

With regard to amendment to operational safety programs, it is reviewed and assessed whether the operational safety programs are not insufficient to prevent disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material, or nuclear power reactors. (Paragraph 2 of Article 43-3-24 of the Reactor Regulation Act)

In addition, the following standard review plans are used for the review and assessment:

○ Standard review plan on operational safety programs

- Establishment of standard review plan on Operational Safety Programs for Nuclear Power Reactors in the Decommissioning Stage (Genkan-Haihatsu No. 13112715, issued on November 27, 2013)

○ Standard review plan on decommissioning plans

- Establishment of Standard Review Plan on Decommissioning Plans for Nuclear Power Reactors and Testing/Research Reactors (Genkan-Haihatsu No. 13112716, issued on November 27, 2013)

<Attachments>

[Permission for the installation]

(1) Abnormal transients during operation

- Item 7-a of Paragraph 1 of Article 3 of the Commercial Reactors Ordinance

- the regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

(2) Design basis accidents

- Item 7-b of Paragraph 1 of Article 3 of the Commercial Reactors Ordinance

- the Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

(3) Accidents likely to develop into severe accidents, or severe accidents

- Item 7-c of Paragraph 1 of Article 3 of the Commercial Reactors Ordinance

- Item 3 of Article 43-3-6 of the Reactor Regulation Act

[Approval of plan for construction work]

- Article 43-3-14 of the Reactor Regulation Act

[Operational safety programs]

- the Commercial Reactors Operational Safety Program Standards

[Decommissioning measures]

- Article 119 of the Commercial Reactors Ordinance
- Paragraph 2 of Article 43-3-24 of the Reactor Regulation Act

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H24Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

Subsidiary Question 4.2.3

How does the regulatory body review the safety analyses for design basis accidents for nuclear power plants?

Subsidiary Response

[Permission for the installation]

Based on the Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities, documents review and interviews with the licensee are conducted and analysis to confirm the validity of licensees' evaluation methods is conducted, if necessary.

[Decommissioning plans]

With regard to nuclear power reactors in decommissioning stage, reviews are conducted postulating events anticipated to occur under certain conditions of the facilities such as existence of nuclear fuel material, etc. in accordance with the standard review plan on decommissioning plans (Establishment of Standard Review Plan on Decommissioning Plans

for Nuclear Power Reactors and Testing/Research (Genkan-Haihatsu No. 13112716, established by the NRA in 2013)).

<Attachments>

[Permission for the installation]

the Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

Subsidiary Attachments

H24Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

Subsidiary Question 4.2.4

How does the regulatory body review the safety analyses for selected accident sequences beyond the design basis, including severe accidents?

Subsidiary Response

[Permission for the installation]

To implement Article 37 of the Commercial Reactor Establishment Permit Ordinance, in addition to the mandatory accident sequence groups, those identified based on the probabilistic risk assessment (PRA) of individual plants on internal events and on external events (those applicable), etc. be assessed to prevent the progression of severe accidents based on the review guides below:

- Guideline for Evaluation of Effectiveness of Measures to Prevent Core Damage Containment Vessel Function Failure of Commercial Power Reactors (Genki-Gihatsu No. 13061915, dated June 19, 2013)

- Guideline for Evaluation of Effectiveness for Measures to Prevent Fuel Damage in Spent Fuel Storage Pool of Commercial Power Reactors (Genki-Gihatsu No. 13061916, dated June 19, 2013)

- Guideline for Evaluation of Effectiveness of Measures to Prevent Fuel Damage of Commercial Power Reactors during Shutdown (Genki-Gihatsu No. 13061917, dated June 19, 2013)

[Decommissioning measures]

With regard to nuclear power reactors in the decommissioning stage, a review against severe accidents is conducted only when nuclear fuel material is present and it is verified that an accident does not cause excessive radiation exposure to the general public in the vicinity of the facility in accordance with the standard review plan on decommissioning plans (Establishment of Standard Review Plan on Decommissioning Plans for Nuclear Power Reactors and Testing/Research Reactors (Genkan-Haihatsu No. 13112716, established by the NRA in 2013)).

<Attachments>

[Permission for the installation]

- Article 37 of the Commercial Reactor Establishment Permit Ordinance

Subsidiary Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 4.2.5

How does the review and assessment made by the regulatory body address the radiological consequences associated with the operation of nuclear power plants (including the potential for accidents)?

Subsidiary Response

[Permission for the installation]

The NRA requires that the application for permission for the installation includes the following items as the matters concerning the radiation management at the power reactor facility in accordance with Article 43-3-5 of the Reactor Regulation Act:

- *Method of controlling radiation exposure to nuclear fuel material and material contaminated by nuclear fuel material*
- *Matters regarding disposal of radioactive waste*
- *Conditions to evaluate effective dose outside of the supervised area and its results thereof*
- *Matters concerning the provision of facilities and systems necessary to respond to significant core degradation or other accidents in power reactors,*
- *Facilities necessary to implement measures against design basis accidents, conditions set to analyze the progression and the consequence of accidents assumed to occur and the results of such analysis*
- *Facilities and systems necessary to implement measures against accidents that may lead to a severe accident or against severe accident, conditions set to analyze the progression and the consequence of accidents assumed to occur and the results of such analysis.*

The NRA individually verifies the assessment of the dose at site boundary in the case of a design basis accidents and of the effectiveness of countermeasures in the case of accident sequence groups which are necessary to use devices to relieve overpressure of the containments. With regard to the release of radioactive material release in case of those accidents, the NRA requires to limits the total amount of Cs-137 released less than 100 TBq.

[Operational safety programs and Decommissioning measures]

The standard review plan specify the controlled area, measurement of dose equivalent, control of emissions, etc. The dose limit outside of the supervised area set at the site boundary is effective dose of 1 mSv per year or less, pursuant to Article 3 of the Commercial Reactors Dose Limit Notice. In addition, based on the concept of As Low As Reasonably Achievable (ALARA), the effective dose in General public around the facility is required to be less than 50 µSv per year.

<Attachments>

[Permission for the installation]

- *Article 43-3-5 of the Reactor Regulation Act*

[Operational safety programs, Decommissioning measures]

- *Article 3 of the Commercial Reactors Dose Limit Notice*

Subsidiary Attachments

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.2.6

What are the safety objectives and technical acceptance criteria used in the review and assessment of nuclear power plants' safety (including the radiological protection criteria)?

Subsidiary Response

[Permission for the installation]

The basic standards for anticipated operational occurrences, design basis accidents, and accidents that may lead to a severe accident or severe accidents are as follows:

- The Commercial Reactor Establishment Permit Ordinance*
- The Commercial Reactor Establishment Permit Guide*
- The Regulatory Guide for Reviewing Safety Design of Light Water Nuclear Power Reactors*
- The Regulatory Guide for the Annual Target of the Public Dose in the Vicinity of Light Water Nuclear Power Reactors*

[Approval of plan for construction work]

The technical standards are as follows:

- The Commercial Reactor Technical Standards Ordinance*
- The Commercial Reactor Technical Standards Guide*
- The Commercial Reactors Dose Limit Notice*
- The Off - Site Transportation Notice*

[Operational safety programs]

The safety objective is not insufficient for the prevention of disasters' (Paragraph 2 of Article 43-3-24 of the Reactor Regulation Act).

The Standard Review Plan on Commercial Reactors Operational Safety Program is used for the acceptance criteria.

[Decommissioning measures]

With regard to nuclear power reactors in the decommissioning stage, it is required that the Description on the Control of Radiation Exposure in Decommissioning be attached to the application for the approval of the decommissioning plan, and review and assessment are conducted to verify that the dose does not exceed 1 mSv per year during normal operation and 5 mSv per year in case of an accident along with the concept of ALARA.

<Attachments>

[Permission for the installation]

- The Commercial Reactor Establishment Permit Ordinance*
- The Commercial Reactor Establishment Permit Guide*
- The Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities*
- The Regulatory Guide for the Annual Dose Target for the Public in the Vicinity of Light Water Nuclear Power Reactor Facilities*

[Approval of plan for construction work]

- The Commercial Reactor Technical Standards Ordinance*
- The Commercial Reactors Dose Limit Notice*
- The Off - Site Transportation Notice*

[Operational safety programs]

- Paragraph 2 of Article 43-3-24 of the Reactor Regulation Act*
- the Commercial Reactors Operational Safety Program Standards*

Subsidiary Attachments

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

G21The Notification on Technical Details for Off-Site Transportation of Nuclear Fuel Materials, etc.

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H24Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

H25Regulatory Guide for the Annual Dose Target for the Public in the Vicinity of Light Water Nuclear Power Reactor Facilities

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

Question 4.3

Has the Regulatory Body defined its safety review and assessment principles and the associated criteria on which its judgements and decisions are based?

Answer

Yes

Finding

The regulatory body has defined its safety review and assessment principles and the associated criteria on which its judgements and decisions are based.

Response

-

Subsidiary Question 4.3.1

What is the (legal) status of safety principles and criteria defined by the regulatory body in support of its review and assessment of nuclear power plants' safety and the associated regulatory decision-making process?

Subsidiary Response

The NRA establishes the Commercial Reactor Establishment Permit Ordinance in accordance with Item 4 of Paragraph 1 of Article 43-3-6 of the Reactor Regulation Act and

the Commercial Reactor Technical Standards Ordinance in accordance with Paragraph 1 of Article 43-3-14 of the Reactor Regulation Act,

the Commercial Reactors QMS Ordinance is established in accordance with Item 3 of Paragraph 3 of Article 43-3-9 of the Reactor Regulation Act, and the Commercial Reactors Fuel Technical Standard Ordinance is established in accordance with Item 2 of Paragraph 3 of Article 43-3-12 of the Reactor Regulation Act.

'<Attachments>

- Item 4 of Paragraph 1 of Article 43-3-6 of the Reactor Regulation Act*
- Paragraph 1 of Article 43-3-14 of the Reactor Regulation Act*
- Item 3 of Paragraph 3 of Article 43-3-9 of the Reactor Regulation Act*
- Item 2 of Paragraph 3 of Article 43-3-12 of the Reactor Regulation Act*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.3.2

How do the safety principles and associated criteria used in the regulatory review and assessment cover all stages of nuclear power plants?

Subsidiary Response

Criteria have been established in accordance with of the Reactor Regulation Act to cover all the stages:

(Permission for the installation) Article 43-3-5

(Criteria for the Permission) Article 43-3-6

(Notification of plan for construction work) Article 43-3-9

(Construction plan submission) Article 43-3-10

(Pre-service inspection) Article 43-3-11

(Fuel assembly inspection) Article 43-3-12

(Periodic facility inspection) Article 43-3-15

(Operation Period) Article 43-3-32

(Measures associated with decommissioning) Article 43-3-33

<Attachments>

(Permission for the installation) Article 43-3-5 of the Reactor Regulation Act

(Criteria for the Permission) Article 43-3-6 of the Reactor Regulation Act

(Notification of plan for construction work) Article 43-3-9 of the Reactor Regulation Act

(Construction plan submission) Article 43-3-10 of the Reactor Regulation Act

(Pre-service inspection) Article 43-3-11 of the Reactor Regulation Act

(Fuel assembly inspection) Article 43-3-12 of the Reactor Regulation Act

(Periodic facility inspection) Article 43-3-15 of the Reactor Regulation Act

(Operation Period) Article 43-3-32 of the Reactor Regulation Act

(Measures associated with abolition of power reactors) Article 43-3-33 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.3.3

How does the regulatory body ensure that the principles and criteria used in the regulatory review and assessment are clear and unambiguous?

Subsidiary Response

The criteria used in the regulatory review and assessment have been clearly established in accordance with Article 43-3-5 and other provisions of the Reactor Regulation Act.

In addition, interpretations of the criteria which provide the details of the meaning of each criteria have been established.

<Attachments>

Article 43-3-5 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.3.4

How does the regulatory body obtain feedback from the operators and other stakeholders when establishing the principles and associated criteria for regulatory review and assessment of nuclear power plants' safety?

Subsidiary Response

When new regulatory criteria for light water nuclear power reactors were being established, the team organized to study them criteria heard opinions on the proposed criteria from licensees.

In addition, before criteria are going to be established or revised, public comments are solicited for 30 days widely from the public, by means of e-government, post and fax, in accordance with the Administrative Procedure Act or the decision by the commission of NRA.

<Attachments>

the Administrative Procedure Act

Subsidiary Attachments

H11Administrative Procedure Act

Subsidiary Question 4.3.5

What kind of documents are issued by the regulatory body to provide guidance on principles and criteria used by it for review and assessment of nuclear power plants?

Subsidiary Response

The interpretation of the Commercial Reactor Establishment Ordinance, of the Commercial Reactor Technical Standards Ordinance and of the Commercial Reactors QMS Guide, and

Standard Review Plans (including guides on assessments of the impact of volcano, tornado, external fire, etc.) are available as guides for the principles and criteria used to review applications for licenses and approvals of nuclear power plants,.

On the other hand, it's necessary to establish more review guides regarding authorizations and approvals of applications for nuclear power plants.

<Attachments>

- the Commercial Reactor Establishment Permit Guide

Subsidiary Attachments

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

Subsidiary Question 4.3.6

How does the regulatory body ensure that the principles and criteria used used in the regulatory review and assessment are in line with international safety standards (e.g. IAEA Safety Standards) and relevant good practices?

Subsidiary Response

The NRA constantly monitors the consistency of its regulatory criteria or standards with international standards and tries to incorporate them.

In the process to draft new regulatory requirements, comparison with IAEA safety standards and those of foreign countries would be an examples of good practice.

Example: Reference document 6 used at the 1st meeting of the team organized to study new regulatory requirements for light water nuclear power reactors (International safety standards were used as a benchmark.)

Subsidiary Question 4.3.7

What methodologies and tools are used by the regulatory body in the review and assessment of nuclear power plants' safety?

Subsidiary Response

Analytical codes are developed and maintained in the safety researches to review operators' safety analyses. Analytical codes are also implemented through an international research cooperation.

Example: severe accident analytical code (MELCOR)

Question 4.4

Does the Regulatory Body perform a thorough review and assessment of the operator's technical submission in order to determine whether the nuclear power plant complies with the relevant safety objectives, principles and criteria?

Answer

Yes

Finding

The regulatory body performs a thorough review and assessment of the operator's technical submission in order to determine whether the nuclear power plant complies with the relevant safety objectives, principles and criteria.

Response

-

Subsidiary Question 4.4.1

What approaches/methodologies are used by the regulatory body (such as deterministic, probabilistic or a combination of both) for the review and assessment of submissions made by the operators during various stages of nuclear power plants?

Subsidiary Response

[Permission for the installation]

Reviews for permission for the installation are conducted using guides and other documents through document reviews, interviews with licensees and the analysis to confirm the validity of valuation methods, if needed. The deterministic approach is used basically, but the probabilistic approach is also used complimentary in combination with the deterministic approach.

[Approval of plan for construction work]

Reviews for approval of plan for construction work are conducted using guides and other documents through document reviews, interviews with licensees and the analysis to confirm the validity of evaluation methods, if needed.

[Decommissioning plans]

Reviews for approval of decommissioning plans are conducted using guides and other documents through document reviews, interviews with licensees and the analysis to confirm validity of evaluation methods, if needed.

Subsidiary Question 4.4.2

To what extent the regulatory body performs the verification of safety analyses?

Subsidiary Response

[Permission for the installation]

With regard to the regulatory review and assessment in the stage of permission for the installation of a nuclear power plant, criteria for licensing have been established in Article 43-3-6 of the Reactor Regulation Act and a review is conducted on conformity to the criteria. When a review is conducted, the adequacy of the assessment method, inputs, quality control policy, etc. is verified and analyses to confirm validity of the evaluation methods, if necessary.

[Approval of plan for construction work]

With regard to the regulatory review and assessment in the stage of approval of plan for construction work of a nuclear power plant, criteria for approval have been established in Article 43-3-9 of the Reactor Regulation Act and a review is conducted on conformity to the criteria. When a review is conducted, the adequacy of the assessment method, inputs, quality control policy, etc. is verified and analyses to confirm validity of the evaluation methods if necessary.

[Decommissioning measures]

The safety assessment of the nuclear power reactor in the decommissioning stage is submitted together with the application for approval of the decommissioning plan, and the NRA reviews its adequacy. If changes are made to the decommissioning plan because of reflection of new knowledge, safety analyses are also reviewed as needed. The NRA reviews the adequacy of the assessment method and the adequacy of the inputs of the safety analyses, the adequacy of the quality control, etc.

<Attachments>

[Permission for the installation]

Article 43-3-6 of the Reactor Regulation Act

[Approval of plan for construction work]

Article 43-3-9 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.4.3

To what extent does the regulatory body perform inspections at the site and elsewhere to validate the claims made in applicant's submissions?

Subsidiary Response

[Permission for the installation]As necessary, on-site inspections are conducted to confirm the weather, ground, hydraulics, earthquake, social environment and other conditions of the site where the nuclear power reactor facility is going to be installed, and the feasibility of measures to prevent AOOs, DBA, and SAs.

Subsidiary Question 4.4.4

To what extent does the regulatory body perform independent calculations to check calculations performed by the applicant?

Subsidiary Response

[Permission for the installation/Approval of plan for construction work]

The applicability of the analytical code and the adequacy of its input conditions analysis to confirm validity of the evaluation methods are verified, as needed.

Subsidiary Question 4.4.5

During the review and assessment process, how does the regulatory body verify that the applicant has appropriately utilised experience feedback?

Subsidiary Response

[Permission for the installation]

In the stage of permission for the installation of a nuclear power plant, the NRA requires in the criteria of permission specified in Article 43-3-6 of the Reactor Regulation Act that the applicant have sufficient technical capability for installing a nuclear power reactor and for operating the nuclear power reactor properly. More specifically, in the document explaining technical capability for installing and operating nuclear power reactors, which is one of the documents that are required to be attached to the application for permission for the installation of nuclear power reactor or its alteration in accordance with Paragraph 2 of Article 3 of the Commercial Reactors Ordinance based on Paragraph 2 of Article 20-2 of the Reactor Regulation Enforcement Cabinet Order, the applicant is required to show its having a policy on planning, implementing, assessing, and improving activities based on a quality assurance programs that takes into account the experience of design and construction, experience of operation and maintenance, domestic and overseas examples of nonconformities, etc.

<Attachments>

- Article 43-3-6 of the Reactor Regulation Act*
- Paragraph 2 of Article 20-2 of the Reactor Regulation Enforcement Cabinet Order*
- Paragraph 2 of Article 3 of the Commercial Reactors Ordinance*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.4.6

How does the regulatory body review and assess the competence and capability of the operator, necessary for the safe management of activities (e.g. construction, operation, etc.) at the nuclear power plant?

Subsidiary Response

[Permission for the installation]

The document explaining technical capability for installing and operating nuclear power reactors, which is one of the documents required to be attached in accordance with Paragraph 2 of Article 20-2 of the Reactor Regulation Enforcement Cabinet Order and Paragraph 2 of Article 3 of the Commercial Reactors Ordinance, is reviewed based on the Regulatory Guide for Reviewing the Technical Capability of Licensees of Nuclear Energy-related Activities (dated May 27, 2004, approved by the Nuclear Safety Commission).

Matters relating to the development of facilities and systems to address severe degradation of t core and other accidents specified in Item 7 of Paragraph 1 of Article 3 of the Commercial Reactors Ordinance are reviewed based on the Standard Review Plan on Nuclear Power Reactor Installer's Technical Capability Required to Take Measures Necessary to Prevent the Occurrence and Progression of Severe Accidents.

[Approval of plan for construction work]

Article 9 and Annexed Table 2 of the Commercial Reactors Ordinance specify what items to be included in the application for approval of plan for construction work, including their details, and what documents to be attached to the application, among which the Items relating to the Methods for the Quality Control of Design and Construction and Documents explaining the Methods for the Quality Control of Design and Construction are reviewed based on the Commercial Reactors QMS Ordinance.

[Operational safety programs]

It is verified that the responsibility and authority of each organization and the system for education and training have been specified.

[Decommissioning Plans]

It is required that the Documents explaining the System for Implementing Decommissioning be attached to the application of the plan to be approved, on which a review is conducted. In addition, it is required that the duties and organizations of those who implement decommissioning and safety education be specified in operational safety programs, which are verified in nuclear operational inspection conducted four times or less a year.

<Attachments>

[Permission for the installation]

- Paragraph 2 of Article 20-2 of the Reactor Regulation Enforcement Cabinet Order*
- Paragraph 2 of Article 3 of the Commercial Reactors Ordinance*

- Item 7 of Paragraph 1 of Article 3 of the Commercial Reactors Ordinance

[Approval of plan for construction work]

- Article 9 and Annexed Table 2 of the Commercial Reactors Ordinance

- the Commercial Reactors QMS Ordinance

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.4.7

How does the review and assessment performed by the regulatory authority determine whether an operator has the ability and resources to discharge its obligations associated with any authorization granted for any stage of the lifetime of nuclear power plant?

Subsidiary Response

[Permission for the installation]

The operator is required to have sufficient technical capability and financial basis in accordance with based on Paragraphs 2, 3, and 4 of Article 43-3-6 of the Reactor Regulation Act.

[Approval of plan for construction work]

It is verified that the operator has technical capability in the stage of permission for the installation.

[Decommissioning measures]

In the review of the decommissioning plan and operational safety programs, the adequacy of quality assurance, organizations, education on operational safety in the operator's organization are reviewed and assessed.

<Attachments>

[Permission for the installation]

- Paragraphs 2, 3, and 4 of Article 43-3-6 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.4.8

What are the major components of safety management system of the operators that are reviewed and assessed by the regulatory body?

Subsidiary Response

[Permission for the installation]

With regard to the safety management system, conformance of the following items to the criteria are verified:

- Organizations for design and construction*
- Securing a sufficient number of engineers for design and construction*
- Experience of design and construction*
- Quality assurance activities for design and construction*
- Organizations for operation and maintenance*

- *Securing a sufficient number of engineers for operation and maintenance*
- *Experience of operation and maintenance*
- *Quality assurance activities for operation and maintenance*
- *Education and training of engineers*
- *Appointment and assignment of qualified personnel*

[Approval of plan for construction work]

It is verified that the operator has safety management system in the stage of permission for the installation.

[Operational safety programs]

It is verified that the operator have quality assurance and operational management system, safety committees, etc.

[Decommissioning measures]

For nuclear power reactors in the decommissioning stage, the safety management system consists mainly of the decommissioning plan, operational safety programs, and maintenance and management policy based on the operational safety programs.

Subsidiary Question 4.4.9

How does the regulatory body ascertain whether a complete and thorough safety review has been conducted?

Subsidiary Response

[Permission for the installation/Approval of plan for construction work]

The results of verification on conformity to the criteria are summarized in the review report and approved by the commission of NRA in accordance with the NRA Document Management Guide.

[Operational safety programs]

Conformity to the Standard review Plan is verified in a comprehensive manner and the results are summarized in the review report and approved by the commission of NRA in accordance with the NRA Document Management Guide.

[Decommissioning measures]

The decommissioning plan and operational safety programs are reviewed by hearing opinions from Regulatory Standard and Research Department which is internal technical support organizations and if necessary, external experts or by other means, and a safety review report is prepared. Final judgment is made by the commission of NRA in accordance with the NRA Document Management Guide.

Subsidiary Question 4.4.10

Does the regulatory body establish criteria for categorisation of the findings arising from the regulatory review and assessment? Please describe the system used for the categorisation of review findings in relation to their importance to safety.

Subsidiary Response

[Permission for the installation]A review is conducted to verify conformity to each criterion specified in Article 43-3-6 of the Reactor Regulation Act them. Among these criteria, with regard to Item 4 of Paragraph 1 of Article 43-3-6 of the Reactor Regulation Act, a review is conducted on each provision specified in the Commercial Reactor Establishment Permit Ordinance to verify conformity to them.

(Criteria for the Permission)Article 43-3-6 of the Reactor Regulation Act

In the case that an application for the permission set forth in paragraph (1) of the preceding Article is made, the NRA shall not issue the permission set forth in said paragraph unless it finds that the application conforms with all of the following items:

(i) The power reactors will not be utilized for non-peaceful purposes

(ii) The applicant has sufficient technical capability and financial basis necessary for installing the power reactors

(iii) The applicant has the technical capability required for taking measures necessary for preventing the occurrence and progression of severe accidents (significant core degradation of the power reactor or other severe accidents specified by the Ordinance of the NRA) and has other technical capability sufficient for operating the power reactors competently

(iv) The location, structure and equipment of the power reactors conform to the standards specified by the Ordinance of the NRA so as not to hinder the prevention of disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material, or the power reactors.

*[Approval of plan for construction work]*A review is conducted to verify conformity each criterion for permission specified in Article 43-3-9 of the Reactor Regulation Act. Among these criteria, with regard to Items 2 and 3 of Paragraph 3 of Article 43-3-9 of the Reactor Regulation Act, a review is conducted to verify conformity to each provision specified in the Commercial Reactor Technical Standards Ordinance and the Commercial Reactors QMS Ordinance, respectively.

*(Approval of plan for construction work)*Article 43-3-9 of the Reactor Regulation Act

(3) When the NRA finds that the application for the approval set forth in the two preceding paragraphs conforms to all of the following items, it shall grant the approval set forth in the two preceding paragraphs:

(i) The plan for construction work is based on the permission obtained as set forth in paragraph (1) of Article 43-3-5 or paragraph (1) of the preceding Article, or, on the notification made pursuant to the provision of paragraph (3) or the first sentence of paragraph (4) of said Article.

(ii) Facilities of the power reactor conform to the technical standards set forth in Article 43-3-14.

(iii) The applicant's quality control of the design and the construction and the applicant's organization for inspection conform to the technical standards.

*[Operational safety programs]*The criterion for the review is only whether or not the operational safety programs are sufficient for the prevention of disasters and this is specified in Paragraph 2 of Article 43-3-24 of the Reactor Regulation Act.

*[Decommissioning measures]*In addition to regulatory criteria, the following guides are used to review and assess the decommissioning plan:

- *Basic Concept for Ensuring Safety in Decommissioning Nuclear Power Reactor Facilities (established by Nuclear Safety Commission in 1985)*

- *Meteorological Guide for Safety Analyses of Nuclear Power Reactor Facilities (established by Nuclear Safety Commission in 1982)*

- *Evaluation Guide for Dose Target around Light Water Nuclear Power Reactor Facilities (established by Nuclear Safety Commission in 1976)*

- *Evaluation Guide for Dose Target around Light Water Nuclear Power Reactor Facilities (approved by Nuclear Safety Commission in 1989)*

- *ICPR Publication 60*

- *Standard Review plan on Decommissioning Plans for Nuclear Power Reactors and Testing/Research Reactors (Genkan-Haihatsu No. 13112716, established by NRA in 2013)*

<Attachments>

[Permission for the installation]

- *Article 43-3-6 of the Reactor Regulation Act*
- *Item 4 of Paragraph 1 of Article 43-3-6 of the Reactor Regulation Act*
- *the Commercial Reactor Establishment Permit Ordinance*

[Approval of plan for construction work]

- *Article 43-3-9 of the Reactor Regulation Act*
- *the Commercial Reactors QMS Ordinance*

[Operational safety programs]

- *Paragraph 2 of Article 43-3-24 of the Reactor Regulation Act*

[Decommissioning measures]

- *Basic Guides for Safety Review on Dismantling of Nuclear Reactor Installations (established by Nuclear Safety Commission in 1985)*
- *Regulatory Guide for Meteorological Observation for Safety Analysis of Nuclear Power Reactor Facilities (established by Nuclear Safety Commission in 1982)*
- *Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities (established by Nuclear Safety Commission in 1976)*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H26Reviewing Evaluation of Dose Target for Surrounding Area of Light Water Nuclear Reactor Facilities

H28Basic Guides for Safety Review on Dismantling of Nuclear Reactor Installations

H29Regulatory Guide for Meteorological Observation for Safety Analysis of Nuclear Power Reactor Facilities

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Subsidiary Question 4.4.11

What are the arrangements in place for the periodic reassessment of safety for a nuclear power plant, during the various stages in its lifetime, and what are the associated regulatory reviews and assessments?

Subsidiary Response

[Permission for the installation/Approval of plan for construction work]

Criteria for the permission or the approval are back-fitted as necessary.

[Operational safety programs]

*During operating Stage, relevant reviews are carried as a technical evaluation of plant life management (PLM) at nuclear power reactors at 30 years after the installation and every 10 years afterward, as well as periodic safety assessment for continuous improvement * whose report is drafted whenever a periodic inspection is carried out pursuant to Article 43-3-29 of the Reactor Regulation Act.*

** Conventional periodic safety reviews had to be carried out at least every 10 years until the first periodic safety assessment of continuous improvement is carried out after enforcement of new regulatory standards on July 8, 2013.*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 4.5

Does the Regulatory Body require and verify that the technical solutions used in a nuclear power plant, and in particular any novel features, have been proven or qualified by experience or testing or both, and are capable of achieving the required level of safety?

Answer

Yes

Finding

The regulatory body requires and verifies that the technical solutions used in a nuclear power plant, in particular any novel features, have been proven or qualified by experience or testing or both, and are capable of achieving the required level of safety.

