Outline of Nuclear Regulation of Japan

- Reference documents for the IAEA IRRS Mission -

November 2015

The Secretariat of Nuclear Regulation Authority

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This document is developed for the purpose of assisting the IRRS reviewers to understand the outline of nuclear and radiation regulations in Japan, with the basic information of structure and function of Japanese Governments and legal systems based on the available information.

1 Overview of Nuclear Energy use in Japan

1.1 Nuclear power in Japan

The March 11, 2011 earthquake and subsequent tsunami off the Pacific coastline of Japan's Tohoku region caused severe damage at the Tokyo Electric Power Company's Fukushima Nuclear Power Stations and particularly at the Fukushima Dai-ichi Nuclear Power Station where the impact measured Level 7 on the International Nuclear and Radiological Event Scale (INES). Large amounts of radioactive materials were released causing extensive environmental and social consequences. There were fatalities connected to the evacuation procedures in disaster. Entire populations of residents around the nuclear power station were forced to evacuate their homes and an estimated 150,000 people remain evacuees at 2013. Untold numbers face ongoing health concerns because of radiation exposure. Cleaning up operations and initial reconstruction began almost immediately but it is anticipated it will take many years to complete. Public trust in Japan's nuclear safety was lost and it has become difficult to establish a national consensus on the future role of nuclear power in Japan. Subsequently, power plants were shut down one by one, as each one underwent their scheduled periodic inspections and by May, 2012 all power stations had suspended operations. Following a government decision Units 3 and 4 at the Kansai Electric Power Company's Ohi Power Station resumed operations and they remained in operation up to September 2013.
In August 2015, unit 1 at the Kyusyu Electric Power Company's Sendai Nuclear Power Station (NPS) started its operation after the NRA permission based on new regulatory requirements that had been introduced in July 2013 incorporating lessons learned from the Fukushima Dai-ichi Accident.
As of 6 October 2015, 2 nuclear power reactors restarted the operations (Units 1 and 2 of Sendai NPS), and 5 reactors got the NRA's permit for the modification of establishment based on new regulatory requirements (Units 1 and 2 of Sendai NPS, 3 and 4 of Takahama NPS, and unit 3 of Ikata NPS).
(See Figure 1 illustrating the locations and status of nuclear facilities in Japan)

1.2 Major nuclear facilities in Japan

As of the end of October 2015, Japan has 48 nuclear reactors (24 BWR and 24 PWR) in total. Operators decided not to resume operation of 5 reactors among 48 reactors. In addition to these 48 reactors, 4 reactors are under decommissioning and 6 reactors (all the units at Fukushima Dai-ichi NPS) are in status of permanent shut down for decommissioning.

Japan has 14 research reactors in operation while 8 research reactors are under decommissioning.

For nuclear fuel cycle facilities, Japan has 2 spent fuel reprocessing facilities (1 under construction), 7 nuclear fuel fabrication and enrichment facilities, 1 spent fuel interim storage facility (under construction), 2 waste disposal facilities, 2 storage facilities of radioactive waste, and 15 facilities using certain amount of nuclear fuel materials for other purposes than

mentioned in the above.

1.3 Radioisotope use in Japan

In Japan, various types of radioisotopes are used in industrial, research, and medical applications. The use, trading, leasing, radioactive waste management, and any other form of handling of radioisotopes, use of radiation generators, and other related activities are regulated by the Act on the Prevention of Radiation Hazards due to Radioisotopes, etc.

There are 7,751 authorized persons for handling radioisotopes as of March 31, 2014, consisting of 7,285 for use, 309 for trading, 150 for leasing and 7 for radioactive waste management. Among 7,285, 2,376 persons are permitted users, and 4,909 are registered users who notify their activities.

The number of authorized persons for handling radioisotopes has been increasing in the past 10 years.

Figure 1 Locations and status of nuclear facilities in Japan

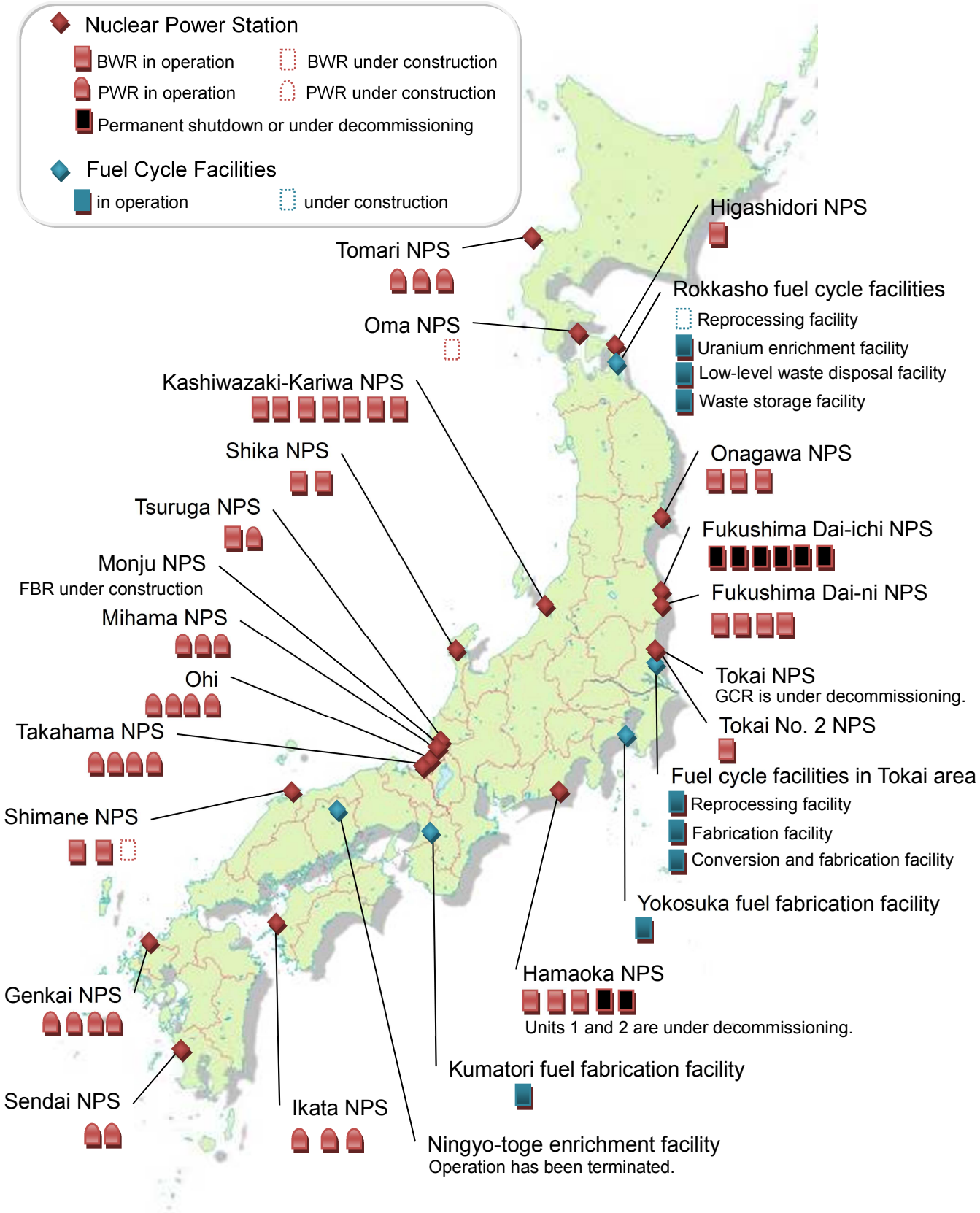


Table 1　List of Nuclear Power Stations in Japan

Licensee	Power Station	Unit	Reactor Type	Output (MWe)	Commissioned	Status
Hokkaido Electric Power Co., Inc.	Tomari	1	PWR	579	June 22, 1989	In Operation
		2	PWR	579	April 12, 1991	In Operation
		3	PWR	912	Dec. 22, 2009	In Operation
Tohoku Electric Power Co., Inc.	Onagawa	1	BWR4	524	Jun. 01, 1984	In Operation
		2	BWR5	825	Jul. 28, 1995	In Operation
		3	BWR5	825	Jan. 30, 2002	In Operation
	Higashidori	1	BWR5	1,100	Dec. 08, 2005	In Operation
Tokyo Electric Power Co. Inc.	Fukushima Dai-ichi	1	BWR3	460	Mar. 26, 1971	Under permanent suspension
		2	BWR4	784	Jul. 18, 1974	Under permanent suspension
		3	BWR4	784	Mar. 27, 1976	Under permanent suspension
		4	BWR4	784	Oct. 12, 1978	Under permanent suspension
		5	BWR4	784	Apr. 18, 1978	Under permanent suspension
		6	BWR5	1,100	Oct. 24, 1979	Under permanent suspension
	Fukushima Daini	1	BWR5	1,100	Apr. 20, 1982	In Operation
		2	BWR5	1,100	Feb. 3, 1984	In Operation
		3	BWR5	1,100	Jun. 21, 1985	In Operation
		4	BWR5	1,100	Aug. 25, 1987	In Operation
	Kashiwazaki-Kariwa	1	BWR5	1,100	Sep. 18, 1985	In Operation
		2	BWR5	1,100	Sep. 28, 1990	In Operation
		3	BWR5	1,100	Aug. 11, 1993	In Operation
		4	BWR5	1,100	Aug. 11, 1994	In Operation
		5	BWR5	1,100	Apr. 10, 1990	In Operation
		6	ABWR	1,356	Nov. 07, 1996	In Operation
		7	ABWR	1,356	Jul. 02, 1997	In Operation
	Higashidori	1	ABWR	1,385		Under Construction
Chubu Electric Power Co., Inc.	Hamaoka	1	BWR4	540	Mar. 17, 1976	Decommissioning
		2	BWR4	840	Nov. 29, 1978	Decommissioning
		3	BWR5	1,100	Aug. 28, 1987	In Operation
		4	BWR5	1,137	Sep. 3, 1993	In Operation
		5	ABWR	1,267	Jan. 18, 2005	In Operation
Hokuriku Electric Power Company	Shika	1	BWR5	540	Jul. 30, 1993	In Operation
		2	ABWR	1,206	Mar. 15, 2006	In Operation
Kansai Electric Power Co., Inc.	Mihama	1	PWR	340	Nov. 28, 1970	In Operation*
		2	PWR	500	Jul. 25, 1972	In Operation*
		3	PWR	826	Dec. 1, 1976	In Operation
	Takahama	1	PWR	826	Nov. 14, 1974	In Operation
		2	PWR	826	Nov. 14, 1975	In Operation
		3	PWR	870	Jan. 17, 1985	In Operation
		4	PWR	870	Jun. 5, 1985	In Operation
	Ohi	1	PWR	1,175	Mar. 27, 1979	In Operation
		2	PWR	1,175	Dec. 5, 1979	In Operation
		3	PWR	1,180	Dec. 18, 1991	In Operation
		4	PWR	1,180	Feb. 2, 1993	In Operation

Licensee	Power Station	Unit	Reactor Type	Output (MWe)	Commissioned	Status
Chugoku Electric Power Co., Inc.	Shimane	1	BWR3	460	Mar. 29, 1974	In Operation*
		2	BWR5	820	Feb. 10, 1989	In Operation
		3	ABWR	1,373		Under construction
	Kaminoseki	1	ABWR	1,373		In Planning
Shikoku Electric Power Co., Inc.	Ikata	1	PWR	566	Sep. 30, 1977	In Operation
		2	PWR	566	Mar. 19, 1982	In Operation
		3	PWR	890	Dec. 15, 1994	In Operation
Kyushu Electric Power Co., Inc.	Genkai	1	PWR	559	Oct. 15, 1975	In Operation*
		2	PWR	559	Mar. 30, 1981	In Operation
		3	PWR	1,180	Mar. 18, 1994	In Operation
		4	PWR	1,180	Jul. 25, 1997	In Operation
	Sendai	1	PWR	890	Jul. 4, 1984	In Operation
		2	PWR	890	Nov. 28, 1985	In Operation
		3	APWR	1,590		In Planning
Japan Atomic Power Company	Tokai	-	GCR	166	Jul. 25, 1966	Decommissioning
	Tokai Daini	-	BWR5	1,100	Nov. 28, 1978	In Operation
	Tsuruga	1	BWR2	357	Mar. 14, 1970	In Operation*
		2	PWR	1,160	Feb. 17, 1987	In Operation
		3	APWR	1,538		In Planning
		4	APWR	1,538		In Planning
Electric Power Development Co.,Ltd. (J-POWER)	Oma	1	ABWR	1,383		Under construction
Japan Atomic Energy Agency	Advanced Thermal Reactor “Fugen”		ATR	165	Mar. 20, 1979	Decommissioning
	Prototype Fast Breeder Reactor “Monju”		FBR	280		Under construction

Remark

*: Licensees have declared not to operate those nuclear power plants beyond 40 year operation period.

2 The Government of Japan

2.1 Fundamental structure of the government

The Diet, the legislative authority, is composed of the House of Representatives, and the House of Councilor.

Whole judicial power is vested in the Supreme Court, with inferior courts such as 8 High Courts or 49 District Courts.

National administration is uniformly carried out by the Cabinet and the organizations under the cabinet. The Cabinet is responsible for all the activities of the State except legislative and judicial ones. The Cabinet consists of the Prime Minister (head of the Cabinet) and Ministers of the State. Prime Minister shall be designated from Diet Members and the Prime Minister appoints Ministers of State.

There are Cabinet office, Cabinet Secretariat and the following 13 Ministries and Agencies;

- Reconstruction Agency
- Ministry of Internal Affairs and Communications
- Ministry of Justice
- Ministry of Foreign Affairs
- Ministry of Finance
- Ministry of Education, Culture, Sports, Science and Technology (MEXT)
- Ministry of Health, Labour and Welfare
- Ministry of Agriculture, Forestry and Fisheries
- Ministry of Economy, Trade and Industry (METI)
- Ministry of Land, Infrastructure, Transport and Tourism
- Ministry of the Environment
- Ministry of Defense
- National Public Safety Commission

Figure 2 is an organization chart prepared by the Cabinet Secretariat, illustrating the Japanese governing system.

The followings are main organs relating to use of nuclear energy and radiation.

a Nuclear Regulation Authority (NRA)

Responsible for nuclear safety regulations and safeguards on the use of nuclear energy in accordance with the Reactor Regulation Act, safety regulations on the use of radiation in accordance with the Act concerning Prevention from Radiation Hazards due to Radioisotopes, etc., and nuclear emergency preparedness in accordance with the Nuclear Emergency Act. The NRA is also responsible to nuclear and radiation security.

The NRA is an external bureau of the Ministry of the Environment. The Chairman and

Commissioners of the NRA are appointed by the Prime Minister, with the consent of the Diet.

b Cabinet Office

The Office for the Nuclear Emergency Preparedness in the Cabinet Office functions as the secretariat of the Nuclear Emergency Preparedness Commission and the Nuclear Emergency Response Headquarters, and implements comprehensive coordination for nuclear emergency preparedness and responses among competent government offices, local governments, etc. in both ordinary times and emergencies.

c Atomic Energy Commission

Responsible for coordination of policy and activities of relevant governmental organizations for nuclear energy use.

The Atomic Energy Commission is under the Cabinet Office and composed of three Commissioners appointed by the Prime Minister with the Diet's consent.

d Ministry of Education, Culture, Sports, Science and Technology (MEXT)

Responsible for nuclear research policies related to science and technology including promotion of research and development on nuclear energy, human resource development of nuclear researchers and engineers, enhancement of their qualities, supervision of the Japan Atomic Energy Agency, and national liability for nuclear accidents

e Ministry of Health, Labour and Welfare

Responsible for the medical application of radioisotopes. Also responsible for occupational safety and health, including radiation protection.

f Ministry of Economy, Trade and Industry

Responsible for nuclear energy policies including the development of nuclear power and nuclear fuel cycle facilities, ensuring a stable and efficient supply of nuclear source materials and nuclear fuel materials, and promotion of radioactive waste disposal generating from the use of nuclear energy.

g Ministry of Land, Infrastructure, Transport and Tourism

Responsible for safe transport of nuclear and radioactive materials.

h Ministry of the Environment

Responsible for remediation of contaminated areas due to the release of radioactive materials from Fukushima Dai-ichi Accident

2.2 Management of financial and human resources in government agencies

2.2.1 National civil servant system

National civil servants are classified into regular service and special service positions, where special service officials are designated in the law e.g. State Minister, Diet officials or Defense Agency officials and that regular service official are those other than special service officials. The National Public Service Act stipulates a civil servant system for regular service officials. With the aim of assuring democratic and efficient administration of public service, that Act defines three principles: (1) principle of equal treatment, (2) principle of personnel management, and (3) principle of meeting changing conditions. The Act also defines the fundamentals of the national civil servant system, including the appointment, remuneration, personnel evaluation, efficiency, change in employment status, disciplinary action, service discipline, retirement management .Other laws specify their working hours, holidays, retirement allowance, and ethics.

2.2.2 Appointment of national civil servants

For promotion, demotion, and transfer, each appointer evaluates the performance of the official for given tasks and its aptitude required for the position. Based on Article 54 of the National Public Service Act, the “Basic Policy on Initial Appointment, Promotion, etc.” is applied in the appointment, promotion, etc. of officials.

2.2.3 Remuneration and allowance of national civil servants

The remuneration of national civil servants is decided in accordance with the law. It consists of a salary determined based on the complexity, difficulty, and responsibilities of their duties, and several allowances. Promotion of the staff and the amount of bonuses (twice per year) are determined based on the evaluations of performance. The basic labor rights of national civil servants in regular service are restricted, and for compensation of such restrict, the National Personnel Authority can recommend the improvement of salaries or other working conditions. The salaries are basically determined at the appropriate levels compared to the wages of employees of private companies after the National Personnel Authority surveys the salaries of national civil servants and those of employees of private companies every fiscal year and compares them to make necessary recommendations to the Diet and the Cabinet. The government will ask for the approval of the Diet on the recommendations, if it considers appropriate, and after the Diet’s approval the recommendations are implemented.

2.3 Process of enactment of Acts

The process of enacting acts in Japan, the bills can be proposed either by Diet members or by the Cabinet. The following describes the process of enactment based on the proposal from the Cabinet

(1)Drafting a bill

The responsible Ministries, one or several, prepare a draft bill, and leads a consultation among Ministries.

(2)Examination by the Cabinet Legislation Bureau

The Cabinet Legislation Bureau examines a draft bill, in particular from the following viewpoints.

- Consistency with the Constitution and other existing laws as well as the legal adequacy of legislative contents;
- Accuracy of expression of the text of the law;
- Adequacy of the expression, arrangement, and other structures of provisions;

(3)Cabinet decision to submit a bill to the Diet

After a Cabinet decision, the Prime Minister submits a bill to the Speaker of the House of Representatives or the President of the House of Councilors.

(4)Deliberation and Approval by the Diet

(5)Enactment and promulgation of a new law

2.3.3 Establishment and revision of Cabinet Orders

The Cabinet decides on a Cabinet Order. The responsible Ministry (ies) prepares a draft Cabinet Order and leads a consultation among Ministries. After the Cabinet Legislation Bureau examines a draft Cabinet Order, the responsible Minister of State refers it to a Cabinet meeting for a Cabinet decision. Cabinet Order does not require the approval of the Diet.

2.3.4 Establishment and revision of ministerial ordinances

A ministerial ordinance is issued by Minister of State. Ministerial ordinance prescribes details of Act with the authority of concerned Act. Ministerial ordinances can be established in accordance with procedures within the ministries without deliberation of the Diet or the review of the Cabinet Legislation Bureau. The NRA is allowed to establish ministerial ordinance (hereafter, the NRA Ordinance) in accordance with Article 26 of the Law for Establishment of the NRA. Detailed nuclear regulations and regulatory requirements in Japan are established mainly in the form of NRA Ordinance.

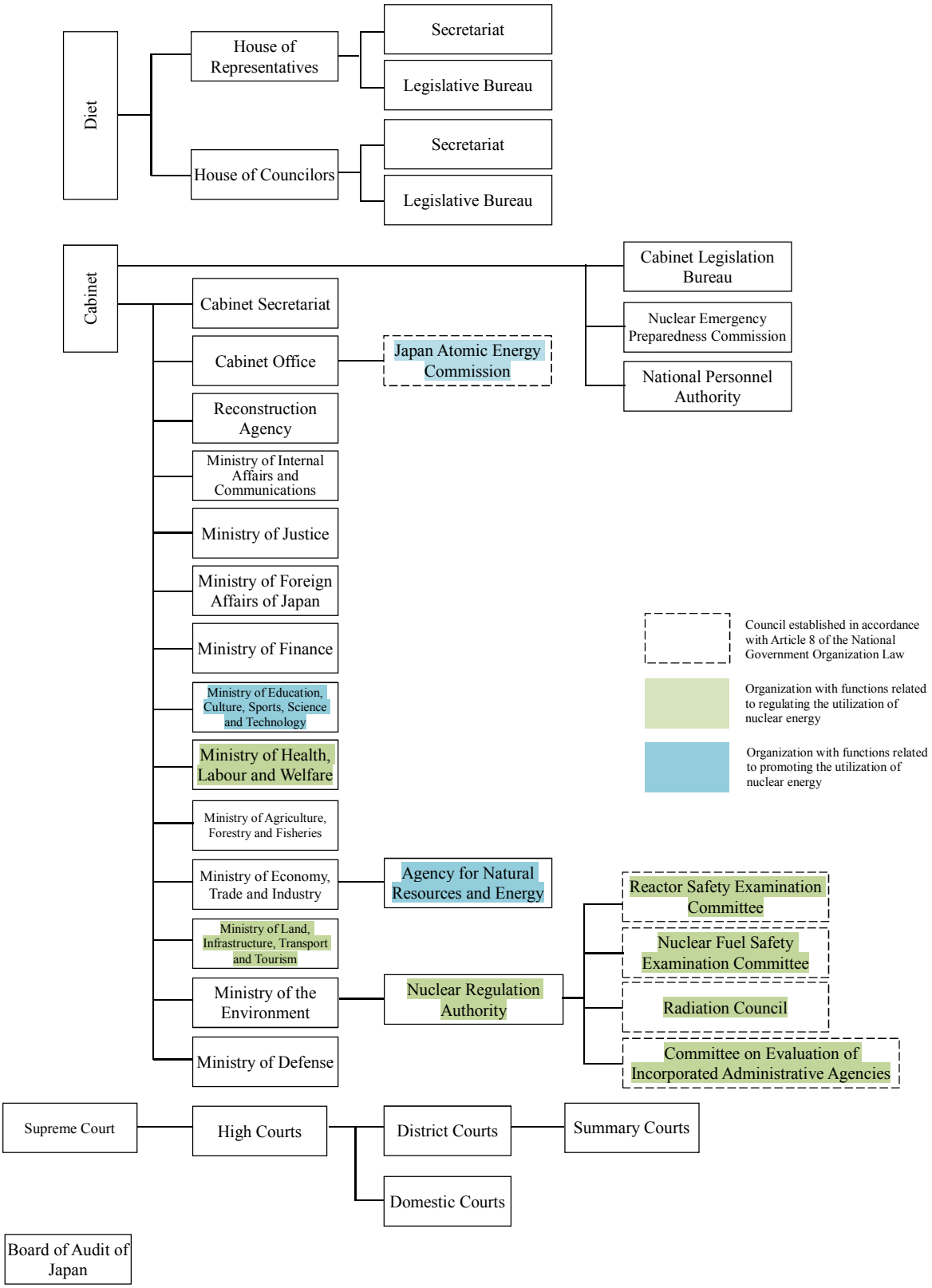


Figure 2 Japanese system of government (major organizations)

3 Nuclear legislation and legal system of Japan

3.1 Overall legal framework

In Japan, the Atomic Energy Basic Act is a basis for the research, development and use of nuclear energy. That Act stipulates that the other laws provide regulations on nuclear materials, nuclear reactors and prevention of radiation hazards. The Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (Reactor Regulation Act) and the Act concerning Prevention from Radiation Hazards due to Radioisotopes, etc. (Radiation Hazards Prevention Act) stipulate these regulations.

For Emergency Preparedness and Response (EPR), the Basic Act on Disaster Control Measures, covering all the types of disaster, and Act on the Special Measures Concerning Nuclear Emergency Preparedness, covering additional requirements unique to nuclear disaster, provide a legal framework.

Refer to the figure of "Legal system for nuclear regulations in Japan."

3.2 Atomic Energy Basic Act

The Atomic Energy Basic Act is a basic law for the use of nuclear energy in Japan, promulgated in 1955.

The purpose of the Act is to secure energy resources in the future, achieve scientific and technological progress, and promote industry by encouraging the research, development and utilization of nuclear energy, thereby contributing to the improvement of the welfare of human society and the national living of standard.

The basic policy in the Act is that the research, development and 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. For ensuring safety, the protection of the people's life, health and property, environment, and the contribution to national security shall be pursued.

The Act stipulates the establishment of the Nuclear Regulation Authority and Nuclear Emergency Preparedness Commission, which were newly added in 2012 incorporating lessons learned from Fukushima Dai-ichi accident. That Act remains a basis of the establishment of the Atomic Energy Commission to implement a national policy and democratic operation of the government administration on the use of nuclear energy.

3.3 Act for Establishment of the Nuclear Regulation Authority

The Act for Establishment of the Nuclear Regulation Authority (NRA) came into effect on 19 September 2012. It stipulates NRA as a nuclear regulator, and provides details on its competence and responsibilities.

The purpose of this Act stresses the importance of independently exercising authority with neutral and fair attitude, in an integrated manner.

The Act also stipulates the NRA's organizational structure, the procedure of appointment for the Chairman and Commissioners, reporting responsibility to the Diet, disclosure of information, formulation of regulations, and other competences and responsibilities necessary for accomplishing the NRA's missions.

3.4 Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (Reactor Regulation Act)

The Reactor Regulation Act, promulgated in 1957 and modified significantly after Fukushima Dai-ichi accident, provides regulations for the use of nuclear energy comprehensively.

The objectives of this Act are the protection of the people's life, health and property, environment, and the contribution to national security. In order to achieve these, the Act provide regulations on nuclear facilities and activities, (a) to ensure public safety by preventing any disasters, including those with the release of radioactive materials at an abnormal level due to severe accidents at nuclear facilities, while taking into consideration the possibility of large scale natural disasters and security events, (b) to ensure regulations over international controlled nuclear materials, as well as (c) to secure the use of nuclear energy only for the peaceful use.

The Reactor Regulation Act consists of the following chapters

1. General Matters- Objectives, Definitions
2. Regulation for refining
3. Regulation for fabrication and enrichment
4. Regulation for installation and operation of reactors
   - Research reactor
   - Nuclear power

4-2. Regulation for interim storage of nuclear spent fuel

5. Regulation for spent fuel reprocessing

5-2. Regulation for radioactive waste storage and disposal

5-3. Regulation for the use for nuclear materials

5-4. Responsibility of licensees

6. Transport and other common requirements for licensees

6-2. International controlled nuclear materials (Safeguards)

7., 8., 9. Enforcement, Penalty and other provisions

For regulations over specific facilities and activities, this Act provides requirements for each step of the development. For example, with regard to nuclear power, authorizations are required for establishment, construction plan, Pre-service Inspections, Periodic Facility Inspection, Operational Safety Program.

The Act also governs an allegation (whistle-blowing) system for the employees of nuclear operator, etc., stipulating that an allegation in accordance with this system will not disadvantageously affect the person making the allegation.

3.5 Act on Prevention of Radiation Hazards due to Radioisotopes, etc. (Radiation Hazards Prevention Act)

The objectives of the Radiation Hazards Prevention Act are to ensure public safety and to prevent radiation hazards in adherence to the spirit of the Atomic Energy Basic Act. To this end, this Act imposes regulations on the use, trade, lease, radioactive waste management, and other handling of radioisotopes, and on the radioactive waste management and other handling of materials contaminated during the use of radiation generating devices or by radiation generated by radioisotopes or radiation generating devices. To enforce the Radiation Hazards Prevention Act, the Cabinet Order for Enforcement of the Radiation Hazards Prevention Act and the Ordinance for Enforcement of the Radiation Hazards Prevention Act are formulated.

A person who has obtained a authorization for the use radioisotopes or radioactive waste management is required to have a facility inspection before their use, and periodic inspections, when its storage capacity is beyond the certain amount or when using a radiation-generating device. Before using radioisotopes, authorized person must establish its radiation hazard prevention rules, assign a person as a supervisor of radiation protection, and notify these to the NRA. In addition, authorized persons are required to comply with the technical regulations on the facilities as stipulated in the Act, to monitor dose rate in their facilities and on its boundaries, to monitor exposure doses of radiation workers, to arrange education and training, health examination for workers. The radioisotopes or materials contaminated by radioisotopes at the site must be stored or disposed in the site in accordance with technical regulations as stipulated in the Act.

The NRA conducts on-site inspection as necessary to confirm the compliance with technical regulations. Abolition of the use of a radioisotope or a radiation-generating device must be notified to the NRA with the measures implemented in the abolition. The disposal of radioactive wastes by authorized person is stipulated in the June 2004 revision of the Radiation Hazards Prevention Act and the corresponding revision of the Ordinance and Rules for Enforcement of the Radiation Hazards Prevention Act. At present, technical standards on the detailed requirements for disposal facility, such as dose criteria in disposal sites, are under preparation.

With the revision of the Radiation Hazards Prevention Act in May 2010, the requirements were clearly defined on the handling of materials with sufficiently low radioactive concentrations among materials contaminated by radioisotopes, regulations were newly introduced for handling of materials contaminated by radiation generating devices, and the regulations were strengthened for abolition of the authorized use of radioisotopes.

3.6 Act on Special Measures Concerning Nuclear Emergency Preparedness (Nuclear Emergency Act)

The objectives of this Act are to protect lives, health and properties of the people from nuclear disaster, by strengthening response measures against nuclear emergency. To this end, this Act stipulates the responsibility of nuclear operators, procedure of declaring nuclear emergency, the establishment of Nuclear Emergency Response Headquarters, implementation of emergency response or other measures related to addressing nuclear emergency. This Act stipulates that nuclear operators are responsible for implementing all possible measures for preventing nuclear emergencies and for implementing measures necessary for preventing the progression of and mitigation of nuclear emergencies.

This Act also stipulates that the State has the responsibilities of implementing necessary actions for emergency response measures and necessary actions for emergency preparedness measures, and measures for restoration after nuclear emergencies.

On 19 September 2012, the Nuclear Emergency Act was revised on the basis of the lessons learned from the accident at the TEPCO's Fukushima Dai-ichi NPS to strengthen nuclear emergency preparedness measures, function of Nuclear Emergency Response Headquarters in nuclear emergency situations, and the use of the NRA guideline in EPR.

3.7 Regulatory Requirements

3.7.1 Revision of regulatory Requirements

After the Fukushima Dai-ichi accident, the Reactor Regulation Act was amended based on the lessons learned from that accident, the latest technical knowledge, overseas regulatory trends including the IAEA safety standards and best practices found in other international organizations. Major requirements newly introduced in the revised Act are;

- Strengthening measures against hazards which may lead to common cause failures (e.g. Tsunami, Earthquake, Fire, Flooding)
- Strengthening measures against severe accidents
- Introducing back-fitting rule that existing nuclear facilities shall be in compliance with newly introduced regulations
- Introducing approval system for extension of operation periods (plant life is limited to 40 years, and only one extension up to another 20 years may be approved by the NRA)

To develop new regulatory requirements for establishment permit and technical standards, the NRA established several "Study Teams" with cooperation of JNES, JAEA and other academic experts.

The Study Team on New Regulatory Requirements for Light Water Power Reactors was responsible for regulatory requirements both for design basis and severe accident conditions. The other Study Team was responsible for external hazards such as earthquakes and tsunamis.

In the process of developing the new regulatory requirements, the lessons learned from the Fukushima Dai-ichi accident, international knowledge and experience such as the IAEA standards were fully taken into account.
Regarding new regulatory requirements on the Monju, Fast Breeder Prototype Reactor, in February 2013, the NRA decided to formulate these requirements tentatively based on the new regulatory requirements for light water reactors and to delay the introduction of unique requirements to FBR in the medium or long-term.
Regarding new regulatory requirements on nuclear fuel cycle facilities, the NRA also established the "Study Team on New Regulatory Requirements for Nuclear Fuel Cycle Facilities.", and this Study Team developed draft requirements.
The NRA enacted new regulatory requirements for nuclear power in July 2013, and those for nuclear fuel cycle facilities in December 2013, after having solicitation of public comments twice, once on the outline and another on draft regulations.
(See the table of main points of new regulatory requirements for LWR)

With the introduction of new regulatory requirements under back-fitting system, the NRA discussed and agreed to the basic approach on the implementation of back-fitting system, with a view to implement such system repeatedly. Certain moratorium will be granted before requiring licensees the compliance with the newly introduced requirements. In the case where the regulatory requirements are enacted in a short time after its establishment and that such compliance has not so much safety significance, the licensees may show its conformance with new requirements, not immediately, but before the re-start of the operation following in-service inspection.

Table 2 Main Points of the New Regulatory Requirements for Light Water Power Reactors

Main Topic	Main Points of the New Regulatory Requirements
Tightening of design basis	- Add tornados, forest fires and others as natural disasters to be taken into consideration in designing facilities - Strengthen and thoroughly ensure fire protection measures - Strengthen the trustworthiness of essential safety equipment - Strengthen external power supplies - Physical protection of systems to allow heat dissipation
Countermeasures to prevent core damage during severe accidents	- Measures to be taken when nuclear reactors cannot be shut down by ordinary procedures - Measures to be taken in the event of losing the ability to cool down and reduce pressures of reactors - Measures to be taken with the failure of the ultimate heat sinks - Ensuring support functions (power supply, water, etc.)
Measures to prevent damage of containment vessels.	- Measures to cooling down and reduce atmospheric pressure and reducing the presence of radioactive materials in containment vessels (containment spray system) - Measures for preventing damage caused by pressure increase of containment vessels (filter vent) - Measures for cooling down reactor cores that have melted down at the base of containment vessels - Measures for preventing hydrogen explosions in containment vessels - Measures for preventing hydrogen explosions in reactor buildings - Measures for cooling down spent fuel storage pools
Countermeasures against intentional aircraft crash	- Develop specified safety facilities to be used in the event of core damage caused by terrorist attacks such as intentional aircraft crashes
Measures to curb the spread of radioactive materials outside the immediate vicinity	- Install outdoor water equipment and other measures to counter any damage to containment vessels
Strengthening of counter tsunami measures	- Use the largest-ever previously recorded tsunami as a new ‘standard’ level and install tsunami protection facilities such as seawalls, which meet these new standards.
Expansion of facilities to require a high quake resistance level	- In the design stage categorize facilities that help protect against tsunamis as Class S, the same category as reactor pressure vessels, for which the highest quake resistance is required.
Tightening standards for determining active faults	- When determining possible active faults to be considered in aseismic design, evaluate all active faults activity from the middle Pleistocene epoch (approx. 400 million years ago), as necessary
Setting an accurate design basis for earthquake ground motions	- Ascertain subsurface structures at NPS sites in three dimensions
Clarification of standards for ground shifts and deformation, in addition to those for quakes	- Construct buildings and structures categorized as Class S on grounds where there are no capable faults

In developing the regulatory requirements in the above, the NRA also agreed to "Safety Goal". The NRA decided on the following position of Safety Goal in April 2013:

1) The conclusion of Committee on Safety Goal under former Nuclear Safety Commission is a good basis for the NRA's discussion, which includes:
   - Core damage frequency: 10^{-4}
   - Containment failure frequency: 10^{-5}
2) The frequency of the release of Cs^{137} larger than 100 TBq during nuclear emergency should be less than once in one million years (excluding those due to security events)
3) Safety Goal should be applied to all nuclear power plants equally
4) Safety Goal is the goal that NRA should achieve through implementing its regulation over nuclear facilities
5) Plan to have further discussion on Safety Goal with a view to continue the enhancement of safety

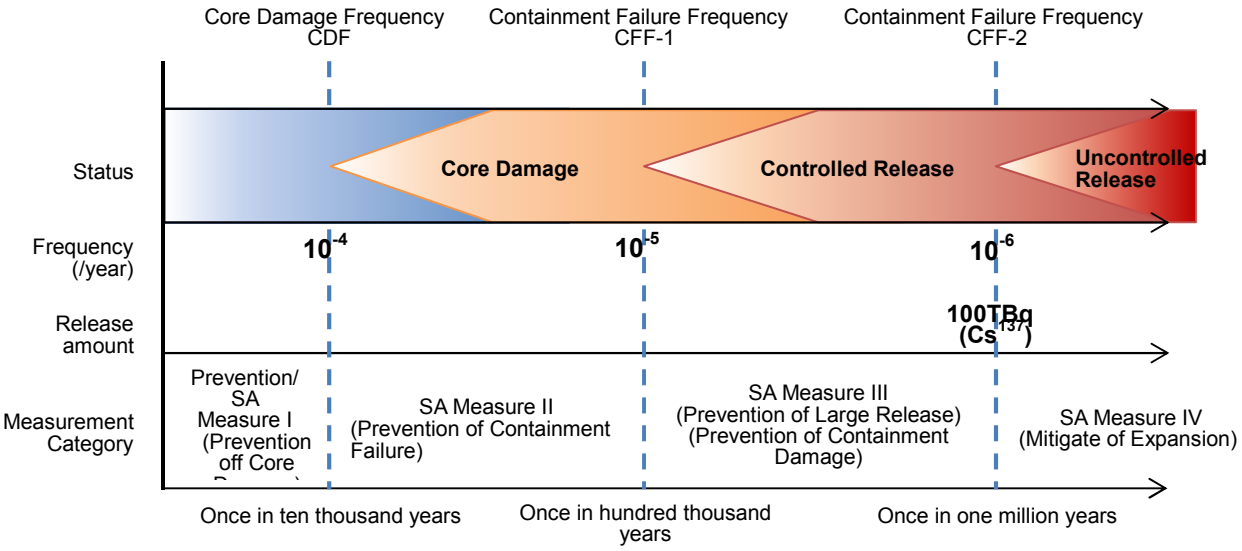


Figure 3 Concept of safety goal

3.7.2 Legal Structure for regulating nuclear facilities and activities

To provide detailed requirements, NRA Ordinances are established by the NRA under Reactor Regulation Act. (See the figure of legal hierarchy)

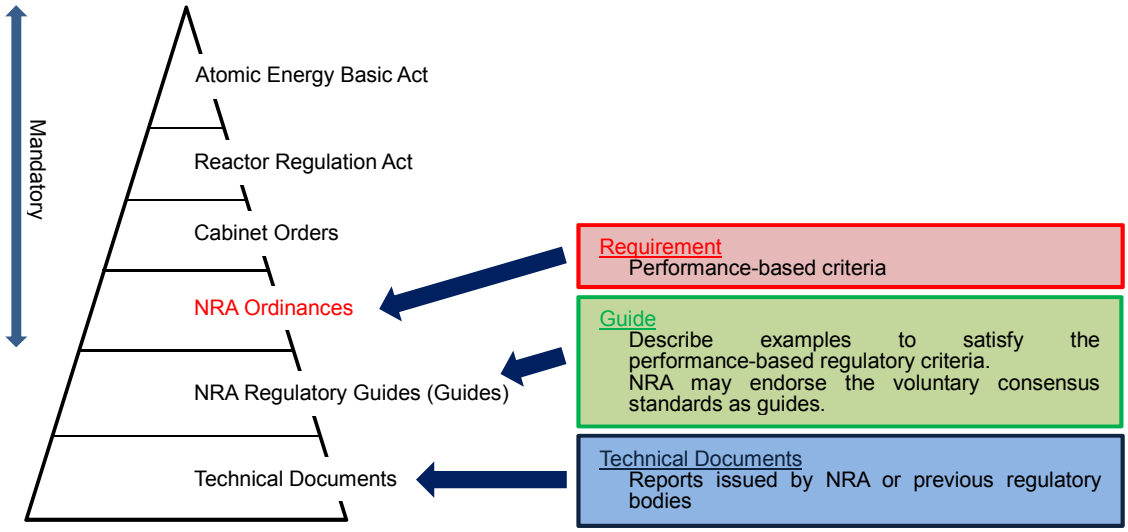


Figure 4 Legal Hierarchy

For example, the regulatory requirements on commercial power reactors are stipulated in the "NRA Ordinance Prescribing Standards for the Location, Structure, and Equipment of Commercial Power Reactors and their Auxiliary Facilities" (Reactor Establishment Permit Ordinance) which is used in licensing for Establishment Permit, and the "NRA Ordinance Prescribing Technical Standards for Commercial Power Reactors and their Auxiliary Facilities"(Technical Standards), which is used in the approval of Construction Plans.

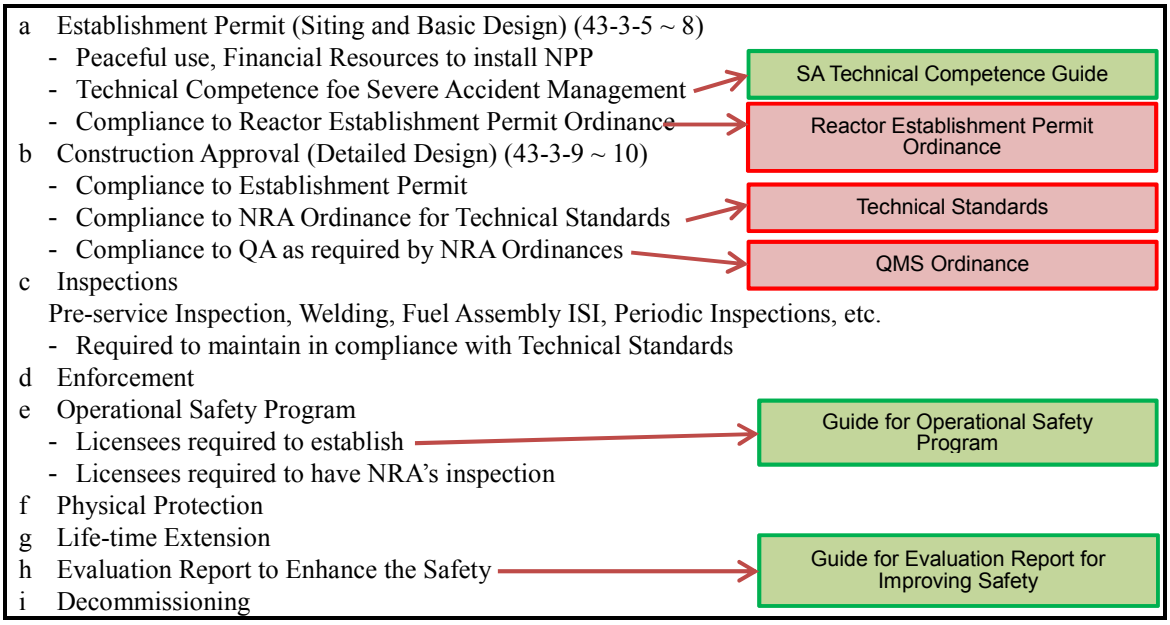


Figure 5 Reactor Regulation Act: NPP

Figure 6 Japanese Legal System on Nuclear Energy

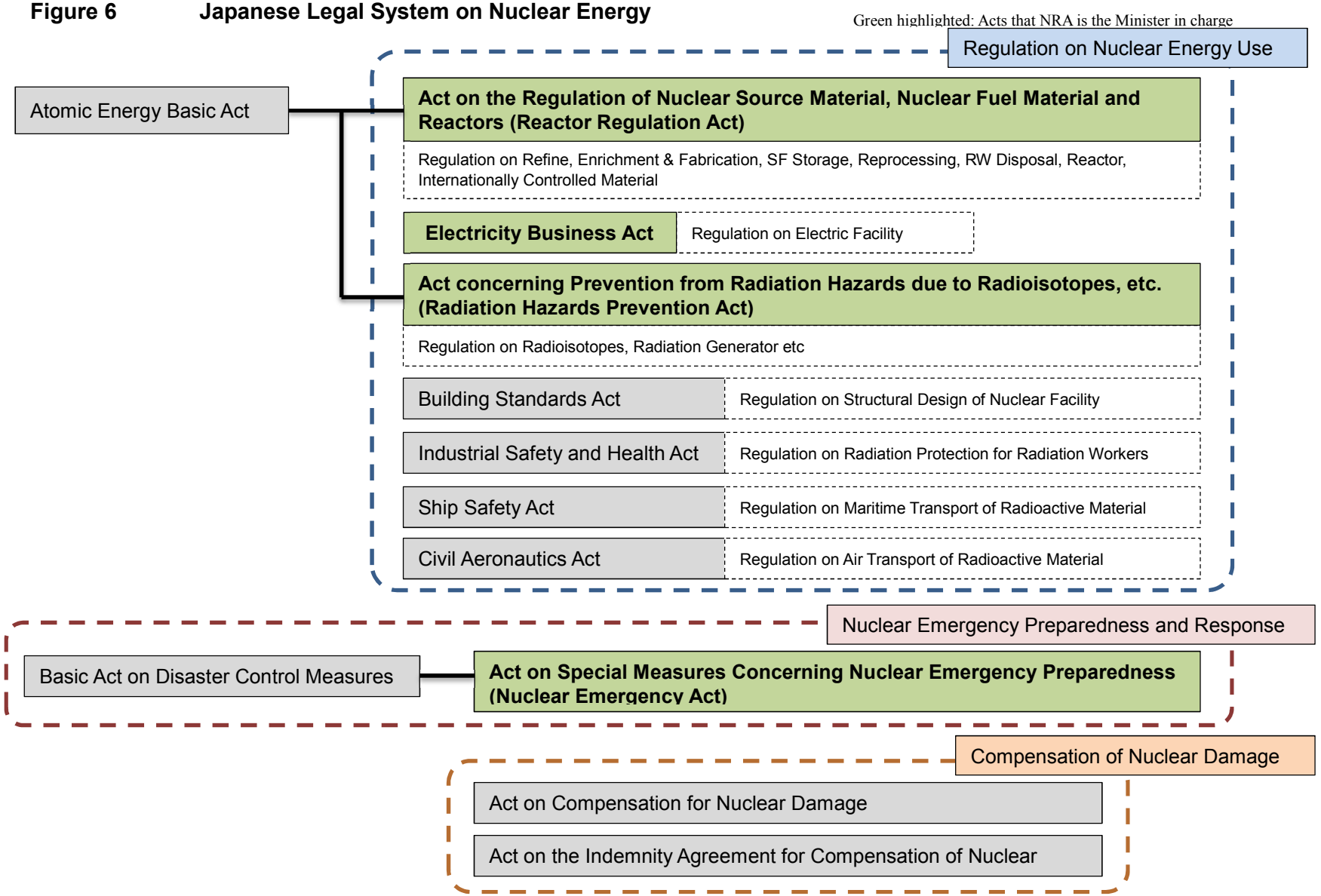
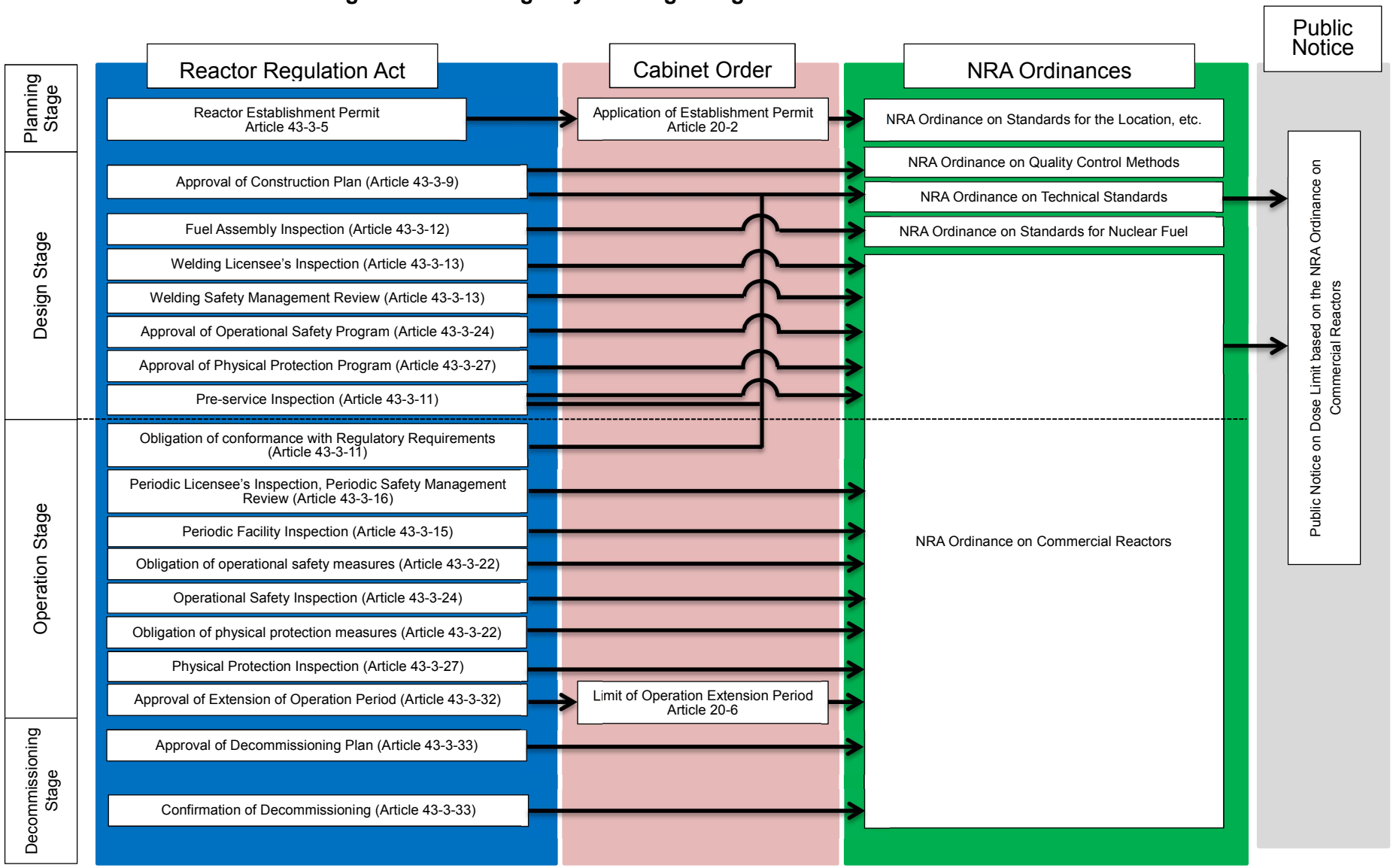


Figure 7 Legal System regarding Commercial Power Reactors



4 Regulatory body (outline of the NRA)

4.1 Foundation

The causes of the Fukushima Dai-ichi accident have been pointed out that the organizational factor of TEPCO, lack of safety culture, the lack of meaningful regulatory independence, and other factors in addition to the earthquake and tsunamis.

For drastic improvement of nuclear regulatory organizations on the basis of the reflection on and lessons learned from the accident, the "Act for Establishment of the NRA" was enacted on 20 June 2012, and promulgated on 27 June 2012, founding the NRA as a new regulatory body.

According to the Act, the NRA is established as an external bureau of the Ministry of the Environment by separating the functions of promotion and regulation for the use of nuclear energy to eliminate problems caused by the system in which one administrative organization simultaneously had both functions. The Act stipulates that the NRA independently exercises its authority based on its expertise from neutral and fair perspectives. On 19 September 2012, the NRA Chairman and four NRA Commissioners were appointed by the Prime Minister (the ex post facto approval of the Diet was obtained on 15 February 2013), and the NRA was inaugurated.

In Japan, different forms of use of nuclear technologies are under the jurisdiction of different authorities such as the nuclear energy use is under the jurisdiction of the Ministry of Economy, Trade and Industry, research and development is under the jurisdiction of the Ministry of Education, Culture, Sports, Science and Technology. Based on this allocation, each ministry had conducted nuclear regulation of each field respectively. The NRA takes on all these responsibilities and collectively implements the activities previously conducted under the responsibilities of several administrative organs, such as nuclear safety, nuclear security, safeguards in accordance with international commitments, radiation monitoring, and regulation of the use of radioisotopes.

4.2 Responsibilities and organization of the NRA

4.2.1 Responsibilities

The NRA is tasked to ensure safety on the use of nuclear energy under the Act for Establishment of the NRA. The NRA Chairman is empowered to appoint and dismiss staff of the Secretariat of the NRA. The term of office of the NRA Chairman and Commissioners is five years, and they may be reappointed.

The NRA has the authority to establish the NRA Ordinances to implement laws and cabinet orders as part of its assigned duties. The NRA also has the authority to issue licenses and approvals for the nuclear facilities and activities.

The NRA conducts inspections, collects reports on reactor operations from licensees and

conducts on-site inspections as necessary.

In addition, the NRA has the authority to revoke Establishment Permit or to suspend operation of nuclear facility. The NRA can issue orders to licensees to take additional measures for operational safety, decommissioning, or disaster prevention, and to revoke the Chief Reactor Engineer.

4.2.2 Organization

The organization and number of the staff of the NRA has increased since its foundation in September 2012. In March 2014, the Incorporated Administrative Agency Japan Nuclear Energy Safety Organization (JNES) was merged into the Secretariat of the NRA based on the thoughts that improvement in expertise was indispensable for further functional enhancement. The result of this merger was that as of the end of March 2014, the number of NRA staff in quota was approximately 1,000, including Nuclear Safety Inspectors and Nuclear Emergency Preparedness Officers stationed at nuclear sites.

The Act for the establishment of the NRA establishes the Reactor Safety Examination Committee (for investigations and deliberations on the safety of reactors), the Nuclear Fuel Safety Examination Committee (for investigations and deliberations on the safety of nuclear fuel materials), and the Radiation Council (for deliberations on technical standards for radiation hazard prevention) under the NRA.