Response

-

Subsidiary Question 4.5.1

Does the regulatory body have established criteria and guidance to review and assess the adequacy and qualification of technical solutions used in a nuclear power plant, particularly the novel features, to ensure that the recommended solutions can provide the required level of safety?

Subsidiary Response

Yes.

[Permission for the installation/Approval of plan for construction work]Safely research is conducted for the purpose of acquiring technical knowledge necessary for maintaining

regulatory standards and knowledge to be used as the bases of each individual technical judgement, etc.

(There is no guidance.)

In addition the NRA established the policy for the use of voluntary consensus standards. The NRA conducts technical assessments of new voluntary consensus standards and endorses the use of them after the conformity to the regulatory requirements by the Commercial Reactors Technical Standard Guide.

Subsidiary Question 4.5.2

How does the regulatory body review the novel features used in nuclear power plants?

Subsidiary Response

[Permission for the installation]

According to Item 4 of Paragraph 1 of Article 43-3-6 of the Reactor Regulation Act, it is verified that the location, structure, and equipment of the nuclear power reactors do not hinder the prevention of disasters and conform to the Commercial Reactor Establishment Permit Ordinance. The reviews are conducted by hearing the opinions of the Regulatory Standard and Research Department which is internal technical support organizations and, if necessary, those of external experts. In addition, safety research is conducted for the purpose of acquiring technical knowledge needed to develop regulatory criteria and to apply them, acquiring knowledge to be used as the bases for individual technical judgments, etc.

[Approval of plan for construction work]

According to Item 2 of Paragraph 3 of Article 43-3-9 of the Reactor Regulation Act, it is verified that the plan conforms to the Commercial Reactor Technical Standards Ordinance. The reviews are conducted by hearing the opinions of the Regulatory Standard and Research Department which is internal technical support organizations and, if necessary, those of external experts. When a new function is introduced after its basic design is verified in permission for the installation, detailed design is review to verify its feasibility.

[Decommissioning plan]

Conformity to the criteria, which is established as NRA's rules in accordance to Paragraph 3 of Article 43-3-33 of the Reactor Regulation Act which applies Paragraph 4 of Article 12-6 of the Reactor Regulation Act with necessary modification, is verified. And reviews are

conducted by hearing the opinions of Regulatory Standard and Research Department which is internal technical support organizations, and if necessary, those of external experts.

<Attachments>

[Permission for the installation]

- Item 4 of Paragraph 1 of Article 43-3-6 of the Reactor Regulation Act*
- the Commercial Reactor Establishment Permit Ordinance.*

[Approval of plan for construction work]

- Item 2 of Paragraph 3 of Article 43-3-9 of the Reactor Regulation Act*
- the Commercial Reactor Technical Standards Ordinance.*

[Decommissioning measures]

- Paragraph 3 of Article 43-3-33 of the Reactor Regulation Act*
- Paragraph 4 of Article 12-6 of the Reactor Regulation Act*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 4.6

Does the Regulatory Body prepare a programme for the review and assessment of the facilities, activities and practices related to safety nuclear power plants?

Answer

Yes

Finding

The regulatory body prepares a programme for the review and assessment of the facilities, activities and practices related to the safety of nuclear power plants.

Response

-

Subsidiary Question 4.6.1

What are the main areas of the regulatory review and assessment programme for nuclear power plants?

Subsidiary Response

Among considerations and factors to be taken into account in the process of review and assessment, which is listed in the Governmental, Legal and Regulatory Framework for Safety - GSR Part-1; Requirement 25, para 4.45, following categories mainly consists the review:

(1) Regulatory requirements (They are verified as described in SQID4.10.)

(2) Nature and categorization of the associated hazards (The contents of the application made under Item 10 of Paragraph 2 of Article 43-3-5 of the Reactor Regulation Act are verified.)

(4) Basic design of the facility and the conduct of activities related to safety (The contents of the application made under Item 5 of Paragraph 2 of Article 43-3-5 of the Reactor Regulation Act are verified.)

(5) Records provided by the authorized party or its suppliers (They are verified based on the documents explaining Quality Control Methods etc. of Design and Construction submitted under Article 9 and Annexed Table 2 of the Commercial Reactors Ordinance.)

(7) Applicable management system (It is verified as described in SQID4.6.)

*(8) Competence and skills necessary for operating the facility or conducting the activity
(They are verified as described in SQID4.6.)*

(9) Arrangements for protection (of workers, the public, patients, and the environment) (The contents of the application made under Article Item 9 of Paragraph 2 of Article 43-3-5 of the Reactor Regulation Act are verified.)

(10) Arrangements for preparedness for, and response to, emergencies (The contents of the application made under Item 10 of Paragraph 2 of Article 43-3-5 of the Reactor Regulation Act are verified.)

(14) Arrangements for the management of radioactive sources, radioactivewaste and spent fuel (The contents of the application made under Items 8 and 10 of Paragraph 2 of Article 43-3-5 of the Reactor Regulation Act are verified.)

<Attachments>

- Article 43-3-5 of the Reactor Regulation Act

- Article 9 and Annexed Table 2 of the Commercial Reactors Ordinance

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.6.2

What are the organisational arrangements for implementing the regulatory review and assessment programme for nuclear power plants?

Subsidiary Response

The roles and responsibilities of each division are clearly provided in the NRA Organization Cabinet Order and the NRA Organization Ordinance.

Subsidiary Question 4.6.3

What are the major considerations in the establishment and organization of the review team / unit responsible for the regulatory review and assessment of nuclear power plants' safety?

Subsidiary Response

Those who have experience in reviews of the application of permission (changes) for the installation, approval of plan for construction work, and operational safety program reviews, etc. are assigned to the team engaged in the review of conformity to new regulatory requirements.

Subsidiary Question 4.6.4

What are the main considerations made in the development of a systematic plan for regulatory review and assessment of the safety of a nuclear power plant at different stages in its lifetime?

Subsidiary Response

[Permission for the installation/Approval of plan for construction work]

If back-fit is needed at such a time when a technical criterion is revised, reviews are conducted for permission (changes) for the installation and approval of plan for construction work.

[Decommissioning measures]

Conformity to the regulatory criteria for the approval of decommissioning plans is verified referring to Basic Concept for Ensuring Safety in Decommissioning Nuclear Power Reactor Facilities (Nuclear Safety Commission guide).

<Attachments>

- Basic Guides for Safety Review on Dismantling of Nuclear Reactor Installations (Nuclear Safety Commission guide)

Subsidiary Attachments

H28Basic Guides for Safety Review on Dismantling of Nuclear Reactor Installations

Subsidiary Question 4.6.5

Does the regulatory body inform the operator of the minimum time needed to complete the regulatory review, including provisions for change in the review duration?

Subsidiary Response

Yes.

[Permission for the installation]According to the review criteria for the procedures of the NRA based on Reactor Regulation Act, the standard period needed for the completion of all procedures from the submission of the application has been set to 2 years, and this standard period is open to the public.

[Approval of plan for construction work]According to the review criteria for the procedures of the NRA based on reactor Regulation Act, the standard period needed for the completion of all procedures from the submission of the application, has been set to 90 days, and this standard period is open to the public.

[Operational safety programs]According to the review criteria for the procedures of the NRA based on reactor Regulation Act, the standard period needed for the completion of all procedures from the submission the application, has been set to 6 months or 3 months, and this standard period is open to the public.

[Decommissioning measures]According to the review criteria of the NRA based on Reactor Regulation Act, the standard period needed for the completion of all procedures from the submission of the application, has been set as follows:

Approval of changes to operational safety programs: 3 months

Approval of decommissioning plans: It isn't set, because the number of applications is extremely small and the review period differs significantly depending on the contents of the application.

Subsidiary Question 4.6.6

Does the regulatory body prepare a detailed schedule for review and assessment of important safety submissions in the licensing process (such as a safety analysis report)?

Subsidiary Response

No.

No detailed schedule is prepared.

Subsidiary Question 4.6.7

How does the regulatory review team communicate with the applicant/licensee for information exchange, discussions and meetings to clarify issues identified and obtain additional information, as necessary?

Subsidiary Response

The review team communicates with the applicants or licensees through interviews or review meetings.

Subsidiary Question 4.6.8

What is the regulatory procedure for handling confidential and proprietary information provided by an applicant or licensee?

Subsidiary Response

In accordance with the NRA Document Management Guide, Confidential documents are handled based on the Ministry of Environment's rules for handling confidential documents.

Subsidiary Question 4.6.9

What is the process for communicating review findings to the operator and resolution of these findings?

Subsidiary Response

Interviews with the licensee are conducted to confirm the facts, the open meetings for the review are held to undertake discussions to solve issues. The actions responding to the findings identified during operational safety inspections are taken through the operator's activities on quality assurance (such as nonconformity management and management review).

Subsidiary Question 4.6.10

In case of disagreement between the review team and the operator on any safety related matters what are the provisions in the review and assessment programme for resolutions of dispute and/or for arriving at a regulatory decision?

Subsidiary Response

Disagreements are addressed by filing complaints in accordance with Administrative Procedure Act, Administrative Appeal Act or by other means.

<Attachments>

- Administrative Procedure Act

Subsidiary Attachments

H11Administrative Procedure Act

Subsidiary Question 4.6.11

What is the provision in the review and assessment program for arriving at a regulatory decision on complex issues or issues of multi-disciplinary nature (including for instances where members of the staff may have divergent opinions)?

Subsidiary Response

The issue is presented to the commission of NRA for its decision after coordination is made by having the presiding department clarify the points of the issue in accordance with the NRA Organization Ordinance, etc., as necessary.

Subsidiary Question 4.6.12

How the does the regulatory review team communicate with other relevant organisations (such as governmental agencies, consultants, advisors, etc.) and with higher management levels in the organisation of the regulatory body?

Subsidiary Response

Before issuing approval of alteration in the permission for the installation, the NRA must seek opinions of the Atomic Energy Commission regarding the application of standards to ensure nuclear power reactors being used exclusively for peaceful purposes pursuant to

Article 43-3-6 of the Reactor Regulation Act. Similarly, the NRA must seek opinions from the Minister of Economy, Trade and Industry pursuant to Article 71 of the Reactor Regulation Act.

Within the NRA, the progress of reviews is reported at executives' meetings, departmental meetings, etc. As for operational safety inspections, necessary communication is made through periodic operational safety inspectors' meetings and video conferences.

<Attachments>

- Article 43-3-6 of the Reactor Regulation Act

- Article 71 of the Reactor Regulation Act .

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.6.13

What are the arrangements in place for the review team or the review team leader to brief the higher levels of management regularly on the progress of the review work, including on any difficulties encountered and support needed?.

Subsidiary Response

Meetings are conducted with the NRA commissioners and executives as needed, and the progress of review is reported at executives' meetings, departmental meetings, etc.

Subsidiary Question 4.6.14

What is the system for record keeping and follow-up of information exchange with the operator?

Subsidiary Response

Records of interviews with operators are created and opened to the public in accordance with the NRA's policy for ensuring operational transparency and the policy for the time being on the implementation procedures for regulatory operations, etc.

Subsidiary Question 4.6.15

How does the regulatory body monitor the progress of information submission by the operator and the progress of regulatory review and assessment work?

Subsidiary Response

No specific procedures have been established. Hearings with the licensee are conducted to confirm the facts and the open meetings for the review are conducted to discuss approaches for resolutions.

Subsidiary Question 4.6.16

What is the process for peer review of the findings and decisions of the regulatory assessment process and decisions?

Subsidiary Response

The NRA has clarified the roles and responsibilities of its each division by NRA Organization Cabinet Order and NRA Organization Ordinance and makes final decisions in accordance with the NRA Document Management Guide.

Subsidiary Question 4.6.17

What provisions are made for documenting and communicating the results of the regulatory review and assessment, including the basis for regulatory decisions, to the operator, other stakeholders and the public?

Subsidiary Response

The policy for ensuring transparency and the policy for present implementation procedures for regulatory operations, etc specify a policy on establishing an information disclosure system that ensures disclosure without request and a policy for ensuring the administration with documents. The contents of a decision are notified in writing to the applicant in the name of the NRA and are made public on its homepage. The result of permission for the installation is communicated to the National Public Safety Commission and the Commandant of the Japan Coast Guard in accordance with Article 72 of the Reactor Regulation Act. (In addition, procedures are established based on relevant laws and regulations for pre-service inspection, etc.)

<Attachments>

Article 72 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.6.18

How is the safety review and assessment process integrated in the overall management system of the regulatory body?

Subsidiary Response

The NRA clearly assigns the roles and responsibilities to each division by NRA Organization Cabinet Order, NRA Organization Ordinance and makes decisions in accordance with the

NRA Document Management Guide. With regard to operational safety programs, for example, the reviewer prepares a review report and has it approved. If necessary, a reviewer requests the commission of the NRA to make a decision or report to it. With regard to operational safety inspection, an inspector prepares an inspection report and has it approved. If necessary, the inspector requests the commission of the NRA to make a decision or report to it.

Question 4.7

Does the Regulatory Body ensure that safety related modifications of nuclear power plants are subject to adequate review and assessment?

Answer

Yes

Finding

The regulatory body ensures that safety related modifications of nuclear power plants are subject to adequate review and assessment.

Response

-

Subsidiary Question 4.7.1

Has the regulatory body specified clear requirements for submission of safety related modifications for review and approval, as appropriate? Please provide the regulatory document where such requirements are specified.

Subsidiary Response

Yes.

[Permission for the installation]For the application of permission (changes) for installation of nuclear power plant, Article 43-3-8 of the Reactor Regulation Act specifies that the application be made in accordance with the NRA ordinance. Article 20-3 of the Reactor Regulation Enforcement Cabinet Order specifies what items and contents are to be included in the application. And Article 5 of the Commercial Reactors Ordinance specifies what is to be described in the application and the types of documents are to be attached. In addition, the operational guide on permission (changes) for installation of nuclear power reactors clarifies the definition of terms specified in the laws and regulations and the concept for the usage of them.

[Approval of plan for construction work]For the items and the contents of the application which the applicant of approval of plan for construction work of nuclear power plant needs to provide, Article 43-3-9 of the Reactor Regulation Act specifies the application be made in accordance with the NRA ordinance. Article 8 and Annexed Table 1 of the Commercial Reactors Ordinance specify the scope of modification to plan for construction work that requires approval. And Article 9 and Annexed Table 2 of the Commercial Reactors Ordinance specify what is to be described in the application, what information to be provided for each item and what types of documents to be attached to the application. In addition, the operational guide on approval of plan for construction work of nuclear power reactors clarifies the definition of terms specified in the laws and regulations and the concept for the usage of them.

[Operational safety programs]Requirements for submission on modification of operational safety programs have been specified in Paragraph 3 of Article 92 of the Commercial Reactors Ordinance based on Article 43-3-24 of the Reactor Regulation Act.

[Decommissioning plan]The procedure for modifying decommissioning plan of nuclear power reactors has been specified in Article 117 of the Commercial Reactors Ordinance based on Article 43-3-33 of the Reactor Regulation Act.

<Attachments>

[Permission for the installation]

- Article 43-3-8 of the Reactor Regulation Act
- Article 20-3 of the Reactor Regulation Enforcement Cabinet Order
- Article 5 of the Commercial Reactors Ordinance

[Approval of plan for construction work]

- *Article 43-3-9 of the Reactor Regulation Act*
- *Article 8 and Annexed Table 1 of the Commercial Reactors Ordinance.*
- *Article 9 and Annexed Table 2 of the Commercial Reactors Ordinance.*

[Operational safety programs]

- *Article 43-3-24 of the Reactor Regulation Act*
- *Paragraph 3 of Article 92 of the Commercial Reactors Ordinance*

[Decommissioning measures]

- *Article 43-3-33 of the Reactor Regulation Act.*
- *Article 117 of the Commercial Reactors Ordinance*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.7.2

What type of modifications require approval of the regulatory body prior to implementation (e.g. modifications on structures, systems and components important to safety; modifications to the operational limits and conditions; organisational changes, etc.)?

Subsidiary Response

[Permission for the installation]

Matters provided by Items 2 to 5, and 8 to 10 of Paragraph 2 of Article 43-3-5 of the Reactor Regulation Act, such as the types of nuclear power reactors, thermal outputs and the

number of reactors, locations, structures, and equipment of the nuclear power reactors and auxiliary facilities.

[Approval of plan for construction work]

Replacement of equipment etc. with new ones and construction that greatly affects capability or strength that require changes to the existing construction plan[Operational safety programs]

Changes to the controlled areas, limiting conditions for operation, operational safety organizations, quality assurance systems, etc.

[Decommissioning plan]

In Annexed Table 1 of the Commercial Reactors Ordinance, modifications to spent fuel handling equipment, fresh fuel storage racks among fresh fuel storage equipment and other equipment are specified as modification important for safety which requires approval or notification. when a change is made to a decommissioning plan, the approval of the change of decommissioning plan is required except the change does not hinder the prevention of disasters resulting from measures for decommissioning,. If a change is made to an operational safety program, the approval is required.

<Attachments>

[Permission for the installation]

Items 2 to 5, and 8 to 10 of Paragraph 2 of Article 43-3-5 of the Reactor Regulation Act

[Decommissioning measures]

Annexed Table 1 of the Commercial Reactors Ordinance

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.7.3

Does the regulatory body require that modifications of temporary nature are also submitted to regulatory review and approval prior to implementation?

Subsidiary Response

Yes.

[Permission for the installation]

In permission for the installation, the same procedure is required even for temporary changes.

[Approval of plan for construction work]

Article 43-3-9 of Reactor Regulation Act specifies that even temporary construction in case of partial loss of or damage to a nuclear power reactors be notified to the NRA without delay after the commencement of the construction.

[Operational safety programs]

If a change is made to an operational safety program, approval is required. With regard to the setting of controlled areas, there are some provisions relating to temporary setting.

[Decommissioning plan]

Prior approvals are required to any changes except minor ones, regardless of whether they are temporary or no.

<Attachments>

[Approval of plan for construction work]

Article 43-3-9 of the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.7.4

Has the regulatory body issued guidance on the information and safety demonstration to be provided in support of a request for approval of a safety-related modification to a nuclear power plant?

Subsidiary Response

It's same as first authorization as following.

[Permission for the installation]For the application of permission changes for the installation of nuclear power plant, Article 43-3-8 of the Reactor Regulation Act specifies that the application be made in accordance. Article 20-3 of the Reactor Regulation Enforcement Cabinet Order specifies what items and contents to be included in the application. And Article 5 of the Commercial Reactors Ordinance specifies what is to be described in the application and the types of documents are to be attached. In addition, the operational guide on permission changes for installation of nuclear power reactors clarifies the definition of terms specified in the laws and regulations and the concept for the usage of them.

[Approval of plan for construction work]For the items and the contents of application which the applicant of approval of plan for construction work of nuclear power plant needs to provide, Article 43-3-9 of the Reactor Regulation Act specifies the application be made in accordance with the NRA ordinance. Article 8 and Annexed Table 1 of the Commercial Reactors Ordinance specify the scope of modification to plan for construction that requires approval. And Article 9 and Annexed Table 2 of the Commercial Reactors Ordinance specify what is to be described in the application., what information to be provided for each item and what types of documents to be attached to the application. In addition, the operational guide on approval of plan for construction work of nuclear power reactors clarifies the definition of terms specified in the laws and regulations and the concept for the usage of them.

[Operational safety programs]Requirements for submission on modification in operational safety programs have been specified in Paragraph 3 of Article 92 of the Commercial Reactors Ordinance based on Article 43-3-24 of the Reactor Regulation Act.

[Decommissioning measures]With regard to the application for the approval of a change to a decommissioning plan, submission of the application, descriptions and drawings to be attached is specified (Article 116 and 117 of the Commercial Reactors Ordinance). In addition, Standard review plan (Standard Review Plan on Decommissioning Plans of Nuclear Power Reactors and Testing/ Research Reactors (Genkan-Haihatsu No. 13112716, established by the NRA in 2013)) explains what information to be included in the application document in detail. With regard to the application for the approval of a change to an operational safety program, the relevant law specifies what information to be included in

the application (Paragraph 3 of Article 92 of the Commercial Reactors Ordinance). In addition, Standard review Plan (Standard Review Plan on Operational Safety Programs for Nuclear Power Reactor Facilities in the Decommissioning Stage (Genkan-Haihatsu No. 13112715, established by the NRA in 2013)) explains what information to be included in the application document in detail.

<Attachments>

[Permission for the installation]

- Article 43-3-8 of the Reactor Regulation Act*
- Article 20-3 of the Reactor Regulation Enforcement Cabinet Order*
- Article 5 of the Commercial Reactors Ordinance*

[Approval of plan for construction work]

- Article 43-3-9 of the Reactor Regulation Act*
- Article 8 and Annexed Table 1 of the Commercial Reactors Ordinance.*
- Article 9 and Annexed Table 2 of the Commercial Reactors Ordinance.*

[Operational safety programs]

- Article 43-3-24 of the Reactor Regulation Act*
- Paragraph 3 of Article 92 of the Commercial Reactors Ordinance*

[Decommissioning measures]

- Article 116 and 117 of the Commercial Reactors Ordinance*
- Paragraph 3 of Article 92 of the Commercial Reactors Ordinance*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M09The Cabinet Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 4.7.5

Has the regulatory body established internal procedures for the review and assessment of safety-related modifications to nuclear power plants?

Subsidiary Response

The NRA has clarified the roles and responsibilities of each division by NRA Organization Cabinet Order and the NRA Organization Ordinance. With regard to the permission of changes for modifications, approval of changes to operational safety programs, approval of changes to decommissioning plans, and approval of plan for construction work, and the notification for them, the results of the review conducted applying criteria for review are summarized in a report and approved in accordance with the NRA Document Management Guide after verification by the approver.

Subsidiary Question 4.7.6

What are the main aspects reviews in the regulatory assessment of safety-related modifications to a nuclear power plant?

Subsidiary Response

It's same as first authorization as following.

[Permission for the installation]

Item 4 of Paragraph 1 of Article 43-3-6 of the Reactor Regulation Act requires that the location, structure, and equipment of a nuclear power reactors be such that they do not hinder the prevention of disasters.

[Approval of plan for construction work]

Item 2 of Paragraph 3 of Article 43-3-9 of the Reactor Regulation Act requires that conformity to the Commercial Reactor Technical Standards Ordinance be verified.

[Operational safety programs]

It is required that the operational safety programs conform to Standard Review Plan on Commercial Reactors Operational Safety Program and not hinder the prevention of disasters.

[Decommissioning plan]

With regard to decommissioning plans, it is required that the measures for decommissioning are appropriate for preventing disasters caused by nuclear fuel material, material contaminated by nuclear fuel material, or the commercial nuclear reactors (Item 4 of Article 119 of the Commercial Reactors Ordinance).

It is required that the operational safety programs shall not be granted for the approval when are not sufficient for preventing disasters resulting from nuclear fuel material, material contaminated by nuclear fuel material, or power reactors (Item 2 of Article 43-3-24 of the Reactor Regulation Act).

<Attachments>

[Permission for the installation]

- Item 4 of Paragraph 1 of Article 43-3-6 of the Reactor Regulation Act

[Approval of plan for construction work]

- Item 2 of Paragraph 3 of Article 43-3-9 of the Reactor Regulation Act

- the Commercial Reactor Technical Standards Ordinance

[Operational safety programs]

- the Commercial Reactors Operational Safety Program Standards

[Decommissioning measures]

- Item 4 of Article 119 of the Commercial Reactors Ordinance

- Item 2 of Article 43-3-24 of the Reactor Regulation Act

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Module: Safety of NPP: Design

Findings

Question 5.1

Does the legal and regulatory framework assign the responsibility to an applicant for a license to construct and/or operate a nuclear power plant for ensuring that the design submitted to the regulatory body meets all applicable safety requirements?

Answer

Yes

Finding

The legal and regulatory framework assigns the responsibility to an applicant for a license to construct and/or operate a nuclear power plant for ensuring that the design submitted to the regulatory body meets all applicable safety requirements.

Response

The Reactor Regulation Act clearly states that if the licensee does not conform to any regulatory requirements, the authorization shall not be given to the licensee. Detailed designs and operation shall be met with the relevant regulatory requirements and the basic design permitted by the NRA.

- Basic design stage: establishment permission / modification permission on the basis of the Reactor Regulation Act article 43-3-5 and article 43-3-8. The regulatory standard is stated in the Commercial Reactor Establish Permit Ordinance.

- Detail design stage: construction plan approval / registration on the basis of the Reactor Regulation Act article 43-3-24. The regulatory standard is stated in the Commercial Reactors Technical Standards Ordinance.

- Operation stage: Operational safety programme approval on the basis of the Reactor Regulation Act article 43-3-24. The NRA develops Standard Review Plan on the operational safety programme of Commercial Power Reactor Facilities.

In addition, article 57-9 of the Reactor Regulation Act stipulates that each licensee has responsibility to take necessary safety measures such as establishing systems and equipment enable to contribute to safety improvement of nuclear facility on the basis of the latest knowledge for safety.

<ATTACHMENTS>

the Reactor Regulation Act

Attachments

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.2

Does the legal and regulatory framework require the design organization to establish and implement a management system for ensuring that all safety requirements established for the design of the plant are considered and implemented in all phases of the design process and that they are met in the final design?

Answer

Yes

Finding

The legal and regulatory framework requires the design organization to establish and implement a management system for ensuring that all safety requirements established for the design of the plant are considered and implemented in all phases of the design process and that they are met in the final design.

Response

<ATTACHMENTS> the Reactor Regulation Act

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.2.1

What is the scope of the review and evaluation carried out by the regulatory body of the operating organization and / or of the design organization regarding the management system for the integration of safety requirements in the final detailed design of a nuclear power plant to be built?

Subsidiary Response

The adequacy of detailed design of SSCs is assured by the licensee's quality management system (QMS), which covers all the quality management activities not only in the licensee but also in the NSSS vendor and SSC manufacturers. The QMS is required by the Commercial Reactors QMS ordinance under the Reactor Regulation Act article 43-3-9 and must be submitted to and approved by the NRA prior to the start of construction.

For example, article 29 of the ordinance requires that licensee shall plan and manage the design development of specification of facility with considering the necessary requirements.

In addition, the article 36 stipulates that the licensee shall ensure that services and products which are procured from external entities shall conform to requirements.

However, quality assurance programs are not required to licensees during the establishment permit or equivalent stage.

<ATTACHMENTS> the Reactor Regulation Act

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.3

Does the legal and regulatory framework require the operating organization to establish a formal system for ensuring the continuing safety of the plant design throughout the lifetime of the nuclear power plant?

Answer

Yes

Finding

The legal and regulatory framework requires the operating organization to establish a formal system for ensuring the continuing safety of the plant design throughout the lifetime of the nuclear power plant

Response

<ATTACHMENTS> the Reactor Regulation Act

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 5.3.1

What are the elements required in the system established by the operating organization for ensuring the continuing safety of the plant design throughout the lifetime of the nuclear power plant?

Subsidiary Response

Article 43-3-14 of the Reactor Regulation Act requires that licensee shall maintain the conformity to the Commercial Reactor Technical Standards Ordinance, in order to maintain high reliability of SSCs throughout the lifetime of the plant.

Article 57-9 of the Reactor Regulation Act stipulates that Licensee shall take necessary safety measures for safety improvement based on the most up-to-date knowledge regarding nuclear safety.

The Commercial Reactors Ordinance requires that Licensee shall continuously improve operational safety activities on the basis of quality management system.

Additionally, article 43-3-29 of the Reactor Regulation Act requires that licensee shall periodically (at least 5 years) carry out safety assessment.

Thus, the regulatory framework requires that licensee shall continuously maintain and improve facilities and activities for safety.

<ATTACHMENTS> the Reactor Regulation Act

Subsidiary Attachments

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 5.4

Do the legal and regulatory framework require that the design of the nuclear power plant is such that the following fundamental safety functions are ensured for all plant states: (1) control of reactivity;(2) removal of heat from the reactor and from the fuel store;(3) confinement of radioactive material, shielding against radiation and control of planned radioactive releases, as well as limitation of accidental radioactive releases?

Answer

Yes

Finding

The legal and regulatory framework requires that the design of the nuclear power plant is such that the following fundamental safety functions are ensured for all plant states: (1) control of reactivity;(2) removal of heat from the reactor and from the fuel store;(3) confinement of radioactive material, shielding against radiation and control of planned radioactive releases, as well as limitation of accidental radioactive releases.

Response

The Commercial Reactor Establishment Permit Ordinance requires that the following fundamental safety functions are maintained in the states of Normal Operation(NO), Anticipated Operational Occurrences(AOO) and Design Basis Accidents (DBA):

(1) Reactivity control

(2) Heat removal from reactor and fuel storage

(3) Restriction on the release of radioactive materials due to accident.

In addition, the ordinance also requires licensees to take the measures for maintaining these fundamental safety functions under the beyond design basis accidents (BDBA)

Under the Commercial Reactor Establishment Permit Ordinance and the Commercial Reactor Technical Standards Ordinance classifies plant states into (a) Normal Operation (NO), (b) Anticipated Operational Occurrence (AOO), (c) Design Basis Accidents (DBA) and (d) severe accidents and those conditions leading to the severe accidents. The conditions described in (d) include both DEC with core damage (severe accidents) and without core damage, and corresponds to DEC in SSR-2/1. For the answers in SARIS, we call that accident condition (d) as "Beyond Design Basis Accidents or BDBA.

SSCs are also classified into SSCs for NO, AOO and DBA, and those for BDBA, while some SSCs performs both for DBA and BDBA. For the answers in SARIS, we simply classify into SCCs for DB and SCCs for BDBA.

<ATTACHMENTS>

The Commercial Reactor Establishment Permit Ordinance

(1) Article 15 (Reactor core and others), paragraph (1): Reactivity control of reactor core

(2) Article 15 (Reactor core and others), paragraph (3): Post-Shutdown maintenance of reactor core cooling function; Article 21 (Equipment capable of removing residual heat); and Article 16 concerning facilities for handling fuel assemblies, etc.

(3) During normal operation - Article 32 (Reactor containment)

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.5

Does the legal and regulatory framework include requirements and associated limits for the design of nuclear power plants to ensure that

- radiation doses to workers at the plant and to members of the public do not exceed dose limits;*
- they are kept as low as reasonably achievable in operational states for the entire plant lifetime; and*
- they remain below acceptable limits and as low as reasonably achievable in and following accident conditions?*

Answer

Yes

Finding

The legal and regulatory framework requires that the design of a nuclear power plant should be such as to ensure that radiation doses to workers at the plant and to members of the public do not exceed the dose limits; that they are kept as low as reasonably achievable in operational states for the entire plant lifetime; and that they remain below acceptable limits and as low as reasonably achievable in and following accident conditions.

Response

- *Dose limit: The Commercial Reactors Ordinance and the Commercial Reactor Dose Limit Notice requires dose limit in such a manner that the annual effective dose in a surrounded monitoring area does not exceed 1 mSv.*

As for radiation workers, the Commercial Reactor Dose Limit Notice sets dose limit in such a manner that the sum of their 5-year effective doses do not exceed 100 mSv, and that 1-year in any case not exceed 50 mSv.

- *Radiation dose reduction: As for the public, article 29 of the Commercial Reactor Establishment Permit Ordinance requires that the ambient dose rates around a plant caused by direct gamma rays are reduced adequately.*

As for radiation workers, Article 30 of that ordinance requires licensee to reduce radiation dose at their working places in accordance with the ALARA concept.

- *Radiation dose during and after accident:*

Article 13 of the Commercial Reactor Establishment Permit Ordinance sets dose limit for DBA, however does not so far require them to reduce the hazard as low as reasonably achievable.

As for BDBA, for example, the Commercial Reactor Establishment Permit Ordinance requires that environmental impact due to radioactive materials shall be reduced as much as possible through preventing damages of containment function.

<ATTACHMENTS> The Commercial Reactors Ordinance, the Commercial Reactor Dose Limit Notice, the Reactor Regulation Act, the Commercial Reactor Establishment Permit Ordinance

Attachments

F04 Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F07 The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01 The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L03 The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.6

Does the legal and regulatory framework require that the design for a nuclear power plant ensure that the plant and items important to safety have the appropriate characteristics to ensure that safety functions can be performed with the necessary reliability, that the plant can be operated safely within the operational limits and conditions for the full duration of its design life and can be safely decommissioned, and that impacts on the environment are minimized?

Answer

Yes

Finding

The legal and regulatory framework requires that the design for a nuclear power plant ensures that the plant and items important to safety have the appropriate characteristics to ensure that safety functions can be performed with the necessary reliability, that the plant can be operated safely within the operational limits and conditions for the full duration of its design life and can be safely decommissioned, and that impacts on the environment are minimized.

Response

Article 12 of the Commercial Reactor Establishment Permit Ordinance requires that all the SSCs important to safety shall have reliable safety functions in accordance with their importance. The Ordinance also requires that SSCs with the highest importance to safety shall be designed with redundancy or diversity as well as independence.

In addition, article 13 of the Commercial Reactor Establishment Permit Ordinance stipulates each requirement which shall be met for AOO and DBA. The regulatory guide of the ordinance cites the guideline for safety assessment developed by the former Nuclear Safety Commission, and it requires assessment in accordance with that guideline. This guideline also includes the assessment of environmental impact such as release of radioactive materials.

Article 43-3-14 of the Reactor Regulation Act requires licensees to maintain the conformity to the technical standards stipulated in the NRA ordinance.

The act requires that environment impact shall be taken into account in the decommissioning plan, however, the evaluation of environment impact in a decommissioning has not been required in a design stage.

<ATTACHMENTS> the Reactor Regulation Act, the Commercial Reactor Establishment Permit Ordinance

Attachments

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H24Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.7

Does the legal and regulatory framework require the design of a nuclear power plant to incorporate defence in depth and that the levels of defence in depth are independent as far as is practicable?

Answer

Yes

Finding

The legal and regulatory framework requires that the design of a nuclear power plant incorporates defence in depth and that the levels are independent as far as is practicable.

Response

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 5.7.1

What are the characteristics for defence in depth that are listed in the regulatory framework?

Subsidiary Response

The Defence in Depth (DiD) concept is to provide multiple levels of defence. In implementing DiD concept, every level shall have sufficiently effective defense not relying on the preceding and the subsequent levels of defense. The independence of the different levels is a necessary element of DiD.

The Commercial Reactor Establishment Permit Ordinance defines the plant states into normal operation (NO), anticipated operational occurrences (AOO), design basis accidents (DBA) and beyond design basis accidents (BDBA), and requires to provide safety measures for prevention and mitigation under these plant states.

As a part of the measures against BDBA, Article 42 of the Commercial Reactor Establishment Permit Ordinance requires to install Specialized Safety Facility against extensive damage and other severe accidents due to the intentional aircraft crash and other events. This Specialized Safety Facility shall have its dedicated system of power supply and pumping system for cooling the reactor vessel and the containment vessel, and shall be installed to avoid simultaneous failure with functions of reactor building, e.g. 100 m away from the reactor building.

The Commercial Reactor Establishment Ordinance requires measures to predict, prevent and mitigate external and internal hazards which may cause common failures across different levels

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Subsidiary Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.8

Does the legal and regulatory framework require that safety measures, nuclear security measures and arrangements for the state system of accounting for, and control of, nuclear material for a nuclear power plant be designed and implemented in an integrated manner so that they do not compromise one another?

Answer

Yes

Finding

The legal and regulatory framework requires that safety measures, nuclear security measures and arrangements for the state system of accounting for, and control of, nuclear

material for a nuclear power plant be designed and implemented in an integrated manner so that they do not compromise one another.

Response

The Reactor Regulation Act stipulates safety regulation, security and control of nuclear materials (safeguards). Specifically, Article 11 of that act stipulates the requirements for physical protection of nuclear materials, Chapter 6-2 (regulation on the use of international controlled materials) for nuclear material accounting system.

The regulatory guide of article 10 of the Commercial Reactors QMS Ordinance quotes the IAEA Safety Standard GS-R-3 as requirements, and licensees are required to shall establish an integrated management system taking into accounts health, environment, security, quality and economy while safety shall be paramount.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance, the Commercial Reactors QMS Ordinance

Attachments

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.9

Does the legal and regulatory framework require that items important to safety for a nuclear power plant are designed in accordance with the relevant national and international codes and standards?

Answer

Yes

Finding

The legal and regulatory framework requires that items important to safety for a nuclear power plant are designed in accordance with the relevant national and international codes and standards.

Response

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 5.9.1

What are the aspects listed in the legal and regulatory framework that should be checked in order to ensure that the national and international codes and standards used for the design of the nuclear power plant are relevant?

Subsidiary Response

Yes.

The requirements in the Commercial Reactor Establishment Permit Ordinance are performance -based and the acceptable criteria of SSCs are specified in the NRA regulatory guides or endorsed industrial codes. As for industrial codes, the NRA confirms the applicability of such industrial codes, and quotes these codes in the NRA regulatory guides.

Question 5.10

Does the legal and regulatory framework require that comprehensive deterministic safety assessments and probabilistic safety assessments are carried out throughout the design process for a nuclear power plant to ensure that all safety requirements on the design of the plant are met throughout all stages of the plant lifetime, and to confirm that the design, as delivered, meets requirements for manufacture and for construction, and as built, as operated and as modified?

Answer

Yes

Finding

The legal and regulatory framework requires that comprehensive deterministic safety assessments and a probabilistic safety assessments are carried out throughout the design process for a nuclear power plant to ensure that all safety requirements on the design of the plant are met throughout all stages of the plant lifetime, and to confirm that the design as delivered meets requirements for manufacture and for construction, and as built, as operated and as modified.

Response

The regulatory guide for the Commercial Reactor Establishment Permit Ordinance requires licensee to carry out deterministic safety analysis (DSA) and probabilistic safety (risk) analysis (PRA) and the NRA reviews these assessments for authorizations.

The guideline for safety assessment describes the every postulated initiating event (PIE) and the requirements for the plant state of AOO and DBA, and licensees are required to conduct DSA with conditions stipulated in the guideline and the NRA ordinance such as an assumption of a single failure for the DBA analysis.

Deterministic safety analysis with best estimate method plus uncertainty analysis is also carried out for BDBA sequences to examine the effectiveness of the measures to prevent and mitigate severe accidents, while it is not the same as DSA for DBA. The regulatory guide of Article 37 requires to conduct the above analysis for the selected sequences and modes, and licensees are required to select the sequences and modes based on a plant specific PRA (Individual Plant Examination: IPE) for random failures and external hazards induced failures (Individual Plant Examination of External Events: IPEEE), in addition to the mandatory ones as stipulated the NRA ordinances..

Based upon article 43-3-29 of the Reactor Regulation Act, the Commercial Reactors Improving Safety Guide requires that Licensee shall carry out the DSA and PRA in the periodic safety assessment.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance and its guide, the Reactor Regulation Act

Attachments

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

Question 5.11

Does the legal and regulatory framework require that items important to safety in a nuclear power plant are designed so that they can be manufactured, constructed, assembled, installed and erected in accordance with established processes that ensure the achievement of the design specifications and the required level of safety?

Answer

Yes

Finding

The legal and regulatory framework requires that items important to safety in a nuclear power plant are designed so that they can be manufactured, constructed, assembled, installed and erected in accordance with established processes that ensure the achievement of the design specifications and the required level of safety.

Response

<ATTACHMENTS> the Commercial Reactors QMS Ordinance

Attachments

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

Subsidiary Question 5.11.1

What evidence is required by the Regulatory Body to ensure that relevant experience that has been gained in the construction of other similar plants and their associated SSCs are adopted and that their appropriateness has been demonstrated for the specific nuclear application?

Subsidiary Response

Article 55, paragraph (1) of the Commercial Reactors QMS Ordinance stipulates that licensees reflect findings from other nuclear plants, as follows:

- *Licensee shall take necessary preventive measures by understating the possible impacts of the identified findings*
- *In this case, licensee shall reflect the knowledge and findings obtained from other facilities as well as those from their own nuclear facility.*

<ATTACHMENTS> the Commercial Reactors QMS Ordinance

Subsidiary Attachments

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

Question 5.12

Does the legal and regulatory framework require that special consideration be given at the design stage of a nuclear power plant to the incorporation of features to facilitate radioactive waste management and the future decommissioning and dismantling of the plant?

Answer

No

Finding

The legal and regulatory framework does not require that special consideration be given at the design stage of a nuclear power plant to the incorporation of features to facilitate radioactive waste management and the future decommissioning and dismantling of the plant.

Response

Measures to facilitate decommissioning and control the generation volume of radioactive waste are not considered in the design phase.

Subsidiary Question 5.12.2

What are the reasons that the legal and regulatory framework does not require that special consideration be given at the design stage of a nuclear power plant to the incorporation of features to facilitate radioactive waste management and the future decommissioning and dismantling of the plant?

Subsidiary Response

The approval for decommissioning plan is not required in the design stage but before starting decommissioning.

Subsidiary Question 5.12.3

What are the measures taken in order to include in the legal and regulatory framework a requirement for special consideration to be given at the design stage of a nuclear power plant to the incorporation of features to facilitate radioactive waste management and the future decommissioning and dismantling of the plant?

Subsidiary Response

The same as the answer to QID 12.2.

Question 5.13

Does the legal and regulatory framework require identification and grouping of plant states into a limited number of categories primarily on the basis of their frequency of occurrence at the nuclear power plant?

Answer

Yes

Finding

The legal and regulatory framework requires identification and grouping of plant states into a limited number of categories primarily on the basis of their frequency of occurrence at the nuclear power plant.

Response

Article 2 of the Commercial Reactor Establishment Permit Ordinance classifies plant states, into normal operation, anticipated operational occurrences (AOO) during operation, design basis accidents (DBA) and beyond DBA on the basis of their frequency of occurrence.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 5.13.1

What documentary evidence is required by the legal and regulatory framework to demonstrate that criteria are assigned to each plant state?

Subsidiary Response

Article 43-3-5, paragraph (2) of the Reactor Regulation Act clarifies the required documentary evidence for the application to Establishment Permit.

Article 3, paragraph (1), item (vii) of the Commercial Reactor Ordinance requires licensee to describe the conditions and results of the safety analyses which are carried out for AOO, DBA and BDBA. Licensees shall show that all the results satisfy the criteria predetermined for these plant states for the adequacy of overall safety design of the plant.

The paragraph (2) of that article describes the list of reference documents to be attached to the establishment permit application, which includes description of safety design of SSCs (Appendix 8), and description of the SSCs and operation for measures in accident conditions (Appendix 10. This includes safety assessment).

<ATTACHMENTS> the Reactor Regulation Act, the Commercial Reactor Establishment Permit Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.14

Does the legal and regulatory framework require that the design basis for items important to safety specify the necessary capability, reliability and functionality for the relevant operational states, for accident conditions and for conditions arising from internal and external hazards, to meet the specific acceptance criteria over the lifetime of the nuclear power plant?

Answer

Yes

Finding

The legal and regulatory framework requires that the design basis for items important to safety specify the necessary capability, reliability and functionality for the relevant operational states, for accident conditions and for conditions arising from internal and external hazards, to meet the specific acceptance criteria over the lifetime of the nuclear power plant.

Response

Article 13 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for the SSCs important to safety under the conditions anticipated for AOO and DBA. Article 37 of the Ordinance stipulates the requirements for the SSCs under the conditions anticipated for DBDA.

For SSCs for Design Basis, article 12, paragraph (3) of the Commercial Reactor Establishment Permit Ordinance requires these SSCs important to safety to perform their functions under conditions anticipated for DBA and transitions leading to DBA,

Article 43 of the Ordinance requires that SSCs for prevention and mitigation of severe accidents shall be capable of effectively performing their functions necessary to cope with severe accidents under conditions anticipated for severe accidents, such as temperature, radiation, loads;

With regard to external and internal hazards which may result in common cause failures, the articles 4 to 9 of the Ordinance requires SSCs for DB not to lose their safety function in DBA, and the articles 39 to 41 of the Ordinance require SSCs for DBDA not to lose their necessary function in DBDA.

<ATTACHMENTS> the Reactor Regulation Act, the Commercial Reactor Establishment Permit Ordinance,

Attachments

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.15

Does the legal and regulatory framework requires that the design specify a set of design limits consistent with the key physical parameters for each item important to safety for the nuclear power plant for all operational states and for accident conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that the design specify a set of design limits consistent with the key physical parameters for each item important to safety for the nuclear power plant for all operational states and for accident conditions.

Response

The same as the answer to QID 14.

Question 5.16

Does the legal and regulatory framework require that the design for the nuclear power plant applies a systematic approach to identifying a comprehensive set of postulated initiating events (PIEs) such that all foreseeable events with the potential for serious consequences and all foreseeable events with a significant frequency of occurrence are anticipated and are considered in the design?

Answer

Yes

Finding

The legal and regulatory framework requires that the design for the nuclear power plant applies a systematic approach to identifying a comprehensive set of postulated initiating events such that all foreseeable events with the potential for serious consequences and all foreseeable events with a significant frequency of occurrence are anticipated and are considered in the design.

Response

The regulatory guide of Article 13 of the Commercial Reactor Establishment Permit Ordinance quotes the guideline for safety assessment developed by the former Nuclear Safety Commission, and that guideline lists the PIEs to be considered for AOO and DBA.

The regulatory guide of Article 37 requires to conduct the analysis for the selected sequences and modes which may lead to severe accidents, and licensees are required to select the sequences and modes based on a plant specific PRA, in addition to the mandatory ones as stipulated the NRA ordinances.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance,

Attachments

Question 5.17

Does the legal and regulatory framework require identification and evaluation of effects of all foreseeable internal hazards and external hazards, including the potential for human induced events directly or indirectly to affect the safety of the nuclear power plant?

Answer

Yes

Finding

The legal and regulatory framework requires identification and evaluation of effects of all foreseeable internal hazards and external hazards, including the potential for human induced events directly or indirectly to affect the safety of the nuclear power plant.

Response

<ATTACHMENTS>

the Reactor Regulation Act, the Commercial Reactor Establishment Permit Ordinance, the Commercial Reactor Technical Standards Ordinance

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 5.17.1

What are the scope and criteria considered during the regulatory review and assessment process of internal and external hazards?

Subsidiary Response

The Commercial Reactor Establishment Permit Ordinance and the Commercial Reactor Technical Standards Ordinance require that SSCs for DB shall not lose their safety function due to internal and external hazards.

Internal hazards include internal fire and internal flooding. External hazards include natural hazards such as earthquakes, tsunamis, volcano eruptions, as well as human-induced hazards such as airplane crashes. These hazards shall be evaluated considering the conditions of the site.

<ATTACHMENTS> the Reactor Regulation Act, the Commercial Reactor Establishment Permit Ordinance, the Commercial Reactor Technical Standards Ordinance

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.18

Does the legal and regulatory framework require that the engineering design rules for items important to safety at a nuclear power plant are specified and comply with relevant national or international codes and standards and proven engineering practices in the field of nuclear power technology?

Answer

Yes

Finding

The legal and regulatory framework requires that the engineering design rules for items important to safety at a nuclear power plant are specified and that relevant national or international codes and standards and proven engineering practices in the field of nuclear power are applied.

Response

The same as the answer to QID 22.

Question 5.19

Does the legal and regulatory framework require that a set of accident conditions that is derived from postulated initiating events should be considered in the design for the purpose of establishing the boundary conditions for the nuclear power plant to withstand without exceeding the acceptable limits for radiation protection?

Answer

Yes

Finding

The legal and regulatory framework requires that a set of accident conditions that is derived from postulated initiating events should be considered in the design for the purpose of establishing the boundary conditions for the nuclear power plant to withstand without exceeding the acceptable limits for radiation protection.

Response

the Reactor Regulation Act, the Commercial Reactor Establishment Permit Guide

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

Subsidiary Question 5.19.1

What are the regulatory criteria used to review and assess Design basis accidents?

Subsidiary Response

The regulatory guide of article 13, paragraph (1) of the Commercial Reactor Establishment Permit Ordinance stipulates requirements on safety design regarding NO, AOO and DBA.

(1) All the SSCs important to safety shall have necessary capability, reliability and functionality for the relevant operational states and for accident conditions.

(2) Safety analyses shall be conducted for the AOOs and DBAs and their results shall satisfy the pre-determined criteria for AOOs and DBAs, respectively. These analyses shall be

conducted in accordance with the guideline for safety assessment developed by the former Nuclear Safety Commission.

That guideline requires to confirm that the plant is designed such that a postulated initiating event does not lead to melting or significant damage of the core, that the event does not cause, in its process, a secondary damage which may lead to another abnormal condition, and that the function of the barriers against the release of radioactive materials in the event is adequate.

<ATTACHMENTS> the Reactor Regulation Act, the Commercial Reactor Establishment Permit Guide, Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H24Regulatory Guide for Reviewing Safety Assessment of Light Water Nuclear Power Reactor Facilities

Question 5.20

Does the legal and regulatory framework require that a set of design extension conditions should be derived on the basis of engineering judgment, deterministic assessments and probabilistic assessments for the purpose of further improving the safety of the nuclear power plant by enhancing the plant's capabilities to withstand, without unacceptable radiological consequences, accidents that are either more severe than design basis accidents or that involve additional failures?

These design extension conditions should be used to identify the additional accident scenarios to be addressed in the design and to plan practicable provisions for the prevention of such accidents or mitigation of their consequences if they do occur.

Answer

Yes

Finding

The legal and regulatory framework requires that a set of design extension conditions should be derived on the basis of engineering judgment, deterministic assessments and probabilistic assessments for the purpose of further improving the safety of the nuclear power plant by enhancing the plant's capabilities to withstand, without unacceptable radiological consequences, accidents that are either more severe than design basis accidents or that involve additional failures.

Response

<ATTACHMENTS>

The Commercial Reactor Establishment Permit Ordinance, Article 37 (Prevention of progression from severe accident and others)

Attachments

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

Subsidiary Question 5.20.1

What are the regulatory criteria used to review and assess design extension conditions?

Subsidiary Response

Chapter 3, titled “Facilities for Coping to Severe Accidents” (Articles 37 to 62) of the Commercial Reactor Establishment Permit Ordinance stipulates regulatory requirements for preventing and mitigating severe accidents.

Article 37 requires safety analyses of accident sequences for BDBA. This Article consists of measures to prevent four specific accident conditions: (i) prevention of severe core damage, (ii) prevention of containment failure after core damage (iii) prevention of spent fuel damage in the spent fuel pool, and (iv) prevention of fuel damage in the shut-down condition.

For each preventive measure, the accident sequences to be analyzed are specified and the acceptable conditions are described.

For example, with regard to the prevention of core damage in PWR, the accident sequences to be analyzed and the acceptance conditions are as follows:

(Accident sequences to be analyzed)

- *Predetermined 8 sequences, namely loss of heat removal function from the secondary loop, loss of all the AC power and other sequences stipulated in the regulatory guide-*
- *Sequences to be added based on the PRA of individual plants*

(Acceptance conditions- the effectiveness of the counter-measures shall be confirmed)

- *Prevention of significant core damage and sufficiently cooling down of reactor core-*
- *Pressure on primary (reactor pressure) boundary is less than 1.2 times of design pressure or pressure limit*
- *Pressure on containment boundary is less than design pressure or pressure limit*
- *Temperature on containment boundary is less than design temperature or temperature limit*

<ATTACHMENTS>

the Commercial Reactor Establishment Permit Ordinance and its Guide

Subsidiary Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

Subsidiary Question 5.20.2

What are the provisions in the regulatory framework to address design extension conditions that could lead to significant radioactive releases?

Subsidiary Response

Chapter 3, titled “Facilities for Coping to Severe Accidents” (Articles 37 to 62) of the Commercial Reactor Establishment Permit Ordinance stipulates regulatory requirements for preventing and mitigating severe accidents. As mentioned above, Article 37 requires safety analyses of accident sequences of BDBA. Other Articles describe requirements on SSCs for BDBA, as in the followings.

- Specialized safety facility (Article 42)*
- SSCs for BDBA (Article 43)*
- SSCs to prevent a significant core damage in the case of ATWS (Article 44)*
- SSCs to cool down reactor under the conditions when pressure in reactor pressure boundary is high and the SSCs important to safety for Design Basis fails to provide cooling function (Article 45)*
- SSCs to reduce pressure in the reactor pressure boundary under the conditions when pressure in reactor pressure boundary is high and the SSCs important to safety for Design Basis fails to depressurize (Article 46)*
- SSCs to cool down reactor under the conditions when pressure in reactor pressure boundary is low and the design basis SCCs fail to cool down (Article 47)*
- SSCs to transfer heats to Ultimate Heat Sink under the conditions where the SSCs important to safety for Design Basis fail to transfer such heats to UHS (Article 48)*
- SSCs to cool the inside of reactor containment vessel SSCs (Article 49)*
- SSCs to prevent failures of containment vessel due to over-pressurization (Article 50)*

- *SSCs to cool molten cores at the bottom of reactor containment vessel (Article 51)*
- *SSCs to prevent failures of containment vessel due to a hydrogen explosion (Article 52)*
- *SSCs to prevent damage to reactor buildings, etc. due to a hydrogen explosion (Article 53)*
- *SSCs to cool spent fuel storage pool (Article 54)*
- *SSCs to suppress release of radioactive materials to the outside of the station (Article 55)*
- *SSCs to supply water required to settle severe accidents (Article 56)*
- *Power supply system (Article 57)*
- *Instrumentation system (Article 58)*
- *Reactor control room (Article 59)*
- *SSCs for monitoring and measuring (Article 60)*
- *Emergency response center (Article 61)*
- *SSCs required for communication (Article 62)*

<ATTACHMENTS> *the Commercial Reactor Establishment Permit Ordinance*

Subsidiary Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.21

Does the legal and regulatory framework require that interference between safety systems or between redundant elements of a system should be prevented by means such as physical separation, electrical isolation, functional independence and independence of communication (data transfer), as appropriate?

Answer

Yes

Finding

The legal and regulatory framework requires that interference between safety systems or between redundant elements of a system should be prevented by means such as physical separation, electrical isolation, functional independence and independence of communication (data transfer), as appropriate.

Response

Article 12, paragraph (2) of the Commercial Reactor Establishment Permit Ordinance stipulates that SSCs for DB with the highest importance to safety shall have redundancy or diversity, and independency so that they will not lose their function due to a single failure.

Article 24, paragraph (1), item (iii) of that Ordinance requires the components or devices, or channels consisting safety protection system shall be provided with redundancy so that a single failure of or removal of a service of any of them will not result in a loss of safety protection functions.

Article 24, paragraph (1), item (iv) of that Ordinance requires the channels consisting safety protection system shall be provided with independence through the separation of those channels so that safety protection function will not be lost.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.22

Does the legal and regulatory framework require identification and classification of all items important to safety on the basis of their function and their safety significance?

Answer

Yes

Finding

The legal and regulatory framework requires identification and classification of all items important to safety on the basis of their function and their safety significance.

Response

Article 12 of the Commercial Reactor Establishment Permit Ordinance requires that SSCs for DB important to safety shall be classified based on the level of importance to safety, and shall provide adequate function based on that classification.

Specifically, the regulatory guide of Article 12 quotes Review Guideline for Safety Classification for LWR developed by the former Nuclear Safety Commission, and that guideline provides the details of such classifications.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance, Review Guide for Safety Classification for LWR developed by the former Nuclear Safety Commission

Attachments

Question 5.23

Does the legal and regulatory framework require the reliability of items important to safety to be commensurate with their safety significance?

Answer

Yes

Finding

The legal and regulatory framework requires the reliability of items important to safety to be commensurate with their safety significance.

Response

The same as the answer to QID 22

Question 5.24

Does the legal and regulatory framework require that the design of equipment should take due account of the potential for common cause failures of items important to safety, to determine how the concepts of diversity, redundancy, physical separation and functional independence have to be applied to achieve the necessary reliability?

Answer

Yes

Finding

The legal and regulatory framework requires that the design of equipment should take due account of the potential for common cause failures of items important to safety, to determine how the concepts of diversity, redundancy, physical separation and functional independence have to be applied to achieve the necessary reliability.

Response

Article 12, paragraph (2) of the Commercial Reactor Establishment Permit Ordinance stipulates that SSCs for DB with the highest importance to safety shall have redundancy or diversity, and independency so that they will not lose their function due to a single failure.

The Commercial Reactor Establishment Ordinance requires measures to predict, prevent and mitigate hazards, which may cause common failures across different levels.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.25

Does the legal and regulatory framework require application of single failure criterion (SFC) to each safety group incorporated in the plant design?

Answer

Yes

Finding

The legal and regulatory framework requires application of single failure criterion to each safety group incorporated in the plant design.

Response

The same as the answer to QID 24.

Question 5.26

Does the legal and regulatory framework require incorporation of the concept of fail-safe design as appropriate into the design of systems and components important to safety?

Answer

Yes

Finding

The legal and regulatory framework requires incorporation of the concept of fail-safe design as appropriate into the design of systems and components important to safety.

Response

Article 24 of the Commercial Reactor Establishment Permit Ordinance requires that a fail-safe design concept be incorporated into the design of safety protection system.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.27

Does the legal and regulatory framework require that support service systems that ensure the operability of equipment forming part of a system important to safety should be classified accordingly?

Answer

Yes

Finding

The legal and regulatory framework requires classification of support service systems that ensure the operability of equipment forming part of a system important to safety accordingly.

Response

The regulatory guide of Article 12 paragraph (1) of the Commercial Reactor Establishment Permit Ordinance quotes the Review Guide for Safety Classification for Light Water Nuclear Power Plant, which includes the classification of support systems.

That Review Guide classifies SSCs as the following two types and specifies their safety importance;

(1) "front line system" as safety function directly

(2) "support system" (or "related system" in the Review Guide) as support function to the front line system

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance, the Review Guide for Safety Classification for Light Water Nuclear Power Plant

Attachments

H23Regulatory Guide for Reviewing Classification of Importance of Safety Function of Light Water Nuclear Power Reactor Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.28

Does the legal and regulatory framework require the design to establish a set of operational limits and conditions for safe operation of the nuclear power plant?