The Secretariat of the NRA consists of the following 3 departments as well as Policy Planning and Coordination Division, Personal Division and Counsellor for Budget and Accounting:

- Regulatory Standard and Research Department

  Formulating standards and guidelines, and safety research on reactor system, severe accidents, nuclear fuel and waste, earthquakes and tsunamis

- Radiation Protection Department

  Establishing an EPR system and implementing initial emergency response, and physical protection of nuclear materials. Organizing radiation monitoring activities. Implementing regulation of the use of radioisotopes, and safeguards in accordance with international agreements.

- Nuclear Regulation Department

  Consist of one coordination Division and 7 Divisions implementing regulation over specific nuclear facilities and activities: BWRs, PWRs, inspections of nuclear reactors, new and research reactors, decommissioning, nuclear fuel, transport and storage and disposal of radioactive waste, and measures against earthquakes and tsunamis (Figure 8).

  In addition, the Secretariat of the NRA has 22 regional offices at locations with nuclear sites, and nuclear safety inspectors and nuclear emergency preparedness officers station at the offices.

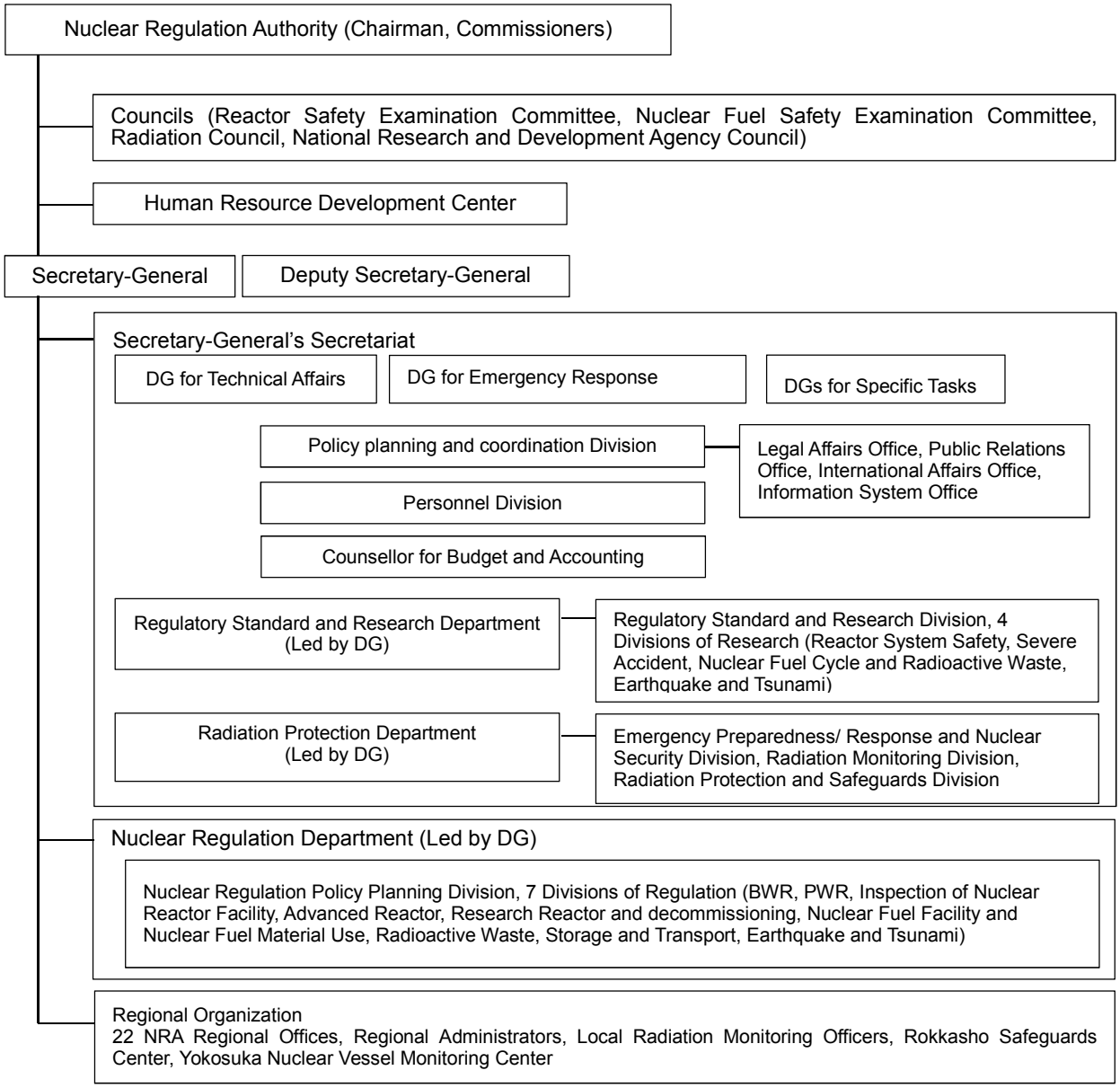


Figure 8 Organization of NRA

4.2.3 Independence

The NRA is organized to separate the functions of regulation of the use of nuclear energy from those of promotion, and is required to independently implement its duties from neutral and fair perspectives based on its expertise.

(1) Organizational Independency as a government organization

The NRA, an external bureau of Ministry of the Environment, is a government organization with council system composed of Chairman and Commissioners that appointed by Prime Minister with consent of Diet. The Act stipulates that Chairman and

Commissioner perform their authority independently, and the consent of Diet is required when dismissing Chairman or Commissioner. A term of Chairman or Commissioner is five years and reappointment is possible.

The Act requires the NRA to provide its annual report on activities to the Diet through Prime Minister.

The NRA has authority to establish NRA Ordinance (ministerial ordinance) to implement provisions of Act and Cabinet orders, in its jurisdiction, and to provide authorization to licensees, e.g. Reactor Establishment Permit.

(2) Financial Independence

The NRA activities are funded by national budget and does not rely on the fee from its authorized persons. National budget is composed of general account and special account. As a special account, budgetary category of Nuclear Safety and Regulation Measure was created with the establishment of the NRA, and this special account is funded based on the tariff on power sold by electric power company. The tariff collection and funding is made by Ministry of Finance, and there is no rooms for power operators' intervention in allocating money.

(3) Technical Independence

Criterion of selection on Chairman and Commissioner is "noble and excellent knowledge and experience on nuclear safety."

NRA conducts safety researches (12.3 billion JPY in 2014FY) for enhancing its regulation. JNES was a technical support organization (TSO), which supported NRA in the safety research, was merged into the NRA in March 2014.

In addition, the NRA is supported by its TSO, Japan Atomic Energy Agency and National Institute of Radiological Science, as well as external experts such as academia or national institutes.

4.3 Human resources and budget

4.3.1 Human resources

The NRA consists of Chairman and four Commissioners, which were appointed by Prime Minister. At the time of its establishment, most of the staff in the NRA Secretariat came from Nuclear and Industrial Safety Agency, and Nuclear Safety Commission. The Secretariat of the NRA further increased the number of its staff by subsequently having those from Ministry of Education, Culture, Sports, Science and Technology in April 2013, when SG and radiation monitoring was transferred to the NRA, and from Japan Nuclear Energy Safety Organization in Match 2014. In addition, mid-carrier experts were recruited from industry and research institutes as well as new graduates. The NRA thus has human resources with a broad

spectrum of expertise.

In order to make its scientific and technical judgment, without dependence on licensee's knowledge or expertise (avoiding regulatory capture), the NRA is required to maintain certain level of quantity and quality of human resources and to continuously enhance its technical capability.

For this purpose, the NRA developed training programs and implements in a planned manner, covering diversified fields, such as;

(1) Dedicated training on nuclear regulations, targeting the staff that shall have qualification under the requirements such as Nuclear Safety Inspectors or Nuclear Emergency Preparedness Officers

(2) Practical training to familiarize the staff to the inspection through full-size equipment, and to the accident sequences and I&C through a simulator

(3) Practical training for controlling and operating nuclear power plants, including severe accident conditions, by using an plant simulator

In addition, the NRA also dispatches its staff to graduate schools of nuclear engineering in Japan, overseas nuclear regulatory bodies such as the USNRC, and international organizations such as the IAEA and OECD/NEA.

Table 3 Number of recruited staff for the NRA

	new graduates	mid-career	Total
2012FY (2012/9/19~2013/3/31)	0	0	0
2013FY (2013/4/1~2014/3/31)	11	20	31
2014FY (2014/4/1~2015/3/31)	30	54	84
2015FY (2015/4/1~)	16	22	38

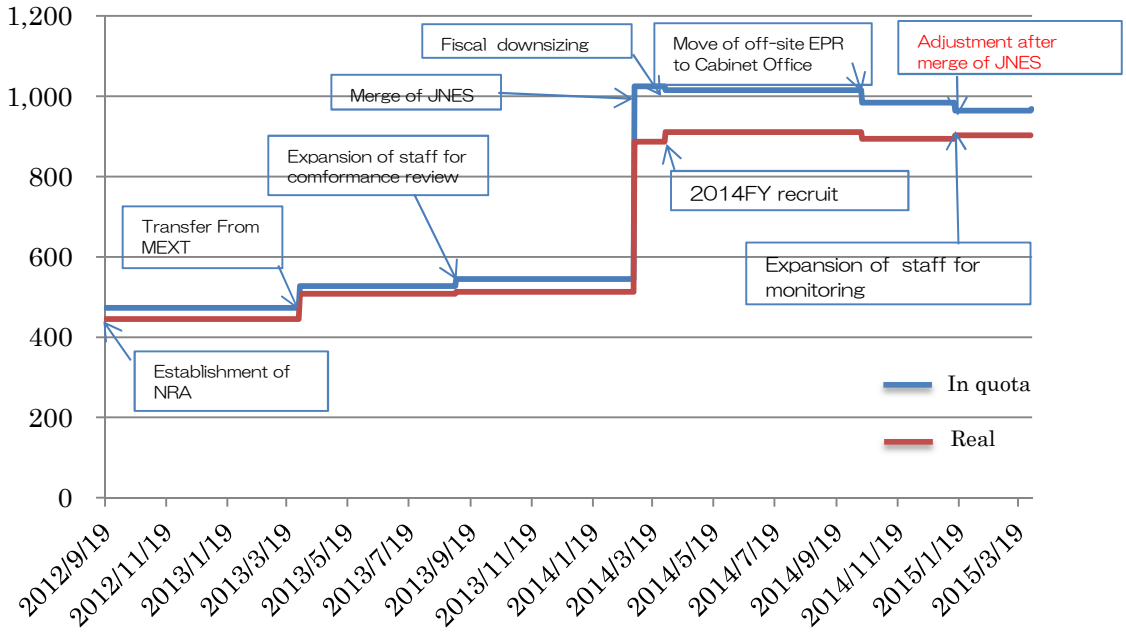


Figure 9 Trend of human resources in NRA Secretariat

4.3.2 Budget

The State budget provides all the funds for the NRA activities. The NRA prepares a budget plan for the next fiscal year, and makes a budget request to the Ministry of Finance, the same as other government organizations. The total budget of the NRA for FY2014 is 63.2 billion JPY.

4.4 Focused activities

4.4.1 NRA's Core Values and Principles

All the NRA staff is obliged to comply with the relevant Acts applicable to personnel of the Japanese Government in accordance with the National Public Service Act.

The NRA decided the NRA's Core Values and Principles and defined its mission as "to protect the public and the environment through rigorous and reliable regulations of nuclear activities" at the NRA Commissioner Meeting on 9 January 2013. To accomplish this mission, the NRA established five principles of activities for independence, effectiveness, transparency, expertise, and readiness for emergency (Table 2).

The NRA implements periodic policy evaluation as do the other administrative organs of Japan. The policy evaluation allows administrative offices to accomplish their missions more efficiently by identifying the relevant information for the proper planning and implementation of policies, reflecting the information appropriately, and revising and improving them frequently. The accountability of the administration to the public is achieved without fail by

publicizing the process and the results of the policy evaluation. The results of the policy evaluation are used, reflected, and publicized as important information of the NRA for its budget plan, priority in activities, human resource development plan, and modifications of its system.

NRA's Core Values and Principles

Bearing in mind that:
- The Nuclear Regulation Authority was established to absorb and learn the lessons of the Fukushima Daiichi nuclear accident of March 11, 2011;
- Such nuclear accidents should never be allowed to happen again;
- Restoring public trust, in Japan and abroad, in the nation's nuclear regulatory organization is of utmost importance and;
- The nuclear safety system and management must be rebuilt on a solid basis, placing the highest priority on public safety and a genuine safety culture;

Determined that:
- Everyone involved in nuclear activities must have a high degree of responsibility and ethical values and seek to achieve the highest levels of global safety;

We hereby solemnly pledge our full commitment and unwavering efforts to the foregoing.

Mission

Our fundamental mission is to protect the public and the environment through rigorous and reliable regulations of nuclear activities.

Guiding Principles for activities

We in the NRA and its supporting Secretariat shall perform our duties diligently acting in accordance with the following principles.

(1) Independent Decision Making

We shall make decisions independently, based on the latest scientific and technological information, free from any outside pressure or bias.

(2) Effective Actions

We shall discard the previous ineffective approach to regulatory work and stress the importance of a field-oriented approach to achieve genuinely effective regulations.

(3) Open and Transparent Organization

We shall ensure transparency and appropriate information disclosure on regulations, including the decision making process.

We shall be open to all opinions and advice from Japan and the international community and avoid both self-isolation and self-righteousness.

(4) Improvement and Commitment

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.

(5) Emergency Response

We shall be ready to swiftly respond to all emergency situations while ensuring that in 'normal' times a fully effective response system is always in place.

4.4.2 Statement on Nuclear Safety Culture

At the regular session of NRA commission meeting on 27 May 2015, Statement on Nuclear Safety Culture was agreed.

Statement on Nuclear Safety Culture

The Nuclear Regulation Authority

Safety shall be given the overriding priority in the utilization 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.
Recognizing its importance, the Nuclear Regulation Authority (NRA) has developed the code of conduct on safety culture taking due account of the lessons learned from the accident at the Fukushima Dai-ichi Nuclear Power Station of Tokyo Electric Power Company. The NRA will take the initiative in acting based on it.
Thereby, the NRA will strive for raising awareness of the importance of safety culture among everyone involved in nuclear energy and hence contributing to fostering safety culture in Japan.

Code of conduct

1. Priority to safety

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".

2. Decision-making taking into account the risks

Decision shall be made in an independent and objective manner taking due account of the risks.

Anyone who makes a decision is responsible for explaining logically the rationale of the decision while clarifying its own roles, responsibilities, and authority.

3. Fostering, sustaining and strengthening safety culture

Managers shall take the initiative in fostering the attitudes and actions that place the overriding priority to safety in their respective organizations. For sustaining and further strengthening safety culture, they shall also be vigilant to any early warning signs of decline in safety culture and shape and enhance the working environment so that the staff can maintain high morale.

4. Maintaining high level of expertise and organizational learning

Recognizing the importance of scientific and technical expertise for safety, each organization shall collect and analyze the latest information in Japan and overseas on regulatory activities, operating experience, and others to feedback the findings in its activities. Managers shall shape and enhance the working environment to promote such organizational learning.

5. Effective communication

Open and frank discussion in the workplace shall be the basis in the pursuit of safety.

Managers shall create such working environment and promote active discussion in their respective organizations.
Adequate communication shall be pursued both within the organization and with stakeholders for enhancing transparency and building trust by taking the initiative in information disclosure and exchange of a wide range of opinions.

6. Questioning attitude

All the personnel shall always 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.

7. Rigorous and prudent decisions and agile actions

In response to any challenges to ensuring safety, all the staff shall make conservative decisions for safety taking into account even the worst-case scenario, and take necessary actions with agility.

8. Harmonization with nuclear security

It is necessary to recognize that nuclear safety and security activities do not exist independently, namely complement each other and interfere with each other. All the personnel involved in nuclear safety and security activities shall respect each other's way of thinking and make efforts for harmonizing both activities. Senior managers shall take responsibility to select the most appropriate solution.

4.4.2 Ensuring transparency

To restore confidence in nuclear regulation it is vital to ensure the transparency of the decision-making process.

The Policy on Ensuring the Operational Transparency of the NRA stipulates that the basic policy of the organization is (1) to actively disclose the information even not subject to obliged disclosure under the Act on Access to Information Held by Administrative Organs; (2) to adhere to the process of disclosure and open discussion; and (3) to adhere to the principle of decision-making based on written documents. Accordingly, to ensure full transparency, the agenda, the minutes and distributed materials at NRA Commissioner and other meetings and information from its study teams, shall be made available in the public, as a general rule.

In addition, for meetings with the attendance of more than or equal to three Commissioners or meeting between NRA (Commissioners or staff) and licensees, the outlines of the meeting discussion are made available in the public, as well as the names of the NRA attendance and documents used.

The NRA Commissioner Meetings and other official meetings such as study teams are open to the public, and real-time video is uploaded to the NRA website. Reference materials used in the NRA Commissioner Meetings and its study teams are made available in the NRA's website at the start of each meeting.

The NRA Chairman conducts weekly press conference. The Spokesman of the NRA Secretariat also conducts press conference twice a week. If necessary, extraordinary press conferences are held. These press conferences are made available as live broadcasts and recordings and the minutes will be uploaded to the website, in the same way as the NRA Commission Meetings.

4.4.3 Ensuring openness

One of the guiding principles in NRA's Core Values and Principles is "We shall be open to all opinions and advice from domestic and the international community, and avoid both self-isolation and self-righteousness."

Based on these principles, the NRA has utilized the expertise of external experts, including those serving on study teams, and has actively held discussions with other experts and relevant licensees.

To seek the opinions of a wide range of both domestic and foreign experts concerning its activities, the NRA held a meeting with members of the accident investigation committees established by the Diet and the government and NPO specialists, and regularly gets valuable advices from international advisors.

In addition, when the NRA made important regulatory decisions such as the permission for amended establishment in accordance with new regulatory requirements, the NRA participates in the public meetings at the local communities near the nuclear power and explains its regulatory decisions in details, based on the request from local governments.

The NRA established a website and call centers enabling the public to express their opinions or questions via the internet or telephone whenever they wish.

4.4.4 Integrated management system (see Appendix 9.2)

The NRA Management System is effective from 1 April 2015, after half-year trial operation. For full operation, in February, the NRA Commission decided on "Mid-term Goal (2015-2019)" based on the NRA Core Values and Principles (Management Policy), and subsequently decided on "Annual Strategic Plan (2015)" in March.

4.4.5 International cooperation

(1) Relationships with the international community

The NRA has signed information exchange arrangements under the government-to-government agreement for cooperation in the peaceful uses of nuclear energy with the regulatory bodies of United States, France, and the United Kingdom, and information exchange memorandums with its counterparts of Spain, Germany, Sweden, Finland, Russian Federation, Lithuania, Turkey, and Vietnam. The NRA has also established a

tri-lateral information exchange framework among Japan, China, and Republic of Korea, called “Top Regulators’ Meeting.”

Under multilateral frameworks, the NRA actively participates in the activities of IAEA and OECD/NEA. Japan is a contracting party of Convention on Nuclear Safety, Joint Convention, Early Notification Convention and Assistance Convention. Particularly for the review process of safety conventions, the NRA staff contributes to them as meeting officer.

In the field of radiation protection, the NRA fulfills the obligations under the IAEA’s Code of Conduct on the Safety and Security of Radioactive Sources, and supplementary Guidance on the Import and Export of Radioactive Sources.

(2) International sharing of information on operational experience (see Appendix 9.3)

As a country with sufficient operational experience of reactor facilities, Japan believes it vital to share these experiences with a wide range of countries on the international stage, and has the responsibility to do so for improving international nuclear safety.

The NRA shares information internationally via mechanisms for sharing information about events with international organizations such as the IAEA and OECD/NEA, as well as through bilateral cooperation.

Mechanisms relating to the sharing of operational experiences with international organizations include the proactive provision of information via the Incident Reporting System (IRS).

In terms of bilateral activities, information is shared through a long-established system of regular meetings etc., to exchange information.

5 Nuclear Regulation

5.1 Regulations in siting, design and construction stages

5.1.1 Regulations on nuclear facilities in establishment (siting and basic design) stage

The establishment permit covers siting, basic design and operational competence.

The Reactor Regulation Act stipulates two types of authorization for the establishment of the nuclear facilities, namely "permit" for fabrication and enrichment, reactor, SF interim storage, waste disposal or storage, and the use of nuclear fuel material, and "designation" for refining and SF reprocessing, where "designation" is much more restrictively authorized.

The Act stipulates the application procedures for each facility type or activity. For the establishment of a commercial power reactor, the application shall include the following items and reference documents with listed in the below attached to the application. (Please see regulation for nuclear fuel cycle facilities in Appendix 9.3, use of risk information in Appendix 9.4.)

Items to be included in an application for Reactor Establishment Permit
• Name and address, and in the case of a juristic person, the name of the representative • Purpose of use • The type, thermal power, and number of units of the power reactor • Name and address of the place where the power reactor will be installed • The locations, structures, and equipment of the power reactor and their auxiliary facilities • Construction plan for the power reactor facility • The type of nuclear fuel material to be used for the power reactor and the amount scheduled for annual use • Method for spent fuel disposal • Matters regarding radiation control at the power reactor facility • Matters regarding preparation and system for responding to severe core damage and other accidents to the power reactor

Documents to be attached to the application
• Description of purpose of use of the power reactor • Description of thermal power of the power reactor • Document describing the amount of funds required for construction and a procurement plan • Document describing an procurement plan for the nuclear fuel material required for operation of the power reactor • Description of technical competence for the installation and operation of the power reactor facility • Description of weather, foundation soil, hydrology, earthquake, social environment, and other conditions in the construction site of the power reactor facility • A 200,000:1 map covering the area within a 20-km radius from the location where the power reactor or their major auxiliary facilities are to be installed, and a 50,000:1 map covering the area within a 5-km radius from that location • Description of the safety design of the power reactor facility • Description of radiation control at the power reactor facility • Description of the the facilities and system for responding to accidents at the power reactor

facility
- In the case of a juristic person, the articles of association, certificate of registered matters, the latest assets inventory, the balance sheet, and a profit and loss statement

5.1.2 Regulation on nuclear facilities at construction stage

(1) Approval of Construction Plan

After having establishment permit (or designation), a licensee shall get the approval of construction plan for SSCs, except for refining and the use of nuclear materials.

In the case of a power reactor facility, the application for approval of construction plan shall show the detailed design for reactor, nuclear fuel handling and storage facility, reactor cooling system, instrumentation and control system, radioactive waste predisposal management facility, radiation control facility, and reactor containment facility, with reference documents as required by the NRA Ordinance. For modification of an existing facility, the same procedure applies, however, for minor modification, licensees may only notify the construction plans to the NRA.

For the approval of construction plans, the establishment of licensees' quality assurance program is required, and the NRA issued the NRA Ordinance on Technical Standards for Quality Control Methods Concerning the Design and Construction of Commercial Power Reactors for Licensees of Power Reactor Operation and Systems for their Inspection. This Ordinance requires the establishment of system for quality control, clear definition of the responsibilities of executive officers, management of human and other resources, planning and implementation of the tasks, evaluation of the performance, analysis and improvement, in the design and construction stage.

(2) Pre-service Inspection (Overview of inspection is stated in Appendix 9.7)

Licensees shall have the NRA's pre-service inspection and welding inspection, and get the NRA's certifications before operating these SSCs, except for refining facilities or the facilities for the use of a small amount of nuclear materials. For the welding inspection of nuclear power, the process is different from those for other facilities, and licensees shall conduct self-inspection in accordance the NRA rule, which will be confirmed by the NRA through management review rather than the direct inspections.

Only for nuclear power facilities, the fabricator of nuclear fuel assemblies shall have the NRA's inspection and its certificates for fuel assemblies before the nuclear power operator uses.

(3) Design Certification for specific Component

Design certifications can be applied only to the designated SSCs of power reactors and SF interim storage facilities.

5.2 Regulation at operation stage

5.2.1 Approval of Operational Safety Program

Licensees shall establish an operational safety program and have the NRA's approval, and this program includes maintenance of facilities, operation of equipment, predisposal management of radioactive waste.

The NRA Ordinance on each facility stipulats the detailed items to be included in the operational safety program. For example, the NRA ordinance on Commercial Reactors stipulates the items as shown in the below table.

Items to be included in an Operational Safety Program formulated by licensees of nuclear power reactor
• System for compliance with relevant legislation and the Operational Safety Program • System for fostering a safety culture • Quality assurance for the nuclear power reactor facility • Duties of persons who perform the operation and management of the nuclear power reactor facility, and organization • The scope and detail of duties of the Chief Reactor Engineer of the nuclear power reactor, the necessary authority for his/her supervision of operational safety, and his/her position in the organization • The scope and detail of duties of the Chief Electrical Engineer, the necessary authority for his/her supervision of operational safety, and his/her position in the organization • The scope and detail of duties of the Chief Engineer of Boilers and Turbines, the necessary authority for his/her supervision of operational safety, and his/her position in the organization • Training program on operational safety for persons performing the operation and management of the nuclear power reactor facility • Operation of the nuclear power reactor facility • Period of operation of the nuclear power reactor • Safety review of operation of the nuclear power reactor facility • Definition of controlled areas, access controlled areas, and environmental monitoring areas, and access restriction, etc. related to those areas • Discharge monitoring equipment for radioactive effluents • Monitoring of radiation doses, dose equivalents, concentrations of radioactive materials, and density of radioactive materials on the surfaces of objects contaminated by radioactive materials, and decontamination • Management of radiation measuring instruments • The patrol of the nuclear power reactor facility and related actions • The reception, handover, transport, storage, and other types of handling of nuclear fuel material • Predisposal of radioactive waste • Measures in emergency • Establishment of accident management procedure in the event of fire • Establishment of accident management procedure in the event of internal flooding • Establishment of accident management procedure in the event of a severe accident • Establishment of accident management procedure in the event of large-scale disaster at the site • Recording and reporting on operational safety of nuclear power reactor facility • Maintenance management of the nuclear power reactor facility

- Sharing of technical information obtained from licensees' maintenance and inspections with other licensees
- Disclosure of information in the event of non-conformity
- Other matters necessary for operational safety of nuclear power reactor facility

5.2.2 Operational Safety Inspection

The NRA Inspector conducts Operational Safety Inspections to review the conformance of licensees' operational activities with their operational safety program, through direct observation of activities, review of documents or submitted samples, or interviews with staff at the site. This inspection is conducted four times per year and lasts usually two weeks.

For power reactor facilities, the NRA conducts the additional inspections on designated operations such as:

- Operation for the startup or shutdown of reactor;
- Operation for re-fueling;
- Operation for switching the residual heat removal cooling seawater systems (e.g. stop one system and start up another) at BWR;
- Operation related for decreasing the water level in the reactor vessel, and operation for heat removal performed under the conditions that the water level is reduced in the reactor vessel, at PWR;
- Training for the response to severe accidents

5.2.3 Approval of Physical Protection Program

Before handling specified nuclear fuel material, licensee shall establish its physical protection program and the NRA's approval of that program. The physical protection program shall define a protected area, isolate it with a barrier, and take protective measures including against human access.

5.2.4 Physical Protection Inspection

The NRA Inspector conducts Physical Protection Inspections to review the conformance of licensees' activities with their Physical Protection Program, through direct observation of activities, review of documents or submitted samples, or interviews with staff at the site. This inspection is conducted once per year.

5.2.5 Periodic Facility Inspection

Periodic Facility Inspections of nuclear facilities (with the exceptions of facilities under decommissioning) are conducted to confirm the conformance of the designated SSCs important to safety with the regulatory requirements periodically. For intervals of nuclear power plants, the NRA may decide on different intervals, namely 13-month or 18-month or 24-month intervals based on the performance of the facilities, and 12-month applies to other

nuclear facilities.

The Periodic Facility Inspection of nuclear power reactor is supplemented by the Periodic Safety Management Review, where a licensee is required to conduct Licensee's Periodic Licensee's Inspection and the NRA reviews the licensee's organization, method, and process management related to the implementation of the inspection

In this Periodic Safety Management Review, an incentive regulation has been adopted and, when the licensee's system is rated as sufficient for performing Periodic Licensee's Inspection in the NRA's review, the items under the NRA review in the next Review will be reduced.

5.2.6 On-site Inspection

Pursuant to the Reactor Regulation Act, the NRA may conduct On-site Inspections to the extent necessary for the enforcement of laws.

In an on-site inspection, an NRA staff may visit the office, the place of activity to review documents, records, and other materials, to have interviews with related persons.

Manufacturers may be subject to on-site inspections to the extent necessary for the enforcement of laws.

5.2.7 Periodic Safety Assessment of continuous improvement

Licensees of nuclear power, reprocessing and fabrication facilities, are required to submit an updated safety assessment report on safety improvement to the NRA, at least every five years and to make it available to public. This system was introduced in new regulatory framework after Fukushima Dai-ichi accident, as Japanese periodic safety review. The first submission of this safety assessment report is set within six months after the date of completion of the licensees' periodic facility inspection based on the new regulatory requirements.

5.2.8 Limit on the Operation Period

The Reactor Regulation Act stipulates, as a regulation unique to nuclear power reactors, that the period of operation of nuclear power reactors shall be up to 40 years starting from the date completing the Pre-service Inspection. This period of operation may be extended once and only up to 20 years if the NRA approves the licensee's application for such extension. (see Appendix 9.9 for description of Extension of Operational Period and Technical Assessment of Aging)

5.3 Regulations on decommissioning

5.3.1 Approval of Decommissioning Plan

The Reactor Regulation Act stipulates the requirements for decommissioning according to each facility and activity specified in the Reactor Regulation Act.

For the decommissioning of a nuclear power reactor, licensees are required to dismantle the facility, transfer of nuclear fuel material, decontamination, remediation of contaminated objects and areas, and handover of radiation control records to designated agencies.

When starting decommissioning, licensees shall prepare Decommissioning Plan and obtain NRA's approval. Items to be included in a Decommissioning Plan and its attachments are specified for each activity in the NRA Ordinance. For decommissioning of a nuclear power reactor, a Decommissioning Plan shall include the following items with the documents listed below attached to the plan.

Items to be included in a Decommissioning Plan
• Name and address, and in the case of a juristic person, the name of the representative • Name and address of the facility or place of activity where the decommissioning will take place • Name of the nuclear power reactor to be decommissioned • Facilities to be decommissioned and their sites • Facilities to be dismantled among the facilities stated in the preceding item and dismantling methods • The management and transfer of nuclear fuel materials • Remediation of contaminated materials due to nuclear fuel materials • Disposal of nuclear fuel materials or materials contaminated by them • Schedule for decommissioning

Reference Documents to be attached to the application
• Evidence to show the removal of spent fuel from the nuclear power reactor • Drawings related to the sites of facilities to be decommissioned and construction work area maps related to the decommissioning • Description of control of radiation exposure due to the decommissioning • Description of the types, significance, influence, etc. of accidents which may occur due to a human error, a failure of a machine or a device, an earthquake, a fire, etc. during the decommissioning • Description of the distribution of contamination due to nuclear fuel material and the method for evaluating the contamination • Description of nuclear power reactor facilities whose functions are to be maintained during the period of the decommissioning, their performance, and periods during which the performance is to be maintained • Description of the amount of funds required for the decommissioning and the procurement plan for the funds • Description of the system for implementing the decommissioning • Description of the quality assurance program • Documents or drawings that are judged to be necessary by the NRA, in addition to those stated in the preceding items

The criteria for approval of Decommissioning Plan are specified in the NRA Ordinance. For decommissioning of a power reactor, the following criteria shall be satisfied:

- Spent fuel has been removed from the reactor core
- The management and transfer of nuclear fuel materials is appropriate

- The management, processing, and disposal of nuclear fuel materials or materials contaminated by nuclear fuel material is appropriate
- The decommissioning is to be implemented appropriately to prevent disasters due to nuclear fuel material, materials contaminated by nuclear fuel material, or the nuclear power reactor.

5.3.2 Confirmation of Completion of Decommissioning

When completing decommissioning, a licensee shall obtain confirmation from the NRA that the completion of the decommissioning satisfies the criteria specified in the NRA Ordinance. The application for such a confirmation shall include the items as shown in the below table.

Items to be included in an application for Confirmation of the Completion of Decommissioning
• Name and address, and in the case of a juristic person, the name of the representative • Name and address of the facility or place of activity where the decommissioning took place • Name of the decommissioned nuclear power reactor • Status of the dismantlement of the nuclear power reactor • Status of transfer of nuclear fuel material • Status of remediation of contamination materials due to nuclear fuel materials • Status of disposal of nuclear fuel materials or other materials contaminated by nuclear fuel

With the NRA's confirmation of the Completion of Decommissioning, establishment permit for nuclear facilities expires.

5.3.3 Regulations in case of license revocation before decommissioning

In a case license revoked or the another entity does not succeed (e.g. due to dissolution of licensee), the former licensee (licensee who is revoked license, or in the case of no succession for the ownership, a liquidator or bankruptcy trustee or person who administrates inherited property on behalf of heir), shall be regarded as a licensee until the NRA's confirmation of Completion of Decommissioning.

In these cases, the former licensee must formulate a Decommissioning Plan and must apply it to the NRA for approval during the period specified in the NRA Ordinance.

5.3.4 Approval of Operational Safety Program for the period of decommissioning

When having an approval of Decommissioning Plan, licensees shall also have the approval of Operational Safety Program. The Operational Safety Program shall be established by adding the following items to or by modifying its original Operational Safety Program in order to implement the Decommissioning Plan,

Items to be included in an operational safety program for the period of decommissioning
• System for compliance with relevant laws and the Operational Safety Program • System for fostering a safety culture • Quality assurance for the nuclear power reactor facility • Quality assurance for the decommissioning • Duties and organization of persons who perform the decommissioning • Training on operational safety for persons who perform the decommissioning • Permanent measures related to shutdown of the nuclear power reactor • Safety review of operation of the nuclear power reactor facility • Definition of controlled areas, access controlled areas, and environmental monitoring areas, and access restriction, etc. related to those areas • Ventilation monitoring equipment and discharge monitoring equipment • Monitoring of radiation doses, dose equivalent, concentrations of radioactive materials, and density of radioactive materials on the surfaces of objects contaminated by radioactive materials, and decontamination • Management of radiation measuring instruments • Patrol of the nuclear power reactor facility and related actions • The reception, handover, transport, storage, and other types of handling of nuclear fuel material • Management of radioactive waste • Actions to be taken in emergency • Establishment of accident management procedure in the event of fire • Establishment of accident management procedure in the event of internal flooding • Establishment of accident management procedure in the event of a major accident • Establishment of accident management procedure in the event of large-scale disaster at site • Recording and reporting on operational safety related to the nuclear power reactor facility • Recording and reporting on operational safety related to the decommissioning • Maintenance management of the nuclear power reactor facility • Sharing of technical information obtained from licensees performing maintenance and inspections with other licensees of nuclear power reactor operation • Disclosure of information in the event a nonconformity occurs • Management of the decommissioning • Other matters necessary for operational safety related to the nuclear power reactor facility or the decommissioning

5.4 Reporting of accidents and incidents

A licensee is required to immediately report on the occurrence of an accident or incident as designated in the NRA Ordinance to the NRA, subsequently a follow-up report within 10 days, and an evaluation report on the causes and counter measures to prevent the same accidents or incidents.

For specific events that may result in site emergency or general emergency and that are specified in the Nuclear Emergency Act, a licensee is required to notify immediately such events to the competent authorities.

The NRA has established a system for receiving reports on accidents or incidents, for 24 hours and 365 days.

In response to reports from a nuclear operator, the NRA publicizes the details of the reported

events, the NRA's responses, provisional INES rating of the events without delay.

5.5 Procedure for clearance

Before implementing clearance, firstly, the NRA reviews the licensee's application for the methods in measuring and evaluating the radioactive concentrations of clearance-target objects, and approves it if appropriate.

Secondly, the NRA confirms that the nuclear operator implements these approved methods, and that the level is under the clearance level through reviewing written records or sampling.

5.6 Regulation on "Specific Nuclear Facility (Disaster-experienced facility)"

Because it is envisaged that the special management of TEPCO's Fukushima Power Station will continue, the NRA designated the plant as a "Specified Nuclear Power Facility" on November 7, 2012, in accordance with the Reactor Regulation Act, in order to ensure appropriate measures were adopted to suit the particular circumstances.

In doing so, and in accordance with the Reactor Regulation Act, the NRA gave the licensee a list entitled Matters for which the Measures Should be Taken (Table 3) and ordered it to submit a plan for implementing these measures including those focused on the operational safety of the facility.

On December 7, 2012, the NRA received the TEPCO implementation plan. In response, the NRA established the Supervision and Evaluation Committee for Specified Nuclear Power Facilities, which is conducting a review to determine whether each of the facilities and measures detailed in the implementation plan conform to the safety requirements detailed in Matters for which the Measures Should be Taken. On-site inspections form part of this process. (See Figure 10)

Summary of "Matters for which the Measures shall be taken"

- With the goal of completing fuel removal thereby reducing risks to the specified nuclear power facilities as a whole and ensuring safety both on and off the site, measures should be taken promptly and efficiently.
- Regarding Units 1 to 4, decommissioning measures, including removal and storage of melted fuel rods, should be completed as early as possible, while ensuring safety in the process.
- Regarding Units 5 and 6, the cold shutdown status should be maintained.

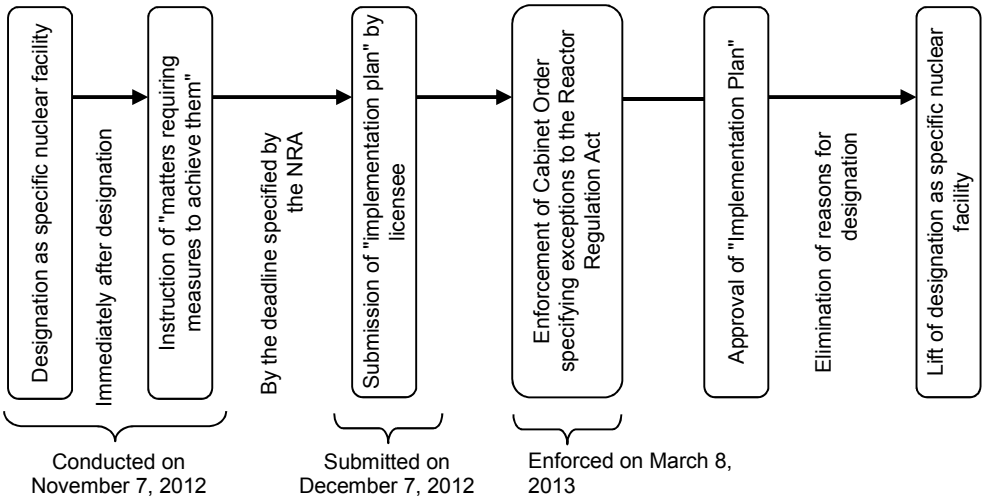


Figure 10 Work scheme for Specific Nuclear Facility and its progress

6 Radiation Protection Regulation

6.1 Regulations on start of activity

6.1.1 Permission for Use

A person (including a juridical person hereinafter) who intends to use a radioisotope (for purposes including fabrication, repacking, and installation) in quantities exceeding those specified in Cabinet Orders or intends to use radiation generators must obtain permission from the NRA pursuant to the Radiation Hazards Prevention Act. In cases other than the above, a person who intends to use a sealed radiation source which radioactivity is less than that specified in must notify the NRA of such use.

Items to be included in an application for permission for use of a radioisotope
Name and address, and in the case of a juridical person, the name of the representative
Type of radioisotope, whether it is sealed or not, and its quantity, or the types, quantities, and performance of the radiation generating devices
The purpose and mode of use
Place of use
The location and structure of the facility in which the radioisotope or the radiation generator are to be used, and equipment used in the facility
The location and structure of the facility for storing the radioisotope, equipment used in the facility, and storage capacity of the radioisotope
The location and structure of the facility for waste management of the radioisotope and radioactive contaminants, and equipment used in the facility

The Radiation Hazards Prevention Act stipulates the following standards for Permission for use specified in relevant rules stipulated by NRA (hereinafter NRA Ordinance). The NRA must not grant permission unless it is confirmed that the use meets the standards.

- The location and structure of the usage facility and equipment used in the facility satisfy the technical standards specified in the NRA Ordinance.
- The location and structure of the storage facility and equipment used in the facility satisfy the technical standards specified in the NRA Ordinance.
- The location and structure of the radioactive waste management facility and equipment used in the facility satisfy the technical standards specified in the NRA Ordinance.
- In addition, there is negligible risk of radiation hazards due to a radioisotope, a radiation generator, or radioactive contaminants.

6.1.2 Notification of activities of sale and lease

A person who intends to sell or lease a radioisotope must notify the NRA beforehand, pursuant to the Radiation Hazards Prevention Act.

6.1.3 Permission for waste management

A person who intends to conduct activities for waste repacking, waste disposal or waste

storage of a radioisotope or radioactive contaminants must obtain license from the NRA, pursuant to the Radiation Hazards Prevention Act.

Items to be included in an application for permission for waste management activities
Name and address, and in the case of a juridical person, the name of the representative
Address of the place of waste management activities
Method for waste management
The location and structure of the facility for repacking a radioisotope and radioactive contaminants and the equipment used in the facility
The location and structure of the facility for storing a radioisotope and radioactive contaminants, the equipment used in the facility, and the storage capacity of the radioisotope and radioactive contaminants
The location and structure of the waste management facility and the equipment used in the facility
The following matters must be included when disposal is to be performed by burying a radioisotope or radioactive contaminants. • The properties and amount of the radioisotope or radioactive contaminants to be buried • Measures to be appropriately implemented for the level of radioactivity decay to prevent radioactive hazards

The Radiation Hazards Prevention Act stipulates the following standards for license for waste management activity. The NRA must not grant license unless it is confirmed that the activity meets the standards.

The location and structure of the waste repacking facility and equipment used in the facility meet the technical standards specified in the NRA Ordinance.
The location and structure of the waste storage facility and equipment used in the facility meet the technical standards specified in the NRA Ordinance.
The location and structure of the disposal facility and equipment used in the facility meet the technical standards specified in the NRA Ordinance.
In addition, there is negligible risk of radiation hazards due to a radioisotope or radioactive contaminants.

6.1.4 Facility inspection

Upon installing a usage facility or modifying an approved usage facility, a permitted user (specified permitted user) of a radioisotope or a radiation generator must undergo an inspection implemented by an inspection agency registered with the NRA. The usage facility concerned is not allowed to be used without passing the inspection.

6.2 Regulations on conducting activities

6.2.1 Periodic inspection

A specified permitted user must undergo periodic inspections of their usage facility, whereas a licensee of radioactive waste management activities must undergo periodic inspections of their waste repacking facility. These periodic inspections are conducted by the NRA or a registered inspection agency within three or five years from the date when the facility

concerned passed its initial facility inspection or the date of its last periodic inspection. Pursuant to the Radiation Hazards Prevention Act, a specified permitted user or a permitted waste management operator is obliged to maintain the facility concerned so that it meets the standards for the license. Periodic inspections confirm that usage facilities meet the standards for license for use, and that the waste management facilities meet the standards for license for waste management activities.

6.2.2 Periodic confirmation

Specified permitted users and permitted waste management operator must measure the amount of radiation, concentrations in water discharge and ventilation, and contamination by radioisotopes, etc. and must keep records of the measurements. They also must record the use, storage, waste management, etc. of radioisotopes into ledgers. Specified permitted users and permitted waste management operator must get periodic confirmation of the practice of those duties from the NRA or a registered inspection agency.

6.2.3 Confirmation related to transport

A licensee who intends to ship a radioisotope or radioactive contaminants outside of the place of activity must get confirmation that measures implemented for the shipment meet the technical standards. Specifically, the licensee must use a container approved by the NRA and must get confirmation on the method of shipment from the Minister of Land, Infrastructure and Transportation and confirmation from the NRA on the package to be transported. When measures for preventing radiation hazards are particularly required for the radioisotope or radioactive contaminants, the licensees must additionally notify the prefectural public safety commission of the shipment.

6.2.4 Confirmation related to waste disposal

A licensee who intends to dispose of a radioisotope or radioactive contaminants outside of the place of activity must get confirmation from the NRA that the disposal method meets the technical standards specified in the NRA Ordinance. The permitted waste management operator who intends to dispose of waste must get confirmation from the NRA that the measures implemented for the disposal meet the technical standards established by the NRA.

6.2.5 Measures for preventing radiation hazards

(1) Measurement

A licensee must measure the radiation dose and contamination by radioisotopes in specified places posing radiation hazard risks within the facility and along the boundaries of the facility. The licensee also must perform measurement of the radiation dose and contamination by radioisotopes on persons who have entered the facility. The licensee must keep records of the

results of these measurements.

(2) Radiation hazards prevention programs

To prevent radiation hazards, a licensee must formulate radiation hazard prevention programs (internal rule for the facility) and must notify the NRA of the programs before commencing activities. The NRA can give an order to modify the programs when they have judged that modification is necessary to prevent radiation hazards.

A licensee must provide education for persons who enter the facility, to make the radiation hazards prevention programs known to them.

(3) Health examination

Pursuant to the Radiation Hazards Prevention Act, a licensee must perform health examination on persons who enter the facility, and must keep records of the results of the health examinations.

6.3 Regulations related to discontinuation of activities

6.3.1 Notification of discontinuation of use

A licensee must notify the NRA upon discontinuing its activities. As soon as a notification of discontinuation is submitted, license for the activities concerned ceases to be effective.

The person who intends to submit a notification of discontinuation must implement the measures specified in the NRA Ordinance, such as transfer of radioisotopes, elimination of contamination due to radioisotopes, etc., and waste management of radioactive contaminants.

If the license concerned is revoked, the user must formulate a decommissioning plan beforehand, notify the NRA of the plan, and implement measures for decommissioning according to the plan.

6.4 Procedure for clearance

A licensee may get confirmation from the NRA or a party registered with the NRA that the radioactive concentrations of radioisotopes contained in radioactive contaminants do not exceed the criteria defined in the NRA Ordinance as concentration levels not requiring measures against radiation-caused hazards, pursuant to the NRA Ordinance. Materials confirmed as such are excluded from being classified as radioactive contaminants.

6.5 Registration of sources

For radioisotopes specified by the NRA, information about each of the sealed sources that may have serious health effects is registered in the NRA's radiation source tracking system. When performing a task using a specified radioisotope, the licensee must report related

information, such as fabrication, importation, reception, handover, exportation, and waste management, pursuant to the Radiation Hazards Prevention Act.

6.6 Handling of orphan sources

In case of an accident related to an orphan source, the NRA must immediately dispatch a staff member to implement measures to restore control. Many customs offices and related parties voluntarily implement a radiation monitoring program in order to swiftly detect orphan sources.

7 Emergency Preparedness

7.1 Overview of Regulations Concerning Nuclear Emergency

Based on the experiences and lessons learned from the accident at the Fukushima Daiichi accident, the government revised the Atomic Energy Basic Act, the Nuclear Emergency Act, and related legislations in September 2012 to develop new nuclear emergency responses. As a result of the revision of the Atomic Energy Basic Act, a Nuclear Emergency Preparedness Commission was established within the Cabinet, with the Prime Minister serving as the Chairperson and the Chief Cabinet Secretary, the Minister of the Environment, and the NRA Chairman serving as Vice Chairpersons. The goal of the Commission is to ensure unified nuclear emergency response policies are part of the routine work of the entire government. The Revision of the Nuclear Emergency Act enhanced measures to prevent nuclear disasters and strengthened the functions of the Nuclear Emergency Response Headquarters in any emergency.

In Japan, emergency measures follow those contained in the Basic Plan on Disaster Prevention, which is drawn up in accordance with the Basic Act on Disaster Control Measures, the Nuclear Emergency Act, and the NRA's Emergency Preparedness and Response Guide (the EPR Guide), which in turn are formulated in accordance with the Nuclear Emergency Act. The former prescribes the division of roles and responsibilities between nuclear operators, the national government and local governments, while the latter stipulates the specialized and technical measures required to deal with an emergency (such as references for the extent of zoning and criteria).

7.2 Basic Plan on Disaster Response

The Central Disaster Response Council formulated a Basic Plan on Disaster Response based on the Basic Act on Disaster Control Measures and the Nuclear Emergency Act. The section on nuclear emergency response measures prescribes basic matters and the respective division of roles of nuclear operators, the government and local authorities.

The Basic Plan on Disaster Response was drastically revised in September 2012 following the Fukushima Daiichi accident. The major revisions are as follows.

- The revisions prescribe the immediate assembly of the NRA Chairman at the Official Residence of Prime Minister and strengthen the Official Residence's decision-making and information dissemination functions.
- A rapid response center for emergencies shall be established at the head office or any other office of the relevant power company as the base for accident response measures, and a local headquarters shall be established at an off-site center to take responsibility for ensuring residents' safety. Measures to be taken on-site and off-site are thus clarified.
- The revisions prescribe the implementation of practical drills simulating complex disasters and severe accidents.

- The revisions prescribe close cooperation when multiple headquarters are established in the event of a complex disaster.

7.3 Guide for Emergency Preparedness and Response

In response to the accident at Fukushima Daiichi Nuclear Power Station, nuclear emergency preparedness measures, were strengthened in the Guide for Emergency Preparedness and Response. These guidelines stipulate disaster response measures and their implementing frameworks and the establishment of specific zones where such measures will be treated as a priority. The national government, relevant local governments and the nuclear operators plan the measures to deal with a nuclear disaster based on the Basic Plan on Disaster Prevention and the Guide for Emergency Preparedness and Response.

The main items indicated in the Guide for Emergency Preparedness and Response are as follows.

- Basic matters concerning nuclear emergency responses
  - Guideline Objectives
  - Characteristics of nuclear disasters
  - Basic concept of protective actions against radiation exposure
- Nuclear emergency preparedness measures
  - Establishment of EAL and OIL, which form the standards for decision-making in an emergency
  - Introduction of a PAZ (around 5km from the facility) and UPZ (around 30km from the facility), the zones for which prior measures, such as preparations for evacuation, should be formulated
  - Advance preparations, such as the development of information systems, emergency radiation monitoring, and a framework for radiation emergency medicine, as well as education and training
- Emergency response measures
  - Prompt emergency radiation monitoring
  - Providing prompt public information
  - Implementation of proper protective actions (sheltering, evacuation, medication of stable iodine tablets, etc.), based on EAL and OIL
- Medium- to long-term measures in response to nuclear disasters
  - Long-term evaluation of radiation effects on human health and the environment
  - Implementation of decontamination measures to minimize effects

Table 4 Emergency Categories and EALs

Emergency categories	EAL
Alert	- If an earthquake with a magnitude of at least 6-lower on the Japanese seismic intensity scale has occurred in the prefecture in which the nuclear facilities are sited - If a major tsunami warning has been issued in the prefecture in which nuclear facilities are sited - If a Tokai Earthquake Advisory has been issued - In the event of a crucial failure of the reactor facilities that a Director-General of the NRA Secretariat or the Director of the Accident Countermeasures Office of the Emergency Preparedness/Response and Nuclear Security Division deems to necessitate an alert - In any other case in which the Chairman of the NRA deems the establishment of an NRA Nuclear Accident Vigilance Headquarters to be necessary
Site Area Emergency	- Leakage of reactor coolant - Failure of emergency core cooling system in the high pressure coolant injection system in the event of the loss of feed water functions - Loss of all feed water functions to steam generators - Loss of residual heat removal functions in the event of the loss of residual heat removal functions from the reactor by means of the main condenser - Station blackout (continuing for at least five minutes) - If a situation in which only one power source is supplying electricity to the DC bus continues for at least five minutes, in the event that there is only one emergency DC bus - Decline of the water level within the reactor vessel while the reactor is shut down to the level at which the emergency core cooling system begins to actuate - Loss of all functions for cooling the reactor during outage - Unavailability of the reactor control room
General Emergency	- Inability to shut down the reactor, if required, by means of a conventional neutron absorber - Loss of all functions to shut down the reactor, in such an emergency is required - Inability to inject water into the reactor in question using any of the emergency core cooling systems - If the pressure within the containment vessel reaches the design-basis maximum allowable working pressure - Loss of pressure control functions in the containment vessel, in the event that functions for removing residual heat from the reactor have been lost - Loss of all functions for cooling the reactor - Loss of all emergency DC power supply continues for at least five minutes - Detection of radiation or temperature indicative of core meltdown - Detection of a change in the liquid level within the reactor vessel or other phenomenon indicative of exposure of the irradiated fuel assemblies within the reactor vessel - If a situation continues for at least one hour in which the water level declines to a point where residual heat removal functions are lost - Unavailability of the reactor control room - The liquid level in the irradiated fuel assembly storage tank declines to the level at which the fuel assemblies in question are exposed - If a situation in which the air radiation dose rate at the site boundary reaches 5 mSv/hour continues for at least ten minutes

Table 5 OILs and Protection Measures

<table>
<tr><th></th><th>Classification</th><th>Description</th><th colspan="3">Initial value</th><th>Outline of protection measure</th></tr>
<tr><td rowspan="2">Urgent protection measures</td><td>OIL 1</td><td>Criteria for advising local residents to evacuate within a few hours or sheltering, in order to prevent radiation effects from surface soil, inhalation of re-suspended radioactive material, or inadvertent ingestion</td><td colspan="3">500 μSv/h
(air dose rate measured 1 m above the ground surface)</td><td>Identification of zones and evacuation within a few hours (including ordering those who cannot easily move to shelter indoors temporarily)</td></tr>
<tr><td>OIL 4</td><td>Criteria for conducting decontamination to prevent inadvertent ingestion and external exposure via skin contamination</td><td colspan="3">Beta ray: 40,000 cpm
(counting rate obtained by counter a few cm away from skin)

Beta ray: 13,000 cpm
(After 1 month)
(counting rate obtained by counter a few cm away from skin)</td><td>Contamination screening of those who are ordered evacuation or relocation and prompt primary decontamination when the results exceed the criteria</td></tr>
<tr><td>Early protection measures</td><td>OIL 2</td><td>Criteria for restricting ingestion of local produce and advising local residents, to temporarily relocate within a week or so, in order to prevent radiation effects from surface soil, inhalation of radioactive material, or inadvertent ingestion</td><td colspan="3">20 μSv/h
(air dose rate measured 1 m above ground surface)</td><td>Identification of zones within a day or so and restriction of ingestion of local produce, as well as temporary relocation within a week or so</td></tr>
<tr><td rowspan="2">Restriction on food and drink</td><td>Food and drink screening standards (corresponding to OIL 3)</td><td>Criteria for identifying areas where measurement of radionuclide concentrations in food and drink should be carried out in preparation for possible food and drink restrictions at OIL6</td><td colspan="3">0.5 μSv/h
(air dose rate measured 1 m above ground surface)</td><td>Identification of zones within a few days where radionuclide concentrations in food and drink should be measured</td></tr>
<tr><td>OIL 6</td><td>Criteria when restricting food and drink intake in order to prevent radiation exposure via ingestion</td><td>Nuclides</td><td>Drinking water, milk, dairy products</td><td>Vegetables, grains, meat, eggs, fish, etc.</td><td>Analysis of radionuclide concentrations in food and drink within a week, and prompt restrictions on food and drink intake if results are in excess of the criteria</td></tr>
<tr><td></td><td></td><td>Radioactive iodine</td><td>300 Bq/kg</td><td>2,000 Bq/kg</td><td></td></tr>
<tr><td></td><td></td><td>Radioactive cesium</td><td>200 Bq/kg</td><td>500 Bq/kg</td><td></td></tr>
<tr><td></td><td></td><td>Alpha-emitting nuclides of plutonium and transuranium elements</td><td>1 Bq/kg</td><td>10 Bq/kg</td><td></td></tr>
<tr><td></td><td></td><td>Uranium</td><td>20 Bq/kg</td><td>100 Bq/kg</td><td></td></tr>
</table>

7.4 Responsibilities of Relevant Organizations involved in Nuclear Emergency Preparedness and Response

The national government, local governments, and nuclear operators prepare the following systems to prevent nuclear disasters or respond when nuclear emergency occurs.