Answer

Yes

Finding

The legal and regulatory framework requires the design to establish a set of operational limits and conditions for safe operation of the nuclear power plant.

Response

For SSCs for DB and for DBDA, the regulatory guide of article 92, paragraph (1), item(ix) of the Commercial Reactors Ordinance requires that the limits and conditions of operation (LCO) incorporated with plant states shall be confirmed and included in the licensee's operational safety program.

Licensee are required that the LCO shall be satisfied with conditions for safety analysis and design applied for the reactor establishment permit and its amendment.

<ATTACHMENTS> the Commercial Reactors Ordinance

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 5.29

Does the legal and regulatory framework require that items important to safety for a nuclear power plant be designed to be calibrated, tested, maintained, repaired or replaced, inspected and monitored as required to ensure their capability for performing their functions and to maintain their integrity in all conditions specified in their design basis?

Answer

Yes

Finding

The legal and regulatory framework requires that items important to safety for a nuclear power plant are designed to be calibrated, tested, maintained, repaired or replaced, inspected and monitored as required to ensure their capability for performing their functions and to maintain their integrity in all conditions specified in their design basis.

Response

For SSCs for DB, article 12, paragraph (3) of the Commercial Reactor Establishment Permit Ordinance requires that SSCs important to safety shall function in all the anticipated conditions during DBA and transition leading to DBA.

For SSCs for BDBA, article 43 of the Ordinance stipulates that such SCCs shall provide necessary functions in the anticipated conditions (e.g. temperature, radiation level, pressure) for BDBA.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.30

Does the legal and regulatory framework require the implementation of a qualification programme for items important to safety to verify that items important to safety at a nuclear power plant are capable of performing their intended functions when necessary, and in the prevailing environmental conditions, throughout their design life, with due account taken of plant conditions during maintenance and testing?

Answer

Yes

Finding

The legal and regulatory framework requires that a qualification programme for items important to safety should be implemented to verify that items important to safety at a nuclear power plant are capable of performing their intended functions when necessary, and in the prevailing environmental conditions, throughout their design life, with due account taken of plant conditions during maintenance and testing.

Response

For SSCs important to safety for DB, article 12, paragraph (2) of the Commercial Reactor Establishment Permit Ordinance requires that the SSCs can be tested or inspected in accordance with the importance of their safety functions during normal operation or shut-down condition in order to verify their integrity and capability.

For SSCs for BDBA, article 43, paragraph (1), item (iii) of the Commercial Reactor Establishment Permit Ordinance requires that the SSCs shall be tested or inspected to verify its integrity and capability during operational states or shut-down states.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.31

Does the legal and regulatory framework require the design life of items important to safety at a nuclear power plant to be determined and appropriate margins to be provided in the design to take due account of relevant mechanisms of ageing, neutron embrittlement and wear out and of the potential for age related degradation, to ensure the capability of items important to safety to perform their necessary safety functions throughout their design life?

Answer

Yes

Finding

The legal and regulatory framework requires that the design life of items important to safety at a nuclear power plant shall be determined and appropriate margins shall be provided in the design to take due account of relevant mechanisms of ageing, neutron embrittlement and wear out and of the potential for age related degradation, to ensure the capability of items important to safety to perform their necessary safety functions throughout their design life.

Response

The Reactor Regulation Act requires licensees to maintain the conformance both to the Commercial Reactor Establishment Permit Ordinance and the Commercial Reactor Technical Standards Ordinance.

The same as the answer to QID 29 and 30.

Question 5.32

Does the legal and regulatory framework require systematic consideration of human factors, including the human-machine interface, to be included at an early stage in the design process for a nuclear power plant and to be continued throughout the entire design process?

Answer

Yes

Finding

The legal and regulatory framework requires that systematic consideration of human factors, including the human–machine interface, should be included at an early stage in the design process for a nuclear power plant and should be continued throughout the entire design process.

Response

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance, the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 5.32.1

What are the scope and criteria used by the regulatory body to review and assess how the human factors have been addressed in the design for optimal operator performance?

Subsidiary Response

For SSCs for DB, article 10 of the Commercial Reactor Establishment Permit Ordinance requires that the SSCs shall be such that measures to prevent operational errors have been taken and safety systems shall be operated easily.

In addition, the notation 7 “Requirements for SSCs to prevent erroneous operation at control room” in the regulatory guide of the Commercial Reactor Technical Standards Ordinance sets forth items to be considered for conditions, layout and operation space, layout of control panel, display system and control function with regard to preventing operational errors.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance, the Commercial Reactor Technical Standards Ordinance

Subsidiary Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.33

Does the legal and regulatory framework require that safety systems should not be shared between multiple units unless this contributes to enhanced safety?

Answer

Yes

Finding

The legal and regulatory framework requires that safety systems should not be shared between multiple units unless this contributes to enhanced safety.

Response

Article 12, paragraph (6) of the Commercial Reactor Establishment Permit Ordinance requires that SSCs important to safety shall not be shared and shall not be interconnected among two or more units unless such sharing or interconnection contributes to enhanced safety of two or more plants.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.34

Does the legal and regulatory framework require that all systems in a nuclear power plant that could contain fissile material or radioactive material should be so designed as: to prevent the occurrence of events that could lead to an uncontrolled radioactive release to the environment; to prevent accidental criticality and overheating; to ensure that radioactive releases of material are kept below authorized limits on discharges in normal operation and below acceptable limits in accident conditions, and are kept as low as reasonably achievable; and to facilitate mitigation of radiological consequences of accidents?

Answer

Yes

Finding

The legal and regulatory framework requires that all systems in a nuclear power plant that could contain fissile material or radioactive material to be so designed as: to prevent the occurrence of events that could lead to an uncontrolled radioactive release to the environment; to prevent accidental criticality and overheating; to ensure that radioactive

releases material are kept below authorized limits on discharges in normal operation and below acceptable limits in accident conditions, and are kept as low as reasonably achievable; and to facilitate mitigation of radiological consequences of accidents.

Response

The Commercial Reactor Establishment Permit Ordinance has set requirements as follows:

- To prevent and mitigate the occurrence of events that could lead to an uncontrolled radioactive release to the environment:

Article 13 of the ordinance stipulates the requirements for radiation effects to the public in DBA.

Article 37 of the ordinance stipulates the requirements for measures to prevent failure of containment vessel and large radioactive release to the outside of the plant in the case of severe accidents.

- To prevent accidental criticality:

Article 25 of the ordinance stipulates requirements to make and maintain a subcritical state in DBA.

Article 44 of the ordinance stipulates requirements to make and maintain a subcritical state in the case of the failure of emergency reactor shutdown.

- To prevent overheating of reactor vessel:

Article 13 of the ordinance stipulates requirements for pressure of the reactor coolant pressure boundary in DBA..

- To limit the release of gaseous and liquid radioactive releases:

Article 13 of the ordinance stipulates that the SSCs shall have capability to treat radioactive waste generated in plant so that they can sufficiently reduce concentration of radioactive materials in atmosphere outside the supervised area and in water at a border of the supervised area during normal operation.

The article 13 of the ordinance stipulates that the SSCs shall be capable to reduce adequately air dose rate in the vicinity of the site due to direct and sky-shine gamma rays from power reactor facility during normal operation.

In the case of severe accidents, see the first paragraph.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.35

Does the legal and regulatory framework require the nuclear power plants coupled with heat utilization units (such as for district heating) and/or water desalination units to be designed to prevent processes that transport radionuclides from the nuclear plant to the desalination unit or the district heating unit under conditions of operational states and in accident conditions?

Answer

No

Finding

The legal and regulatory framework does not require the nuclear power plants coupled with heat utilization units (such as for district heating) and/or water desalination units to be designed to prevent processes that transport radionuclides from the nuclear plant to the desalination unit or the district heating unit under conditions of operational states and in accident conditions.

Response

There is no nuclear power plant which is installed for the purpose of supplying desalinated water or heat to the facilities outside in Japan.

In case of establishing in-house desalination facility, it is regulated as an auxiliary facility.

Subsidiary Question 5.35.1

What are the measures taken in order to include in the legal and regulatory framework a requirement that the nuclear power plants coupled with heat utilization units (such as for district heating) and/or water desalination units should be designed to prevent processes that transport radionuclides from the nuclear plant to the desalination unit or the district heating unit under conditions of operational states and in accident conditions?

Subsidiary Response

The same as the answer to QID35.

Question 5.36

Does the legal and regulatory framework require a nuclear power plant to be provided with a sufficient number of escape routes, clearly and durably marked, with reliable emergency lighting, ventilation and other services essential to the safe use of these escape routes?

Answer

Yes

Finding

The legal and regulatory framework requires a nuclear power plant to be provided with a sufficient number of escape routes, clearly and durably marked, with reliable emergency lighting, ventilation and other services essential to the safe use of these escape routes.

Response

Article 11 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for the SSCs for safe evacuation routes.

For example, the ordinance requires the installation of safe evacuation routes whose locations can be easily distinguished by marking them clearly and durably, and the installation of emergency lighting for evacuation whose function is not lost even if loss of power supply.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.37

Does the legal and regulatory framework require effective means of communication throughout the nuclear power plant to facilitate safe operation in all modes of normal operation and to be available for use following all postulated initiating events and in accident conditions?

Answer

Yes

Finding

The legal and regulatory framework requires effective means of communication throughout the nuclear power plant to facilitate safe operation in all modes of normal operation and to be available for use following all postulated initiating events and in accident conditions.

Response

For SSCs for DB, Article 35 of the Commercial Reactor Establishment Permit Ordinance, and for BDBA, Article 62 of the ordinance stipulates the requirements for the communication equipment.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.38

Does the legal and regulatory framework require isolation of the nuclear power plant from its surroundings with a suitable layout of the various structural elements so that access to it can be controlled?

Answer

Yes

Finding

The legal and regulatory framework requires isolation of the nuclear power plant from its surroundings with a suitable layout of the various structural elements so that access to it can be controlled.

Response

Article 7 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for the access control in order to prevent unauthorized entry.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.39

Does the legal and regulatory framework require unauthorized access to, or interference with items important to safety, including computer hardware and software, should be prevented?

Answer

Yes

Finding

The legal and regulatory framework requires that unauthorized access to, or interference with items important to safety, including computer hardware and software, should be prevented.

Response

Article 24, item (vi) of the Commercial Reactor Establishment Permit Ordinance stipulates the prevention of malicious access to safety protection system.

The regulatory Guide of the Article 24 provides detailed criteria such as the physical and functional separation of hardware, the prevention of unauthorized access to the system (e.g. computer virus intrusion) at the time of installation, update, or testing of systems.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.40

Does the legal and regulatory framework require the potential for harmful interactions of systems important to safety at the nuclear power plant that might be required to operate simultaneously to be evaluated, and effects of any harmful interactions to be prevented?

Answer

Yes

Finding

The legal and regulatory framework requires that the potential for harmful interactions of systems important to safety at the nuclear power plant that might be required to operate simultaneously should be evaluated, and effects of any harmful interactions should be prevented.

Response

The same as the answer to QID14.

Question 5.41

Does the legal and regulatory framework require that the functionality of items important to safety at the nuclear power plant should not be compromised by disturbances in the electrical power grid, including anticipated variations in the voltage and frequency of the grid supply?

Answer

Yes

Finding

The legal and regulatory framework requires that the functionality of items important to safety at the nuclear power plant should not be compromised by disturbances in the electrical power grid, including anticipated variations in the voltage and frequency of the grid supply.

Response

Article 33 of the Commercial Reactor Establishment Permit Ordinance stipulates the detection of abnormal condition and the prevention of its progression regarding safety power supply equipment.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.42

Does the legal and regulatory framework require a safety analysis of the design for the nuclear power plant to be conducted in which methods of both deterministic analysis and probabilistic analysis should be applied to enable the challenges to safety in the various categories of plant states to be evaluated and assessed?

Answer

Yes

Finding

The legal and regulatory framework requires a safety analysis of the design for the nuclear power plant to be conducted in which methods of both deterministic analysis and probabilistic analysis should be applied to enable the challenges to safety in the various categories of plant states to be evaluated and assessed.

Response

<ATTACHMENTS>

[the Commercial Reactor Establishment Permit Guide]

Article 13 (Prevention of abnormal transients during operation and of design basis accident expansion), Article 37 (Prevention of severe accident expansion and others) (Prevention of significant damage to reactor core)

Attachments

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

Subsidiary Question 5.42.1

What are the scope and criteria considered during the regulatory review of safety analysis of the design?

Subsidiary Response

The same as the answer to QID10.

Question 5.43

Does the legal and regulatory framework require fuel elements and assemblies for the nuclear power plant to be designed to maintain their structural integrity, and to withstand satisfactorily the anticipated radiation levels and other conditions in the reactor core, in combination with all processes of deterioration that could occur in operational states?

Answer

Yes

Finding

The legal and regulatory framework requires fuel elements and assemblies for the nuclear power plant to be designed to maintain their structural integrity, and to withstand satisfactorily the anticipated radiation levels and other conditions in the reactor core, in combination with all processes of deterioration that could occur in operational states.

Response

Article 15, paragraphs (4), (5), and (6) of the Commercial Reactor Establishment Permit Ordinance stipulate the requirements for the fuel assembly.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.44

Does the legal and regulatory framework require that the fuel elements and fuel assemblies and their supporting structures for the nuclear power plant should be designed so that, in operational states and in accident conditions other than severe accidents, a geometry that allows for adequate cooling is maintained and the insertion of control rods is not impeded?

Answer

Yes

Finding

The legal and regulatory framework requires that the fuel elements and fuel assemblies and their supporting structures for the nuclear power plant should be designed so that, in operational states and in accident conditions other than severe accidents, a geometry that allows for adequate cooling is maintained and the insertion of control rods is not impeded.

Response

Article 15, paragraph (3) of the Commercial Reactor Establishment Permit Ordinance stipulates that “fuel assemblies, moderators and reflectors and core support structures shall be such as to ensure that power reactor will be shut down safely and function to cool reactor core after shutdown will be maintained in normal operation, an anticipated operational occurrences or a design basis accident.”

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.45

Does the legal and regulatory framework require the distributions of neutron flux that can arise in any state of the reactor core in the nuclear power plant, including states arising after shutdown and during or after refuelling, and states arising from anticipated operational occurrences and from accident conditions not involving degradation of the reactor core, to be inherently stable?

The demands made on the control system for maintaining the shapes, levels and stability of the neutron flux within specified design limits in all operational states should be minimized.

Answer

Yes

Finding

The legal and regulatory framework requires the distributions of neutron flux that can arise in any state of the reactor core in the nuclear power plant, including states arising after shutdown and during or after refuelling, and states arising from anticipated operational occurrences and from accident conditions not involving degradation of the reactor core, to be inherently stable.

Response

Article 15 of the Commercial Reactor Establishment Permit Ordinance stipulates that inherent reactor characteristics to suppress increase of power be ensured.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.46

Does the legal and regulatory framework require that means should be provided to ensure that there is a capability to shut down the reactor of the nuclear power plant in operational states and in accident conditions, and that the shutdown condition can be maintained even for the most reactive conditions of the reactor core?

Answer

Yes

Finding

The legal and regulatory framework requires that means should be provided to ensure that there is a capability to shut down the reactor of the nuclear power plant in operational states and in accident conditions, and that the shutdown condition can be maintained even for the most reactive conditions of the reactor core.

Response

Article 15 (Reactor core and its associated items) of the Commercial Reactor Establishment Permit Ordinance and article 25 (Reactivity control system and reactor shutdown system) stipulates the requirements for reactor shutdown capability.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.47

Does the legal and regulatory framework require that the components of the reactor coolant systems for the nuclear power plant should be designed and constructed so that the risk of faults due to inadequate quality of materials, inadequate design standards, insufficient capability for inspection or inadequate quality of manufacture is minimized?

Answer

Yes

Finding

The legal and regulatory framework requires that the components of the reactor coolant systems for the nuclear power plant should be designed and constructed so that the risk of faults due to inadequate quality of materials, inadequate design standards, insufficient capability for inspection or inadequate quality of manufacture is minimized.

Response

Article 17 (Materials and Structures) of the Commercial Reactor Technical Standards Ordinance stipulates the requirements for “materials and structures of vessels, pipes, pumps, valves, or support structures of these, or core support structures that belong to Design Basis Events Prevention Facilities”.

That article classifies vessels, pipes, pumps and valves comprising a Reactor Coolant Pressure Boundary as class 1 and the regulatory guide of that article provides detailed requirements for ensuring proper materials and structural strength.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.48

Does the legal and regulatory framework require that provision should be made to ensure that the operation of pressure relief devices will protect the pressure boundary of the reactor coolant systems against overpressure and will not lead to the release of radioactive material from the nuclear power plant directly to the environment?

Answer

Yes

Finding

The legal and regulatory framework requires that provision should be made to ensure that the operation of pressure relief devices will protect the pressure boundary of the reactor coolant systems against overpressure and will not lead to the release of radioactive material from the nuclear power plant directly to the environment.

Response

Articles 20 and 32, paragraph (1) of the Commercial Reactor Technical Standards Ordinance stipulate the requirements for safety relief valves and others as equipment for pressure relief function.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.49

Does the legal and regulatory framework require that provision should be made for controlling the inventory, temperature and pressure of the reactor coolant to ensure that specified design limits are not exceeded in any operational states of the nuclear power plant, with due account taken of volumetric changes and leakage?

Answer

Yes

Finding

The legal and regulatory framework requires that provision should be made for controlling the inventory, temperature and pressure of the reactor coolant to ensure that specified design limits are not exceeded in any operational states of the nuclear power plant, with due account taken of volumetric changes and leakage.

Response

Article 20 of the Commercial Reactor Establishment Permit Ordinance stipulates that “Power reactor facility shall have equipment to compensate reduction of primary coolant during normal operation or in the event of a small leakage of primary coolant (limited to such equipment categorized to safety system)”.

Article 25 of the Commercial Reactor Establishment Permit Ordinance stipulates that “the primary coolant shall maintain their specified physical and chemical properties under the severest conditions caused by pressure, temperature and/or radiation during normal operation”.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.50

Does the legal and regulatory framework require that adequate facilities should be provided at the nuclear power plant for the removal from the reactor coolant of radioactive substances, including activated corrosion products and fission products deriving from the fuel, and non-radioactive substances?

Answer

Yes

Finding

The legal and regulatory framework requires that adequate facilities should be provided at the nuclear power plant for the removal from the reactor coolant of radioactive substances, including activated corrosion products and fission products deriving from the fuel, and non-radioactive substances.

Response

Article 33, paragraph (4) of the Commercial Reactor Technical Standards Ordinance stipulates that “equipment to maintain the concentration of impurities and radioactive materials within the Primary Coolant below the level that does not hinder the operation of power reactor facilities”.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.51

Does the legal and regulatory framework require that means should be provided for the removal of residual heat from the reactor core in the shutdown state of the nuclear power plant such that the design limits for fuel, the reactor coolant pressure boundary and structures important to safety are not exceeded?

Answer

Yes

Finding

The legal and regulatory framework requires that means should be provided for the removal of residual heat from the reactor core in the shutdown state of the nuclear power plant such that the design limits for fuel, the reactor coolant pressure boundary and structures important to safety are not exceeded.

Response

Article 21 of the Commercial Reactor Establishment Permit Ordinance stipulates requirements for SSCs for remove residual heat.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.52

Does the legal and regulatory framework require means of cooling the reactor core to restore and maintain cooling of the fuel under accident conditions at the nuclear power

plant even if the integrity of the pressure boundary of the primary coolant system is not maintained?

Answer

Yes

Finding

The legal and regulatory framework requires means of cooling the reactor core to restore and maintain cooling of the fuel under accident conditions at the nuclear power plant even if the integrity of the pressure boundary of the primary coolant system is not maintained.

Response

Article 19, item (1) of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for emergency core cooling systems.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.53

Does the legal and regulatory framework require that systems should be provided to transfer residual heat from items important to safety at the nuclear power plant to an ultimate heat sink with very high levels of reliability for all plant states?

Answer

Yes

Finding

The legal and regulatory framework requires that systems shall be provided to transfer residual heat from items important to safety at the nuclear power plant to an ultimate heat sink with very high levels of reliability for all plant states.

Response

Article 22 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for SCCs which transfer residual heat to the ultimate heat sink.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.54

Does the legal and regulatory framework require for a containment system to ensure or to contribute to the fulfilment of the following safety functions at the nuclear power plant: (1) confinement of radioactive substances in operational states and in accident conditions; (2) protection of the reactor against natural external events and human induced events; (3) radiation shielding in operational states and in accident conditions?

Answer

Yes

Finding

The legal and regulatory framework requires for a containment system to ensure or to contribute to the fulfilment of the following safety functions at the nuclear power plant: (1) confinement of radioactive substances in operational states and in accident conditions; (2) protection of the reactor against natural external events and human induced events; (3) radiation shielding in operational states and in accident conditions.

Response

Article 32 of the Commercial Reactor Establishment Permit Ordinance stipulates a reactor containment system be established as SSCs for DB. That ordinance also stipulates the requirements for containment vessel in BDBA

Specifically, Article 32, paragraph (1) of the Commercial Reactor Establishment Permit Ordinance stipulates that “A reactor containment vessel shall be capable of adequately withstanding against the expected maximum pressure, maximum temperature and appropriate seismic load, and to preserve leakage rate within the specified limit together with appropriately operating isolation functions, so that the public will not receive radiation effects by the leakage of radioactive materials in the event of damages or failures of equipment which belongs to the primary cooling system”.

Article 32, paragraph (7) of the Commercial Reactor Establishment Permit Ordinance stipulates “Power reactor facility shall have a system to clean up atmosphere within the reactor containment vessel (limited to one categorized to safety system) in order to reduce concentration of radioactive materials in the case that might cause radiological consequences to the public due to a leakage of gaseous radioactive materials from the reactor containment vessel, resulting from possible damages or failures of equipment which belongs to the primary cooling system”.

Article 13 of the Commercial Reactor Establishment Permit Ordinance stipulates requirements for items important to safety SSCs in anticipated operating occurrences and design basis accidents.

Article 37 of the Ordinance stipulates requirements for SSCs for BDBA

Function of reactor containment vessel is considered in these evaluations.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.55

Does the legal and regulatory framework require that the design of the containment be such as to ensure that any release of radioactive material from the nuclear power plant to the environment is as low as reasonably achievable, is below the authorized limits on discharges in operational states and is below acceptable limits in accident conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that the design of the containment be such as to ensure that any release of radioactive material from the nuclear power plant to the environment is as low as reasonably achievable, is below the authorized limits on discharges in operational states and is below acceptable limits in accident conditions.

Response

Same as the answer QID54.

Question 5.56

Does the legal and regulatory framework require that each line that penetrates the containment at a nuclear power plant as part of the reactor coolant pressure boundary or that is connected directly to the containment atmosphere should be automatically and reliably sealable in the event of an accident in which the leak tightness of the containment is essential to preventing radioactive releases to the environment that exceed acceptable limits?

Answer

Yes

Finding

The legal and regulatory framework requires that each line that penetrates the containment at a nuclear power plant as part of the reactor coolant pressure boundary or that is connected directly to the containment atmosphere should be automatically and reliably sealable in the event of an accident in which the leak tightness of the containment is essential to preventing radioactive releases to the environment that exceed acceptable limits.

Response

Article 32, paragraphs (3), (4), and (5) of the Commercial Reactor Establishment Permit Ordinance stipulates that the containment vessel shall be isolated when necessary.

For example, when containment isolation system needs to be ensured in response to a design basis accident, isolation valves for main pipes shall shut automatically with high level of reliability.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.57

Does the legal and regulatory framework require access by operating personnel to the containment at a nuclear power plant should be through airlocks equipped with doors that are interlocked to ensure that at least one of the doors is closed during reactor power operation and in accident conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that access by operating personnel to the containment at a nuclear power plant should be through airlocks equipped with doors that are interlocked to ensure that at least one of the doors is closed during reactor power operation and in accident conditions.

Response

Article 44, paragraph (1), item (1) (b) of the Commercial Reactor Technical Standards Ordinance stipulates that air-tightness for opening space penetrating through containment vessel shall be ensured.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.58

Does the legal and regulatory framework require that provision should be made to control the pressure and temperature in the containment at a nuclear power plant and to control any build-up of fission products or other gaseous, liquid or solid substances that might be released inside the containment and that could affect the operation of systems important to safety?

Answer

Yes

Finding

The legal and regulatory framework requires that provision should be made to control the pressure and temperature in the containment at a nuclear power plant and to control any build-up of fission products or other gaseous, liquid or solid substances that might be released inside the containment and that could affect the operation of systems important to safety.

Response

Article 32 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for the function of the containment vessel at DBA.

Article 49 and 50 of that Ordinance stipulates that SSCs necessary to reduce the pressure and temperature inside the containment vessel shall be ensured, in order to prevent the failure of the containment vessel..

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.59

Does the legal and regulatory framework require that instrumentation should be provided for determining the values of all the main variables that can affect the fission process, the integrity of the reactor core, the reactor coolant systems and the containment at the nuclear power plant, for obtaining essential information on the plant that is necessary for its safe and reliable operation, for determining the status of the plant in accident conditions and for making decisions for the purposes of accident management?

Answer

Yes

Finding

The legal and regulatory framework requires that instrumentation should be provided for determining the values of all the main variables that can affect the fission process, the integrity of the reactor core, the reactor coolant systems and the containment at the nuclear power plant, for obtaining essential information on the plant that is necessary for its safe and reliable operation, for determining the status of the plant in accident conditions and for making decisions for the purposes of accident management.

Response

Article 23 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for instrumentation & control system for DB, Article 58 and 60 stipulates requirements for instrumentation systems and a monitoring & measuring systems for BDBA

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.60

Does the legal and regulatory framework require that appropriate and reliable control systems should be provided at the nuclear power plant to maintain and limit the relevant process variables within the specified operational ranges?

Answer

Yes

Finding

The legal and regulatory framework requires appropriate and reliable control systems should be provided at the nuclear power plant to maintain and limit the relevant process variables within the specified operational ranges.

Response

Article 23 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for control systems.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.61

Does the legal and regulatory framework require that a protection system should be provided at the nuclear power plant that has the capability to detect unsafe plant conditions and to initiate safety actions automatically to actuate the safety systems necessary for achieving and maintaining safe plant conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that a protection system should be provided at the nuclear power plant that has the capability to detect unsafe plant conditions and to initiate safety actions automatically to actuate the safety systems necessary for achieving and maintaining safe plant conditions

Response

Article 24 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for safety protection system.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.62

Does the legal and regulatory framework require that instrumentation and control systems for items important to safety at the nuclear power plant should be designed for high functional reliability and periodic testability commensurate with the safety function(s) to be performed?

Answer

Yes

Finding

The legal and regulatory framework requires that instrumentation and control systems for items important to safety at the nuclear power plant should be designed for high functional reliability and periodic testability commensurate with the safety function(s) to be performed.

Response

Article 12 of the Commercial Reactor Establishment Permit Ordinance stipulates that “SSCs important to safety for DB shall be such as to ensure their safety functions in accordance with their importance.”.

Article 12, paragraph (4) of the Commercial Reactor Establishment Permit Ordinance stipulates that “SSCs important to safety for DB shall be such that they can be tested or inspected in accordance with the importance of their safety functions during power operation or shut-down condition in order to verify their integrity and capability”.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.63

Does the legal and regulatory framework require that if a system important to safety at the nuclear power plant is dependent upon computer based equipment, appropriate standards and practices for the development and testing of computer hardware and software should be established and implemented throughout the service life of the system, and in particular throughout the software development cycle. The entire development shall be subject to a quality management system?

Answer

Yes

Finding

The legal and regulatory framework requires that if a system important to safety at the nuclear power plant is dependent upon computer based equipment, appropriate standards and practices for the development and testing of computer hardware and software should

be established and implemented throughout the service life of the system, and in particular throughout the software development cycle. The entire development shall be subject to a quality management system.

Response

The regulatory guide of paragraph (4) in Article 35 of the Commercial Reactor Technical Standards Ordinance stipulates the requirements for safety protection systems, and that guide on that Article further provides acceptance criteria for digital equipment by quoting the industrial standard "Japan Electric Association Code (JEAC) 4620-2008, Application Rules for programmable Digital Computer System in Safety-Related System of Nuclear Power Plants".

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.64

Does the legal and regulatory framework require that interference between protection systems and control systems at the nuclear power plant should be prevented by means of separation, by avoiding interconnections or by suitable functional independence?

Answer

Yes

Finding

The legal and regulatory framework requires that interference between protection systems and control systems at the nuclear power plant should be prevented by means of separation, by avoiding interconnections or by suitable functional independence.

Response

Article 24 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for the mutual interference between protection systems and control systems.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.65

Does the legal and regulatory framework require that a control room should be provided at the nuclear power plant from which the plant can be safely operated in all operational states, either automatically or manually, and from which measures can be taken to maintain the plant in a safe state or to bring it back into a safe state after anticipated operational occurrences and accident conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that a control room should be provided at the nuclear power plant from which the plant can be safely operated in all operational states, either automatically or manually, and from which measures can be taken to maintain the plant in a safe state or to bring it back into a safe state after anticipated operational occurrences and accident conditions.