7.4.1 The National Government

In the Nuclear Emergency Response Headquarters, the NRA holds primary responsibility for technical and specialized matters associated with the safety of nuclear facilities (on-site),

while matters relating to the procurement of equipment and supplies required to deal with the nuclear facilities and all matters associated with the response outside the facilities (off-site) are handled by the relevant ministries and agencies, based on the directions of the director (the Prime Minister).

Nuclear Emergency Preparedness Officers stationed in regions where nuclear facilities are located provide guidance and advice to help prevent nuclear emergency, such as preparing Nuclear Operator Emergency Response Programs and help carrying out measures to prevent a disaster spreading.

Off-site centers have been located in areas near each nuclear installation site with essential equipment and communications to reach the Prime Minister's Official Residence, the NRA Emergency Response Center, nuclear operators, and relevant local governments. They can monitor in real time the plant status and environmental radiation levels since they are linked with monitoring posts located around the facilities. The national government supervises emergency environmental radiation monitoring and implements Comprehensive Nuclear Emergency Response Drills with local governments, nuclear operators, and local residents.

7.4.2 Nuclear Operators

Nuclear operators must prepare a Nuclear Operator's EPR Plan after conducting discussions with local governments before operations begin and then formally notify the NRA. The following must be included in the Nuclear Operator's EPR Plan:

- The duties of the Nuclear Emergency Preparedness Manager.
- The composition of the organizations for nuclear emergency preparedness at each emergency base location.
- The implementation policy of nuclear emergency response education for appropriate personnel
- Needed equipment for nuclear any emergency response including maintenance and inspections.
- Planning, implementation, evaluation and improvement of nuclear emergency response drills.
- Measures to be taken during specified events following the declaration or cancellation of a nuclear emergency.

Nuclear operators must establish an on-site nuclear emergency preparedness organization and appoint a Nuclear Emergency Preparedness Manager. This Manager must notify the government and surrounding prefectures immediately following specified developments.

Nuclear operators must install and maintain radiation measurement equipment, radiation protection equipment and emergency communications to undertake on-site emergency responsible activities.

7.4.3 Local government

Local governments formulate and implement Regional Disaster Prevention Plans based on the Basic Plan on Disaster Prevention and the NRA's EPR Guide. The main points in the Regional Disaster Prevention Plans are included:

- Maintain communication networks among disaster prevention centers to ensure reliable communication with the national government, other local governments, and nuclear operators.
- Preparation of facilities, materials and equipment, and systems to enable local headquarters to continue activities even in the event of a severe accident; establishment of collaboration with the NRA, designated administrative organs, public agencies, and nuclear operators; and development of a system to carry out extensive and flexible emergency radiation monitoring.
- Preparation of precautionary protection measures (initial emergency evacuation) within the PAZ; formulation of extensive evacuation plans and with the national government ensuring effective instruction for evacuation and transportation of people who need support.
- Development of systems regulating the shipment of water, and food.
- Ensuring a comprehensive traffic control system to transport people from prioritized areas such as PAZ
- Preparation of a system governing iodine tablets including their timely and proper distribution and administration; establishment of a nuclear or radiation emergency medicine system; and development and maintenance of systems to dispatch and accept nuclear or radiation emergency medical teams.
- Preparation of information systems in the event of a complex disaster.

Prefectures support and coordinate administrative duties by municipalities.

7.5 Nuclear Emergency Exercises

Previously, nuclear emergency exercises have been carried out by the national and local governments and nuclear operators, in order to check the effectiveness of emergency response systems in accordance with the Nuclear Emergency Act. However, following the Fukushima Daiichi accident these exercises are under review. Future exercises must now incorporate 'lessons learned' from Fukushima Daiichi accident including the possibility of a complex earthquake-tsunami-nuclear accident disaster which had never before been experienced as well as incorporating more realistic evacuation exercises. Such exercises range from large-scale national government exercises to those carried out by nuclear operators within a single facility. The following provides an explanation of these.

(1) Exercises Drawn up by the National Government

This is a national full-scale, field exercise for nuclear emergency response conducted once a year based on the Nuclear Emergency Act. Prime Minister and other ministers are involved in this exercise to confirm procedures regarding nuclear emergency including declaration of General Emergency and associated actions. Complex disaster such as integrate of earthquake and tsunami with nuclear disaster is taken into account to develop scenario of this exercise. These Exercises will form the basis for subsequent revisions of various plans and manuals.

(2) Exercises Based on Plans Drawn up by Nuclear Operators

Nuclear operators conduct exercises approximately once a year, focusing on such aspects as establishment and operation of a response headquarters, notification and liaison, and emergency environmental radiation monitoring, in accordance with the Nuclear Operator Emergency Response Program prescribed for each site. Exercises check the effectiveness of organizations implementing accident management. In addition, if a local government carries out a site exercisel, that site management will also conduct a exercise at the same time.

(3) Exercises Drawn up by Local Governments

Even since the Fukushima Daiichi accident, prefectures and municipalities have conducted exercises stipulated in their Regional Disaster Prevention Plans.

These exercises simulate severe accidents and complex disasters, train participants without providing them of the scenarios in advance and conduct map exercises.

(4) Participation in international exercises

Japan is a Contracting Party of the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency. To ensure notification in accordance with the convention provisions in the event of an emergency, Japan has been a continuous participant in the Convention Exercise (ConvEx) organized by the IAEA.

Japan will participate in INEX-5, an international exercise program to be implemented in 2015 to 2016 by the OECD/NEA and preparation work is taking place.

8 Safety Research

The NRA performs safety researches to acquire technical knowledge needed for developing regulatory requirements as well as knowledge basis of individual technical decisions. The NRA conducts both advanced and basic safety research, not only to address challenges in nuclear regulations directly but also to address challenges newly identified through the accumulation of scientific knowledge.

The NRA set priority on the following themes of the safety research, taking into accounts of the experience of the Fukushima Daiichi NPS accident;

- Regulatory challenges associated with the safe decommissioning of Fukushima Daiichi NPS
- Measures against natural hazards inducing common cause failures which may result in severe accidents
- Enhancement of scientific and technical knowledge concerning measures against severe accidents
- Development of technical infrastructure to support the above activities.

In March 2014, the Japan Nuclear Energy Safety Organization (JNES), the NRA's TSO, was integrated into the NRA and the Regulatory Standard and Research Department was newly established to serve as an internal TSO. The Japan Atomic Energy Agency (JAEA) and the National Institute of Radiological Sciences (NIRS) function as external TSOs.

When implementing safety researches, the NRA pays attention to independence, neutrality, and transparency, as well as the utilization of international frameworks, and proactively disseminating information. The NRA may conduct joint research with licensees or other research organizations in getting experimental data with the conditions that the evaluation of data will be done independently and such research may not hinder the NRA's regulatory judgment.

The JAEA also pays attention to transparency, and now have one TSO department to the NRA within the organization, and make the separation from other department for development and operation of nuclear facilities.

The NRA recognizes the common challenge in international community. The NRA is actively utilizing international cooperation for researched, including bilateral and multinational frameworks, which can make use of limited resources and can have more access to new findings.

The NRA also maintains transparency on research activities, by disclosing research plan, data and conclusion and its self-evaluations of the research. The NRA also publishes key research reports, as "NRA report".

9 References

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9.1 Implementation of the IAEA Safety Fundamentals

Related to Module 01-1 QID 1 "National Policy and Strategy."

	Title	Principle	Implementation
1	Responsibility for safety	The prime responsibility for safety must rest with the person responsible for facilities and activities that give rise to radiation risks	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 licensees, covering all activities in manufacturing, using, storing, transporting, or processing radioisotopes. That act does not allow the delegation of licensees' safety responsibilities to other parties.
2	Role of government	An effective legal and governmental framework for safety, including an independent regulatory body, must be established and sustained.	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.
3	Leadership and management for safety	Effective leadership and management for safety must be established and sustained in organizations concerned with, and facilities and activities that give rise to, radiation risks.	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 "Statement of nuclear safety". 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.

	Title	Principle	Implementation
4	Justification of facilities and activities	Facilities and activities that give rise to radiation risks must yield an overall benefit	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.
5	Optimization of protection	Protection must be optimized to provide the highest level of safety that can reasonably be achieved.	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).
6	Limitation of risks to individuals	Measures for controlling radiation risks must ensure that no individual bears an unacceptable risk of harm.	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.
7	Protection of present and future generations	People and the environment, present and future, must be protected against radiation risks.	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 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.

	Title	Principle	Implementation
8	Prevention of accidents	All practical efforts must be made to prevent and mitigate nuclear or radiation accidents	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 orders and ordinances 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 generators and disposal of contaminated materials. 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.
9	Emergency preparedness and response	Arrangements must be made for emergency preparedness and response for nuclear or radiation incidents	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.
10	Protective actions to reduce existing or unregulated radiation risks	Protective actions to reduce existing or unregulated radiation risks must be justified and optimized.	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 measure 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 councillors' activities Central and local governments are conducting environmental monitoring, under the support of central government for off-site of nuclear facilities.

9.2 Management System

1. Background

The NRA merged JNES in March 2014, and the number of staff is over 1,000. The NRA, regulatory body, and JNES, TSO to support research and implementation of inspection/ emergency response, have different working process and organizational culture.

To harmonize those different cultures and to enhance work quality, NRA developed new Management System on October 1, 2014. (See figure 11)

2. System

The objectives of the NRA Management System are to foster safety culture through effective leadership, and effectively integrating management elements such as environment, quality, security as well as nuclear safety

The NRA Management System has a systematic structure. Top management takes initiative to develop mid-term goal and annual strategic plan based on the Core Value and Principles of the NRA. Based on these goal and plan, each division head develops annual implementation plan and review the status of annual implementation plan to identify weakness and to standardize the work or to improve the work.

Self-assessment of annual implementation plan will identify good practices and weakness. NRA Commissioners and executives of the Secretariat conduct Management System Review, which evaluates an effectiveness of Management System. Inputs for Management System Review are results of Policy Assessment, Self-assessment Reports, Improvement Report, Report of Internal Audit, opinions of interested parties, control of matters to be improved, corrective actions and protective actions.

3. Status of operation

Before trial operation of Integrated Management System, NRA Management Rule was developed in September 2014. Trial operation was conducted for 6 months from October 2014 through March 2015. In the trial operation, PDCA cycle is tested focused on the important elements such as developing implementation plan of second half of 2014FY, conducting internal audit of organizational management, holding review by executive staff.

For full operation, Mid-term goal based on the NRA Core Values and Principles (Management Policy) for 5 years from 2015 was decided at Commission Meeting on February 12th, 2015. In addition, annual strategic plan of 2015 based on the Mid-term goal was decided at Commission Meeting on March 25 th, 2015. The Management System entered into full operation on April 1st, 2015.

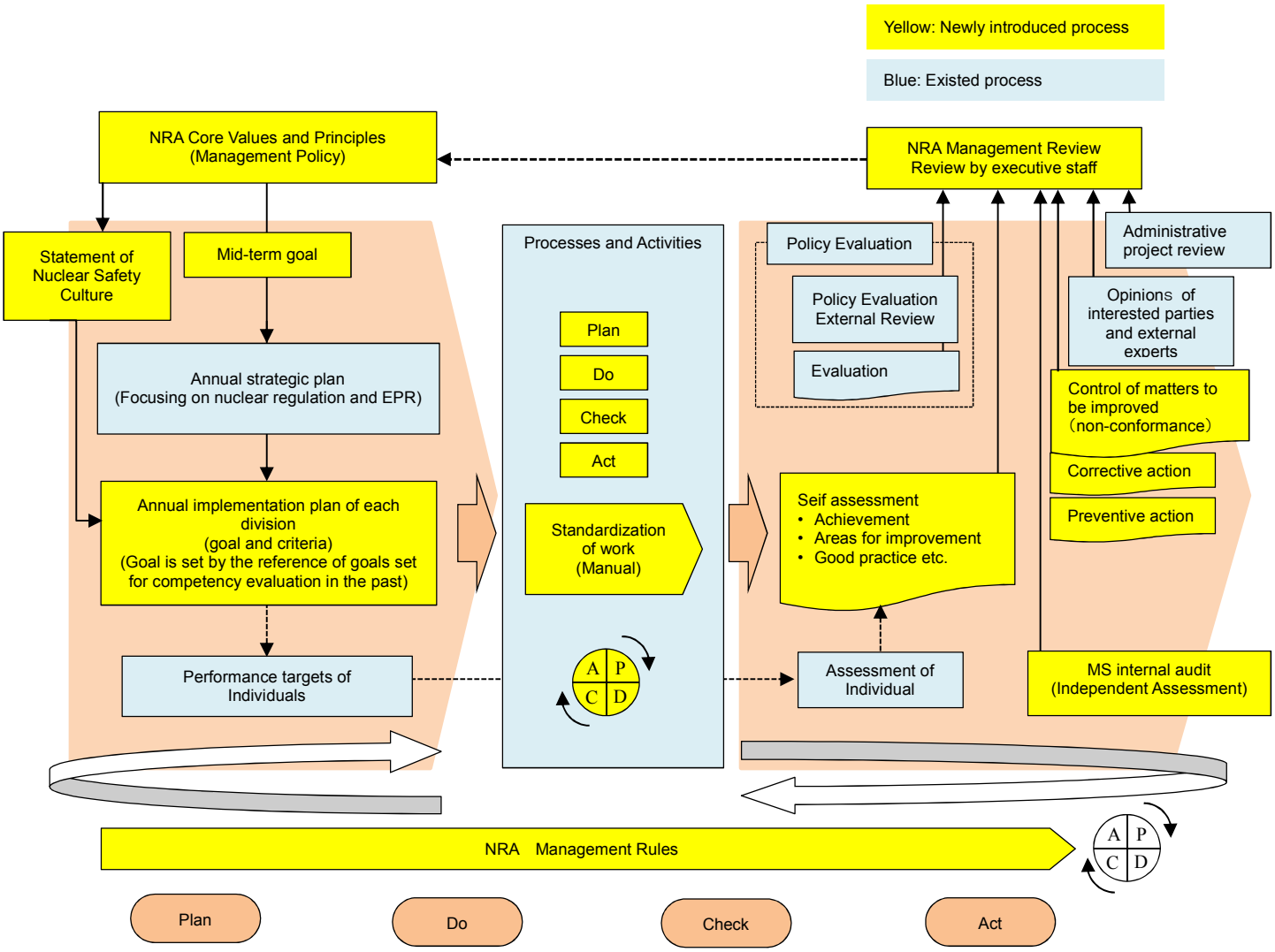
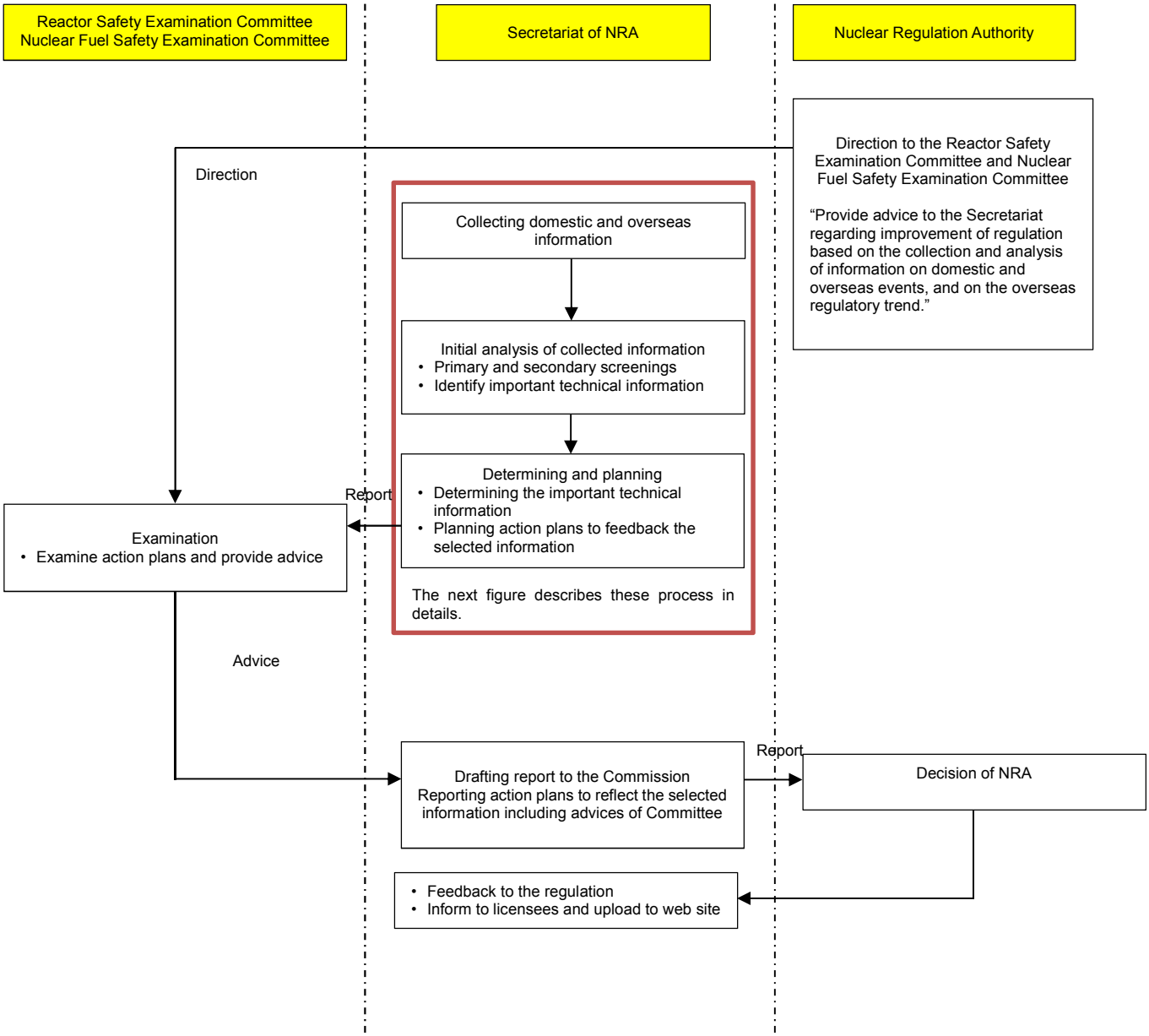


Figure 11 Structure of NRA Management System

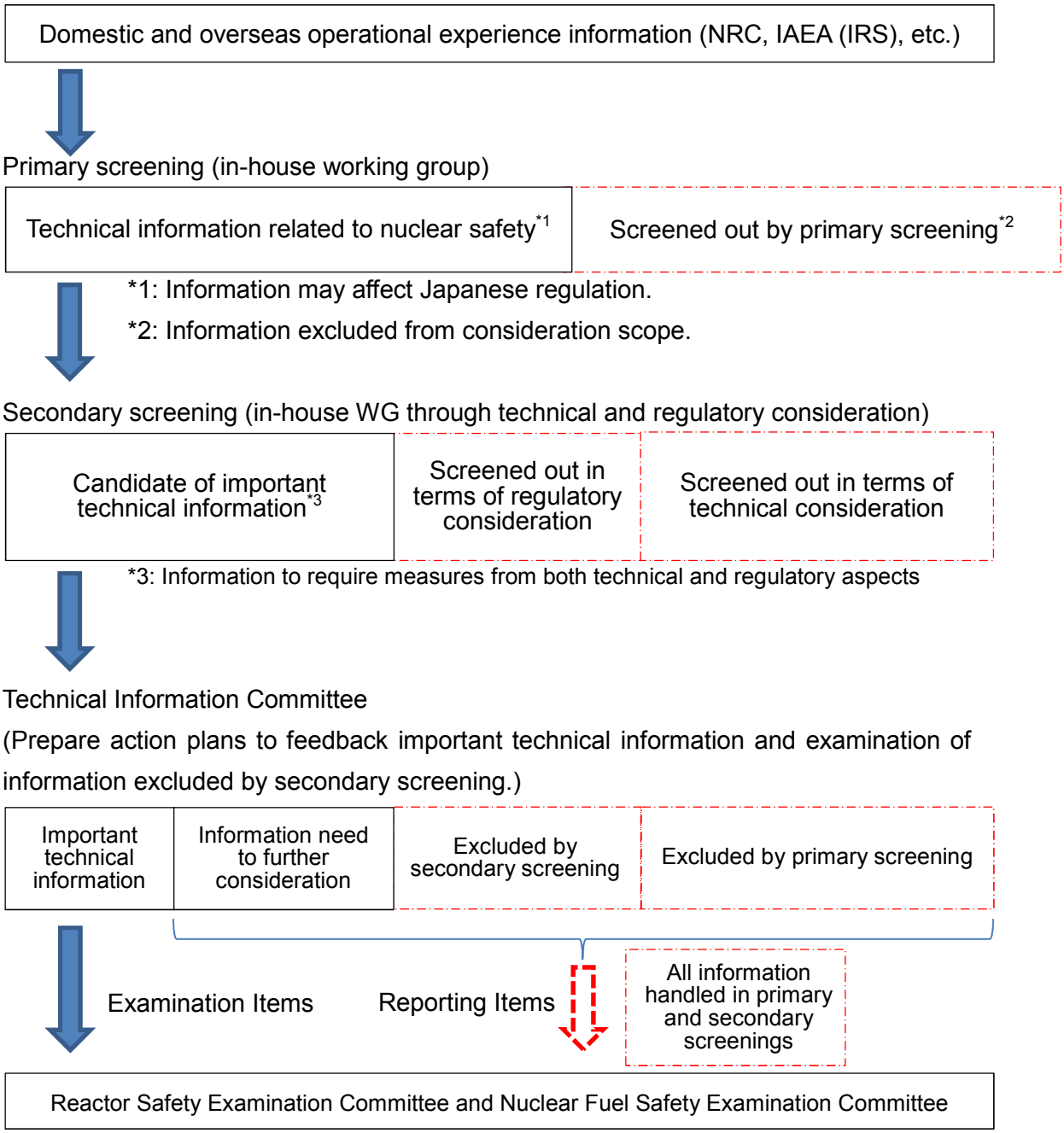
9.3 Framework for Operational Experience Feedback to Regulation

Process flow of feedback of Operational Experience Information



Work Flow of collection and analysis of Operational Experience Information

The Secretariat of NRA collects and analyzes operational experience information of domestic and overseas nuclear facilities in line with following procedure.



Examine important technical information and action plans to feedback the selected information prepared by Technical Information Committee, and provide advice.

9.4 Nuclear Fuel Cycle Regulation in Japan

1. Basic idea for answer to Module8

Answer to Module8 covers facilities for conversion, enrichment, fabrication, storage, and reprocessing of nuclear fuel, management of radioactive waste, and usage of nuclear materials or nuclear source materials such as research laboratories.

Regulations for such facilities consider potential risk (graded approach) in light of characteristics such as types, quantities, chemical property, and physical property of nuclear materials.

Therefore, the answer basically describes regulation on reprocessing facilities, which potential risk is high, while respective regulations on other facilities are described as needed.

Detailed answers on spent fuel storage facilities and waste management facilities are provided in Module4.

2. Characteristics of nuclear fuel cycle activities in Japan

Enrichment and Fabrication

Uranium enrichment facility is concentrating uranium 235 in UF_6 by using centrifuge technology. Fabrication facility produces nuclear fuel assembly from UO_2 powder. This kind of facility includes conversion process which transforms UF_6 to UO_2 in some cases. MOX fuel fabrication facility produces MOX fuel assembly from MOX powder.

In the classification of Reactor Regulation Act, above mentioned activities are categorized in enrichment and fabrication activities.

Interim Storage of Spent Fuel

Activity which temporarily stores spent fuel until reprocessing. Spent fuel storage facilities in commercial power reactor facilities or reprocessing facilities are regulated under commercial power reactor regulation and reprocessing regulation, respectively.

Spent fuel reprocessing

Activities which treat spent fuel and separate and recover uranium and plutonium. Japanese reprocessing facility applies PUREX method. Spent fuel is dissolved in nitric acid and separated uranium and plutonium through extraction and purification processes. Final product is mixed oxide powder of uranium and plutonium. Other fission products are vitrified.

Use of nuclear fuel material

This is the activity which uses nuclear fuel material for research or environmental analysis

purpose. Tailor made regulation is conducted based on the types and amount of material in use, because potential risk can be vary depend on method of use.

For self-management by users of non-regulated materials containing uranium or thorium, “Guideline for Ensuring Safety of Raw Materials and Products Containing Uranium or Thorium” is available on NRA’s website.

3. Overview of regulation for fuel cycle facility

3.1 Objectives of regulation

Objectives of regulation are protecting lives, health and property of people, conservation of the environment and national security, as well as ensuring peaceful use of nuclear material and reactor. To ensure public safety by preventing abnormal release of radioactive material in the case of severe accident of fuel cycle facility, or other nuclear disaster, and protecting nuclear material, regulations regarding refining, enrichment and fabrication, SF interim storage and reprocessing, are conducted. Regulation to implement international conventions or other international commitments is also conducted as well as regulation to address large scale natural disaster, terrorism and other criminal acts.

3.2 Overview of regulatory system

Fuel cycle regulation in Japan is composed of regulations on each activity. Potential risk on each activity is taken into account. (graded approach) In addition, multi-tier approach is taken to regulation of each activity. Regulation is conducted with following stages. Tailor made regulatory requirements considering IAEA Safety Standards and overseas regulations are applied to Japanese regulation.

Stages	Major regulatory items
1) Before starting activity	Siting, basic design and design policy, technical competency of operator
2) Design and construction	Detailed design, construction method
3) Before starting operation	Facility inspection include test run, method of operation, maintenance, accident response and others
4) Operation	Performance of facility, inspection of performance, inspection of operational safety
5) Before Decommission	Method of decommissioning and control
6) Decommissioning	Inspection of operational safety

Potential risk of fuel cycle facilities varies depending on the characteristics of facility because these facilities consist of multiple processes and type and the amount and form of nuclear fuel materials are different in each process. Therefore, extent of existence of nuclear material is wider than nuclear reactors, which concentrate nuclear materials in reactor cores. Based on

this fact, and considering the fact that facility design is different among the same kind of facilities and there are only two reprocessing facilities in Japan, applying uniform regulation to all kinds of fuel cycle facilities is not reasonable.

Fuel cycle regulation takes step by step approach. By introducing defense in depth concept, basic safety function such as maintaining sub-criticality, cooling fission products, containment of radioactive materials or other basic and common function required to ensure safety of fuel cycle facility are stipulated for each step indicated in above table. Details of regulation are referred to the safety examination for each facility.

The followings are the example of regulation on reprocessing.

Each step is recognized as an important regulatory hold point to proceed. This means proceeding to the next step is not allowed without obtaining regulator's confirmation on appropriateness of measures, when problem is identified.

In addition, licensees shall guarantee the quality of design, construction, operation, maintenance management and so on based on their own Quality Management System. Licensees are also required to use codes and standards endorsed by regulator at the design stage.

(1) Siting stage

The person who intends to conduct spent fuel reprocessing shall submit the document named "Application for Designation of Reprocessing Business" that basically explains safety design of the facility and technical competency of applicant to conduct reprocessing. NRA examines the application whether it comply with regulatory requirements. When the application meets the regulatory requirements, NRA grants "Designation" to the applicant.

Licensee (holder of above Designation) shall proceed with design, construction operation and maintenance based on the design policy and basic design permitted by NRA in licensing process. Followings are examined in licensing stage.

1) Safety design of the facility

Around 50 items of requirements are examined to confirm appropriateness of design policy for safety design and basic design by using Safety Analysis Document, in line with defense in depth principle indicated in "4. Outline of defense in depth principle for fuel cycle facilities." (Note: 50 items of requirement covers contents of Module 8.) In this process, site condition such as natural hazards (earthquake, tsunami, volcano, or other natural hazards), social circumstance (airplane crash, fire of petrochemical complex or other hazards) is determined. In this process, weather conditions, hydrographic conditions, hydrology, geological features/structures, population are also determined.

In addition, Limit Condition of Operation such as heat limit, criticality limit and others, are determined in this process.

Especially for reprocessing, chemical hazards in the facility are considered because reprocessing facility uses large amount of chemicals.

2) Technical competency

The organization for design, construction, operation and maintenance, engineers prepared for reprocessing, quality control activity, education and training, selection and deployment of certified personnel, and other necessary conditions are examined.

In addition, financial base to proceed with reprocessing program is examined.

(2) Design and construction stage

Licensee submits documents including detailed design of the facility, method of construction, descriptions of quality control on design and construction, drawings, and calculation sheets, and other necessary documents before starting construction. NRA examines those documents whether design and construction methods comply with design policy, basic design and quality control activity indicated in the Designation and regulatory requirements.

Regarding physical protection of nuclear material, physical protection facility is designed and constructed in this stage.

(3) Construction stage (inspection and test run)

Through construction period, performance of structures, systems and components are inspected. Inspection is conducted stage by stage, with timely manner. Single component test, system test, cold test and hot test are conducted. These tests are recognized as hold point. NRA confirms that those SCCs have necessary performance in the condition confirmed at the stages stated of siting and design.

To proceed to the next stage, licensee shall submit Operational Safety Program which identifies operational management (operation manual, limit condition of operation and other necessary conditions), maintenance management (includes inspection, checking, repair and other maintenance activities), emergency measures, and establishes operational safety management including manuals, implementing organization and quality control. NRA examines this document and grants approval. Same are applied when amend the document.

(4) Operation stage

In the operation stage, licensee shall comply with approved Operational Safety Program that stipulates maintenance, management, release criteria, radiation protection, operational safety organization, reporting and other operational safety activities. NRA conducts Operational Safety Inspection to check licensee’s conformity to Operational Safety Program four times in a year.

To check performance of facility, NRA conducts Periodic Facility Inspection in each year.
Based on the Nuclear Emergency Act, licensee shall conduct emergency response drills and report the result of those drills to NRA.
Licensee is required to submit Final Safety Analysis Report based on the latest knowledge.
Licensee is also required to submit aging technical evaluation report and preservation plan based on the latest knowledge and degradation status of the facility in question, with degradation monitoring.
In this stage, licensee shall conduct environmental monitoring such as radiation, earthquake, and weather condition or other necessary monitoring activities.

(5) Decision making stage for decommissioning

When licensee decides decommissioning, Decommissioning Plan that describes dismantling method, decontamination method, management of radioactive waste, management of nuclear fuel material or other necessary items for decommissioning, shall be submitted to NRA for approval.
Licensee shall capture the history of operational experience and contamination status in operation stage because those information can be basic condition for development of Decommissioning Plan.
Licensee shall amend Operational Safety Program to add new items necessary for decommissioning and to delete items unnecessary for decommissioning and submit it to NRA for approval.

(6) Decommissioning stage

At the implementation of decommissioning, licensee shall comply with approved Operational Safety Program and proceed with decommission. NRA confirms whether the licensee comply with the program. When licensee cannot comply with Operational Safety Program or accidents occur, Decommissioning Plan will be amended.

(7) Other regulation

In operation stage and decommissioning stage, NRA sets dose limit for general public and radiation worker at normal operation and in accident, incorporating ICRP Pub. 60 recommendations. Internal and external exposure control is also required. Regarding release of radioactive material from facility, NRA sets criteria in the Public Notice of NRA.

3.3 Outline of graded approach on fuel cycle regulation

Regulations of enrichment and fabrication activity are almost same system with those of reprocessing. NRA regulates enrichment or fabrication facility and reprocessing facility by same system with power reactor, although individual items for regulation based on the

potential risk are different.

On the other hand, use of nuclear material has relatively low risk compare with reprocessing in general, thus NRA doesn't apply the regulation such as Approval of Design and Construction Method, Periodic Facility Inspection to the users of nuclear material. In addition, NRA doesn't apply the regulation such as Approval of Operational Safety Program and Operational Safety Inspection for users who use lower risk material because potential risk of nuclear material use varies depending on the types and amount of nuclear material.

Regarding nuclear source material such as ore of uranium or thorium, NRA requires notification and conformity to regulatory requirements to the users, and no inspection required due to low risk.

In addition, NRA has the right to inspect the documents, question parties involved, give orders to any licensee in the case where the licensee may be in violation with the law.

4. Outline of Defense in Depth

The regulations on fuel cycle facilities take in Defense in Depth principle based on potential risk of the facilities. The following is the outline of reprocessing facilities regulation, for example.

Japan's reprocessing introduces PUREX process. In this process, spent fuel is dissolved in nitric acid solution, fuels are extracted and then purified. Fission products are vitrified.

Considering these characteristics of reprocessing facilities, abnormalities, as well as events that may release radioactive materials due to equipment failure, breakage or operation error in each process that contains radioactive materials are assumed to occur. Then, events such as function loss of important equipment to safety related systems including cooling system or hydrogen scavenging system, fire and explosion by organic solvent, or criticality accident are selected as design basis event and evaluated in safety analysis report. This means the regulation incorporates level 1 to 3 of Defense in Depth principle.

NRA also requires high credibility such as redundancy, diversity and independency for those designs against expansion of accident, and for mitigation of consequence, as well as design for detecting and observing those events.

NRA requires severe accident management measures and equipment to prevention of occurrence and expansion of severe accident, which is beyond external and internal events set as design basis considering the design condition such as design load, single failure or operation error: mitigation of consequence, in the beyond design basis condition.

Specifically, assuming severe accident such as criticality accident, dryness of high level radioactive liquid waste, hydrogen explosion, or fire and explosion of solvent, licensee shall equip facilities and equipment other than important equipment to safety related systems and evaluate them to prevent and mitigate the accident. Additionally, external causes such as earthquake or tsunami are assumed as accident occurrence factors besides internal cause such

as failure or operation error. Single occurrence, simultaneous occurrence and chain reaction are also assumed.

These requirements are stipulated in the NRA Ordinance on Standards of Location etc. of Reprocessing Facility. Off-site activities in emergency are stipulated in Nuclear Emergency Act.

Regarding Defense in Depth, level 1 to 4 are incorporated in the regulation based on Reactor Regulation Act, and level 5 is incorporated in Nuclear Emergency Act.

5. Safety significance of safety function

”Facility with safety functions” means the SSCs which have function of preventing radiological disorder to public and radiation worker, and SSCs for prevention of accident expansion, and for mitigation of radiological consequence. Facilities with safety functions are classified into two categories such as Prevention System (PS) and Mitigation System (MS) based on the safety function of those SSCs.

NRA requires high credibility in design of safety significant facility in terms of ensure safety function. Also, through its design, construction and testing and operational management, high credibility of this facility shall be maintained.

From view point of geographical characteristics of Japan, safety function for strong earthquake and tsunami shall be ensured. Safety significance regarding seismic safety has three categories such as S, B and C class based on possible radiological consequence.

Basically, safety significance facilities are classified as S class, as the highest category.

Sufficient performance based on significance of safety function and seismic safety significance in stages of design, construction and maintenance shall be maintained. NRA takes place appropriate inspection for each grade.

Major items regarding safety design of fuel cycle facility

Design Basis	Severe Accident
Criticality prevention of nuclear fuel material	Severe accident management facility
Shielding	Facility for prevention of expansion of criticality accident
Containment function	Prevention of evaporation of liquid waste by loss of cooling function
Prevention of damage by fire (including fire consequence analysis)	Prevention of explosion of hydrogen generated by radiological reaction
Foundation of facility	Prevention of fire or explosion of organic solvent
Prevention of damage by earthquake	Facility for spent fuel pool cooling
Prevention of damage by tsunami	Facility to address leakage of radioactive material
Prevention of damage by external impact	Facility to mitigate off-site release of radioactive material
Prevention of unauthorized entrance to reprocessing facility	Water supply facility necessary for addressing severe accident
Prevention of damage by flooding	Evaluation of abnormal occurrence or design basis accident
Prevention of damage by leakage of chemicals	Evaluation of severe accident
Prevention of inappropriate operation	
Safety exit for evacuation	
Storage facility of spent fuel	
Instrument and control facility	
Safety protection circuit	
Control room	
Radioactive waste processing facility	
Radioactive waste storage facility	
Radiation protection facility	
Monitoring facility	
Power source	
Emergency command base	
Communication facility	

9.5 Safety Case

“Safety Case” is defined by the IAEA glossary as in the following:
A collection of arguments and evidence in support of the safety of a facility or activity.
- This will normally include the findings of a safety assessment and a statement of confidence in these findings
- For a repository, the safety case may relate to a given stage of development. In such cases, the safety case should acknowledge the existence of any unresolved issues and should provide guidance for work to resolve these issues in future development stages.

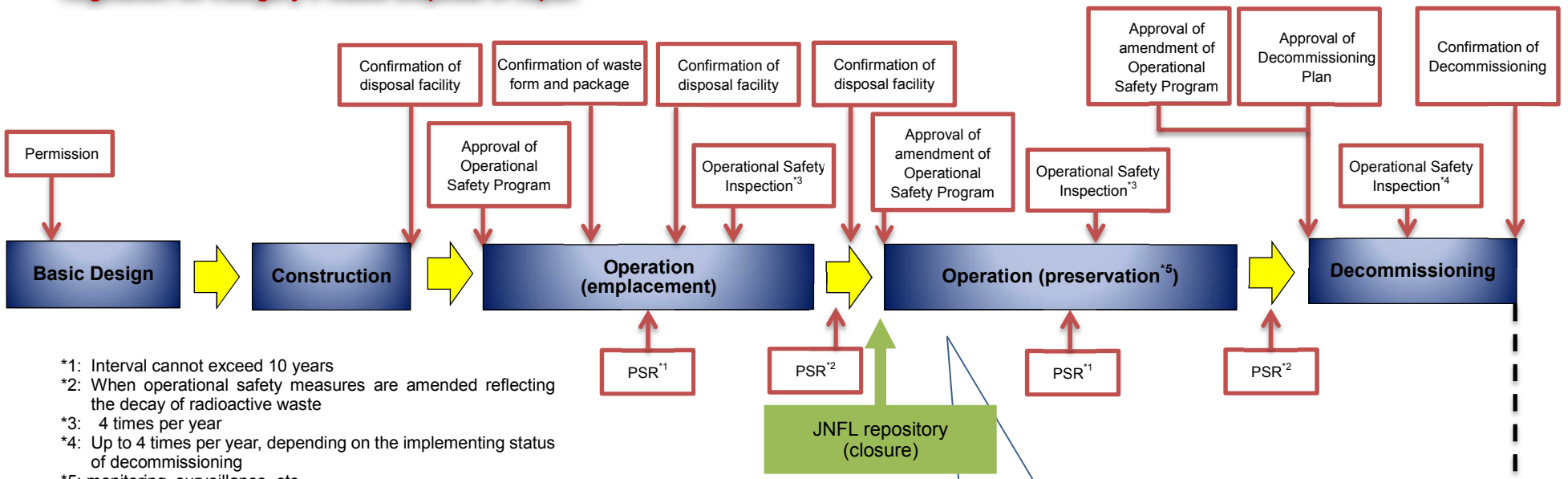
Among safety case as defined in the IAEA, Safety Case on which the NRA has the access under the regulation is information submitted by licensees in regulatory activities (licensing or inspection).

The following information is an example of Safety Case identified in the answers of Module 4.4 regarding Category II Waste Disposal (near surface disposal):

- Application for permission (or amendment of permission) on waste disposal activity
- Application for approval (or amendment of approval) on Operational Safety Program
- Periodic Safety Review
- Application for approval (or amendment of approval) on Decommissioning Plan
- Documents submitted by licensees in relation to review process of above applications

9.6 Relation between stages of Category II Waste Disposal and regulatory system

Regulation on Category II Waste Disposal in Japan



*1: Interval cannot exceed 10 years
*2: When operational safety measures are amended reflecting the decay of radioactive waste
*3: 4 times per year
*4: Up to 4 times per year, depending on the implementing status of decommissioning
*5: monitoring, surveillance, etc

Concept of Closure Process of IAEA

IAEA Safety Standards
- A disposal facility shall be closed in a way that provides for those safety functions that have been shown by the safety case to be important after closure.
- Plans for closure shall be well defined and practicable so that closure can be carried out safely at an appropriate time.

Regulation of Japan
- At closure stage, facility and operational safety measures are determined so that they meet regulatory requirements in the process of confirmation of disposal facility
- Operational safety measures are conducted after closure
- Facility is evaluated periodically based on latest technical knowledge and necessary measures are taken
- When no operational safety measures are necessary, licensee may apply Decommissioning Plan for NRA's approval

IAEA Safety Standards	Reactor Regulation Act
➢ Licensing conditions for closure shall be set and necessary activities shall be carried out to ensure that the conditions are met. ➢ Plans for closure shall be well defined and practicable. ➢ Plans shall be prepared for the period after closure to address institutional control. (Institutional control may be active (monitoring, surveillance, remedial work) or passive (land use control).)	☐ The NRA Ordinance on technical standards for Location, Structure and Facilities of Category II Waste Disposal (near surface disposal) stipulates the condition for closure of Category II Waste Disposal facility. NRA reviews the conformance of the disposal facilities with these conditions in the process of confirmation of disposal facility and operational safety inspection. ☐ Safety analysis of Category II waste disposal facility shall be included in the application of Category II Waste Disposal Permit. ☐ In the period after closure, licensee shall conduct necessary operational safety measures including walk-down and check in line with the provisions of Operational Safety Program

9.7 Use of Risk Information

It is pointed out that the severe accident management measures were not included in the regulatory requirement and risk information obtained from Probabilistic Risk Assessment (PRA) was insufficiently used in the regulation process before Fukushima Daiichi NPS accident occurred on March 2011. In September 2012, Nuclear Regulation Authority was founded and new regulatory requirements for NPPs were introduced in July 2013. The severe accident management measures were included in the new regulatory requirements. In the development process of the regulatory requirements, insights obtained from PRA were used to select accident sequence groups for which effectiveness of severe accident management measures is evaluated. In addition, it is obliged that licensee shall disclose PRA results in the efforts of voluntary measures for ensuring safety under the new regulatory requirements.
Currently, NRA accelerates its activities on the use of risk information in the following areas;

1) Identify accident sequence groups for effectiveness evaluation of severe accident management measures
2) Periodic safety assessment of continuous improvement
3) Safety performance indicator evaluation and safety significance evaluation in inspection area

1. Identify accident sequence groups for effectiveness evaluation of severe accident management measures

In the new regulation introduced in July 2013, severe accident management measures were included in the regulatory requirements. Licensees are obliged to install severe accident management facilities and to implement effectiveness evaluation of those facilities. Regarding accident sequence groups assumed in effectiveness evaluation process of severe accident management facilities, it is required that licensee shall consider additional accident sequence groups based on the PRA on individual plant, in addition to those designated by NRA.

Currently, NRA examines appropriateness of selection of accident sequence groups based on the PRA results in the conformity review of Reactor Establishment Permit.

2. Periodic safety assessment of continuous improvement

As a replace of previous Periodic Safety Review, the new regulation requires that licensee conducts periodic safety assessment of continuous improvement of NPPs and discloses results of the assessment to achieve continuous enhancement of safety. Conduct of PRA is required in this evaluation process.

NRA are developing guidelines to confirm appropriateness of PRA submitted by licensees, as

well as promoting researches on evaluation methods of PRA for new areas in addition to the areas previously developed such as internal events, shut-down stage, earthquakes and tsunamis.

(1) Researches on PRA evaluation method

- Internal fire PRA
- Internal flood PRA

(2) Guideline development for confirmation of appropriateness of PRA

- Power operation PRA
- Shut-down PRA
- Earthquake PRA
- Tsunami PRA
- Internal fire PRA
- Internal flooding PRA

3. Safety performance indicator evaluation and safety significance evaluation in inspection area

Nuclear and Industrial Safety Agency, former Japanese nuclear regulator, used risk information in the process of Safety Performance Indicator Evaluation and Safety Significance Evaluation, as a trial run of comprehensive evaluation of operational safety activities from 2009. This trial run was halted in March 2011 due to Fukushima Daiichi NPS accident. However, policy on use of risk information in inspection field was decided at regular session of Commission Meeting of NRA, and relevant activities were resumed. Based on this decision, NRA establishes Study Team on Use of Indicators, Measures and Risk information and Task Team on Evaluation Method. Since April 2014, method for use of risk information has been discussed.

(1) Consideration on Safety Performance Indicator

1) Setting threshold on unplanned scram

Current threshold of indicator on unplanned scram is set based on plant operation performance. On the other hand, currently, method to set threshold based on ΔCDF and ΔCDF/CDF under consideration of effect to reactor safety.

2) Consideration of mitigation performance indicator

Current Performance Indicator includes two mitigation indicators such as outage time ratio and failure numbers of safety system. Considering effect of transition of unreliability and non stand-by time of mitigating system due to malfunction, maintenance and testing to reactor safety, indicator based on PRA is determined with reference of Mitigation System Performance Indicator applied in United States.

3) Considering new indicators

Additional indicators are considered based on ΔCDF or ΔCDF/CDF which reflects

yearly operation performance.

(2) Considering Safety Significance Evaluation

1) Safety significance evaluation method based on risk information

Safety significance regarding inspection finding is decided based on the safety significance classification of SSCs in current Safety Significance Evaluation. On the other hand, currently, the method to set threshold based on ΔCDF and ΔCDF/CDF is under consideration of effect to reactor safety.

9.8 Comparison of Reactor Regulation Act and Industrial Safety and Health Act

	Reactor Regulation Act	Industrial Safety and Health Act
Objectives	This Act, in accordance with the spirit of the Atomic Energy Basic Act (Act No. 186 of 1955), is enacted for the purpose of providing necessary regulations on refining activities, fabricating and enrichment activities, interim storage activities, reprocessing activities and waste disposal activities, as well as on the installation and operation, etc. of reactors, while taking into consideration the possibility of large scale natural disasters, terror attacks, or other criminal acts, and also for the purpose of providing necessary regulations on the uses of international controlled material to execute treaties or other international agreements concerning the research, development and use of nuclear energy, in order to ensure that the uses of nuclear source material, nuclear fuel material and reactors are limited to peaceful ones, and at the same time, 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 place of activity where said nuclear facility is installed, or otherwise resulting from nuclear source material, nuclear fuel material, and reactors, and protecting nuclear fuel material, thereby contributing to protecting people's lives, health, and property, preserving the environment, and assuring national security. (Article 1)	The purpose of this Act is to secure, in conjunction with the Labor Standards Act (Act No. 49 of 1947), the safety and health of workers in workplaces, as well as to facilitate the establishment of comfortable working environment, by promoting comprehensive and systematic countermeasures concerning the prevention of industrial accidents, such as taking measures for the establishment of standards for hazard prevention, clarifying the safety and health management responsibility and the promotion of voluntary activities with a view to preventing industrial accidents. (Article 1)

<table>
<tr><th></th><th>Reactor Regulation Act</th><th>Industrial Safety and Health Act</th></tr>
<tr><td>Scope</td><td>Person who operates following activities; Refining, Enrichment and Fabrication, Research Reactor, Nuclear Power Reactor, Spent fuel Interim Storage, Reprocessing, Radioactive Waste Disposal and Nuclear Material Use</td><td>Operator of radiation work
1 Use of X-ray generators or inspection of those equipment
2 Use of cyclotron, betatron, or other charged particle accelerator, or inspection of those equipment which generate ionizing radiation
3 Degas of X-ray tube or kenotron, or inspection of those works which generate X-ray
4 Use of equipment which contains radioactive material designated by MHLW Ordinance
5 Use of radioactive material defined in previous provision or material contaminated by ionizing radiation generated from equipment defined in paragraph 2 above
6 Operation of nuclear reactor
7 Mining of nuclear source material in mine</td></tr>
<tr><td rowspan="2">Contents</td><td colspan="2">Common items
• Measurement and record of ambient dose in radiation controlled area (NRA Ordinance on Commercial Reactor Article 67, MHLW Ordinance on Radiation Protection Article 53 and 54)
• Establishment and access control of radiation controlled area (NRA Ordinance on Commercial Reactor Article 78, MHLW Ordinance on Radiation Protection Article 3)
• Storage facility and shipping container (NRA Ordinance on Commercial Reactor Article 88, MHLW Ordinance on Radiation Protection Article 37)
• Special education, operational safety education (NRA Ordinance on Commercial Reactor Article 92/1/8, MHLW Ordinance on Radiation Protection Article 52-7)
• Setting of dose limit for radiation worker (normal/emergency situation)(Public Notification of Dose Article 6, 8, MHLW Ordinance on Radiation Protection Article 4 and 7)
• Dose/concentration limit in facility (Public Notification of Dose Article 7, MHLW Ordinance on Radiation Protection Article 3-2)</td></tr>
<tr><td>Individual items
• Permit, inspection or other regulations of structure and equipment of radiation protection facility (Reactor Regulation Act Article 43-3-5, 43-3-11)
• Maintenance management of nuclear power reactor facility (NRA Ordinance on Commercial Reactors Article 81)
• Operational Safety Program (NRA Ordinance on Commercial Reactor Article 92)</td><td>• Individual dose measurement of workers (MHLW Ordinance on Radiation Protection Article 9)
• Wear the protection gear (MHLW Ordinance on Radiation Protection Article 38, 39, 40)
• Work manual (MHLW Ordinance on Radiation Protection Article 41-11, 41-12)
• Physical checkup (MHLW Ordinance on Radiation Protection Article 56)</td></tr>
</table>

9.9 Outline of inspection program of Japan

- Pre-service Inspection

  This is the inspection which confirms whether construction is implemented in line with approved design and regulatory requirements. NRA conducts Pre-service Inspection.
- Fuel Assembly Inspection (only for nuclear power reactor)

  This is the inspection which confirms whether fuel assembly is manufactured in line with approved design and regulatory requirements. NRA conducts Fuel Assembly Inspection.
- Welding Licensee's Inspection (only for nuclear power reactor)

  This inspection confirms whether welding meets regulatory requirements. Licensee are required to conducts this inspection and keep the records of the inspection.
- Welding Safety Management Review (only for nuclear power reactor)

  Licensee's responsible organization for welding licensee's inspection and inspection method are reviewed by NRA.
- Welding Inspection (other than nuclear power reactor)

  This inspection checks whether welding is conducted in line with approved welding method and regulatory requirement. Welding Inspection is conducted by NRA.
- Periodic Licensee's Inspection (only for nuclear power reactor)

  This inspection confirms that performance of important equipment in nuclear power reactor facility meets regulatory requirements. Licensee conducts this inspection periodically.
- Periodic Safety Management Review (only for nuclear power reactor)

  NRA reviews licensee's responsible organization and inspection method for conducting periodic licensee's inspection.
- Periodic Facility Inspection

  Regarding nuclear power reactors, NRA conducts inspection to confirm whether important equipment in nuclear power reactors meet regulatory requirements, periodically.