Response

Article 26, paragraph (1) of the Commercial Reactor Establishment Permit Ordinance stipulates requirements for the control room.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.66

Does the legal and regulatory framework require that instrumentation and control equipment should be kept available, preferably at a single location (a supplementary control room) that is physically, electrically and functionally separate from the control room at the nuclear power plant and that the supplementary control room should be so equipped that the reactor can be placed and maintained in a shutdown state, residual heat can be removed, and essential plant variables can be monitored if there is a loss of ability to perform these essential safety functions in the control room?

Answer

Yes

Finding

The legal and regulatory framework requires that instrumentation and control equipment should be kept available, preferably at a single location (a supplementary control room) that is physically, electrically and functionally separate from the control room at the nuclear power plant and that the supplementary control room should be so equipped that the reactor can be placed and maintained in a shutdown state, residual heat can be removed, and essential plant variables can be monitored if there is a loss of ability to perform these essential safety functions in the control room.

Response

Article 26, paragraph (2) of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for the installation of supplemental control room.

Specifically, that Article requires that “Power reactor facility shall have place other than the reactor control room which have the functions and equipment necessary to promptly make power reactor to hot shutdown condition, to control essential parameters within expected ranges and subsequently make and maintain cold shutdown condition, with due account taken of the situation that the reactor control room becomes unavailable due to a fire or other abnormal conditions”.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.67

Does the legal and regulatory framework require that an on-site emergency control centre, separate from both the plant control room and the supplementary control room, should be provided from which an emergency response can be directed at the nuclear power plant?

Answer

Yes

Finding

The legal and regulatory framework requires that an on-site emergency control centre, separate from both the plant control room and the supplementary control room, should be provided from which an emergency response can be directed at the nuclear power plant.

Response

Article 34 of the Commercial Reactor Establishment Permit Ordinance requires that an on-site emergency response center shall be installed to take appropriate measures in the abnormal situation, and that Article 61 of the Ordinance requires it to enable adequate operations even during severe accidents.

Furthermore, under the framework of Nuclear Emergency Act, Article 2 of NRA's Order on Operator Emergency Response Plan requires operators to include the equipment and operation plan of on-site emergency control center in their Operator Emergency Response Plan.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance, the Nuclear Emergency Act

Attachments

C02 Nuclear Emergency Act

Question 5.68

Does the legal and regulatory framework require that the emergency power supply at the nuclear power plant should be capable of supplying the necessary power in anticipated operational occurrences and accident conditions, in the event of the loss of off-site power?

Answer

Yes

Finding

The legal and regulatory framework requires that the emergency power supply at the nuclear power plant should be capable of supplying the necessary power in anticipated operational occurrences and accident conditions, in the event of the loss of off-site power.

Response

Article 33 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for emergency power supply system for DB.

Article 57 of that Ordinance stipulates requirements for power supply system for SSCs for BDBA.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.69

Does the legal and regulatory framework require that the design of supporting systems and auxiliary systems should be such as to ensure that the performance of these systems is consistent with the safety significance of the system or component that they serve at the nuclear power plant?

Answer

Yes

Finding

The legal and regulatory framework requires that the design of supporting systems and auxiliary systems should be such as to ensure that the performance of these systems is consistent with the safety significance of the system or component that they serve at the nuclear power plant.

Response

The same as the answer to QID 27.

Question 5.70

Does the legal and regulatory framework require that auxiliary systems should be provided as appropriate to remove heat from systems and components at the nuclear power plant that are required to function in operational states and in accident conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that auxiliary systems should be provided as appropriate to remove heat from systems and components at the nuclear power plant that are required to function in operational states and in accident conditions.

Response

The regulatory guide of article 12 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for SSCs with the highest importance to safety for DB. The regulatory guide of article 12 lists such SSCs and includes "SSCs for component cooling water functions" in such SSCs.

When component cooling water function is expected for multiple safety functions for DB, all the expected functions shall be fulfilled.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.71

Does the legal and regulatory framework require that process sampling systems and post-accident sampling systems should be provided for determining, in a timely manner, the concentration of specified radionuclides in fluid process systems, and in gas and liquid samples taken from systems or from the environment, in all operational states and in accident conditions at the nuclear power plant?

Answer

Yes

Finding

The legal and regulatory framework requires that process sampling systems and post-accident sampling systems should be provided for determining, in a timely manner, the concentration of specified radionuclides in fluid process systems, and in gas and liquid samples taken from systems or from the environment, in all operational states and in accident conditions at the nuclear power plant.

Response

Article 31 of the Commercial Reactor Establishment Permit Ordinance stipulates that "Power reactor facility shall have systems (limited to one categorized to safety system) that can monitor and measure concentration of radioactive materials and radiation doses in the facility itself and near its boundary during normal operation and in the event of an anticipated operational occurrence or a design basis accident, and can display information necessary to prompt responses in the reactor control room and other places needed to be transmitted in the event of a design basis accident".

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

Question 5.72

Does the legal and regulatory framework require that the design basis for any compressed air system that serves an item important to safety at the nuclear power plant should specify the quality, flow rate and cleanness of the air to be provided?

Answer

Yes

Finding

The legal and regulatory framework requires that the design basis for any compressed air system that serves an item important to safety at the nuclear power plant should specify the quality, flow rate and cleanness of the air to be provided.

Response

The regulatory guide of article 12 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for the SSCs with the highest importance to safety for DB. That regulatory guide of article 12 lists such SSCs and includes "SSCs for compressed air supply function" in that list.

When a compressed air supply function is expected for multiple functions, all the expected functions shall be fulfilled

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

Question 5.73

Does the legal and regulatory framework require that systems for air conditioning, air heating, air-cooling and ventilation should be provided as appropriate in auxiliary rooms or other areas at the nuclear power plant to maintain the required environmental conditions for systems and components important to safety in all plant states?

Answer

Yes

Finding

The legal and regulatory framework requires that systems for air conditioning, air heating, air-cooling and ventilation should be provided as appropriate in auxiliary rooms or other areas at the nuclear power plant to maintain the required environmental conditions for systems and components important to safety in all plant states.

Response

For SSCs important to safety for DB, Article 12 of the Commercial Reactor Establishment Permit Ordinance requires that the items important to safety shall function in all the anticipated conditions during DBA and transition leading to DBA.

In determining such anticipated conditions, the installation of air conditioner, air heating, air cooling and ventilation systems are considered.

Article 26 of that Ordinance requires the installation of ventilation systems or another measures the control room, so that the operating staff can stay in the control room and conduct necessary operations even in abnormal conditions,

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.74

Does the legal and regulatory framework require that fire protection systems, including fire detection systems and fire extinguishing systems, fire containment barriers and smoke control systems, should be provided throughout the nuclear power plant, with due account taken of the results of the fire hazard analysis?

Answer

Yes

Finding

The legal and regulatory framework requires that fire protection systems, including fire detection systems and fire extinguishing systems, fire containment barriers and smoke control systems, should be provided throughout the nuclear power plant, with due account taken of the results of the fire hazard analysis.

Response

Article 8 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for measures against fire hazards for SSCs for DB, and Article 41 for SSCs for BDBA

Specifically, these articles require licensees to (i) prevent the occurrence of fire, (ii) early detect and extinguish fire if occurs, and (iii) mitigate the fire hazards.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.75

Does the legal and regulatory framework require that adequate lighting should be provided in all operational areas of the nuclear power plant in operational states and in accident conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that adequate lighting should be provided in all operational areas of the nuclear power plant in operational states and in accident conditions.

Response

Article 11 of the Commercial Reactor Establishment Permit Ordinance stipulates that the adequate lighting shall be ensured at DBA.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 5.76

Does the legal and regulatory framework require that overhead lifting equipment should be provided for lifting and lowering items important to safety at the nuclear power plant, and for lifting and lowering other items in the proximity of items important to safety?

Answer

Yes

Finding

The legal and regulatory framework requires that overhead lifting equipment should be provided for lifting and lowering items important to safety at the nuclear power plant, and for lifting and lowering other items in the proximity of items important to safety.

Response

Article 16 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for the handling and storage systems of fuel assemblies.

The regulatory guide of article 26 of the Commercial Reactor Technical Standards Ordinance stipulates acceptance criteria such as:

- Measures to prevent the move of lifted heavy loads above the fuel assemblies of the spent fuel pool*
- Installation of the hooks with a wire latch in order not to drop*

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance and its guide

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

L04The Regulatory Guide of the NRA Ordinance on Standards for the Location Structure and Equipment of Commercial Power Reactors

Question 5.77

Does the legal and regulatory framework require that the design of the steam supply system, feed-water system and turbine generators for the nuclear power plant should be such as to ensure that the appropriate design limits of the reactor coolant pressure boundary are not exceeded in operational states or in accident conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that the design of the steam supply system, feed-water system and turbine generators for the nuclear power plant should be such as to ensure that the appropriate design limits of the reactor coolant pressure boundary are not exceeded in operational states or in accident conditions.

Response

Article 27 of the Commercial Reactor Technical Standards Ordinance stipulates “The components consisting reactor coolant pressure boundaries shall be constructed in such a way that they can withstand impacts due to damage or failure of the primary cooling system within the reactor, or other abnormal conditions, and the increased loads such as due to changes in the reactivity of the reactor cores

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.78

Does the legal and regulatory framework require that systems should be provided for treating solid radioactive waste and liquid radioactive waste at the nuclear power plant to keep the amounts and concentrations of radioactive releases below the authorized limits on discharges and as low as reasonably achievable?

Answer

Yes

Finding

The legal and regulatory framework requires that systems should be provided for treating solid radioactive waste and liquid radioactive waste at the nuclear power plant to keep the amounts and concentrations of radioactive releases below the authorized limits on discharges and as low as reasonably achievable.

Response

The regulatory guide of article 27 of the Commercial Reactor Technical Standards Ordinance stipulates that the radioactive waste processing facility shall reduce the concentration of released radioactive materials under the limit, which applies “dose target” as described in the guideline for Dose Target for the Public in the Vicinity of Light Water Nuclear Power Reactor Facilities developed by the former Nuclear Safety Commission on 13 May 1975.

<ATTACHMENTS> the Commercial Reactor Technical Standards Ordinance

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

Question 5.79

Does the legal and regulatory framework require that systems should be provided at the nuclear power plant for treating liquid and gaseous radioactive effluents to keep their amounts below the authorized limits on discharges and as low as reasonably achievable?

Answer

Yes

Finding

The legal and regulatory framework requires that systems should be provided at the nuclear power plant for treating liquid and gaseous radioactive effluents to keep their amounts below the authorized limits on discharges and as low as reasonably achievable.

Response

The same as the answer to QID 78

Question 5.80

Does the legal and regulatory framework require that fuel handling and storage systems should be provided at the nuclear power plant to ensure that the integrity and properties of the fuel are maintained at all times during fuel handling and storage?

Answer

Yes

Finding

The legal and regulatory framework requires that fuel handling and storage systems should be provided at the nuclear power plant to ensure that the integrity and properties of the fuel are maintained at all times during fuel handling and storage.

Response

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Attachments

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 5.80.1

What are the criteria used by the regulatory body to review and assess the design of the plant regarding: incorporation of appropriate features to facilitate the lifting, movement and handling of fresh fuel and spent fuel; and prevention of significant damage to items important to safety during the transfer of fuel or casks, or in the event of fuel or casks being dropped?

Subsidiary Response

Article 16 of the Commercial Reactor Establishment Permit Ordinance and Article 26 of the Commercial Reactor Technical Standards Ordinance stipulate the requirements for the handling and storage systems of fuel assemblies.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance

Subsidiary Question 5.80.2

What are the criteria used by the regulatory body to review and assess the design of the fuel handling and storage systems for irradiated and non-irradiated fuel?

Subsidiary Response

Yes.

The same as the answer to QID 78.

Question 5.81

Does the legal and regulatory framework require that provision should be made for ensuring that doses to operating personnel at the nuclear power plant will be maintained below the dose limits and will be kept as low as reasonably achievable, and that the relevant dose constraints will be taken into consideration?

Answer

Yes

Finding

The legal and regulatory framework requires that provision should be made for ensuring that doses to operating personnel at the nuclear power plant will be maintained below the dose limits and will be kept as low as reasonably achievable, and that the relevant dose constraints will be taken into consideration.

Response

<ATTACHMENTS> the Commercial Reactors Ordinance, the Commercial Reactors Dose Limit Notice

Attachments

F03Notification to Establish Dose Limits in Accordance with the Provisions of NRA Ordinance on Activity of Fuel fabricating and enrichment

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 5.81.1

What are the criteria used by the regulatory body to review and assess the design for radiation protection?

Subsidiary Response

The Commercial Reactors Ordinance and the Commercial Reactors Dose Limit Notice stipulate the dose limit for occupational exposure.

Specifically, it requires that 5-year effective dose shall not exceed 100 mSv, and 50 mSv for one year, for occupational exposure.

<ATTACHMENTS> the Commercial Reactors Ordinance, the Commercial Reactors Dose Limit Notice

Subsidiary Attachments

F04Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 5.82

Does the legal and regulatory framework require that equipment should be provided at the nuclear power plant to ensure that there is adequate radiation monitoring in operational states and design basis accident conditions and, as far as is practicable, in design extension conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that equipment should be provided at the nuclear power plant to ensure that there is adequate

radiation monitoring in operational states and design basis accident conditions and, as far as is practicable, in design extension conditions.

Response

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance, the Commercial Reactor Technical Standards Ordinance.

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 5.82.1

What are the criteria used by the regulatory body to review and assess the means of radiation monitoring?

Subsidiary Response

Article 31 of the Commercial Reactor Establishment Permit Ordinance stipulates the requirements for the radiation monitoring equipment for DB.

Article 60 of the Commercial Reactor Technical Standards Ordinance stipulates the requirements for radiation monitoring equipment for BDBA.

<ATTACHMENTS> the Commercial Reactor Establishment Permit Ordinance, the Commercial Reactor Technical Standards Ordinance.

Subsidiary Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Module: Safety on NPP: Commissioning and Operation

Findings

Question 6.1

Does the legal and regulatory framework require that the operating organization should have the prime responsibility for safety in the operation of a nuclear power plant?

Answer

Yes

Finding

The regulation requires that the operating organization should have the prime responsibility for safety in the operation of a nuclear power plant.

Response

Article 57-9 of the Reactor Regulation Act requires that licensees are obliged to install equipment and devices to enhance safety at nuclear facilities, reinforce operational safety training, and take other necessary measures for preventing disasters involving nuclear source materials, nuclear fuel materials, and reactors while taking into account the latest findings related to safety at nuclear facilities.

<ATTACHMENTS>

the Reactor Regulation Act

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 6.2

Does the legal and regulatory framework require that the operating organization should establish liaison with the regulatory body and with relevant authorities?

Answer

Yes

Finding

The regulation requires that the operating organization should establish liaison with the regulatory body and with relevant authorities.

Response

Yes.

<ATTACHMENTS>

- *Order Concerning Emergency Preparedness Plans that Licensees Must Develop Pursuant to the Act for Special Measures Concerning Nuclear Emergency Preparedness: Article 2, Paragraph (1), Item (viii)*

- *Perspectives for Examining Emergency Preparedness Plans (Rules): Rules for Emergency Preparedness Plans: Article 2, Paragraph (1), Item (viii)*

- *Rules for Events to be Reported by the Nuclear Emergency Preparedness Managers pursuant to the Act for Special Measures Concerning Nuclear Emergency Preparedness: Article 2*

- *Guidelines for Nuclear Emergency Preparedness: Article 2 (4)*

Attachments

C01 Basic Act on Disaster Control Measures

C02 Nuclear Emergency Act

C03NRA EPR Guide

C09 Order for Nuclear Operator's EPR plan

Subsidiary Question 6.2.1

What are the topics defined by the legal and regulatory framework which should be concerned by the liaison established by the operating organization with the regulatory body and with relevant authorities?

Subsidiary Response

Licensees who intend to establish commercial reactors are obliged to file the necessary applications, notifications, and reports in accordance with the relevant laws and regulations. The regulatory framework does not require the establishment of the liaison for licensees who communicate with the NRA.

However, in facts, necessary communication is usually carried out through a liaison representing licensees. The licensees also keep in constant communication with local nuclear safety inspectors at the site of nuclear facilities.

In the event of an emergency, at least two nuclear disaster response officers shall be assigned who communicate and coordinate with concerned parties pursuant to Article 2 of the NRA ordinance for Events that Need to be Reported by Nuclear Emergency Preparedness Managers pursuant under the Nuclear Emergency Act.

The procedures for coordination and communication in an emergency situation are also stipulated in the “Order Concerning Licensees' Emergency Preparedness Plans to be Developed by Licensees” and the “Viewpoints for Examining Licensees' Emergency Preparedness Plans” under the Nuclear Emergency Act.

The NRA EPR guide stipulates the establishment of partnerships both within and beyond the boundaries of nuclear facilities as well as swift and frequent communication of necessary information as part of the measures to be taken by licensees in preparation for nuclear emergencies.

The topics for communicating through a licensee's liaison are not specifically defined, while the applications, notifications, reports, inspections and other activities under the regulatory framework are included in these topics.

Subsidiary Attachments

C02 Nuclear Emergency Act

C03NRA EPR Guide

Question 6.3

Does the legal and regulatory framework require that the operating organization should establish, implement, assess and continually improve an integrated management system?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish, implement, assess and continually improve an integrated management system.

Response

Article 69 of the Commercial Reactors Ordinance requires that a licensee develops a quality assurance programme and plan,, implement, evaluate, and improve their safety activities in accordance with said plan.

The regulatory guide of Article 10 of the Commercial Reactors QMS Ordinance quotes the IAEA Safety Standard GS-R-3 as requirements, and licensees are required to establish an integrated management system taking into accounts health, environment, security, quality and economy while safety shall be paramount.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

L01The NRA Ordinance on Technical Standards for Quality Management System Concerning the Design and Construction of Commercial Power Reactor for Licensee of Commercial Reactor Operation and System for their Inspection

Subsidiary Question 6.3.1

What are the activities defined by the legal and regulatory framework which should be included in the management system of the operating organization to ensure that the operating organization can discharge its prime responsibility for safety?

Subsidiary Response

Article 43-3-22 of the Reactor Regulation Act requires licensees to take necessary operational safety measures. More specifically, Articles 69 to 90 of the Commercial Reactors Ordinance set forth the following requirements:

- Quality assurance (Article 69): A quality assurance programme shall be established in accordance with an operational safety program. Licensees shall plan, implement, evaluate and improve safety activities while continuously improving the quality assurance programme.*
- Quality assurance programme (Article 70)*
- Organizations involved in implementation of quality assurance (Article 71)*
- Planning of operational safety activities (Article 72)*
- Implementation of operational safety activities (Article 73)*
- Evaluation of operational safety activities (Article 74)*
- Improvement of operational safety activities (Article 75)*
- Compliance with procedure manuals, etc. (Article 76)*
- Restricting access to controlled areas (Article 78)*
- Measures related to doses (Article 79)*
- Walk downs and inspections of facilities (Article 80)*
- Maintenance management (Article 81)*
- Technical evaluation of deterioration due to aging (Article 82)*

- *Development of a system to respond to fires (Article 83)*
- *Development of a system to respond to internal flooding (Article 84)*
- *Development of a system to respond to severe accidents (Article 85)*
- *Development of a system to respond to extensive damage (Article 86)*
- *Reactor operation (Article 87)*
- *On-site disposal (Article 88)*
- *On-site storage (Article 89)*
- *On-site transport (Article 90)*

Article 43-3-24 of the Reactor Regulation Act requires that each commercial reactor licensee develop and obtain approval of an operational safety program as well as to comply with said program.

Article 92 of the Commercial Reactors Ordinance defines the items to be covered by operational safety programs. Compliance status is examined through operational safety inspections.

Article 92 of the Commercial Reactors Ordinance stipulates that operational safety programs should define a system for complying with relevant laws and ordinances, a system for fostering a safety culture and matters related to quality assurance.

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 6.4

Does the legal and regulatory framework require that the structure of the operating organization and the functions, roles and responsibilities of its personnel should be established and documented?

Answer

Yes

Finding

The structure of the operating organization and the functions, roles and responsibilities of its personnel is established and is documented.

Response

Article 87 of the Commercial Reactors Ordinance requires licensee to ensure that persons having the necessary knowledge operate commercial reactors, that these reactors are not operated unless all competent staff members are present, and that persons responsible for operation have the necessary knowledge and skills.

Article 92 of the Commercial Reactors Ordinance requires licensee to include the duties and organizations of persons involved in the operation and management of commercial reactor as items to be covered in their operational safety programs. Pursuant to Article 43-3-24, Paragraph (1) of the Reactor Regulation Act, operational safety programs must be approved by the NRA prior to commissioning of each commercial reactor.

Article 87 of the Commercial Reactors Ordinance requires that the aforementioned requirements do not necessarily apply after the approval of a decommissioning plan as defined in Article 43-3-33 of the Reactor Regulation Act.

Attachments

Question 6.5

Does the legal and regulatory framework require that the operating organization should be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should be staffed with competent managers and sufficient qualified personnel for the safe operation of the plant.

Response

Article 43-3-26 of the Reactor Regulation Act requires licensees to appoint a chief engineer of reactors in charge of supervision of commercial reactor operational safety.

Article 87 of the Commercial Reactors Ordinance requires licensees to ensure that persons having the necessary knowledge operate commercial reactors, that these reactors are not operated unless all competent staff members are present, and that persons responsible for operation have the necessary knowledge and skills. Article 72 of the Act requires licensees to define a required training system for persons who carry out operational safety activities.

Article 92 of the Act requires licensees to include a description of and the scope of duties of chief engineer of commercial reactors involved in operation and management of

commercial reactor as well as the authority and positioning of such a chief engineer of commercial reactors inside the organization for supervising operational safety as items to be covered in the licensee's operational safety program.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.5.1

What are the topics defined by the legal and regulatory framework which should be included in the human resources policy of the operating organization to ensure that the operating organization is staffed with competent managers and sufficient qualified personnel for the safe operation of the plant?

Subsidiary Response

The Reactor Regulation Enforcement Cabinet Order stipulates the following requirements for issuing a certificate for a chief engineer of reactors. Such persons must have:

- passed the examination for a chief engineer of reactor;*
- graduated a university as defined in the Act for School Education (Law No. 26 of 1947) or a university as defined in the former Ordinance of Imperial Universities (Imperial Ordinance No. 388 of 1918) by completing a standard curriculum in science or engineering, or be acknowledged as having comparable or superior academic ability;*
- acquired three year or more work experience in assignments that required expertise related to reactor structure; and*
- acquired one year or more of experience engaging in management of reactor operations.*

In addition, the Rules Related to Standards for Persons Responsible for Operation stipulates the following requirements for appointing persons responsible for operation. Such persons must:

- have five year or more of experience engaging in tasks related to operation of commercial reactors;*
- have six months or more of experience in the last year engaging in tasks related to operation of the same model of a commercial reactor;*
- be in a managerial or supervisory position at a site where a commercial reactor facility has been installed;*
- have the knowledge and skills to make correct judgments during operation of commercial reactors and in the event of an accident, as well as to take necessary measures in response to any accidents;*
- have knowledge and skills related to relevant laws, ordinances, and the operational safety program;*
- have knowledge and skills related to the structure and performance of commercial reactors; and*
- have knowledge and skills related to operator management.*

Article 87 of the Commercial Reactors Ordinance requires licensees to ensure that persons having the necessary knowledge operate commercial reactors, that these reactors are not operated unless all competent staff is present, and that persons responsible for operation have the necessary knowledge and skills.

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 6.6

Does the legal and regulatory framework require that the operating organization should establish and implement operational policies that give safety the highest priority?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish and implement operational policies that give safety the highest priority.

Response

Article 92 of the Commercial Reactors Ordinance requires that operational safety programs cover management involvement and other matters related to a system for ensuring compliance with relevant laws, ordinances, and the operational safety program, as well as a system for fostering a safety culture.

Article 43-3-29 of the Reactor Regulation Act requires licenses to update their safety assessment for continuous improvements of safety of commercial reactors.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.6.1

What are the topics defined by the legal and regulatory framework which should be included in the safety policy of the operating?

Subsidiary Response

The Standard Review Plan of Commercial Reactors Operational Safety Program stipulates the following requirements

- A system for compliance shall be clearly established in order to maintain the compliance to the

- A system for fostering a safety culture shall be clearly established in order to formulate, maintain and enhance the organizational values for prioritizing operational safety above everything else.

<ATTACHMENTS>

The Commercial Reactors Ordinance, Article 92

The Reactor Regulation Act, Article 43-3-29

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 6.7

Does the legal and regulatory framework require that the operating organization should ensure that the plant is operated in accordance with the set of operational limits and conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should ensure that the plant is operated in accordance with the set of operational limits and conditions.

Response

Article 92, Paragraph (1), Item (ix) of the Commercial Reactors Ordinance requires that matters related to commercial reactor operation be included in operational safety programs.

The standard review plan of operational safety programme requires licensees to define operational limits in their operational safety programme, for systems and equipment having safety functions as well as equipment for responding to severe accidents, regarding important functions of commercial reactor,

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.7.1

What are the topics defined by the legal and regulatory framework which relate to the operation of the plant in accordance with the set of operational limits and conditions?

Subsidiary Response

The standard review plan of Commercial Reactors Operational Safety Program stipulates the following requirements for commercial reactor operation.

- Definition of the items to be confirmed for the compliance with operational limits and conditions, and the required measures and the time limit when the plant state does not satisfy operational limits and conditions.*
- Operational Limits and Conditions are defined while satisfying the design or other conditions for safety analyses conducted at the establishment permit or its modification permit*
- In conforming the satisfaction to the Operational Limits and Conditions , surveillance methods, approaches to extending the intervals of surveillance and required measures, and the handling of Operational Limits and Conditions at the time of confirmation;*
- The desirable time limit for making judgments starting from the moment of a failure is defined in the company's internal rule, and the way to implement required measures is specified;*
- Records related to Operational Limits and Conditions are kept; and*
- Reports are made to the NRA in the event of any deviation from the Operational Limits and Conditions.*

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

Question 6.8

Does the legal and regulatory framework require that the operating organization should ensure that all activities that may affect safety are performed by suitably qualified and competent persons?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should ensure that all activities that may affect safety are performed by suitably qualified and competent persons.

Response

Article 69 of the Commercial Reactors Ordinance requires licensees to develop a quality assurance programme and plan, implement, evaluate, and improve their operational safety activities in accordance with said plan as well as continuously improve of the said plan.

A requirement to perform competency management is included as part of the required quality assurance.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.8.1

What are the topics defined by the legal and regulatory framework regarding the qualification and training of personnel who perform activities that may affect safety?

Subsidiary Response

The standard review plan of Commercial Reactors Operational Safety Program quotes the “Rules for Quality Assurance for Safety of Nuclear Power Plants (JEAC4111-2009)” or equivalent as the requirements for quality assurance programme, and JEAC4111-2009 stipulates the following requirements.

- *The necessary capacity of personnel engaged in tasks related to nuclear safety is clearly defined.*
- *If the personnel do not have adequate capacity, training or drills are conducted or other measures are taken to enable them to acquire the necessary skills.*
- *Evaluation of the effectiveness of training, drills, and other measures is performed.*
- *Each organization's personnel understand the significance and importance of their activities and think about how they can help achieve common goals.*
- *Relevant records of training, drills, skills, and experience are kept.*

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

Question 6.9

Does the legal and regulatory framework require that the operating organization should ensure that safety related activities are adequately analysed and controlled to ensure that the risks associated with harmful effects of ionizing radiation are kept as low as reasonably achievable?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should ensure that safety related activities are adequately analysed and controlled to ensure that the risks associated with harmful effects of ionizing radiation are kept as low as reasonably achievable.

Response

Article 92 of the Commercial Reactors Ordinance requires that basic policies be established for operational safety program. Such basic policies must stipulate that any operational safety activities be based on a safety culture in the spirit of ALARA, the basic concept for ensuring radiation protection (i.e., as low as reasonably achievable) recommended by the ICRP in 1977, and underpinned by appropriate quality assurance activities for preventing disasters.

Article 43-3-28 of the Reactor Regulation Act requires comprehensive safety evaluations be conducted to enhance the safety of commercial reactors. Evaluation results shall be notified within six months after completing a Periodic Facility Inspection. According to this provision, such evaluations must be conducted every five years even if no conditions have changed.

In addition, periodic safety reviews are required during the period leading up to the comprehensive safety evaluation for improving safety.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.9.1

What are the topics defined by the legal and regulatory framework that should be performed by the operating organization to ensure that the safety related activities are adequately analysed and controlled to ensure that the risks associated with harmful effects of ionizing radiation are kept as low as reasonably achievable?