  For nuclear facilities other than nuclear power reactors, NRA conducts inspection to confirm whether important equipment in nuclear facility meet regulatory requirements, periodically.
- Operational Safety Inspection

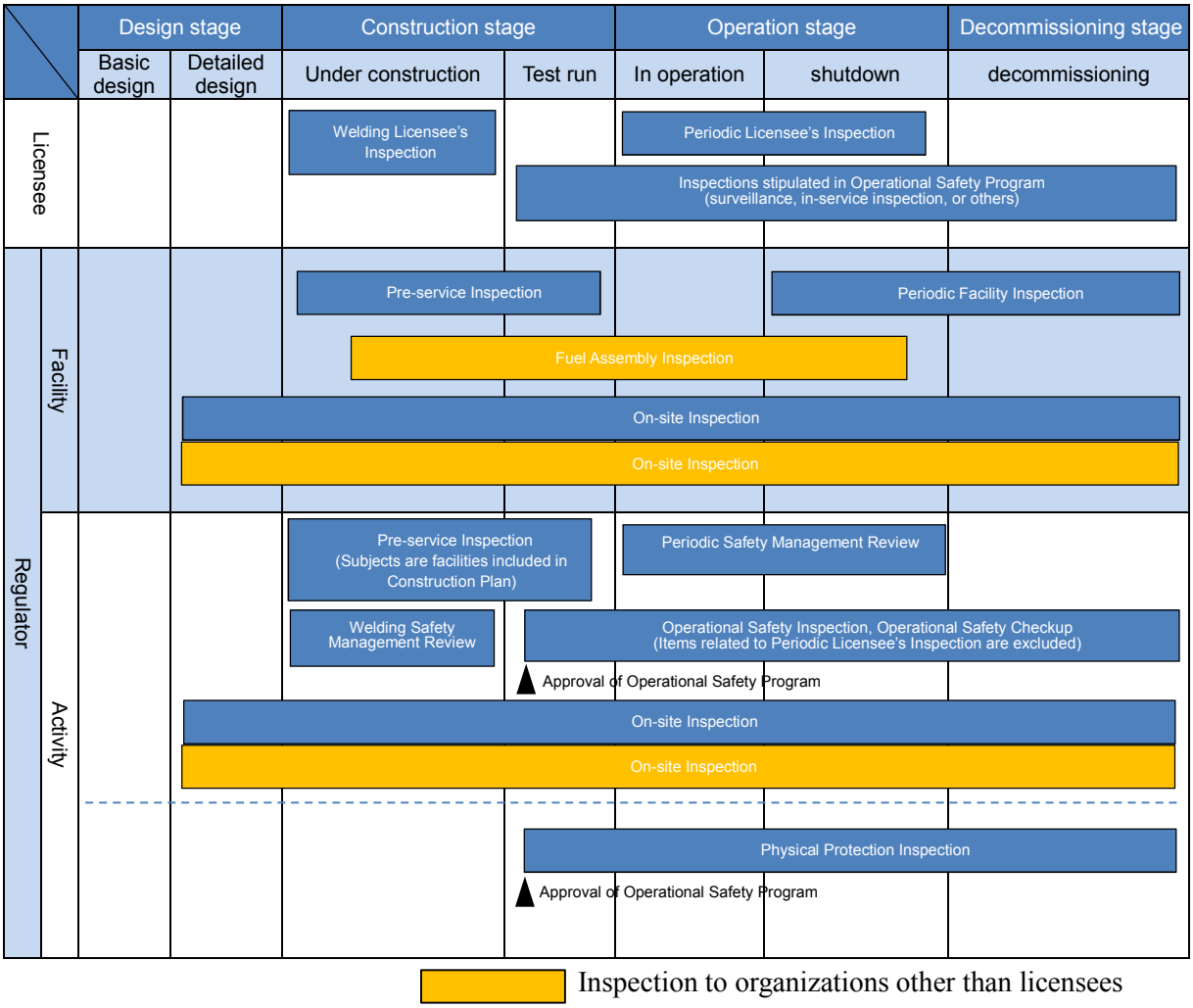
  NRA confirms licensee's compliance to the Operational Safety Program periodically and when licensee conducts certain activities important to safety.
- Operational Safety Checkup

  Based on the agreement with licensee, NRA conducts checkup the status of compliance. This is a voluntary and ad hoc activity without any legal basis.
- Physical Protection Inspection

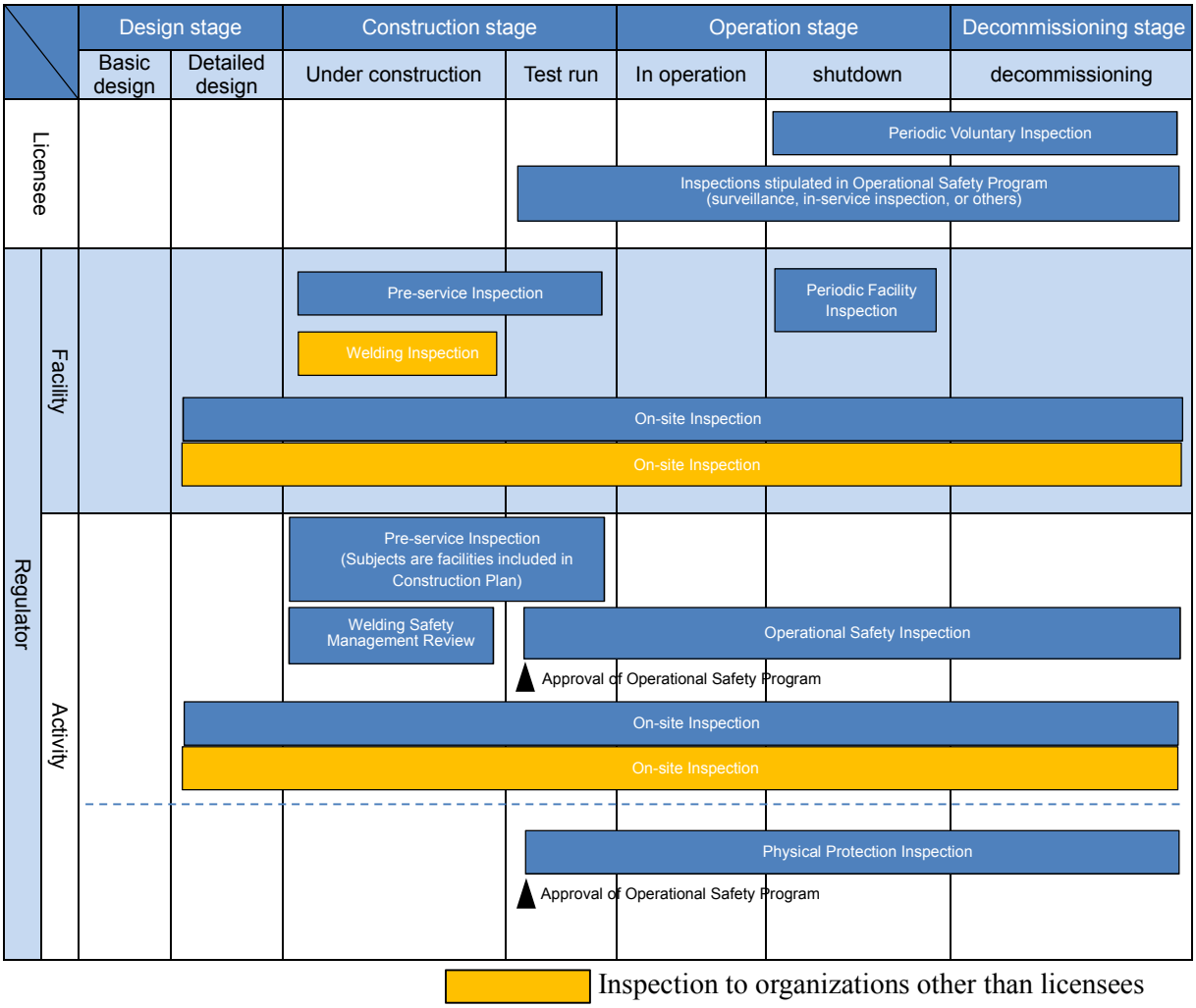
  NRA confirms status of compliance with Physical Protection Program.
- On-site Inspection

  NRA inspects licensees or vendors to confirm anything in the extent of law enforcement.

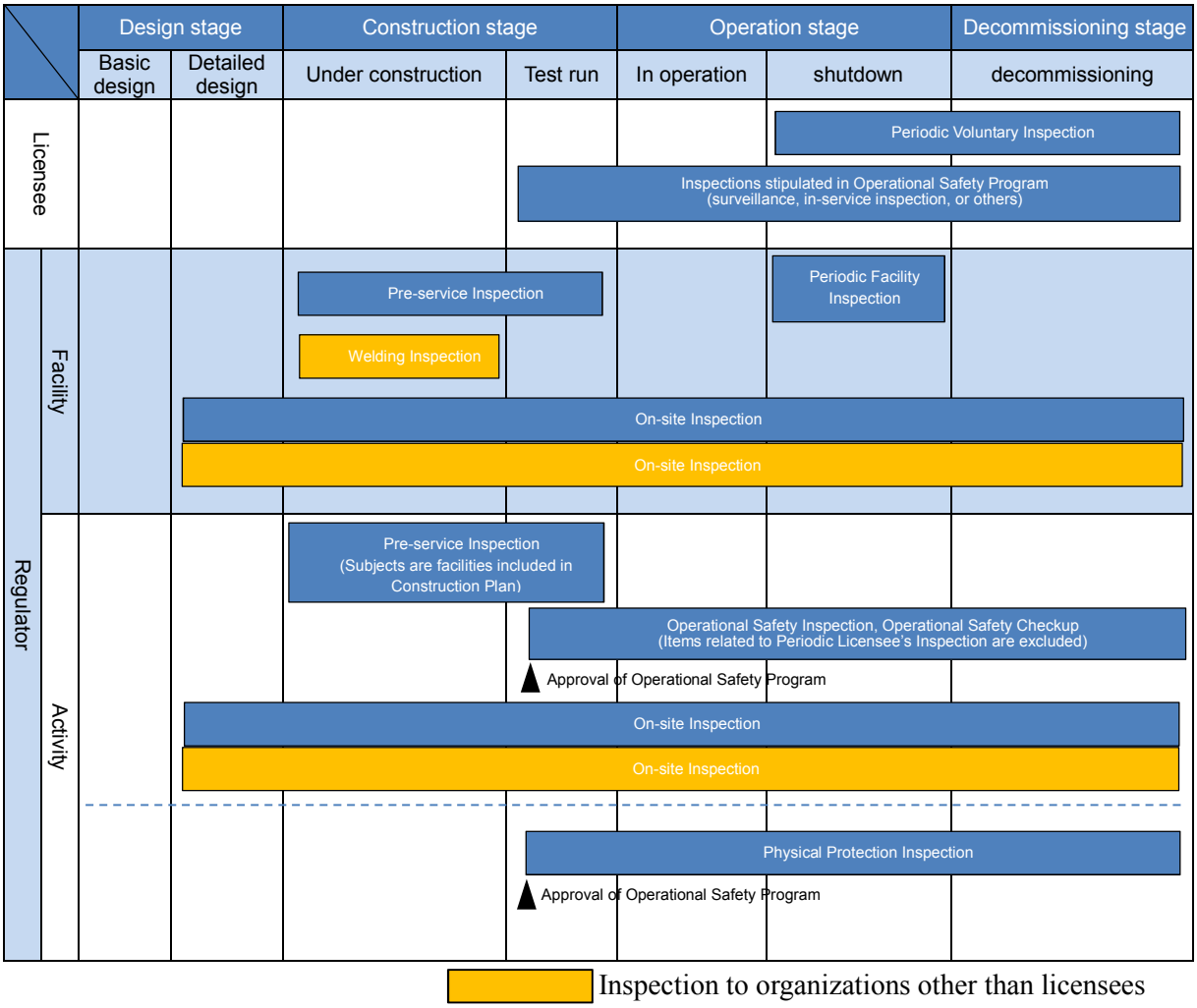
Inspection program for nuclear power reactors



Inspection program for nuclear fuel cycle facilities (Reprocessing/Enrichment and Fabrication)



Inspection program for research reactors



9.10 Prevention of degradation of licensee's safety culture

1. Background

In 2007, ministerial ordinance was amended to add systems for fostering safety culture to the Operational Safety program. In addition, NISA developed guideline for confirmation/evaluation of licensee's effort to prevent degradation of safety culture and organizational culture.

2. Element of Safety culture

Following 14 elements were set in the guidelines. Those elements are the criteria for degradation of safety culture and organizational culture.

1) Commitment of top management
2) Clear policy and implementation of senior management
3) Measures to avoid wrong decision
4) Attitude of continuous asking
5) Reporting culture
6) Good communication
7) Accountability and transparency
8) Compliance
9) Learning organization
10) Organization making effort to prevent accident/failure
11) Self-assessment or third party evaluation
12) Work management
13) Management of changes
14) Attitude and volition

3. Evaluation of prevention of safety culture degradation

At the beginning of each quarter, licensee submits report on safety culture fostering plan and list of degradation indicators for improvement. Nuclear Safety Inspector identifies findings or observations through watching licensee's daily activities and records. At the end of fiscal year, licensee submits safety culture fostering report to Nuclear Safety Inspector. Nuclear Safety Inspector identifies items that should strengthen effort of improvement by determining those observations. Through this process, Nuclear Safety Inspector decides improvement activities that licensee should conduct in next fiscal year based on the agreement with licensee. Results of this process is summarized as an overall evaluation sheet. At the middle stage and the end of fiscal year, NRA headquarters staff interview Nuclear Safety Inspector.

Since the establishment of the NRA, suggested improving measures for licensee, good practices and Nuclear Safety Inspector's overall observation are uploaded on the NRA

website.

4. Efforts after the Fukushima Daiichi NPS accident

Although efforts of fostering safety culture had been conducted since 2007, Fukushima Daiichi NPS accident could not be prevented. In the investigation report of Fukushima Daiichi NPS accident, issues on leadership or management of executives is identified frequently. On the other hand, it is unknown that how much extent of actual activities are captured by executives, in spite of the president supposed to provide policy of next fiscal year's activities based on the result of safety culture fostering activities. Therefore, NRA conducts researches for revision of guidelines to enhance awareness of executives regarding leadership or management.

In 2013, NRA issued the NRA Ordinance on Quality Control which includes requirement on establishment, implementation and maintain effectiveness of "quality control and supervision system" including mechanism of fostering safety culture. To this end, licensee shall proof that executives who have sufficient capability of leadership are involved in safety culture fostering activities.

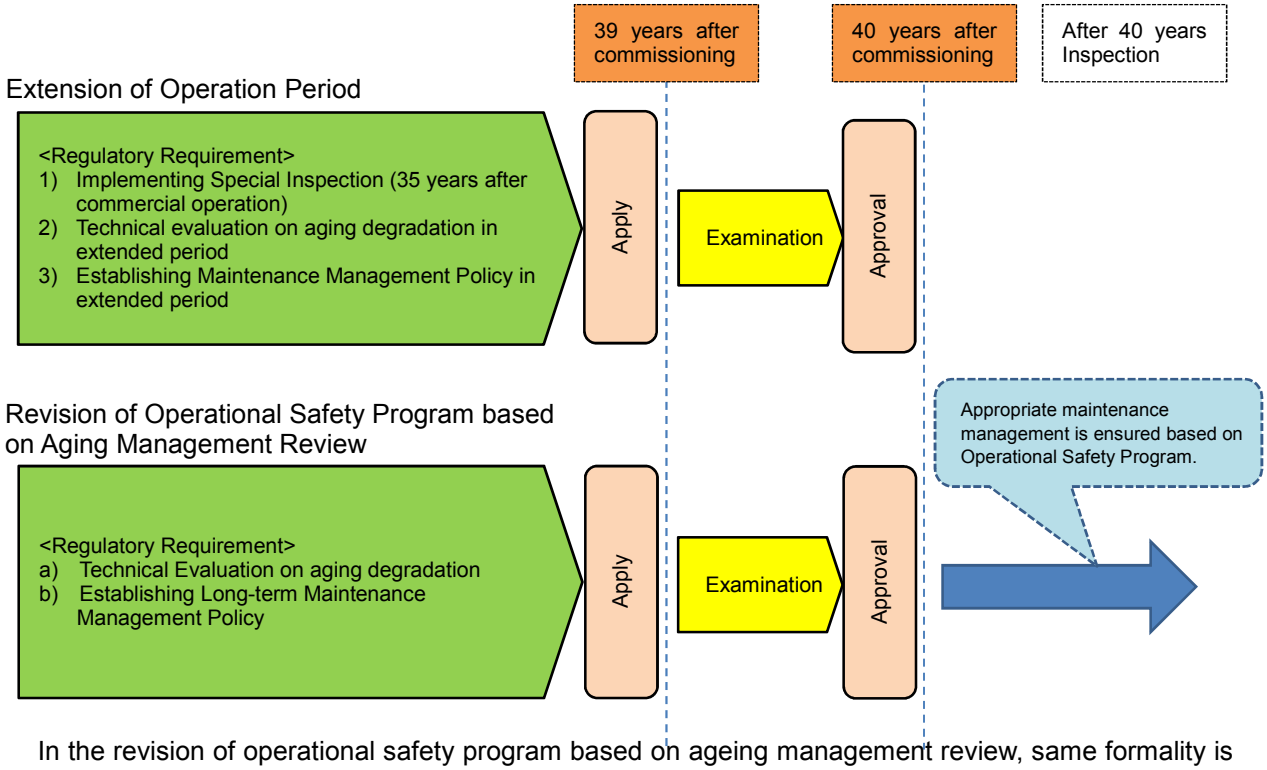
In addition, Chairman and Commissioners of NRA meet top managements of licensees to exchange views on fostering activities of safety culture, and confirm commitment of those top managements regarding safety culture fostering activities.

9.11 Relation between extension of limit of operation period and aging management

◆ Approval on extension of limit of operation period

Period of nuclear power reactor operation is limited to 40 years from completion of Pre-service Inspection, and extension is allowed only one time when NRA grants approval before concerned reactor reaches the limit of operation period. Upper limit of extension is 20 years. Actual period of extension is individually decided in each case of examination.

Concept of procedures regarding operation period extension and aging management



In the revision of operational safety program based on ageing management review, same formality is necessary at the point of 30 years and 50 years after commissioning in Aging Management

Note:
Contents of 2) and a), 3) and b) are the same.

9.12 Regulatory scheme of transport safety since TranSAS-7

1. Outcome of TranSAS-7

In 2005 Japan invited the 7th IAEA Transport Safety Appraisal Service (TranSAS-7) Mission to Japan. The Mission visited Japan from 4 to 16 December 2005, and its report, which included 2 recommendations, 8 suggestions and 14 good practices, was published on September 5, 2006.

The general conclusions of the TranSAS-7 were;

- The TranSAS appraisal team completed a comprehensive appraisal of the implementation of the Transport Regulations in Japan. The cooperation of the authorities in Japan, and of all those who participated in the discussions, was excellent and contributed to the success of the appraisal.
- The comprehensive legal framework, with responsibilities identified in considerable detail and with clear lines of authority to minimize overlap of responsibilities, provides a sound basis for the implementation of the Transport Regulations.
- Generally, the Transport Regulations are implemented in accordance with the IAEA requirements. Some areas for possible improvement have been identified. These areas relate mainly to reduction of regulations, quality management systems, training, compliance assurance and lessening the administrative burden for incorporating amendments to the International Maritime Dangerous Goods (IMDG) Code.
- The findings include a considerable number of good practices, in particular in the area of maritime transport.

2. TranSAS-7 Follow-up

After the TranSAS-7 Mission, continuous efforts were made to improve regulatory activities by following up the mission outcome. The results of the follow up were reported to the IAEA Transport Safety Standards Committee in its 19th Meeting (TRANSSC 19) in October 2009. The essence of the report was:

- **Recommendation 1:** All individual organizations that have not already do so should implement an appropriately defined training program for those staffs who are specifically engaged in transport safety activities.
  - ➔ Most of the relevant regulatory bodies started or enriched their training program for their personnel and the Nuclear Safety Commission also started a training program.
- **Recommendation 2:** Each regulatory body should review, and improve if necessary, its arrangements for implementing quality management in order to ensure that all regulatory activities related to radioactive material transport are covered.
  - ➔ All of the relevant regulatory bodies established or improved their management programs covering their own regulatory activities.

- **Suggestion 1:** A smaller number of regulations could be useful for daily work in regulatory and operational practice, so it is suggested that the regulatory body could try to reduce or merge them to the extent possible.
  - ➔ Ministry of Economy, Trade and Industry (METI) consolidated 4 generic letters for regulation of land transport.
- **Suggestion 2:** The METI and the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) could review their certificates, including the English version, regarding the information to be included according to para. 833 of the Transport Regulations and revise them accordingly.
  - ➔ All of relevant ministries amended relevant regulations and notices to include the said information in their certificates.
- **Suggestion 3:** The MLIT could revise its certificate in such a way that a direct reference to the MEXT certificate for the same package design is included. Alternatively, it could investigate the option of issuing a single certificate valid for both modes of transport.
  - ➔ The MLIT revised its certificate so that direct reference to certificates approved by other competent authorities for the same package design is included.
- **Suggestion 4:** The specifications for the thermal test according to para. 728 (a) of the Transport Regulations could be introduced into Japan's regulatory framework.
  - ➔ All of relevant regulations are amended according to the said provision.
- **Suggestion 5:** The regulatory body could review, and correct if necessary, its compliance programme for non-regulatory-body approved package designs to ensure that it also covers radiopharmaceuticals.
  - ➔ It was verified that the Ministry of Health, Labour and Welfare (MHLW) practices spot checks documents relevant to non-regulatory-body approved package design for radiopharmaceuticals.
- **Suggestion 6:** Although the efforts of Japan in producing the amendments to the IMDG Code in the Japanese language well in time are commendable, there could be benefit from a general updating provision in the national legislation whereby future amendments to the IMDG Code would enter into force without the need for a ministerial order being issued each time those amendments need to be implemented in Japan. Implementation of this suggestion would lessen the administrative burden on the relevant agencies.
  - ➔ It was recognized that incorporating general updating provision which possibly put burden for translation on internal consigners etc. is not appropriate in Japan's regulations.
- **Suggestion 7:** Japan's transport regulations could explicitly incorporate provisions making stowage and segregation applicable not only to transport but also to transit operations for radioisotopes and radiopharmaceuticals.

➔ It was verified that consignors who carry radioisotopes or radiopharmaceuticals are obliged to make plan for radiation protection during transport including stowage and segregation.

- **Suggestion 8:** Japan's transport regulations could more comprehensively incorporate provisions making quality assurance programmes mandatory for the transport of radioactive material.
  ➔ The relevant law is amended to impose quality assurance programmes obligatorily upon land transport business.

3. Establishment of the Nuclear Regulation Authority

On 19 September 2012 the Nuclear Regulation Authority (NRA) was established with incorporating the authority for nuclear safety from the METI and radioisotopes safety from the MEXT. Consequently, the regulatory responsibility for the safety of packages used for the land transport of radioactive material (i.e., nuclear material and radioisotopes) has been shifted to the NRA from these Ministries. Provisions related to the radioactive material transport in laws and regulations, etc., however, have not changed except change of competent authorities for packages used for land transport (see Figure 12).

Meanwhile the NRA keeps regulatory practices for radioactive material transport, the same as by METI and MEXT, the NRA provides personal training (see 4.3.1) and implements the management system (see 4.4.1 and 9.2) in an integrated manner under the programs established for the new organization.

The NRA serves as a member of TRANSSC, and chairs the Interagency Coordination Meeting for the Safe Transport of Radioactive Material. This Meeting was established in 1983 with competent ministries and agencies, and formerly chaired by the Nuclear and Industry Safety Agency of METI. Through the coordination function of this Meeting, the 2012 Edition of the IAEA Regulations for the Safe Transport of Radioactive Material (SSR-6), as the followings, was successfully implemented on 1 January 2015 for all the transport mode together (land, sea and air).

- Change of the definition of freight container to include open type containers and to delete the dimensional requirement
- Addition of a requirement for excepted package
- Change of a set of provisions related to package or consignment containing fissile material with some clarifications on requirements
  - Introduction of fissile excluded material
  - Amendment of requirements for fissile excepted material
  - Introduction of requirements for fissile package that need not to comply with design and approval requirements
- Addition of new excepted package type containing less than 0.1kg of UF_6 (UN 3507)

- Prohibition of UF_6 transport by post
- Addition of informative items to be displayed on overpacks
- Clarification of the alternative method to display the marking “RADIOACTIVE” for small packages
- Maintenance of the transport document by carrier for 3 months after transport
- Clarification on the application of the test specifications for special form radioactive material
- Clarification on the steel plate specification for drop test III

Legislations and Organizations for Transport of Radioactive Materials

Before NRA Established

Mode / Materials	Land transport		Sea transport	Air transport
	Packages	Transport method	Packages/ Transport method	Packages/ Transport method
Nuclear fuel materials, etc.	• Reactor Regulation Act • Ordinance on Transport of Nuclear Fuel Material, etc., outside Plants (METI, MEXT, MLIT)	• Reactor Regulation Act • Ordinance on Vehicle Transport of Nuclear Fuel Materials, etc. (MLIT)	• Ship Safety Act (MLIT)	• Civil Aeronautics Act (MLIT)
Radioisotopes, etc.	• Radiation Hazards Prevention Act • Ordinance for enforcement of Radiation Hazards Prevention Act (MEXT)	• Radiation Hazards Prevention Act • Transport of Radioisotopes, etc. (MLIT)		
Radiopharmaceuticals, etc.	• Pharmaceutical Affairs Act (MHLW)			

Note: Postal items are transported under the Postal Act, etc. (MIC)

After NRA Established

Mode / Materials	Land transport		Sea transport	Air transport
	Packages	Transport method	Packages/ Transport method	Packages/ Transport method
Nuclear fuel materials, etc.	• Reactor Regulation Act • Ordinance on Transport of Nuclear Fuel Material, etc., outside Plants (NRA)	• Reactor Regulation Act • Ordinance on Vehicle Transport of Nuclear Fuel Materials, etc. (MLIT)	• Ship Safety Act (MLIT)	• Civil Aeronautics Act (MLIT)
Radioisotopes, etc.	• Radiation Hazards Prevention Act • Ordinance for enforcement of Radiation Hazards Prevention Act (NRA)	• Radiation Hazards Prevention Act • Transport of Radioisotopes, etc. (MLIT)		
Radiopharmaceuticals, etc.	• Pharmaceutical Affairs Act (MHLW)			

Note: Postal items are transported under the Postal Act, etc. (MIC)

METI: Ministry of Economy, Trade and Industry
MEXT: Ministry of Education, Culture, Sports, Science and Technology
MLIT: Ministry of Land, Infrastructure, Transport and Tourism
MHLW: Ministry of Health, Labor and Welfare
MIC: Ministry of Internal Affairs and Communications
NRA: Nuclear Regulation Authority

Figure 12 Changes of Legislations and Organizations for Radioactive Material Transport