Subsidiary Response

Operational safety programs must specifically include the following items:

- Clear quality goals and requirements related to reactor facilities and related tasks;*
- Needs for established processes, documents, and resource contributions that are specifically related to reactor facilities and related tasks;*
- Verification, validation, monitoring, measurement, inspections, and tests that must be conducted for reactor facilities and related tasks, as well as their pass-fail criteria;*
- Necessary records for demonstrating that processes employed in reactor facilities and associated tasks, as well as their outcomes, satisfy the requirements;*
- Activities for cultivating a safety culture; and*
- Corrective and preventive measures based on quality assurance programme.*

<ATTACHMENTS>

The Commercial Reactors Operational Safety Programs Standards

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

Question 6.10

Does the legal and regulatory framework require that the operating organization should establish a system for continuous monitoring and periodic review of the safety of the plant and performance of the operating organization?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish a system for continuous monitoring and periodic review of the safety of the plant and performance of the operating organization

Response

Article 69 of the Commercial Reactors Ordinance requires licensees to develop a quality assurance programme and plan, implement, evaluate, and improve its operational safety activities in accordance with said plan. In addition, Article 71 of the Commercial Reactors Ordinance requires that the organization involved in quality assurance is required to clarify responsibilities, authorities, and tasks associated with quality assurance as well as to put into place a system to continuously implement a cycle of development, implementation, evaluation, and improvement of its quality assurance programme.

Moreover, Article 69 of the Commercial Reactors Ordinance requires internal audits of quality assurance to be conducted at predefined intervals.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.10.1

What are the topics defined by the legal and regulatory framework that should be performed by the operating organization to ensure monitoring and review of safety performance?

Subsidiary Response

Article 71 to 75 of the Commercial Reactors Ordinance stipulates the following items:

- Development of a quality assurance programme;*
- Planning, implementation, evaluation, and improvement of operational safety activities based on the quality assurance programme;*
- Improvement of the quality assurance programme;*
- Organizations involved in quality assurance;*
- Operation by the commercial reactor licensee;*
- Responsibilities, authorities, and tasks related to quality assurance; and*
- System to continuously implement a cycle of development, implementation, evaluation, and improvement regarding the quality assurance programme.*

The standard review plan of Commercial Reactors Operational Safety Program quotes the “Rules for Quality Assurance for Safety of Nuclear Power Plants (JEAC4111-2009)” or equivalent as the requirements for quality assurance programme, and JEAC4111-2009 stipulates the following requirements.

- Establishment and maintenance of an effective quality management system;*
- Development of an audit program;*
- Standards, scope, frequency, and methods for auditing;*
- Objectiveness and fairness of the auditing process;*
- All necessary modifications must be made and corrective measures taken to address any identified nonconformities and their causes; and*
- Any follow-ups must include a validation of measures taken and reports on the validation results.*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 6.11

Does the legal and regulatory framework require that the operating organization should establish and implement a system for plant configuration management to ensure consistency between design requirements, physical configuration and plant documentation?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish and implement a system for plant configuration management to ensure consistency between design requirements, physical configuration and plant documentation.

Response

Article 69 of the Commercial Reactors Ordinance requires licensees to manage necessary documents on operational safety activities. That standard review plan requires that maintenance and management plans be established in accordance with “the Rules for Maintenance and Management of commercial reactors (JEAC4209-2007)” or any equivalent standards. JEAC4209-2007 requires development of a maintenance plan for relevant targets (e.g., a plan for checkups, repairs, replacements, and remodeling), maintenance in accordance with said plan, verification and evaluation that performance is of the necessary level based on the results of checkups and repairs, and so forth.

Article 43-3-9 and Article 43-3-10 of the Reactor Regulation Act require any plans for new construction work or alterations of these construction plans be approved by or notified to the NRA prior to commencing construction work. Article 43-3-11 of the Act requires that any

new construction work or alterations of these construction plans be inspected by the NRA to ensure that such construction work was performed in accordance with the construction plans.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 6.12

Does the legal and regulatory framework require that the operating organization should establish and implement a programme to manage modification?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish and implement a programme to manage modification.

Response

Article 81 of the Commercial Reactors Ordinance requires licensees to take necessary measures in remodeling commercial reactors (e.g., planning maintenance management and implementation according to said plan) as part of maintenance management.

Article 43-3-9 and Article 43-3-10 of the Reactor Regulation Act require licensees to obtain approval for or notify any plans to perform new construction work or alterations of construction plans prior to commencing construction work.

Article 43-3-11 of the Act requires that any new construction work or alterations of commercial reactors be inspected by the NRA to ensure that such construction work was performed in accordance with the construction plans. To apply for such an inspection, a licensee must attach a repair, replacement, and remodeling plan to its application.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.12.1

What are the topics defined by the legal and regulatory framework that should be included in the modification programme to be established and implemented by the operating organization?

Subsidiary Response

The standard review plan of Commercial Reactors Operational Safety Program requires licensees to establish a maintenance and management plan in accordance with the “Rules for Maintenance and Management of commercial reactors (JEAC4209-2007)” or any equivalent standards, under in the Commercial Reactors Ordinance, Article 92-1-25.

JEAC4209-2007 stipulates that the plan must cover the following items :

- Establishment of plan which defines methods and timing of maintenance and management;*
- Specific methods for conducting inspections and tests;*

- Necessary inspection and test items for verifying and evaluating whether performance of functions is at the necessary level, as well as evaluation methods and management standards; and
- Timing of inspections and tests.

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

Question 6.13

Does the legal and regulatory framework require that systematic safety assessments of the plant should be performed by the operating organization in accordance with the regulatory requirements throughout the plant's operational lifetime, with due account taken of operating experience and significant new safety related information from all relevant sources?

Answer

Yes

Finding

The legal and regulatory framework requires that systematic safety assessments of the plant should be performed by the operating organization in accordance with the regulatory requirements throughout the plant's operational lifetime, with due account taken of operating experience and significant new safety related information from all relevant sources.

Response

Article 43-3-22 of the Reactor Regulation Act obligates licensees to take necessary measures to ensure operational safety.

Specifically, Article 75 of the Commercial Reactors Ordinance requires that licensees to properly reflect not only findings from operational safety activities at their own commercial reactor facility, but also findings obtained from other facilities.

Article 57-9 of the Reactor Regulation Act sets forth the requirement to take necessary measures based on the latest findings related to safety, and Article 43-3-29 sets forth licensees' obligation to regularly update their safety assessments for the continuous improvement of safety in accordance with the Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors and to establish such assessment in the public.

Attachments

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.13.1

What are the topics defined by the legal and regulatory framework that govern the performance of periodic safety reviews by the operating organization?

Subsidiary Response

The Reactor Regulation Act requires licensees to conduct comprehensive safety assessments in order to evaluate safety improvements of their commercial reactors by examining the following items listed in the Reactor Regulation Act. The evaluation results must be notified within six months after completing a periodic facility inspection, and evaluations must be conducted at least every five years even if the conditions remain the same.

- Article 43-3-14 of the Reactor Regulation Act requires that equipment is installed at the commercial reactor facility in accordance with the relevant technical standards.

- Necessary measures are taken in accordance with the operational safety program that has been approved or whose alteration has been approved pursuant to Article 43-3-24 of the Reactor Regulation Act.

- Keeping in mind the latest findings on safety at commercial reactor, measures taken at the facility are examined pursuant to provisions (a) and (b) in order to enhance safety as well as with regard to their effectiveness in preventing accidents.

- Research, analyses, and evaluation are conducted of matters that may lead to severe accidents based on methods for evaluating their frequencies, the extent of the resulting damage, and other evaluation methods for evaluating the risks of severe accidents.

- The safety of the entire commercial reactor facility is given an overall rating.

Periodic safety reviews (PSRs) must be conducted until a comprehensive safety evaluation is carried out.

Subsidiary Attachments

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 6.14

Does the legal and regulatory framework require that the operating organization should ensure that a systematic assessment is carried out to provide reliable confirmation that safety related items are capable of the required performance for all operational states and for accident conditions?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should ensure that a systematic assessment is carried out to provide reliable confirmation that safety related items are capable of the required performance for all operational states and for accident conditions.

Response

From commissioning until decommissioning of commercial reactors, the Reactor Regulation Act requires licensees to (1) conduct periodic safety assessment for the purpose of improving the safety of commercial reactor in accordance with Article 43-3-29 of the Act, (2) maintain commercial reactor so that they conform with the relevant technical standards in accordance with Article 43-3-14 of the Act, (3) measures to be taken for maintenance of the commercial reactors in accordance with Article 43-3-22, Paragraph (1), Item (i) of the Act, and (4) specify and comply with an operational safety program in accordance with Article 43-3-24, Paragraph (1).

(Periodic Safety Assessment for the purpose of improving the safety of commercial reactor as described in (1))

The Commercial Reactors Ordinance requires licensees to conduct safety assessment for the purpose of improving the safety (Article 99-2) and notify the results of the assessment to the NRA (Article 99-4)..

(Maintenance of commercial reactor so that they conform with the technical standards as described in (2))

Article 43-3-16, Paragraph (1) of the Reactor Regulation Act requires licensees to conduct own periodic inspections. If cracks are identified in these inspections and that these cracks may lead to the failure to comply with technical standards after a certain period, with respect to important equipment (class 1 vessels, piping, or core-supporting structures), licensees are obliged to identify the shape and size of cracks or other deformation and evaluate the estimated growth of cracking. in accordance with that Paragraph (3). In addition, licensees must undergo the NRA regulatory inspections pursuant to Paragraph (4) of the same Article and Article 43-3-15 of the Act.

(Measures to be taken for maintenance of the commercial reactors as described in (3))

The Commercial Reactors Ordinance requires licensees to develop a system for maintenance management of commercial reactors (Article 81), to conduct technical assessment of degradation due to aging (Article 82), and to maintain operational safety activities for facilities in the event of a fire, internal flooding, severe accident, or extensive damage (Articles 83 to 86).

(Development of and compliance to the operational safety program as described in (4))

Article 92, Paragraph (1), Item (ix) of the Commercial Reactors Ordinance, requires licensees to include the items related to the operation of commercial reactors in their operational safety program. Licensees are required to conduct surveillance to ensure the satisfaction of that operational limits and conditions and necessary functions according to the plant state.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F13The Guideline for Periodic Safety Assessment of Continuous Improvement of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 6.15

Does the legal and regulatory framework require that the operating organization should ensure that an effective ageing management programme is implemented to ensure that required safety functions of systems, structures and components are fulfilled over the entire operating lifetime of the plant?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should ensure that an effective ageing management programme is implemented to ensure that required safety functions of systems, structures and components are fulfilled over the entire operating lifetime of the plant.

Response

Article 82 of the Commercial Reactors Ordinance requires licensees to conduct a technical evaluation of degradation due to aging of important safety-related equipment within 30 years from the date of starting operation, and to develop a maintenance and management policy for the next 10 years based on the evaluation results.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 6.16

Does the legal and regulatory framework require that the operating organization should establish and maintain a system for the control of records and reports?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish and maintain a system for the control of records and reports.

Response

Article 43-3-21 of the Reactor Regulation Act requires licensees to keep and archive records related to commercial reactor operation and other uses of commercial reactors.

More specifically, Article 67 of the Commercial Reactors Ordinance defines the required items, events that must be recorded and period for archiving records.

Reporting requirements in the event of a deviation from any Operational Limits and Conditions are defined in Article 87 of the ordinance, reporting requirements in the event of an accident or failure are defined in Article 134, and reporting requirements related to radiation management are defined in Article 136.

Matters related to the adequacy of records and reporting on operational safety of commercial reactors are specified in Article 92 as items to be included in operational safety programs.

Article 69 stipulates the development of quality assurance programme in accordance with operational safety program. Recording and reporting of relevant activities are carried out according to a system established based on the relevant quality assurance programme.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 6.17

Does the legal and regulatory framework require that, where applicable, the operating organization should establish and implement a comprehensive programme for ensuring long term safe operation of the plant beyond a time-frame established in the licence conditions, design limits, safety standards and /or regulations?

Answer

Yes

Finding

The legal and regulatory framework requires that, where applicable, the operating organization should establish and implement a comprehensive programme for ensuring long term safe operation of the plant beyond a time-frame established in the licence conditions, design limits, safety standards and /or regulations.

Response

<ATTACHMENTS>

The Reactor Regulation Act, Article 43-3-32, Paragraph (4)

Operational Guidelines for Application for Approval of Extension of the Operation Period of Commercial Reactors

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.17.1

What are the topics defined by the legal and regulatory framework that should be addressed by the programme for long term operation established and implemented, where applicable, by the operating organization?

Subsidiary Response

Commercial reactors can be operated for 40 years. In order to extend the operation period of a commercial reactor, an application must be filed in accordance with Article 43-3-32, Paragraph (4) of the Reactor Regulation Act, and then be approved by the NRA.

The NRA requires the following items be described in applications to extend the operation period for commercial reactors as stipulated in the Operational Guidelines for Application for Approval of Extension of the Operation Period of Commercial Reactors (June 19, 2013 by the NRA):

- Intended extension period;*
- Results of inspections conducted to assess the extent of degradation of reactors and other equipment caused by operation until the application was filed;*
- Results of technical evaluations on the status of degradation of reactors and other equipment caused by operation during the intended extension period; and*
- Documents stating the maintenance and management policies for reactors and other equipment during the intended extension period.*

** For more detailed information, refer to the Operational Guidelines for Application for Approval of Extension of the Operation Period of Commercial Reactors.*

Licensees must carry out the following tasks within 40 years from the date operation of their commercial reactors begins:

- Technical evaluations on degradation due to aging of SSCs; and*
- Development of maintenance and management policies for the relevant commercial reactor facility for the next 10 years (or the intended and approved extension period exceeding 10 years) based on the evaluation results.*

** For more detailed information, refer to the Guidelines on Implementing Measures for Aging Management at Commercial Nuclear Installations.*

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 6.18

Does the legal and regulatory framework require that the operating organization should ensure that the implementation of safety requirements and security requirements satisfies both safety objectives and security objectives?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should ensure that the implementation of safety requirements and security requirements satisfies both safety objectives and security objectives.

Response

Article 43-3-22 of the Reactor Regulation Act requires licensees to take protective and other necessary measures to ensure operational safety.

Article 43-3-24 of the Reactor Regulation Act requires that operational safety programs define necessary measures for ensuring safety and Article 43-3-27 requires that protective measures in the provisions related to physical protection of nuclear materials; both of these must be approved by the NRA.

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 6.19

Does the legal and regulatory framework require that the operating organization should prepare an emergency plan for preparedness for, and response to, a nuclear or radiological emergency?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should prepare an emergency plan for preparedness for, and response to, a nuclear or radiological emergency.

Response

Article 7 of the Nuclear Emergency Act requires licensee to develop its own emergency preparedness plan that specifies measures for preventing nuclear emergencies, emergency response measures, post-emergency measures, and other necessary tasks for preventing and mitigating nuclear emergencies, as well as for recovering from any nuclear emergencies. Licensees are required to review their plans for emergency preparedness activities annually and modify them as deemed necessary.

Attachments

Question 6.20

Does the legal and regulatory framework require that the operating organization should establish an accident management programme for the management of beyond design basis accidents?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish an accident management programme for the management of beyond design basis accidents.

Response

The Commercial Reactors Ordinance requires licensees to develop a plan for carrying out necessary activities for ensuring the safety maintenance of commercial reactor facilities in the event of severe accidents (Article 85), and to develop a plan for carrying out necessary activities for ensuring the safety maintenance of commercial reactor facilities in the event of extensive damage (Article 86)..

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.20.1

What are the topics defined by the legal and regulatory framework that should be addressed by the accident management programme established by the operating organization?

Subsidiary Response

The Commercial Reactors Ordinance sets forth the following provisions:

- Development of plans for necessary safety maintenance;*
- Deployment of personnel assignment necessary for carrying out safety maintenance ;*
- Training and drills carried out by personnel involved in safety maintenance;*
- Arrangement for necessary equipment and materials for carrying out safety maintenance;*
and
- Arrangement for a necessary organization for carrying out safety maintenance.*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 6.21

Does the legal and regulatory framework require that the operating organization should establish and implement a radiation protection programme?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish and implement a radiation protection programme.

Response

Article 79 of the Commercial Reactors Ordinance requires licensees to ensure the dose for their radiation workers does not exceed the dose limit and that the concentration of radioactive materials in the air breathed by radiation workers does not exceed the concentration limit.

In addition, Article 92 of the Commercial Reactors Ordinance requires licensees to define an operational training program on radiation management, perform zoning of controlled areas, restrict access, and fulfill other relevant requirements in their operational safety program.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 6.22

Does the legal and regulatory framework require that the operating organization should establish and implement a programme for the management of radioactive waste?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish and implement a programme for the management of radioactive waste.

Response

Whenever performing on-site disposal, Article 90 of the Commercial Reactors Ordinance requires each licensee to take appropriate measures in accordance with the properties of waste.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.22.1

What are the topics defined by the legal and regulatory framework that should be addressed by the programme for radioactive waste management established and implemented by the operating organization?

Subsidiary Response

Article 90 of the Commercial Reactors Ordinance sets forth the following provisions.

- Waste shall be managed under the supervision of a person having necessary knowledge about radiation protection.*
- Workers shall wear adequate work clothing.*

(Gaseous waste)

- *Gaseous waste shall be discharged through ventilation facilities.*
- *Ventilation facilities shall minimize the concentration of radioactive materials in exhaust by means of filtering, radioactive decay, dilution with a large amount of air, and so forth.*
- *The concentration of radioactive materials contained in exhaust gas shall be monitored to ensure that concentration of radioactive materials in the air outside the environmental monitoring area does not exceed the concentration limit.*
- *Gaseous waste shall be stored in storage tanks that prevent radiation damage.*
- *Necessary measures shall be taken to cool gaseous waste if there is a risk of significant overheating caused by decaying heat, etc.*

(Liquid waste)

- *Liquid waste shall be discharged through drainage facilities.*
- *The concentration of radioactive materials in wastewater shall be minimized by means of filtering, evaporation, adsorption employing the ion exchange resin method or similar method, radioactive decay, dilution with a large amount of water, and so forth.*
- *The concentration of radioactive materials contained in discharged water shall be monitored to ensure that the concentration of radioactive materials in water outside the environmental monitoring area does not exceed the concentration limit.*
- *Liquid waste shall be stored in waste liquid tanks that prevent radiation damage.*
- *Liquid waste shall be sealed in containers or vitrified together with containers to be stored at storage facilities that prevent radiation damage.*

(Solid waste)

- *Solid waste shall be incinerated using an incinerator that prevents radiation damage.*
- *Solid waste shall be sealed in containers or vitrified together with containers to be stored at storage facilities that prevent radiation damage.*
- *Large machines and other radioactive waste that require time to decay shall be stored at storage facilities that prevent radiation damage.*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 6.23

Does the legal and regulatory framework require that the operating organization should make arrangements for fire safety?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should make arrangements to ensure fire safety.

Response

Article 83 of the Commercial Reactors Ordinance requires licensees to develop a system for ensuring the safety maintenance of their commercial reactors in the event of a fire.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.23.1

What are the topics defined by the legal and regulatory framework that should be addressed by the arrangements to ensure fire safety established and implemented by the operating organization?

Subsidiary Response

Article 83 of the Commercial Reactors Ordinance requires the following items:

- Development of necessary plans;*
- Installation of necessary equipment;*
- Deployment of necessary personnel;*
- Drills organized for personnel;*
- Preparation of chemical fire trucks and foam fire extinguishing agents as well as installation of other equipment;*
- Proper management of flammable items;*
- Development of necessary systems; and*
- Regular evaluation and necessary measures based on evaluation results.*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 6.24

Does the legal and regulatory framework require that the operating organization should establish and implement a programme to ensure that safety related risk associated with non-radiation-related hazards to personnel involved in activities of the plant are kept to as low as reasonably achievable?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish and implement a programme to ensure that safety related risk associated with non-radiation-related hazards to personnel involved in activities of the plant are kept to as low as reasonably achievable.

Response

Matters related to industrial safety, excluding those related to radiation, are regulated by the Ministry of Health, Labour, and Welfare in accordance with Industrial Safety and Health Act.

Attachments

H13Industrial Safety and Health Act

Question 6.25

Does the legal and regulatory framework require that the operating organization should establish an operating experience programme to learn from events at the plant and events in the nuclear industry and other industries worldwide?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish an operating experience programme to learn from events at the plant and events in the nuclear industry and other industries worldwide.

Response

Article 57-9 of the Reactor Regulation Act defines duties for licensees to install equipment and devices to enhance nuclear safety, reinforce their operational safety training programs, and take other necessary measures to prevent disasters involving nuclear source materials, nuclear fuel materials, and reactors while taking into account the latest findings on nuclear facility safety.

Article 75 of the Commercial Reactors Ordinance requires licensees to reflect findings obtained not only from operational safety activities at their own commercial reactors but also from other facilities to prevent radiation-related hazards.

Article 92 of the ordinance requires licensees to include a requirement in their operational safety program to share any technical information obtained from their maintenance and inspection activities with other licensees.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.25.1

What are the topics defined by the legal and regulatory framework that should be addressed by the programme for the feedback of operating experience, established and implemented by the operating organization?

Subsidiary Response

The standard review plan of the Commercial Reactors Operational Safety Program quotes the “Rules for Quality Assurance for Safety of commercial reactors (JEAC4111-2009)” or any equivalent standards, as requirements for quality assurance programme of commercial reactors , and JEAC4111-2009 stipulates the following requirements, under the Commercial Reactors Ordinance, Article 92-1-25.

[Corrective measures]

- Obtaining understanding of any nonconformities*
- Identification of causes of nonconformities*
- Evaluation of needs for measures to reliably prevent recurrence of nonconformities*
- Determination and implementation of necessary measures*
- Recording of the results of measures taken*
- Review of the effectiveness of corrective measures taken*

[Preventive measures]

- Identification of possible nonconformities and their causes*
- Evaluation of needs for preventive measures against nonconformities*
- Determination and implementation of necessary measures*
- Recording of the results of measures taken*
- Review of the effectiveness of corrective measures taken*

Subsidiary Attachments

Question 6.26

Does the legal and regulatory framework require that the operating organization should ensure that a commissioning programme for the plant is established and implemented?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should ensure that a commissioning programme for the plant is established and implemented.

Response

Article 87 of the Commercial Reactors Ordinance requires licensees to confirm the purpose, method, and measures in response to any abnormality as well as any other relevant items before a commercial reactor can be commissioned for testing.

Article 43-3-11 of the Reactor Regulation Act and Article 16 of the Commercial Reactors Ordinance require licensees to pass an inspection that verifies the necessary functions and performance of commercial reactors in order to complete commissioning and construction work before starting operation of the facility which the construction plan has been approved.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.26.1

What are the topics defined by the legal and regulatory framework that should be addressed by the commissioning programme?

Subsidiary Response

Article 87 of the Commercial Reactors Ordinance defines the following items:

- Purpose of commissioning;*
- Method of commissioning; and*
- Measures to be taken in response to any emergencies.*

Article 16 of the Commercial Reactors Ordinance requires that construction work during the commissioning phase shall be examined by the following types of inspections:

- Inspections of functions or performance of reactor, reactor cooling system, instrumentation and control system (excluding control devices for controlling commercial reactors), and generators that are necessary once commercial reactor achieves critical condition (after reactor is ready for operation to critical conditions); and*
- Inspections for examining the overall performance of commercial reactor while reactor is operating in related power condition and other necessary inspections (once all construction works are complete).*

Subsidiary Attachments

Question 6.27

Does the legal and regulatory framework require that operating procedures should be developed that apply comprehensively (for the reactor and its associated facilities) for normal operation, anticipated operational occurrences and accident conditions, in accordance with the policy of the operating organization and the requirements of the regulatory body?

Answer

Yes

Finding

The legal and regulatory framework requires that operating procedures should be developed that apply comprehensively (for the reactor and its associated facilities) for normal operation, anticipated operational occurrences and accident conditions, in accordance with the policy of the operating organization and the requirements of the regulatory body.

Response

Article 76 of the Commercial Reactors Ordinance requires licensees to develop and comply with instruction manuals, operating procedures, and other documents related to operational safety in accordance with the licensee's operational safety program.

Article 85 and Article 86 of the Commercial Reactors Ordinance require licensees to develop a necessary plan and procedure for carrying out activities to ensure safety maintenance of commercial reactors in the event of a severe accident or extensive damage.

In addition, Article 87 requires licensees to investigate the causes of any emergency shutdowns, check for any resulting damage, resume operation after making sure that there are no problems in doing so, define necessary emergency measures, and ensure operators follow these rules related to operation of commercial reactors.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.27.1

What are the topics defined by the legal and regulatory framework that apply to operating procedures?

Subsidiary Response

Licensees are required to include the following items in their operational safety programs:

- Matters related to reactor startup and shutdown;*
- Matters related to walk downs;*
- Matters related to operations in the event of an emergency;*
- Matters related to measures in response to alarms;*
- Matters related to operation of each piece of equipment at commercial reactors;*
- Matters related to periodic tests;*
- Matters related to measures in response to severe accidents; and*
- Matters related to measures in response to extensive damage.*

Licensees are required to have the approval process defined in the operational safety program, before issuing these operating procedures.

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

Question 6.28

Does the legal and regulatory framework require that the operating organization should ensure that the operation control rooms and control equipment are maintained in a suitable condition?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should ensure that the operation control rooms and control equipment are maintained in a suitable condition.

Response

Article 26 of the Commercial Reactor Establishment Permit Ordinance requires licensees to monitor necessary parameters related to reactor control rooms, equip such rooms so as to enable assessment of external conditions, and ensure that necessary operations can be performed manually. The control room shall be equipped with adequate radiation protection, isolated ventilation equipment for gaseous radioactive materials and combustion gases, and other protective equipment in order to enable workers to go inside or remain inside the control room for a certain period of time in the event of an abnormality and to carry out operations for ensuring safety. Article 59 requires installation of necessary equipment to allow operators to stay in the control room in the event of a severe accident.

Article 38 and Article 74 of the Commercial Reactor Technical Standards Ordinance stipulate the same requirements. Article 43-3-14 of the Reactor Regulation Act requires that maintenance of commercial reactors be performed in compliance with these technical standards.

Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Subsidiary Question 6.28.1

What are the topics defined by the legal and regulatory framework that apply to operation control rooms and control equipment?

Subsidiary Response

The Commercial Reactor Establishment Permit Ordinance sets forth the following requirements:

- Monitoring of necessary parameters;*
- Equipment for assessing external Conditions ;*
- Options for manually performing necessary operations to ensure safety;*
- Installation of equipment having the necessary functions to make the transition to a hot shutdown and cold shutdown, control of necessary parameters, and maintaining cold shutdown from a place other than the main control room in the case the room cannot be used due to an abnormal event; and*
- Equipment for adequate radiation protection, isolated ventilation equipment for gaseous radioactive materials and combustion gases, and other protective equipment in order to enable workers to go inside or remain inside the control room for a certain period of time in the event of an abnormality to carry out operations to ensure safety.*

The Commercial Reactor Technical Standards Ordinance sets forth the following requirements:

- Key equipment for ensuring safe operation of commercial reactors shall be installed in one location and facilitate proper operation while preventing operating errors;*
- Equipment for assessing external Conditions shall be installed;*
- Equipment shall be provided to shut down commercial reactors and maintain them in safe condition from a location other than a reactor control room in the case the room cannot be used; and*
- Shielding and other appropriate measures for radiation protection, isolated ventilation equipment for gaseous radioactive materials and combustion gases caused by fires outside a reactor control room, and other appropriate protective measures shall be implemented.*

The NRA requires that each operational safety program include the following specific items:

- Operational requirements for an emergency circulation system for the central control room;*
- Operational requirements for instrumentation of a reactor shutdown system outside the central control room; and*
- Development of operating procedures for measures in response to alarms.*

Subsidiary Attachments

L02The NRA Ordinance on Technical Standards for Commercial Power Reactors Facilities

L03The NRA Ordinance on Standards for the Location Structures and Equipment of Commercial Power Reactors

Question 6.29

Does the legal and regulatory framework require that the operating organization should develop and implement programmes to maintain a high standard of material conditions, housekeeping and cleanliness in all working areas?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should develop and implement programmes to maintain a high standard of material conditions, housekeeping and cleanliness in all working areas.

Response

Article 69 of the Commercial Reactors Ordinance requires licensees to develop a quality assurance programme and plan, implement, check and improve their safety operational activities in accordance with said programme.

The standard review plan quote JEAC4111-2007 (or equivalent ones) as requirements for quality assurance programme. JEAC4111-2007 requires clarification of necessary working environments and operation management for ensuring nuclear safety.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.29.1

What are the topics defined by the legal and regulatory framework that apply to material conditions and housekeeping?

Subsidiary Response

JEAG4121 lists the following examples for providing necessary working environments as required by JEAC4111:

- Management of data related to radiation at workplaces (dose, classification by contamination);*
- Management of contaminated materials matter control areas;*
- Maintenance management of lighting equipment, etc.; and*
- Use of protective gear and means of communication in noisy environments.*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

Question 6.30

Does the legal and regulatory framework require that the operating organization should establish and implement a chemistry programme to provide the necessary support for chemistry and radiochemistry?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish and implement a chemistry programme to provide the necessary support for chemistry and radiochemistry.

Response

Article 92 of the Commercial Reactors Ordinance requires licensees to set forth matters related to operation of commercial reactors as part of their operational safety programs.

Required content includes water quality control for reactor coolant.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.30.1

What are the topics defined by the legal and regulatory framework that apply to the chemistry programme established and implemented by the operating organization?

Subsidiary Response

The following items are specifically required for operational safety program:

- Measurement of electrical conductivity, chlorine ion concentration, and hydrogen-ion exponent (pH) of reactor coolant;*
- Measurement of iodine concentration in reactor coolant; and*
- Frequency of such measurements.*

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

Question 6.31

Does the legal and regulatory framework require that the operating organization should be responsible and should make arrangements for all activities associated with core management and with on-site fuel handling?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should be responsible and should make arrangements for all activities associated with core management and with on-site fuel handling.

Response

Article 88 and Article 89 of the Commercial Reactors Ordinance require licensees to take measures to ensure operational safety with respect to transport and storage carried out on their sites.

Article 92 requires licensees to include handling procedures for acceptance, transport, storage, and other types of handling of nuclear fuel materials in their operational safety program.

The same Article also sets forth requirements related to the operation period of commercial reactor as well as a requirement for conducting safety evaluations of the core after fuel replacement.

Measurement and management of fuel is performed according to the accounting provisions stipulated by licensees in accordance with the Japan-IAEA Safeguards Agreement and the Reactor Regulation Act. Inventory control is inspected by IAEA inspectors.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.31.1

What are the topics defined by the legal and regulatory framework that apply to the chemistry programme established and implemented by the operating organization?

Subsidiary Response

The following items are specifically required for each operational safety program:

- Procurement management;*
- Measurement of iodine concentration in reactor coolant;*
- Transport, storage, and inspection of new fuel;*
- Fuel replacement plans;*
- Fuel transport procedures;*
- Fuel transport and;*
- Transport and storage of spent fuel.*

Subsidiary Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Question 6.32

Does the legal and regulatory framework require that the operating organization should ensure that effective programmes for maintenance, testing, surveillance and inspection are established and implemented?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should ensure that effective programmes for maintenance, testing, surveillance and inspection are established and implemented.

Response

Article 81 of the Commercial Reactors Ordinance requires licensees to, for example, develop a policy for maintenance and management of commercial reactors, develop a plan for maintenance and management, and implement maintenance and management in accordance with said plan.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.32.1

What are the topics defined by the legal and regulatory framework that apply to the maintenance, testing, surveillance and inspection programmes?

Subsidiary Response

In accordance with the Rules for Maintenance and Management of commercial reactors (JEAC4209-2007) and equivalent standards, licenses are required to develop a maintenance and management plan for their commercial reactors that covers the following items:

- Policy and goals for carrying out maintenance and management;*
- Development of a maintenance program;*
- Specification of the scope of maintenance;*
- Classification of maintenance tasks by importance;*
- Specification of management indicators for maintenance activities and development of a monitoring plan;*
- Monitoring of management indicators for maintenance activities;*
- Development of a maintenance plan;*
- Development of an inspection plan;*
- Selection of maintenance methods;*
- Inspection plans for each maintenance method;*
- Development of repair, replacement, and remodeling plans;*
- Development of special maintenance plans;*
- Implementation of maintenance activities;*
- Examination and analysis of the results of inspections, repairs, etc.;*
- Nonconformity management and corrective measures carried out through inspections, repair, etc.;*
- Evaluations of the effectiveness of maintenance; and*

- Evaluation of the effectiveness of maintenance management.

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

Question 6.33

Does the legal and regulatory framework require that the operating organization should establish and implement arrangements to ensure the effective performance, planning and control of work activities during outages?

Answer

Yes

Finding

The legal and regulatory framework requires that the operating organization should establish and implement arrangements to ensure the effective performance, planning and control of work activities during outages.

Response

Article 81 of the Commercial Reactors Ordinance requires licensees to, for example, develop a policy for maintenance and management of commercial reactors, develop a plan for maintenance and management, and implement maintenance and management in accordance with said plan.

This provision requires licensees to take special measures in case their commercial reactors are shut down for a significant period of time.

Attachments

F07The NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors

Subsidiary Question 6.33.1

What are the topics defined by the legal and regulatory framework that apply to outage management arrangements that should be established and implemented by the operating organization?

Subsidiary Response

In accordance with JEAC4209-2007 and equivalent standards, licensees are required to develop a maintenance and management plan for their commercial reactor facilities that covers the following items:

- Policy and goals for carrying out maintenance and management;*
- Development of a maintenance program;*
- Specification of the scope of maintenance;*
- Classification of maintenance tasks by importance;*
- Specification of management indicators for maintenance activities and development of a monitoring plan;*
- Monitoring of management indicators for maintenance activities;*
- Development of a maintenance plan;*
- Development of an inspection plan;*
- Selection of maintenance methods;*
- Inspection plans for each maintenance method;*

- Development of repair, replacement, and remodeling plans;
- Development of special maintenance plans;
- Implementation of maintenance activities;
- Examination and analysis of the results of inspections, repairs, etc.;
- Nonconformity management and corrective measures carried out through inspections, repair, etc.;
- Evaluations of the effectiveness of maintenance; and
- Evaluation of the effectiveness of maintenance management.

Subsidiary Attachments

F09The Standard Review Plan on Approval of Operational Safety Program of Commercial Power Reactor Facilities

Question 6.34

Does the legal and regulatory framework require that the operating organization should prepare a decommissioning plan and shall maintain it throughout the lifetime of the plant, unless otherwise approved by the regulatory body, to demonstrate that decommissioning can be accomplished safely and in such a way as to meet the specified end state?

Answer

No

Finding

The legal and regulatory framework does not require that the operating organization should prepare a decommissioning plan and shall maintain it throughout the lifetime of the plant, unless otherwise approved by the regulatory body, to demonstrate that decommissioning can be accomplished safely and in such a way as to meet the specified end state.

Response

The NRA considers developing a regulatory framework for licensees to develop an initial decommissioning plan at the establishment or equivalent stage, and to update such plans periodically throughout the lifetime of the facility.

<ATTACHMENTS>

The Reactor Regulation Act sets forth the requirement that all licensees develop a decommissioning plan and obtain approval from the NRA prior to carrying out decommissioning (Article 43-3-33, Paragraph (2)).

However, there is no requirement regarding maintaining the decommissioning plan over the lifetime of the target plant while it is in service.

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.34.2

What are the reasons that the legal and regulatory framework does not require that the operating organization should prepare a decommissioning plan and shall maintain it throughout the lifetime of the plant, unless otherwise approved by the regulatory body, to demonstrate that decommissioning can be accomplished safely and in such a way as to meet the specified end state?

Subsidiary Response

1. According to the Reactor Regulation Act, a commercial reactor licensee must take a certain measures in case the reactor needs to be decommissioned. In such an event, the licensee must obtain the NRA's approval regarding the following items:

- Decommissioning plan (the Reactor Regulation Act, Article 43-3-33, Paragraph (2)); and
- Operational safety program (the Reactor Regulation Act, Article 43-3-24, Paragraph (1)).

2. Once the abovementioned approvals have been obtained, the licensee proceeds to carry out decommissioning in accordance with the decommissioning plan and operational safety program. During decommissioning, the NRA regulates the licensee via the following means:

- Operational safety inspections (the Reactor Regulation Act, Article 43-3-24, Paragraph (5)); and
- Periodic facility inspections (Article 43-3-15 of the Reactor Regulation Act; this inspection is not required when there are no nuclear fuel materials inside the facility subject to decommissioning).

3. Once decommissioning has been completely implemented, the licensee must undergo a review by the NRA (the Reactor Regulation Act, Article 12-6, Paragraph (8) applied *mutatis mutandis* to Article 43-3-33, Paragraph (3) of the Act).

4. The aforementioned regulatory framework is thought to be sufficient to ensure safety during decommissioning.

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 6.34.3

What are the measures taken in order to include in the legal and regulatory framework a requirement that the operating organization should prepare a decommissioning plan and shall maintain it throughout the lifetime of the plant, unless otherwise approved by the regulatory body, to demonstrate that decommissioning can be accomplished safely and in such a way as to meet the specified end state?

Subsidiary Response

The requirement to bring a reactor safely to the required final state by decommissioning can be satisfied by approval of decommissioning plans and other means in accordance with the existing regulatory framework.

The criteria for confirming the completion of decommissioning (site release) of nuclear power plants and method to confirm compliance with these criteria isn't developed.

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

OUTCOMES OF THE SELF-ASSESSMENT FOR REGULATORY FRAMEWORK FOR RESEARCH REACTORS

Module: Regulatory Framework for Research Reactors

Findings

Question 1.1

Does the regulatory framework include requirements to ensure that the three safety objectives and the basic safety principles are in effect for research reactors?

Answer

Yes

Finding

The regulatory framework includes requirements to ensure that the three safety objectives and the basic safety principles are in effect for research reactors.

Response

The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (hereinafter referred to as 'the Reactors Regulation Act') is enacted for the purpose of providing necessary regulations on the installation and operation of reactors, in order to ensure public safety by preventing hazards due to the event that a severe accident at a nuclear facility causes a discharge of an abnormal level of radioactive materials outside the factory or otherwise resulting from reactors, thereby contributing to protecting people's lives and health, preserving the environment.

The criteria for the permission of establishment of the research and test reactors (hereinafter referred to as "research reactors") are specified in Article 24 of the Reactor Regulation Act. According to the criteria, the research reactors shall not hinder the prevention of disasters and conform to the standards specified by the Ordinance of the Nuclear Regulation Authority. The standards specify the requirements on equipment to

achieve technical safety (including dose limit, etc. for radiation protection) and the evaluation criteria for accident assessment, etc. based on the design.

Regulatory requirements related to ensure the basic safety principles are as described hereinbelow.

<Attachments>

Reactor Regulation Act, Article 24, paragraph (1), item (iii)

NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc. (“Research Reactors Establishment Permit Ordinance” in this module)

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Question 1.2

Does the regulatory framework require from the licensee to establish and maintain a system for managing the safety at research reactors?

Answer

Yes

Finding

The regulatory framework requires from the licensee to establish and maintain a system for managing the safety at research reactors

Response

Pursuant to Article 37 of the Reactor Regulation Act, a licensee shall specify operational safety programs and obtain approval from the Nuclear Regulation Authority (NRA). Matters to be included in the operational safety programs are specified in Article 15 of the Research Reactors Ordinances. An inspection on the compliance of operational safety programs shall be performed by the NRA.

Subsidiary Question 1.2.1

What requirements are in place to ensure that a high level of safety culture is developed and maintained at the operating organization?

Subsidiary Response

Pursuant to Article 37 of the Reactor Regulation Act, a licensee of the research reactors shall specify “operational safety programs” and obtain approval from the NRA and undergo periodic inspection on the compliance of operational safety programs conducted by the NRA. Also, pursuant to the Research Reactors Operational Safety Programs Standards, a licensee is required to specify the implementation of operational safety activities as the “basic policy” in accordance with appropriate quality assurance activities based on safety culture.

Under these operational safety programs, a licensee is required to ensure “quality assurance (which refers to ensuring nuclear safety through systematic implementation of necessary measures for operational safety)” to nurture safety culture. Specifically, a licensee is required to specify the following matters in the operational safety programs pursuant to Article 15, paragraph (1), item (xviii) of the Research Reactors Ordinance:

- Formulation of a quality assurance plan by the top management*
- Organization and duties of persons engaging in quality assurance*
- Implementation, evaluation, and continuous improvement of quality assurance activities based on the quality assurance plan*
- Documents and records on quality assurance activities*

Under the quality assurance, a licensee is also required to specify a quality assurance plan and perform activities in accordance with the plan. Specifically, a licensee will prepare a

policy for quality assurance activities, and implement, evaluate, and continuously improve quality assurance activities. These efforts will result in the continuous improvement of the safety culture at the organization.

<Attachment>

Reactor Regulation Act, Article 37

NRA Ordinance Concerning the Installation and Operation of Nuclear Research and Test Reactors, etc. ("Research Reactors Ordinance"), Article 15, paragraph (1), item (xviii)

Standard Review Plan on Approval of Operational Safety Program of Nuclear Research and Test Reactors, etc. ("the Research Reactors Operational Safety Program Standards"), page 8 and other necessary matters

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

Question 1.3

Does the regulatory framework include requirements on the main technical aspects of safety of research reactors?

Answer

Yes

Finding

The regulatory framework includes requirements on the main technical aspects of safety of research reactors.

Response

Pursuant to Article 24 of the Reactor Regulation Act, a person who intends to install research reactors shall conform with the standards specified by the Research Reactors Establishment Permit Ordinance and have the necessary technical competence for the installation, operation and maintenance of research reactors.

<Attachments>

Reactor Regulation Act, Article 24, paragraph (1), item (ii), item (iii)

Research Reactors Establishment Permit Ordinance

Regulatory Guide for Reviewing Technical Competence of Nuclear Operator

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

H27Examination Guide for Technical Capability of License Holders of Nuclear Power

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Question 1.4

Does the regulatory framework include the provisions for the licensing and reviewing and assessing the safety during the different phases of the life cycle of the research reactors?

Answer

Yes

Finding

The regulatory framework includes the provisions for the licensing and reviewing and assessing the safety during the different phases of the life cycle of the research reactors.

Response

-

Subsidiary Question 1.4.1

What are the requirements about the contents of the safety analysis report to be submitted to the regulatory body in relation to the licensing process?

Subsidiary Response

Given the diversity of research reactors, the criteria are specified based on the power and type of reactors.

[Licensing for establishment]

Pursuant to Article 23 of the Reactor Regulation Act, a person who intends to install research reactors shall submit application to the NRA. Matters to be included in the application for the establishment license are specified in Article 1-3 of the Research Reactors Ordinance. The Research Reactors Establishment Permit Ordinance stipulates the criteria that the reactor facilities need to satisfy in order to ensure that the reactor facilities will not hinder the prevention of disasters.

[Approval of the design and construction method]

Pursuant to Article 27 of the Reactor Regulation Act, a licensee of research reactors shall obtain approval from the NRA with respect to the design and construction method of the reactor facilities before commencing construction work on the reactor facilities. Matters to be included in the application are specified in Article 3 of the Research Reactors Ordinance. Furthermore, technical standards to be satisfied are specified in the Research Reactors Design Construction Ordinance. Pursuant to Article 28 of the Reactor Regulation Act, a licensee shall undergo a pre-service inspection before operation.

[Approval of operational safety programs]

Pursuant to Article 37 of the Reactor Regulation Act, a licensee of research reactors shall specify operational safety programs, and obtain approval from the NRA. Matters to be included in the operational safety programs are specified in Article 15 of the Research Reactors Ordinance. Furthermore, matters to be confirmed upon the examination for approval of operational safety programs are specified in the Research Reactors Operational Safety Program Standards.

[Approval of decommissioning plan]

Pursuant to Article 43-3-2 of the Reactor Regulation Act, a licensee of research reactors shall specify decommissioning plan, and obtain approval from the NRA. Matters to be included in the decommissioning plan are specified in Article 16-6 of the Research Reactors Ordinance.

<Attachments>

[Licensing for establishment]

Reactor Regulation Act, Article 23, paragraph (1)

Research Reactors Ordinance, Article 1-3

Research Reactors Establishment Permit Ordinance

[Approval of the design and construction method]

Reactor Regulation Act, Article 27

Research Reactors Ordinance, Article 3

Research Reactors Design Construction Ordinance

[Approval of operational safety programs]

Reactor Regulation Act, Article 37

Research Reactors Ordinance, Article 15

the Research Reactors Operational Safety Program Standards

[Approval of decommissioning plan]

Reactor Regulation Act, Article 43-3-2

Research Reactors Ordinance, Article 16-6

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M02The Standard Review Plan on Approval of Operational Safety Program of Research and Test Reactors

M04The NRA Ordinance on Technical Standards for the Design and Construction Methods of Research and Test Reactors

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.4.2

What specific requirements are in place with respect to the content and depth of SAR for the different categories of research reactors (e.g. high power RR, pulse reactor, critical assembly, etc.)?

Subsidiary Response

The requirements for establishment license of the research reactor facilities are specified in the Research Reactors Establishment Permit Ordinance. The research reactors are categorized based on power and type (low-power reactors, critical assemblies, medium- and high-power reactors, sodium-cooled fast reactors, gas-cooled reactors) and regulated according to the characteristics of the reactors.

According to the criteria, the low-power reactors and critical assemblies are exempted from the requirements on cooling equipment depending on their natural cooling ability and regulated based on the assumption that the reactor shut-down system and the reactivity control system are shared. On the other hand, the criteria for medium- and high-power reactors, gas-cooled reactors, and sodium-cooled fast reactors are determined based on the scale and impact to the public at the time of the occurrence of accidents. The criteria require these reactor facilities to have equipment that enables personnel to stay at the control room for a certain period of time to secure safety at the time of Design Basis Accident (DBA). Also, the criteria require to install the emergency electric power supply system for the monitoring equipment, and to take necessary measures to prevent an escalation of accidents which may lead to a large release of radioactive materials.

<Attachments>

Research Reactors Establishment Permit Ordinance

Chapter 2: Test and Research Reactor Facilities (Critical Facilities, Low-Power Reactors)

Chapter 3: Test and Research Reactor Facilities Regarding Water-Cooled Research Reactors (Medium- and High-Power Reactors)

Chapter 4: Test and Research Reactor Facilities Regarding Gas-Cooled Reactors

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.4.3

What are the objectives of the regulatory review and assessment specified in the regulatory framework?

Subsidiary Response

[Licensing for establishment]

To confirm if the application satisfies the licensing criteria pursuant to Article 24 of the Reactor Regulation Act.

[Approval of the design and construction method]

To confirm if the application is as permitted for Establishment and satisfies the technical criteria of the design and construction method pursuant to Article 27 of the Reactor Regulation Act.

[Approval of operational safety programs]

To confirm that the operational safety programs in the application for approval take sufficient measures to prevent disasters pursuant to Article 37 of the Reactor Regulation Act.

[Approval of the decommissioning plan]

To confirm that the decommissioning plan in the application satisfies the criteria 'proposed decommissioning will not hinder the prevention of disasters resulting from nuclear fuel material or material contaminated by nuclear fuel material, or research reactors' as prescribed in Article 16-9 of the Research Reactors Ordinance, pursuant to Article 43-3-2 of the Reactor Regulation Act.

<Attachments>

Reactor Regulation Act, Article 24, Article 27, Article 37, Article 43-3-2

Research Reactor Ordinance, Article 16-9

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Subsidiary Question 1.4.4

What are the requirements specific to the research reactors with power levels in excess of several tens of megawatts, fast reactors, and reactors using experimental devices such as high pressure and temperature loops, cold neutron sources and hot neutron sources (also in the case of reactors used for testing hazardous materials)?

Subsidiary Response

Pursuant to the Research Reactors Establishment Permit Ordinance, specific requirements compared with low-power reactors are outlined as follows for sodium-cooled fast reactors, high-temperature gas-cooled reactors, and medium- and high-power reactors based on their characteristics:

(1) necessary power generating equipment and emergency electric power supply equipment shall be provided in order to actuate the cooling system in the case of the loss of external power supply (medium- and high-power reactors, gas-cooled reactors, sodium-cooled fast reactors); (2) the requirements on test fuel assemblies shall be satisfied (gas-cooled reactors, sodium-cooled fast reactors); (3) a device to detect any leakage of primary coolant shall be provided (medium- and high-power reactors, gas-cooled reactors, sodium-cooled fast reactors); (4) the reactor coolant pressure boundary that satisfies the prescribed requirements shall be provided (gas-cooled reactors); (5) the reactor coolant boundary, cover gas boundary, and any other boundaries that satisfy the prescribed requirements shall be provided (sodium-cooled fast reactors); (6) equipment that can remove decay heat and other heat shall be provided (the gas-cooled reactors and sodium-cooled fast reactors being required to satisfy the prescribed requirements for the heat removal equipment) (medium- and high-power reactors, gas-cooled reactors, sodium-cooled fast reactors); (7) equipment that can transfer heat to the ultimate heat sink shall be provided in order to remove heat in the reactor vessel (medium- and high-power reactors, gas-cooled reactors, sodium-cooled fast reactors); (8) a device that can remove decay heat of fuel assemblies in the reactor from the place other than the reactor control room and can monitor the necessary parameters shall be provided if necessary (medium- and high-power reactors); (9) the emergency electric power supply system, uninterruptible power supply device, or power supply device with the same or better functions shall be provided to the equipment that is permanently installed to display necessary information to places where such information needs to be transmitted in order to monitor and measure the radioactive dose at and around the boundary of the surrounding monitoring area and to promptly take measures at the time of

DBA (medium- and high-power reactors, gas-cooled reactors, sodium-cooled fast reactors); (10) the reactor containment boundary shall satisfy the prescribed requirements, and the pipelines that penetrate the reactor containment vessel shall be fitted with isolation valves (excluding pipelines that satisfy the specified conditions). If any flammable gas may damage the integrity of the reactor containment facility, the equipment shall be provided to reduce the concentration of such gas. If the leakage of gaseous radioactive material from the containment facility may cause radiation hazard to the public in the case of DBA, etc., the equipment shall be provided to reduce the concentration of radioactive material in the reactor containment facility (gas-cooled reactors); (11) the reactor containment boundary shall satisfy the prescribed requirements, and the pipelines that penetrate the reactor containment vessel shall be fitted with isolation valves (excluding pipelines that satisfy the specified conditions). If the leakage of gaseous radioactive material from the containment facility may cause radiation hazard to the public in the case of DBA, etc., the equipment shall be provided to reduce the concentration of radioactive material in the reactor containment facility (sodium-cooled fast reactors); and (12) necessary measures shall be taken to prevent an escalation of BDBA (medium- and high-power reactors, gas-cooled reactors, sodium-cooled fast reactors).

Applicant shall include additional safety measures specific to each reactor in the application for the establishment license, which will be examined by the NRA.

Concerning the experiment equipment, it is required to display necessary safety parameters on its operating conditions and any abnormalities, if occurred, at the control room in order to ensure the integrity of the reactor

<Attachments>

Research Reactors Establishment Permit Ordinance

Chapter 3: Test and Research Reactor Facilities Regarding Water-Cooled Research Reactors (Medium- and High-Power Reactors)

Chapter 4: Test and Research Reactor Facilities Regarding Gas-Cooled Reactors

Chapter 5: Test and Research Reactor Facilities Regarding Sodium-Cooled Fast Reactors

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Question 1.5

Does the regulatory framework require from the licensee to develop quality assurance programmes for all the stages in the lifetime of a research reactor at a time consistent with the schedule for accomplishing stage related activities?

Answer

Yes

Finding

The regulatory framework require from the licensee to develop quality assurance programmes for all the stages in the lifetime of a research reactor at a time consistent with the schedule for accomplishing stage related activities.

Response

Yes, but a gap exists.

The technical competence, including quality assurance, of a licensee at the construction stage of the research reactors, will be examined in the application for the establishment license under Article 23 of the Reactor Regulation Act and the Regulatory Guide for Reviewing Technical Competence of Nuclear Operator. The quality assurance method will be examined through the approval of the design and construction method (Reactor Regulation Act, Article 27). Furthermore, matters related to quality assurance is required to specify in the operational safety programs at the operational stage (Reactor Regulation Act, Article 37) and the decommissioning stage (Reactor Regulation Act, Article 43-3-2).

However, requirements cover those activities after the Establishment Permit or approvals of Construction Plan or Operational Safety Program. Quality assurance program is not required in the application for Establishment Permit for activities preparing establishment permit application, e.g. for basic design preparation or siting related surveys.

<Attachments>

Reactor Regulation Act, Article 23 (Installment License), Article 27 (Approval of the Design and Construction Method), Article 37 (Operational Safety Programs), Article 43-3-2 (Measures Associated with Abolition of Reactors)

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 1.6

Does the regulatory framework require carrying out a comprehensive safety assessment by the operating organization to confirm that the design meets the safety requirements set out at the beginning of the design process?

Answer

Yes

Finding

The regulatory framework requires carrying out a comprehensive safety assessment by the operating organization to confirm that the design meets the safety requirements set out at the beginning of the design process.

Response

-

Subsidiary Question 1.6.1

What requirements ensure that the operating organization of the research reactor carry out comprehensive periodic reviews of operational issues and safety related activities?

Subsidiary Response

Pursuant to Article 14-2 of the Research Reactors Ordinance, a licensee shall perform periodic safety review on operational safety activities on the research reactor facilities every 10 years after the start of their operation, and evaluate whether the latest technological knowledge is incorporated into their operational safety activities. Furthermore, a licensee shall perform technical review on aging of equipment before the day on which 30 years has elapsed from the start of operation, and prepare an action plan for the next 10 years to maintain equipment based on the results of the review. After 30 years from the start of operation, a licensee shall perform technical review on aging of equipment every 10 years, and prepare an action plan for the next 10 years to maintain equipment.

<Attachments>

Research Reactors Ordinance, Article 14-2

Subsidiary Attachments

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 1.7

Does the regulatory framework cover the detailed site selection and evaluation requirements including criteria for site evaluation?

Answer

Yes

Finding

The regulatory framework covers the detailed site selection and evaluation requirements including criteria for site evaluation

Response

Yes, but a gap exist.

Concerning the periodic safety assessment, reassessment of site characteristics which were applied for an establishment permit are not required.

Subsidiary Question 1.7.1

What requirements are in place for evaluating the safety of the research reactor against seismic events (earthquake and geotechnical hazards)?

Subsidiary Response

Pursuant to Article 3 and 4 of the Research Reactors Establishment Permit Ordinance, the research reactor facilities shall be constructed on ground that can sufficiently support the facilities even in the case that seismic force loaded, and able to sufficiently bear seismic force. Furthermore, the important earthquake-resistant facilities shall be so designed that their safety functions will not be impaired by seismic force generated by an earthquake that may significantly affect these facilities or by possible slope failure caused by such earthquake.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 4

Research Reactors Establishment Permit Ordinance, Interpretations, Article 4

Subsidiary Attachments

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.7.2

What requirements are in place for evaluating the safety of the research reactor against extreme meteorological events, flooding and other important natural phenomena?

Subsidiary Response

The research reactors shall be so designed that their safety functions will not be impaired by tsunami under Article 5 of the Research Reactors Establishment Permit Ordinance, or by floods, typhoon, tornado, freezing, rainfalls, snowing, lightning, landslide, volcanic effects, biological events, forest fires, or other possible natural phenomenon under Article 6 of the Ordinance. The phrase “their safety functions will not be impaired by” means that the facilities involved shall achieve their safety functions under the environmental conditions caused by the natural phenomena themselves and the environmental conditions which may be subsequently caused at the research reactor facilities, when they encounter natural phenomena to be considered in design individually or in combination. The design of important safety facilities shall take account of impact from any anticipated natural phenomena that may significantly affect these reactor facilities and of DBA-induced loads.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 6

Research Reactors Establishment Permit Ordinance, Interpretations, Article 6

Subsidiary Attachments

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.7.3

What specific requirements are in place from the point of view of emergency preparedness issues with respect to the site?

Subsidiary Response

Pursuant to Article 15 of the Research Reactors Ordinance, emergency measures shall be specified in the operational safety program.

<Attachments>

Research Reactors Ordinance, Article 15

Research Reactors Establishment Permit Ordinance, Article 4 to Article 6, Article 8, Article 9

Subsidiary Attachments

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.7.4

What requirements are in place about the regular monitoring of the external hazards (natural or human induced) at the site?

Subsidiary Response

Pursuant to Article 6 of the Research Reactors Ordinance, wind direction, wind velocity, waterfall, and air temperature to shall be monitored for each reactor, and monitoring records shall be kept for 10 consecutive years.

Pursuant to the Research Reactors Establishment Permit Ordinance, safety functions shall not be impaired in the case of earthquake (Article 4, Article 5) or inundation (Article 9), or any external impact caused by natural phenomena and human induced event (Article 6) in order to prevent loss of function due to the occurrence of such phenomena. Furthermore, the reactors shall be provided with equipment that can immediately detect a fire outbreak at an early stage (Article 8).

<Attachments>

Research Reactors Ordinance, Article 6 (Record), paragraph (1), item (viii)

Research Reactors Establishment Permit Ordinance, Article 4 to Article 6, Article 8, Article 9

Subsidiary Attachments

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Question 1.8

Does the regulatory framework cover the detailed requirements for the design of research reactors and its SSCs?

Answer

Yes

Finding

The regulatory framework covers the detailed requirements for the design of research reactors and its SSCs.

Response

-

Subsidiary Question 1.8.1

What requirements are in place for the incorporation of main safety principles in the design of research reactors including defence in depth?

Subsidiary Response

The concept of defense in depth is applied to research reactors. The Research Reactor Establishment Permit Ordinance, Articles 13 and 40 requires licensees to establish layers ranging from first layer (abnormal event prevention) to fourth layer (prevention and mitigation of BDBA). Especially, Article 40 prescribes that necessary measures, including the location of equipment and the procedures for actions to be taken, shall be taken to prevent an escalation of accidents that may lead to a large release of radioactive materials, etc.. However, measures for fourth layer are not required to low power research reactor based on the graded approach.

Concerning physical barriers that prevent the release of radioactive materials from the reactors, fuel assemblies shall be designed so as to withstand their maximum operating pressure, own weight, additional load, and other possible load on fuel assemblies during operation pursuant to Article 15, paragraph (5), item (i) of the Research Reactors Establishment Permit Ordinance. Also, requirements on reactor vessel and containment facilities are prescribed in Articles 34, 45 and 55, and Article 27 respectively in this Ordinance.

Concerning the requirements on management issues, see answer to QIDs No.2 and No. 5.

Concerning technical issues, function of protection system shall be maintained at the time of any single failure under Article 18, item (iii); two independent systems shall be provided for the reactor shut-down system under Article 20, paragraph (1), item (i); the cooling system to remove heat generated in the reactor vessel, residual heat removal system, and transfer to ultimate heat sink shall be provided under Articles 33, 34, and 35 respectively.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 15, paragraph (5), item (i), Article 16, paragraph (1), item (iv), Article 18, item (iii), Article 20, paragraph (1), item (i), Article 33, Article 34, Article 35, Article 40

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.8.2

What requirements are in place on the safety functions of SSCs, ensuring that the three basic safety functions are maintained – by applying the single failure criterion – during normal operation, anticipated operational occurrences and design basis accidents, including the acceptance criteria?

Subsidiary Response

Pursuant to the Research Reactors Establishment Permit Ordinance, the research reactor facilities shall have three safety functions: shut-down functions, cooling functions, and confinement functions.

Pursuant to Article 20, the shut-down functions shall have at least two independent systems, and be able to bring the reactor down to subcritical, and to maintain subcritical under a low temperature during normal operation or at the time of abnormal transients during operation or DBA (except when sub-criticality state can be sufficiently ensured). If any

control rod is used in the reactor shut-down system, the above-mentioned requirements shall be satisfied even when a control rod with the maximum reactivity is stuck.

Pursuant to Article 33, the cooling functions shall be designed so that no primary coolant will be leaked even when the primary cooling system is damaged; the reactor core will be kept cooled even when any event that obstructs the channel of the primary coolant occurs (including alteration of or damage to the reactor core internals); and in the case of medium- and high-power reactors (Article 33, item (v)), gas reactors (Article 45, paragraph (2), item (iv)), and sodium reactors (Article 55, paragraph (2), item (iv)), the cooling functions shall be provided with a device that can detect any leakage of primary coolant.

Finally, pursuant to Article 27, reactor containment facilities shall be provided as confinement functions. If the reactors may cause radiation hazard to the public, they shall maintain negative pressure in the reactor containment facilities and reduce radioactive materials released from the reactor containment facilities. In the case of gas reactors (Article 50) and sodium reactors (Article 60), the equipment composing the reactor containment boundary shall not be instantaneously destroyed during normal operation, or at the time of transients or DBA, and be fitted with isolation valves except the places where the volume of leakage is low (including micro-pipes), and single failure criteria is applied to these requirements.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 20, Article 33, Article 34, Article 35, Article 45, Article 55, Article 27, Article 50, Article 60

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.8.3

What requirements are in place for classifying the SSCs and software according to their safety importance?

Subsidiary Response

The classification of the importance of safety functions is specified in Article 12 of the Research Reactors Establishment Permit Ordinance.

Structures, systems, and components bearing safety functions are classified into two categories according to their functions: “prevention system: PS (those whose failure could cause abnormal conditions at nuclear reactor facilities, thereby lead to undue radiation exposure to the public or site personnel),” and “mitigation system: MS (those whose function is to prevent, in case of abnormal conditions at nuclear reactor facilities, an escalation of such conditions or put such conditions under control immediately, thereby prevent or mitigate possible undue radiation exposure to the public or site personnel).” Structures, systems, and components falling into PS and MS categories are further classified into Class 1, Class 2, and Class 3 according to the importance of their safety functions.

<Attachments>

Research Reactors Establishment Permit Ordinance, Interpretations, Article 12

Basic Policy for Reviewing Classification of Importance of Safety Functions for Water-Cooled Reactors for Test and Research (“Basic Policy for Reviewing Classification of Importance”)

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.8.4

What rules or guides are available in the regulatory framework for selecting the appropriate codes and standards for the SSCs (and software) of different safety classes?

Subsidiary Response

Pursuant to Article 12 of the Research Reactors Establishment Permit Guide, “those that fulfill safety functions according to the importance of their safety functions” shall be in accordance with the Basic Policy for Reviewing Classification of Importance of Safety

Functions for Water-Cooled Reactors for Test and Research (“Basic Policy for Reviewing Classification of Importance”) attached to the Regulatory Guide for Reviewing Safety Design of Water-Cooled Reactors for Test and Research (“Regulatory Guide for Water-Cooled Reactors”).

<Attachments>

Research Reactors Establishment Permit Ordinance, Interpretations, Article 12

Regulatory Guide for Reviewing Safety Design of Water-Cooled Reactors for Test and Research

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

M11TheRegulatory Guide for Reviewing Safety Design of Water-cooled Test Reactor Facilities

Subsidiary Question 1.8.5

What requirements or guides are in place for determining the design basis for a research reactor?

Subsidiary Response

The Research Reactors Establishment Permit Ordinance sets forth matters related to prevention of escalation of anticipated operational occurrences (hereinafter referred to as 'AOO') and DBA. It also requires the reactors to take into account the characteristics related to the place of installation (foundation soil, etc.), internal events (fire, etc.) and external events (typhoon, explosion, fire, etc.).

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 3, Article 4, Article 5, Article 6, Article 7, Article 8, Article 13, etc.

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.8.6

What requirements or guides are available in the regulatory framework in relation to the engineered safety features and safety systems of research reactors?

Subsidiary Response

The criteria are specified in the Research Reactors Establishment Permit Ordinance based on the power (low-power reactors, medium-power reactors, high-power reactors) and type (critical assemblies, water-cooled reactors, gas-cooled reactors, sodium-cooled reactors) of reactors.

The requirements on the safety protection system, reactivity control system, reactor shut-down system, residual heat removal system, reactor containment facilities are also specified based on the power and type of reactors.

<Attachments>

Research Reactors Establishment Permit Ordinance

Chapter 2: Test and Research Reactor Facilities (Critical Facilities, Low-Power Reactors)

Chapter 3: Test and Research Reactor Facilities Regarding Water-Cooled Research Reactors (Medium- and High-Power Reactors)

Chapter 4: Test and Research Reactor Facilities Regarding Gas-Cooled Reactors

Chapter 5: Test and Research Reactor Facilities Regarding Sodium-Cooled Fast Reactors

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.8.7

What requirements or guidelines are available in the regulatory framework for ensuring the reliability of the systems important to safety?

Subsidiary Response

The safety facility (structures, systems, and components bearing safety functions) and communication equipment shall be designed with redundancy, diversity, and independence pursuant to Article 12 and Article 30 of the Research Reactors Establishment Permit Ordinance, respectively. Furthermore, pursuant to Article 10, measures shall be taken in order to prevent operational errors taking ergonomic factors into account.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 12, Article 30

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.8.8

What requirements or guidelines are available in regulatory framework in relation to design for emergency management and planning?

Subsidiary Response

Pursuant to Article 11 of the Research Reactors Establishment Permit Ordinance, the research reactors shall be provided with emergency evacuation routes, emergency lighting equipment, and signs. Furthermore, lighting shall be ensured at day and night at any place when any work is required as a countermeasure for DBA.

Furthermore, as for the medium- and high-power reactors (Article 40), gas reactors (Article 50), and sodium reactors (Article 60), measures shall be taken to prevent an escalation of accidents which may lead to a large release of radioactive materials, etc.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 11, Article 40, Article 50, Article 60

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.8.9

What requirements or guidelines are available in the regulatory framework in relation to the design for decommissioning of the research reactors?

Subsidiary Response

There are no provisions on the design for facilitating decommissioning of the research reactor facilities in the Reactor Regulation Act and its subordinate ordinances.

Subsidiary Question 1.8.10

What requirements or guidelines are in place to ensure adequate provisions necessary for implementing a consistent radiation protection programme?

Subsidiary Response

The research reactors shall be capable of sufficiently reducing the radiation dose from the reactor facilities in their surrounding area under Article 24 of the Research Reactors Establishment Permit Ordinance; shall be capable of ensuring the necessary operation to promptly respond to DBA and shall be provided with the radiation management facility to monitor and manage radiation exposure of workers under Article 25; and shall be provided with equipment that can display necessary information for radiation management at the control room and other places under Article 26.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 24, Article 25, Article 26

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.8.11

What requirements are available in regulatory framework in order to ensure the adequate design supporting the physical protection and security measures for the research reactor?

Subsidiary Response

** No response is required as this is out of IRRS's scope.*

Subsidiary Question 1.8.12

What provisions are available in the regulatory framework to take into account the human factors and ergonomic considerations?

Subsidiary Response

Pursuant to Article 10 of the Research Reactors Establishment Permit Ordinance, measures shall be taken to prevent operational errors. Pursuant to the Research Reactors Establishment Permit Guide, consideration shall be given to the panel arrangement and the operability of operational tools and valves, etc., taking ergonomic factors into account; to the display of instruments and alarms to ensure accurate and prompt understanding of the state of the reactor facilities; and to prevent errors during maintenance checks as much as possible.

Pursuant to Article 21 of the Research Reactors Establishment Permit Ordinance, the research reactor facilities shall be provided with a reactor control room that enables monitoring and operation of necessary parameters and allows evacuation. Pursuant to Article 29, the experiment equipment shall be monitored and be connected to the control room through the communication equipment.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 10, Article 21, Article 29

Research Reactors Establishment Permit Ordinance, Interpretations, Article 10

Subsidiary Attachments

M03The Regulatory Guide on the NRA Ordinance on Standards for the Location Structure and Equipment of Research and Test Reactors

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.8.13

What specific requirements or guidelines are in place for ensuring the safe utilization and modification of the research reactor?

Subsidiary Response

Pursuant to Article 29 of the Research Reactors Establishment Permit Ordinance, the experiment equipment shall be specified not to impair the safety of the research reactors even when the experiment equipment is damaged or in the case of the occurrence of the equipment failure, not to lead significant reactivity insertion events by the transfer or alteration of experiment objects or the change of experiment situation and not to cause significant leakage of radiation or radioactive materials. Furthermore, the status of experiment objects shall be displayed at the control room and the experiment equipment shall be installed at a place which enables mutual communication with the control room.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 29

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.8.14

What requirements or guidelines are in place in relation to the selection of proper materials ensuring appropriate margins with taken into account of the ageing processes?

Subsidiary Response

Pursuant to Article 7 of the Research Reactors Design Construction Ordinance, the materials and structure of the reactor facilities shall be specified to have the strength under the design requirements according to the importance of their safety functions. Specifically, at the time of the pressure or leakage tests, they shall be designed to withstand these tests and to avoid

significant leakage, and to be provided with a test specimen inside the vessel, if there is a possibility of material of the vessel being significantly deteriorated due to neutron irradiation.

Pursuant to Article 14-2 of the Research Reactors Ordinance, the aging of the reactor facilities shall be periodically reviewed, and maintenance and replacement shall be conducted in accordance with a maintenance plan.

<Attachments>

Research Reactors Design Construction Ordinance , Article 7

Research Reactors Ordinance, Article 14-2

Subsidiary Attachments

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

M04The NRA Ordinance on Technical Standards for the Design and Construction Methods of Research and Test Reactors

Subsidiary Question 1.8.15

What requirements or guidelines are in place to ensure the safety of the research reactor during and after an anticipated extended shutdown?

Subsidiary Response

Including long term shut-down, pursuant to Article 28-3 of the Reactor Regulation Act, the performance of the research reactor facilities shall be maintained so as to conform with the technical standards, and a periodic inspection shall be performed at regular intervals not exceeding 1 year on the facilities that need to maintain their functions on a continuous basis under Article 29 of the Reactor Regulation Act. The NRA shall use this inspection to confirm whether the safety of the research reactors is secured during the long-term shut-down. When the research reactors will be shut-down for a long term due to construction of the

reactor facilities, etc., a licensee shall explain the quality assurance activities for the reactor facilities during the period of construction in the approval of design and construction plan.

<Attachments>

Reactor Regulation Act, Article 29

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 1.9

Does the regulatory framework include the specific design requirements for research reactors?

Answer

Yes

Finding

The regulatory framework includes the specific design requirements for research reactor.

Response

-

Subsidiary Question 1.9.1

What regulatory requirements or guidelines are available in relation to the reactor core and fuel design of the research reactor?

Subsidiary Response

Matters related to core and fuel designs of research reactors are prescribed in Article 15 of the Research Reactors Establishment Permit Ordinance and Article 14 of the Research Reactors Design Construction Ordinance.

Pursuant to Article 15 of the Research Reactors Establishment Permit Ordinance, the research reactor facilities shall be designed to have inherent power control characteristics specific to each reactor (except the critical assemblies facilities that do not hinder the safety functions of the facilities), and to be capable of controlling chain reaction of nuclear fission through the reactivity control of the core. Furthermore, the reactors shall be able to returning to safe state without causing any DBA in the event of AOO, shall be designed not to cause any significant damage in the core and shall be capable of sufficiently cooling the core in the event of DBA. The core shall be able to be controlled together with other systems including the reactor shut-down system during normal operation or in the event of AOO without exceeding the allowable fuel design limit. The fuel assemblies, moderators, and core support structures shall be such as to ensure that research reactors will be safely shut-down during normal operation or in the event of AOO or DBA.

Pursuant to Article 14 of the Research Reactors Design Construction Ordinance, the research reactors shall be so designed to be able to maintain their necessary physical and chemical characteristics under the severest anticipated conditions in temperature and radiation; to withstand every possible load; and not to be impaired by oscillation. According to these Ordinances, the fuel assemblies shall also be able to withstand their maximum operating pressure in the reactor, own weight, additional load, and other possible loads on them and shall not be excessively deformed during transport or handling.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 15

Research Reactors Design Construction Ordinance , Article 14

Subsidiary Attachments

M04The NRA Ordinance on Technical Standards for the Design and Construction Methods of Research and Test Reactors

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.9.2

What regulatory requirements or guidelines are available in relation to the reactivity control system, the reactor shut-down system and the reactor protection system for research reactor?

Subsidiary Response

Pursuant to Article 19 of the Research Reactors Establishment Permit Ordinance, the reactivity control system shall be designed to be capable of regulating reactivity changes caused by anticipated change of the temperature or transfer of experiment objects during normal operation; if control rods are used, control rods shall be designed to prevent withdrawn or drop out from the core; and the reactivity insertion rate of control rods shall be controlled within the acceptable fuel design limit even in the event of any anticipated abnormal withdrawal, along with the shut-down capabilities of the reactor shut-down system.

Pursuant to Article 20 of the Research Reactors Establishment Permit Ordinance, the reactor shut-down system shall be designed to have at least two independent systems that are able to control reactivity, except when subcriticality state can be sufficiently ensured. Furthermore, at least one of the reactor shut-down systems shall be able to bring the core down to subcriticality, to maintain subcriticality under a low temperature, and to maintain such status even when one of control rods is stuck during normal operation or in the event of AOO or DBA.

Pursuant to Article 18 of the Research Reactors Establishment Permit Ordinance, the protection system shall be able to detect abnormalities and control these abnormalities within the allowable fuel design limit together with other systems in the event of AOO, and to detect abnormalities and automatically actuate the reactor shut-down system and the necessary engineered safety features in the event of DBA. Furthermore, the items which compose the protection system shall be ensured to be redundant and diversified and independent.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 18, Article 19, Article 20

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.9.3

What regulatory requirements or guidelines are available in relation to the reactor coolant system, including the emergency core cooling system?

Subsidiary Response

Pursuant to Article 33 of the Research Reactors Establishment Permit Ordinance, the primary cooling equipment shall be designed not to cause any leakage of coolant, to have appropriate cooling capacity, to maintain its cooling functions even in the event of the blockage of channels, to maintain the water level, and to have a device to detect any leakage.

Pursuant to Article 34 of the Research Reactors Design Construction Ordinance, the reactors shall be provided with emergency cooling equipment (except when the reactors do not hinder safety compliance).

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 33

Research Reactors Design Construction Ordinance , Article 34

Subsidiary Attachments

M04The NRA Ordinance on Technical Standards for the Design and Construction Methods of Research and Test Reactors

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.9.4

What regulatory requirements or guidelines are available in relation to the means of confinement?

Subsidiary Response

Pursuant to Article 27 of the Research Reactors Establishment Permit Ordinance, the reactor containment facility with the confinement functions shall be capable of maintaining negative pressure in the reactor containment during normal operation and shall not exceed the prescribed leakage rate (except when the reactors will not cause any radiation hazard to the public), and be able to reduce radioactive materials released in the event of DBA (except when the reactors will not cause any radiation hazard to the public).

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 27

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.9.5

What regulatory requirements or guidelines are available in relation to the safety aspects of the experimental devices at the research reactor?

Subsidiary Response

Pursuant to Article 29 of the Research Reactors Establishment Permit Ordinance, the experiment equipment shall not affect the safety of the reactors even in the case of the equipment failure; the transfer or change of situation of experiment objects shall be specified not to lead to significant reactivity insertion events in the reactors under operation; the equipment shall be specified not to cause leakage of radiation or radioactive materials; the status of the experiment equipment shall be able to be displayed at the control room; and there shall be a communication network between the place of experiment and the control room.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 29

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.9.6

What regulatory requirements or guidelines are available in relation to the safety related instrumentation and control systems?

Subsidiary Response

Pursuant to Article 17 of the Research Reactors Establishment Permit Ordinance, necessary parameters to be monitored to ensure the integrity of the core, etc. shall be controlled and monitored within the anticipated range during normal operation or in the event of AOO. Furthermore, necessary parameters shall be able to be monitored and recorded for the range and period of measurement under the anticipated environment in order to grasp the situation of and take measures against DBA.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 17

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.9.7

What regulatory requirements or guidelines are available in relation to the radiation protection systems at research reactors?

Subsidiary Response

Pursuant to Article 24 of the Research Reactors Establishment Permit Ordinance, the air dose rate near the site, etc. due to direct gamma rays and the sky shine gamma rays from the reactor facilities shall be kept as low as reasonably achievable. Pursuant to Article 22 of the same Ordinance, the research reactor facilities shall be capable of disposing radioactive wastes generated in the research reactor facilities based on the ALARA principle so that the concentration of airborne radioactive materials outside the surrounding monitored area and concentration of radioactive materials in the water at the outer boundary of the surrounding monitored area shall be kept as low as reasonably achievable in relation to the radioactive waste disposal facility in the reactor facility site.

Furthermore, pursuant to Article 25 of the same Ordinance, the research reactor facilities shall be capable of reducing the radiation dose at places where radiation workers carry out their work, and provide a radiation management facility and equipment that can display the necessary information for radiation management to protect radiation workers.

Pursuant to Article 26 of the same Ordinance, the monitoring system shall be provided with equipment that controls and measures the concentration of radioactive materials, the radiation dose, and the radiation dose at the outer boundary of the surrounding monitored area during normal operation, or at the time of transients or DBA, and it shall also be provided with equipment that can display necessary information at the control room, etc.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 24, Article 25, Article 26

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.9.8

What regulatory requirements or guidelines are available in relation to the fuel handling and storage?

Subsidiary Response

Pursuant to Article 16 of the Research Reactors Establishment Permit Ordinance, the handling facility of fuel assemblies, etc. shall be designed so that the fuel assemblies, etc. will not reach their criticality and will not be melted by decay heat; the facility shall be designed to have appropriate shielding capacities; and the facility shall be able to prevent drop accidents when handling fuel assemblies, etc.

Furthermore, the storage facility shall be designed so that a sufficient amount of fuel assemblies, etc. can be stored; the fuel assemblies, etc. will not reach their criticality; and especially in the case of the facility storing spent fuels and highly radioactive fuel assemblies, it shall be designed so as to have appropriate shielding capacities; the fuel assemblies shall not be melted by decay heat; and it shall be able to prevent any possible significant corrosion of the cladding materials of fuel assemblies, etc., in addition to the requirements above.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 16

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Subsidiary Question 1.9.9

What regulatory requirements or guidelines are available in relation to other safety related systems, such as

- electrical power supply systems,*
- radioactive waste management systems,*
- buildings and structures,*
- auxiliary systems.*

Subsidiary Response

Pursuant to Article 28 of the Research Reactors Establishment Permit Ordinance, the electric power supply system shall be connected to power grids to provide the necessary electric power in order to maintain the functions of the important safety facilities, and the emergency electric power supply equipment shall be provided.

Pursuant to Article 22 of the same Ordinance, the radioactive waste-related facility shall be specified to have processing capacities that can sufficiently reduce the concentration of radioactive materials, to prevent the leakage of liquid radioactive waste to areas outside of the facilities, and to prevent dissipation of radioactive materials in the course of processing of solid radioactive waste.

Pursuant to Article 27 of the same Ordinance, the reactor containment facilities shall be maintained in negative pressure with their leakage rate being below the prescribed level,

and shall be such as to ensure not to cause any radiation hazard to the public in the event of AOOs or DBAs.

Furthermore, pursuant to Article 34 of the same Ordinance, the reactors with more than a certain thermal power output shall be provided with the residual heat removal system, in addition to primary cooling system specified in Article 33 of the same Ordinance.

<Attachments>

Research Reactors Establishment Permit Ordinance, Article 18, Article 22, Article 27, Article 28, Article 33, Article 34

Subsidiary Attachments

M10The NRA Ordinance on Standards for the Location, Structure, and Equipment of Nuclear Research and Test Reactors, etc.

Question 1.10

Are there regulations or guides in the regulatory framework in relation to the operating organization of a research reactor?

Answer

Yes

Finding

There are regulations or guides in the regulatory framework in relation to the operating organization of a research reactor.

Response

-

Subsidiary Question 1.10.1

What regulations or guidelines are in the regulatory framework about the appropriate management structure of the operating organization of a research reactor?

Subsidiary Response

Pursuant to Article 37 of the Reactor Regulation Act, a licensee shall specify operational safety programs. Pursuant to Article 15, paragraph (1) of the Research Reactors Ordinance, the operational safety programs shall include matters relating to the duties and organization of a person engaging in the operation and management of the reactors, operation of the reactors, and quality assurance.

<Attachments>

Reactor Regulation Act, Article 37

Research Reactors Ordinance, Article 15, paragraph (1), item (i), item (iii), item (xviii)

Subsidiary Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 1.11

Does the regulatory framework include the requirements for the training and re-training of the research reactor personnel?

Answer

Yes

Finding

The regulatory framework includes the requirements for the training and re-training of the research reactor personnel.

Response

Pursuant to Article 15, paragraph (1) item (ii) of the Research Reactors Ordinance, a licensee shall provide education and training as well as re-training to persons who engaged in operation and of experiments in research reactors.

<Attachments>

Research Reactors Ordinance, Article 15, paragraph (1), item (ii)

Attachments

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 1.12

Does the regulatory framework include the requirements for Operational Limits and Conditions (OLC) of research reactors?

Answer

Yes

Finding

The regulatory framework includes the requirements for Operational Limits and Conditions (OLC) of research reactors.

Response

A person who applies for the installation of the research reactors shall specify main nuclear limitation values and main thermal limitation values in the application under Article 1-3 of the Research Reactors Ordinance, and specify necessary operational limits for the operations of the research reactors in the operational safety programs pursuant to Article 15, paragraph (1), item (iii) of the Research Reactors Ordinance.

<Attachments>

Research Reactors Ordinance, Article 1-3, Article 15, paragraph (1), item (iii)

Attachments

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 1.13

Are there any provisions in the regulatory framework in relation to commissioning of a research reactor?

Answer

Yes

Finding

There are provisions in the regulatory framework in relation to the commissioning of a research reactor.

Response

Pursuant to Article 28 of the Reactor Regulation Act, a licensee shall not use the research reactor facilities until these facilities have undergone and passed the inspection of the NRA with respect to their construction work and performance. Application and implementation of pre-service inspection is specified in Article 3-3 and 3-4.

<Attachments>

Research Reactors Ordinance, Article 3-3, 3-4,

Reactor Regulation Act, Article 28

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 1.14

Does the regulatory framework include the detailed requirements or guidelines about operational safety of research reactors?

Answer

Yes

Finding

The regulatory framework includes the detailed requirements or guidelines about operational safety of research reactors

Response

Pursuant to Article 37 of the Reactor Regulation Law and Article 15, paragraph (1) of the Research Reactors Ordinance, the licensee is required to submit the operational safety program of research reactors for approval of the NRA. The detailed technical requirements and guidelines for the operational safety program of the research reactors are specified in the Research Reactors Operational Safety Program Standards.

<Attachments>

Research Reactors Ordinance, Article 15, paragraph (1)

Attachments

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 1.15

Does the regulatory framework require the operating organization to establish and maintain an emergency planning system at the research reactor?

Answer

Yes

Finding

The regulatory framework requires the operating organization to establish and maintain an emergency planning system at the research reactor.

Response

Pursuant to Article 37 of the Reactor Regulation Act, a licensee shall specify operational safety programs, and obtain approval from the NRA. Emergency measures are specified as matters to be included in the operational safety programs pursuant to Article 15 of the Research Reactors Ordinance.

Furthermore, pursuant to Article 7 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, a licensee is required to specify an emergency preparedness action plan.

<Attachments>

Reactor Regulation Act, Article 37

Act on Special Measures Concerning Nuclear Emergency Preparedness, Article 7

Attachments

C02 Nuclear Emergency Act

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 1.16

Does the regulatory framework include requirements on the physical protection (security) issues at the research reactors?

Answer

No

Finding

The regulatory framework does not include the requirements on the physical protection (security) issues at the research reactors.

Response

No response is required as this is out of IRRS's scope.

Subsidiary Question 1.16.1

What are the reasons that the regulatory framework does not include the requirements on the physical protection (security) issues at the research reactors?

Subsidiary Response

No response is required as this is out of IRRS's scope.

Subsidiary Question 1.16.2

What are the measures taken to include the requirements for the physical protection (security) issues at the research reactors in regulatory framework?

Subsidiary Response

No response is required as this is out of IRRS's scope.

Question 1.17

Does the regulatory framework include the requirements to establish radiation protection programme by the operating organization of a research reactor?

Answer

Yes

Finding

The regulatory framework includes the requirements to establish radiation protection programme by the operating organization of a research reactor.

Response

Pursuant to Article 15, paragraph (1) of the Research Reactors Ordinance, matters related to radiation protection shall be specified in the operational safety programs.

<Attachments>

Research Reactors Ordinance, Article 15, paragraph (1), item (vi), item (viii)

Attachments

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Question 1.18

Does the regulatory framework include the requirements for the decommissioning of the research reactor?

Answer

Yes

Finding

The regulatory framework includes the requirements for the decommissioning of the research reactor.

Response

Pursuant to Article 43-3-2 of the Reactor Regulation Act, a licensee shall specify a decommissioning plan and obtain approval from the NRA.

However, specific criteria and confirmation methods on the completion of decommissioning activities at the time of release from the regulatory control are to be set forth, including the remediation of contaminated area as necessary.

<Attachments>

Reactor Regulation Act, Article 43-3-2

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Question 1.19

Is there any specific arrangements related to regulatory inspection programme for research reactors?

Answer

Yes

Finding

There are specific arrangements related to regulatory inspection programme of research reactors.

Response

The equipment of the research reactor facilities shall undergo a pre-service inspection at the construction stage under Article 28 of the Reactor Regulation Act, a welding inspection under Article 28-2 of the same Act, and a facility periodic inspection at the operational stage under Article 29 of the same Act. Each inspection is to be performed in accordance with the Inspection Implementation Procedures which are prepared by the NRA.

After the research reactors commence their operation, an inspection on the compliance of operational safety programs (operational safety inspection) shall be performed under the Implementation Procedures for Operational Safety Inspection on Nuclear Fuel Facilities, which is applied to research reactors.

<Attachments>

Reactor Regulation Act, Article 28

Research Reactors Ordinance, Article 3-4-2

Reactor Regulation Act, Article 28-2

Research Reactors Ordinance, Article 3-12-2

Reactor Regulation Act, Article 29

Research Reactors Ordinance, Article 3-15-2

Reactor Regulation Act, Article 37, paragraph (5)

Implementation Procedures for Operational Safety Inspection on Nuclear Fuel Facilities

Attachments

H01The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors

Subsidiary Question 1.19.1

What are the specific arrangements for inspecting research reactors?

Subsidiary Response

The method and other necessary matters for each inspection are specified respectively in the Inspection Implementation Procedures for Facility Periodic Inspection under Article 3-15-2 of the Research Reactors Ordinance, the Inspection Implementation Procedures for Pre-Service Inspection under Article 3-4-2 of the Research Reactors Ordinance, the Inspection Implementation Procedures for Welding Inspection under Article 3-12-2 of the Research Reactors Ordinance. The operational safety inspection is to be implemented based on the

Inspection Implementation Procedures for Operational Safety Inspection on Nuclear Fuel Facilities which are prepared by the NRA.

<Attachments>

Research Reactors Ordinance, Article 3-4-2

Research Reactors Ordinance, Article 3-12-2

Research Reactors Ordinance, Article 3-15-2

Implementation Procedures for Operational Safety Inspection on Nuclear Fuel Facilities

Subsidiary Attachments

M01The NRA Ordinance Concerning the Installation and Operation of Research and Test Reactors