9.13 Correspondence Situation for Good Practice, Recommendation or Suggestion in 2007 IRRS Report

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
LEGILATIVE AND GOVERNMENTAL RESPONSIBILITIES	G1	Japan is continuously making efforts to update and improve its legislative and governmental framework with the aim of strengthening arrangements for nuclear safety in the light of incidents which have occurred and to prevent recurrence.	The Nuclear Regulation Authority (hereinafter, the "NRA") has been incorporating operational experiences of nuclear facilities in and outside Japan and overseas regulatory information into its regulations, through the technical information committee within the NRA. The NRA participates in various activities of the IAEA and other international bodies related to the preparation and revision of international safety standards, and take into consideration the advice of international advisors as a means to incorporate the overseas regulatory practices. In this way, the NRA continuously takes measures to update and improve the legal and regulatory framework.
	R1	The role of NISA as the regulatory body and that of NSC, especially in producing safety guides, should be clarified.	Upon the reorganization of nuclear safety regulatory bodies after the Fukushima Dai-ichi accident, the authorities and functions of the NSC and the NISA were integrated into the NRA. The NRA is solely responsible for regulatory standards and regulatory guides for nuclear safety regulations.
	S1	NISA is effectively independent from ANRE, in correspondence with the GS-R-1. This situation could be reflected in the legislation more clearly in future.	Upon the reorganization of nuclear safety regulatory bodies after the Fukushima Dai-ichi accident, the authorities and functions for nuclear safety regulations were integrated into the NRA. The NRA was established as a governmental body that is organizationally independent from the Agency for Natural Resources and Energy (ANRE) and other governmental bodies in charge of promoting nuclear power. The Atomic Energy Basic Act and the Act for Establishment of the Nuclear Regulation Authority clearly stipulate the independence of the NRA.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
RESPONSIBITIES AND FUNCTIONS OF THE REGULATORY BODY	G2	NISA's relationship management programme is a well-structured and comprehensive programme that reflects best practice.	The NRA has established the "The Policy on Ensuring the Operational Transparency" and the "Revised Rules on Interviews with Operators", and communicates with interested parties in accordance with these policies while ensuring high transparency.
	G3	Communication with the public at the local level is well-structured and allows for regular and positive exchanges between NISA, the public and the operators.	The NRA actively solicits public comments in order to provide opportunities for the public to submit their opinions. The NRA has started a dialogue with the licensees' top management on the issues such as efforts for safety improvement.
	G4	The public is involved in NISA's advisory subcommittees	
	S2	NISA should make further headway on developing a decision making process in order to obtain sound judgement based on information provided by licensees, inspectors or the public that can not necessarily be developed in a scientific manner. All issues should be taken into account so as to evaluate and judge safety in a more holistic manner.	The NRA carries out its responsibilities and functions while ensuring its effective independence. When drafting regulatory requirements, it hears a wide range of opinions from external experts through study groups and the general public through the solicitation of public comments. The NRA ensures consistency among regulations by holding internal discussions and making decisions based on the results of such discussions. When making decisions on safety, multiple personnel as well as managers and designated officials in charge of said decision confirm whether that decision conforms to the regulatory standards based on the latest knowledge, and they approve said decision before the NRA commission makes its final decision. Through this process, the NRA ensures consistency and stability in regulatory decisions.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
RESPONSIBITITIES AND FUNCTIONS OF THE REGULATORY BODY	S3	It is suggested that NISA continue to foster relations with industry that are frank and open, yet formal and based on mutual understanding and respect.	The NRA has established the "The Policy on Ensuring the Operational Transparency" and the "Revised Rules on Interviews with Operators," and currently communicates with interested parties in accordance with these policies while ensuring high transparency. Through these communication efforts, the NRA attempts to foster mutual understanding and respect in the relations with interested parties. The NRA has started a dialogue with the licensees' top management of licensees on the issues such as efforts for safety improvement.
ORGANIZATION OF THE REGULATORY BODY	G5	NISA has a proactive recruitment, training and staff development policy which allows it to achieve and maintain high technical competence.	The NRA has established strategies for recruitment and rotation as well as mid-career recruiting (to fill vacancies due to retirees) in order to carry out its necessary regulatory functions as a regulatory body. It specifies the necessary levels of knowledge and skills when recruiting personnel. The NRA has prepared the "Basic Policy for Human Resource Development of the NRA Personnel" and taken measures to improve the levels of necessary knowledge and skills as well as those to develop human resources to implement regulations in accordance with this policy. The self-assessment for IRRS finds that the NRA currently does not have sufficient numbers of qualified staff necessary to fulfill current demands of tasks. Therefore NRA will implement the Action Plans.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
ORGANIZATION OF THE REGULATORY BODY	R2	NISA should enhance its training requirements and programmes to ensure that all aspects of inspection requirements, such as attributes of quality management systems, and knowledge and awareness of licensees' operational requirements and practices are adequately included.	The NRA Human Resource Development Center plans to introduce a competence management system, which will clarify the necessary competence (knowledge, skills and attitude) for inspectors and to coordinate the training and OJT required developing and sustaining such competence so as to systematically train each staff as necessary. In doing so, the Center is considering grading inspectors into several levels according to their competence by clarifying the competences required for each level, in order to improve self-motivation of inspectors and to utilize such information for appropriate personnel allocation on the sites. The Center plans to introduce the full scale NPP simulator as a training tool and establish a program for inspectors in order to develop highly qualified inspectors who understand both the operation and functions of nuclear power plants. The self-assessment for IRRS finds the enhancement of inspectors' competency in accordance with the improvement of inspection system as a challenge, and the NRA will implement the Action Plans.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
ORGANIZATION OF THE REGULATORY BODY	R3	NISA should produce a workforce plan that clearly identifies its minimum staffing needs to discharge the functions and tasks required to secure effective nuclear safety regulation in Japan against the elements of its 5-year strategic plan. Future staff number / budget requests would then be based on these minimum resource needs plus any supplement required for additional work / tasks. (The workforce of the regulatory system NES/NISA and NSC should be ensured considering respective functions – mandates, completeness, fairness, neutrality, etc. – for this issue.)	The NRA has established strategies for recruitment and rotation as well as mid-career recruiting (to fill vacancies due to retirees) in order to carry out its necessary regulatory functions as a regulatory body. It specifies the necessary levels of knowledge and skills when recruiting personnel. Also, the NRA has prepared the "Basic Policy for Human Resource Development of NRA Personnel" and taken measures to improve the levels of necessary knowledge and skills as well as those to develop human resources to implement regulations in accordance with this policy. The self-assessment for IRRS finds that the NRA currently does not have sufficient numbers of qualified staff to fulfill these tasks, and the NRA will implement the Action Plans.
	S4	NISA should consider different staff / job rotation frequencies and patterns (particularly for its senior management) to further enhance its knowledge management and effectiveness of nuclear safety regulation of strategic and operational issues.	The self-assessment for IRRS finds the necessity to optimize the frequency and pattern of personnel rotation. Therefore NRA will implement the following Action Plans. Based on the basic policy for human resource development and the "Model Career Path for NRA Personnel" and combining with training in specialized areas so as to acquire the necessary competencies to carry out works effectively, the staff rotation frequencies and the patterns will be optimized taking into account the characteristics of works. (1) To enhance training in specialized areas taking into account career paths (2) To make the rotation intervals longer taking staff's specialties into consideration (3) To manage information on the competencies of each staff throughout their whole professional career and to develop the systems for this purpose

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
AUTHORIZATION	G6	NISA has developed detailed guidance on the format and content of documents to be submitted for licensing and approval applications and on the timing of such submittals in the different stages of the regulatory process. The regulations and standards to be applied in the different areas have clearly been stated.	The NRA has provided regulations and regulatory standards, which were established in response to the revision of the Reactor Regulation Act after the Fukushima Dai-ichi accident as clearly as possible. The NRA also has developed detailed regulatory guides, standards review plans and other guides, which provides detailed guidance on the format and content in the different stages of the regulatory process.
	S5	NISA should take care that the current IAEA safety standards are duly taken into account, especially regarding the development and updating of an overall safety analysis report or comparable overall safety documentation summarizing the overall licensing basis.	Based on the lessons from the Fukushima Dai-ichi accident, the NRA introduced new regulatory standards, which includes reinforcement of measures to prevent common cause failures (including earthquakes and tsunami) and introduction of mandatory measures to be taken against severe accidents, referring to the IAEA safety standards. The NRA introduced the standards for nuclear power plants in June 2013, and those for nuclear cycle facilities in December 2013. The NRA assigns responsible staff for international standards, who collects and analyzes the differences between its regulatory standards and the corresponding international standards.
	G7	The regulatory process for the different stages of the basic licence and the following approval is well structured and guided by detailed requirements and standards.	The NRA develops detailed requirements, regulatory standards and guides for the different stages of the regulatory process, same as the former Nuclear and Industrial Safety Agency.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
AUTHORIZATION	S6	Before approval of the operational safety program and start of routine operation, NISA should add an additional hold point for an integrated review of all factors essential for safety.	The Reactor Regulation Act requires licensees to obtain an NRA's approval of the operational safety program before commencing the operation of a new reactor. When granting such approval, the NRA reviews the application of operational safety program in an integrated manner from the perspective of disaster prevention based on its standard review plan for Operational Safety Program. The Reactor Regulation Ac does not allow licensees to use nuclear facility until it passes pre-service inspections. During each pre-service inspection, an integrated review is performed to check the completion of works in accordance with the approved plan for construction work (including the overall performance and a comprehensive check of the nuclear facility). As described above, the approval of operational safety program and pre-service inspections serve as hold points for integrated review of all factors essential for safety before commencing operation.
	G8	NISA has developed its own programme for the licensing review and established an internal rule to perform the review, to interact with NSC and other stakeholders and to document the results of its reviews.	The NRA develops a programme for licensing review (e.g. regulatory guide on the standards, procedure guidelines and review guidelines) The NRA establishes the Policy on Ensuring the Operational Transparency and the Rules for Document Management to perform reviews and to document the results of its reviews.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
AUTHORIZATION	S7	NISA should encourage licensees to use alternative technical solutions to achieve safety objectives at least as good as those required by current technical standards.	Regulatory technical standards are stipulated as a performance based requirements in order to reflect the latest technical knowledge and results of R&D. In this regards, the NRA has established the mechanism that can introduce voluntary consensus codes and standards into the regulations and guides as the technical specification. The NRA establishes a study team for technical evaluation of these code and standards. If the voluntary consensus codes and standards satisfy the regulatory standards or regulatory guides, the NRA may quote the endorsed voluntary consensus codes and standards into the regulatory guides.
	S8	NISA should continue to develop the systematic approach to investigate the consideration of beyond design basis accidents, and the complementary use of PSA and severe accident management in the assessment process for risk reduction purposes.	The amended Reactor Regulation Act after the Fukushima Dai-ichi accident reinforced the requirements to prevent and to mitigate severe accidents. The Act also introduced a back-fitting system that requires existing reactors to conform to the latest regulatory standards. The NRA is now conducting reviews of the conformity to the new regulatory standards in a systematic approach, including consideration against events exceeding design basis accidents, application of PRA and severe accident management.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
REVIEW AND ASSESSMENT	S9	The PSR should be made a more focused and periodic effort to give a comprehensive picture of the plant safety status at certain intervals. All its conclusions should be reported to NISA in one summary report.	The amended Reactor Regulation Act after the Fukushima Dai-ichi accident requires licensees to perform periodic safety assessment of continuous improvement, which replaces and expands the periodic safety reviews (PSR), and to notify and publish the results thereof. Such assessments for safety enhancement show the comprehensive picture of each plant's safety.
	G9	The support organization of the regulatory body, JNES, collects and maintains a database on observed ageing phenomena. New information from that database is regularly incorporated into a technical review manual that provides guidance on issues to be looked at as part of the ageing management review. The database and the technical review manual are at the disposal of both operating organizations and NISA, and the information is being used for improving maintenance programmes.	The NRA's Regulatory Standard and Research Department maintains a database transferred from Japan Nuclear Energy Safety Organization (JNES) and is collecting data on aging phenomena. This information from the database is used in the reviews for authorizations.
	S10	Consideration should be given to extending the systematic ageing management review to all plants in operation, and not just plants approaching the age of 30 years.	Licensees are required to conduct the evaluation of aging of all plants periodically, not only of the plants operating more than 30years, during the operational safety activities and in the periodic safety assessment of continuous improvement, which is newly introduced.
	G10	Major events that have indicated increased nuclear safety risks have been thoroughly investigated, and appropriate countermeasures have been enforced by revised regulations.	The NRA establishes the technical information committee as a means to incorporate operational experiences of nuclear facilities in and outside Japan as well as foreign regulatory information into regulations in Japan.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
REVIEW AND ASSESSMENT	R4	NISA should more clearly define its expectations with respect to reporting of minor inspection findings and events, in order to screen them for early identification before they become a problem.	In operational safety inspections, the NRA checks whether licensees take necessary process and carry out corrective/ preventive measures for non-conformities that are not legally required to report to the NRA, in accordance with the quality assurance program of their operational safety program. The NRA shares the result of these inspections and associated lessons among inspectors at the inspectors' meeting held quarterly. The NRA also publishes such results.
	R5	NISA should ensure by means of inspection and enforcement that licensees have efficient processes for learning lessons from other domestic facilities and from foreign facilities.	The Reactor Regulation Act and its ordinance require licensees to specify the method to share technical information on safety obtained from the maintenance work with other licensees in their operational safety programmes. As requirement for the approval of operational safety programs, the NRA stipulate that licensees shall clarify the way to use such shared information for the improvement of the operational safety in their operational safety programs. Licensees are required to reflect not only knowledge obtained in their own facilities but also from the facilities of other licensees in preventive measures. These requirements facilitate the establishment of a system in which information obtained from other licensees is reflected efficiently. These regulatory requirements are imposed on licensees to enable them to establish processes to learn lessons from other domestic and foreign facilities.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
REVIEW AND ASSESSMENT	S11	NISA should build on the positive experience gained in finding the past unreported events and should encourage open notification of any findings that may provide useful lessons to other licensees. It should also encourage effective use of the NUCIA database by all licensees.	The Reactor Regulation Act and its ordinance require licensees to specify the method to share technical information on safety obtained from the maintenance work with other licensees, in their operational safety programmes,. As requirement for the approval of operational safety programs, the NRA stipulate that licensees shall clarify the way to use such shared information for the improvement of the operational safety in their operational safety programs. The Reactor Regulation Act requires licensees to review the measures to improve the safety, which are based on the latest knowledge, and their effects in a periodic safety assessment of continuous improvement. By imposing these regulatory requirements on licensees, including utilizing the NUCIA database, the NRA ensures that licensees learn the lessons and acquire the latest technical knowledge from other domestic and foreign facilities.
	G11	NISA is proactive in seeking to include the assessment of human and organizational factors in its review and assessment and inspection practices	The NRA implements reviews and regulatory inspections taking human and organizational factors on operational safety into consideration.
	R6	NISA should continue to review and revise its regulatory requirements to provide assurance that licensees' operational safety programs are comprehensive and address all elements relevant to safety in operation, including human and organizational factors.	The NRA established the standard review plan of Commercial Reactors Operational Safety Program as its directive at the time of enforcing the amended Reactor Regulation Act after the Fukushima Dai-ichi accident. The NRA continuously reviews and revises the regulatory standards and regulatory guides.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
REVIEW AND ASSESSMENT	S12	NISA should continue to develop and implement regulatory guidance and criteria for consistently reviewing and inspecting arrangements to address the impacts of human and organizational factors on safety in operation.	The NRA ordinance requires the root cause analysis (RCA) of human and organizational factors that may lead to non-compliance based on the quality assurance program in their operational safety program. The NRA reviews the implementation of RCA through operational safety inspections. The NRA is making an effort to improve the operational safety inspections, and introduced interviews with licensee's employees to understand the actual condition of licensees' operational safety activities.
	S13	NISA should foster good mutual understanding and trust building between its staff and the licensees.	The NRA communicates with interested parties in accordance with the "The Policy on Ensuring the Operational Transparency" and the "Revised Rules on Interviews with Operators" while ensuring high transparency. Through these communication efforts, it attempts to foster mutual understanding and respect.
	G12	Implementation of risk informed regulation is supported by a systematic build up of infrastructure: basic concepts and policy, improvement and quality assurance of PSA models, and collection of failure data from all licensees for the use of these models.	Licensees are required to use probabilistic risk assessment (PRA) to identify accident sequences in the safety assessments of severe accidents. In order to determine whether licensees' safety assessments of severe accidents conform to the regulatory standards, the NRA requires licensees to submit reliable materials regarding the data on the analyses, etc. that enables the NRA to determine whether such assessments conform to the standards and the NRA reviews those materials.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
INSPECTION AND ENFORCEMENT	G13	NISA holds counterpart type meetings with all nuclear power plant inspectors four times per year to share inspection findings and lessons learned.	The NRA continues to hold inspectors' meetings to share inspection findings and lessons learned.
	G14	NISA has a well defined and clear code of ethics and conduct for individuals with a role in the nuclear power plant inspection programme.	The NRA has clarified NRA's Core Value and Principles, which consists of a mission and guiding principles for activities, and requires the staff of the NRA to maintain awareness of this philosophy. The NRA has established guidelines for actions related to a safety culture for regulatory bodies in the "Policy Statement on a Nuclear Safety Culture" and requires the staff of the NRA to implement these guidelines.
	R7	NISA should ensure that its inspectors have the authority to carry out inspections at the site at any time, on a continual basis. This would ensure that inspectors have unfettered access to the site, to interview people, and to request the review of documents at any time rather than just at prescribed inspection times as in the law. This applies to both the construction and the operational inspection programmes.	The self-assessment for IRRS finds the improvement of the regulatory inspection system as a challenge, and the NRA will implement the Action Plans.
	S14	NISA should establish a process with more flexibility to change the type and frequency of inspections without having to change the law.	

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
INSPECTION AND ENFORCEMENT	R8	NISA should clarify the basis for authority to shut down a nuclear power plant in instances of poor performance, in addition to the existing clear law for shutting down due to hardware type problems.	Pursuant to Article 43-3-23 of the Reactor Regulation Act, the NRA may order a licensee to take necessary safety measures such as to shut down a nuclear power station , etc. in the event where the licensee's poor operational performance falls under any of the followings. - When a licensee fails to conform to the standards for the establishment permit - When a licensee fails to conform to the relevant technical standards - When necessary safety measures are not taken
	S15	NISA modifies the inspection programme based on events, but should be more proactive in doing this on the basis of inspection findings not only from the nuclear power plant being inspected, but also from experiences derived from other nuclear power plants.	The self-assessment for IRRS finds the improvement of the regulatory inspection system as a challenge, and the NRA will implement the Action Plans.
	S16	NISA should include inspections of the vendor and the manufacturers' programmes for quality assurance in the construction inspection programme.	Pursuant to Article 68 of the amended Reactor Regulation Act after the Fukushima Dai-ichi accident, the NRA may perform on-site inspections of vendors. The Commercial Reactors QMS Ordinance stipulates the requirements for the plans for the construction work, and the NRA may review the status of procurement management of suppliers, constructors and manufactures in the licensees' QA Programs during the pre-service inspections.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
REGULATIONS AND GUIDES	G15	NISA is developing performance-based standards referring to IAEA safety standards.	Regulatory technical standards are stipulated as performance based requirements in order to reflect the latest technical knowledge and results of R&D. In this regards, the NRA has established the mechanism that can introduce voluntary consensus codes and standards into the regulations and guides as the technical specification. The assigned staff collects and analyzes the differences between its regulatory standards and the corresponding international standards.
	S17	The process used for developing and updating standards should continue to be streamlined, in order to reduce the time needed for their issue.	When the NRA develops or revises technical standards or guidelines, etc., it establishes a study group for that purpose and systematically carries out development or revision. The process used for developing and updating regulatory standards should be streamlined and continuously improved during the implementation of the NRA's management system.
	R9	As the regulatory body in Japan, NISA should take major responsibility in the development and endorsement of safety regulations and guides.	Upon the reorganization of nuclear safety regulatory bodies after the Fukushima Dai-ichi accident, the responsibilities for development and endorsement of nuclear safety regulations and guides were integrated into the NRA.
	G16	The establishment of the Quality Management Committee chaired by the Director General of NISA to oversee the activities necessary to establish as well as oversee the implementation of the QMS demonstrates the commitment that NISA attaches to this activity.	Pursuant to the NRA Management Rules, the NRA is responsible for the establishment and implementation of an effective management system as well as continuous improvement of said system's effectiveness, and management reviews should be performed annually to assess the implementation status and effectiveness of the management system.

Area	IAEA Comment Number	Good Practices, Recommendation or Suggestion	Correspondence Situation
REGULATIONS AND GUIDES	G17	NISA is being extremely proactive in seeking to establish a comprehensive Quality Management System.	The NRA established its Management Rules in such a manner that its Management System satisfies all requirements for managing the regulatory body. The NRA started its full implementation of the Management Rules from April 2015.
	R10	NISA should continue the development of its comprehensive Quality Management System (QMS) concentrating on its practical implementation rather than on its philosophical and conceptual rationale. As a first step the QMS should take account of the five year strategic plan in the formulation of the Divisional Annual Plans.	The NRA determines mid-term goals that are consistent with its Management Policy in accordance with the NRA Management Rules. It implements the management system after determining annual strategic plans that are consistent with its mid-term goals.
	S18	NISA should develop an overall process map, including interactions and relationships with NSC and JNES, in order to effectively and quickly implement the practical elements of the QMS. To be implemented effectively this will need to be undertaken in consultation with NSC and JNES.	Upon the reorganization of nuclear safety regulatory bodies after the Fukushima Dai-ichi accident, the authorities and functions of the NSC and the NISA were integrated into the NRA. The Japan Nuclear Energy Safety Organization (JNES) was also integrated into the NRA. The work processes supervised by each former organizations are now included in the NRA's management system.

9.14 Current status of the efforts being made by the NRA regarding to the observations and lessons in the Fukushima Daiichi Accident

Observations and lessons		Current Status
Vulnerability of the plant to external events	The assessment of natural hazards needs to be sufficiently conservative. The consideration of mainly historical data in the establishment of the design basis of nuclear power plants is not sufficient to characterize the risks of extreme natural hazards. Even when comprehensive data are available, due to the relatively short observation periods, large uncertainties remain in the prediction of natural hazards.	The NRA's new regulatory standards strengthen requirements for natural hazards, and require to evaluate design basis seismic ground motions and design basis tsunamis with sufficient conservation. More specifically, these require consideration of assumed large earthquake generated by sequential active faults, the study of the geological structure underneath the site, and M9-class inter-plate earthquakes, based on the recent findings including those from the Great East Japan Earthquake. The amended Reactor Regulation Act introduced periodic safety assessment of continuous improvement of the commercial power reactor facilities with a purpose of encouraging licensees' voluntary and continuous efforts to improve the nuclear safety. The licensees are required to periodically conduct the assessment of the implementation status and the effectiveness of the measures and to publish the results. In the Guideline for that Periodic Safety Assessment, licensees are required to take additional measures based on the feedback of operational experience in Japan and abroad and new findings, and to assess the risk of external hazards. The NRA has an established mechanism to share operation and regulatory experiences, and is explicitly committed to making safety side decisions and taking immediate action as stipulated in the Policy Statement on Nuclear Safety Culture in May 2015.
	The safety of nuclear power plants needs to be re-evaluated on a periodic basis to consider advances in knowledge, and necessary corrective actions or compensatory measures need to be implemented promptly.	
	The assessment of natural hazards needs to consider the potential for their occurrence in combination, either simultaneously or sequentially, and their combined effects on a nuclear power plant. The assessment of natural hazards also needs to consider their effects on multiple units at a nuclear power plant.	
	Operating experience programmes need to include experience from both national and international sources. Safety improvements identified through operating experience programmes need to be implemented promptly. The use of operating experience needs to be evaluated periodically and independently.	

Observations and lessons		Current Status
Application of the defense in depth concept	The defence in depth concept remains valid, but implementation of the concept needs to be strengthened at all levels by adequate independence, redundancy, diversity and protection against internal and external hazards. There is a need to focus not only on accident prevention, but also on improving mitigation measures.	The new regulatory standards attach importance to defence in depth against both internal and external hazards. These standards require measures to prevent beyond design basis accidents (BDBA), and to mitigate such accidents if they occur. For instance, even in BDBA, the measures for cooling the reactor and preventing the failure containment vessel functions are required.
	Instrumentation and control systems that are necessary during beyond design basis accidents need to remain operable in order to monitor essential plant safety parameters and to facilitate plant operations.	
Assessment of the failure to fulfil fundamental safety functions	Robust and reliable cooling systems that can function for both design basis and beyond design basis conditions need to be provided for the removal of residual heat.	
	There is a need to ensure a reliable confinement function for beyond design basis accidents to prevent significant release of radioactive material to the environment.	

Observations and lessons		Current Status
Assessment of beyond design basis accidents and accident management	Comprehensive probabilistic and deterministic safety analyses need to be performed to confirm the capability of a plant to withstand applicable beyond design basis accidents and to provide a high degree of confidence in the robustness of the plant design.	The new regulatory standards require the measures in response to BDBA, and to apply both deterministic and probabilistic safety assessment (PRA) in evaluating the effectiveness of such measures. PRA is also applied periodic safety assessment of continuous improvement which was introduced under the amendment of the act. Licensees are required to implement training programs and drills for the accident management in response to severe accidents. The NRA verifies that such training and drill programs are included in the operational safety programs and reviews their compliance through conducting operational safety inspections.
	Accident management provisions need to be comprehensive, well designed and up to date. They need to be derived on the basis of a comprehensive set of initiating events and plant conditions and also need to provide for accidents that affect several units at a multi-unit plant.	
	Training, exercises and drills need to include postulated severe accident conditions to ensure that operators are as well prepared as possible. They need to include the simulated use of actual equipment that would be deployed in the management of a severe accident.	
Assessment of regulatory effectiveness	In order to ensure effective regulatory oversight of the safety of nuclear installations, it is essential that the regulatory body is independent and possesses legal authority, technical competence and a strong safety culture.	Taking the lessons learned from the Fukushima Dai-ichi accident, the NRA was established as an affiliated agency of the Ministry of Environment to separate the roles of the promotion and regulation of the use of nuclear power to overcome problems involved in one administrative organization playing both roles at the same time. In order to ensure that the NRA independently exercises its authority in an impartial and neutral manner based on expertise, the NRA is defined as "Article-3 commission." * An Article-3 commission is a commission defined in Article 3 of the National Government Organization Law. Such commissions adopt a council system and secured to be able to independently exercise their authority without being instructed or supervised by a higher authority (for instance, the minister of the ministry that establishes the committee).

Observations and lessons		Current Status
Assessment of human and organizational factors	In order to promote and strengthen safety culture, individuals and organizations need to continuously challenge or re-examine the prevailing assumptions about nuclear safety and the implications of decisions and actions that could affect nuclear safety.	The NRA decided on its "Policy Statement on Nuclear Safety Culture" in May 2015 based on the lessons learned from the Fukushima Dai-ichi accident and it defines the code of conduct for fostering nuclear safety. The code of conduct stipulates “Questioning attitude” and more specifically that “All the personnel shall always 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”. The NRA has established a management system with reference to IAEA Safety Standards. The system has been fully operational since fiscal year 2015. Activities for fostering safety culture are included in the annual operational plan in line with the "Policy Statement on Nuclear Safety Culture." The management system is implemented and constantly improved through, e.g. the implementation of the annual operational plan, evaluations, improvement measures, and internal audits. In addition, the management rule requires systematic measures by clarifying necessary technologies and knowledge for properly carrying out the operation in consideration of their interrelation. The NRA requires licensees to include, in their operational safety programs, a system for ensuring compliance with the relevant acts, regulations and the operational safety program itself, including the involvement of management, as well as a system for fostering a safety culture. The NRA requires licensees to conduct periodic safety assessment of continuous improvement.
	A systemic approach to safety needs to consider the interactions between human, organizational and technical factors. This approach needs to be taken through the entire life cycle of nuclear installations.	

Observations and lessons		Current Status
Initial response in Japan to the accident	In preparing for the response to a possible nuclear emergency, it is necessary to consider emergencies that could involve severe damage to nuclear fuel in the reactor core or to spent fuel on the site, including those involving several units at a multi-unit plant possibly occurring at the same time as a natural disaster.	The new regulatory standards require any site with multiple reactor units to be able to respond to beyond design basis accidents in all of the units simultaneously. More specifically, necessary personnel, equipment, and materials must be deployed for each reactor to respond to any accident. In addition, important safety-related equipment may not be shared or interconnected between different reactor facilities unless such arrangement is intended for enhancing safety. Additional measures are also required for preventing hydrogen explosion of reactor buildings and deploying heavy machinery to remove debris in order to prevent a reactor from being affected by an adjacent reactor.
	The emergency management system for response to a nuclear emergency needs to include clearly defined roles and responsibilities for the operating organization and for local and national authorities. The system, including the interactions between the operating organization and the authorities, needs to be regularly tested in exercises.	
Protecting emergency workers	Emergency workers need to be designated, assigned clearly specified duties, regardless of which organization they work for, be given adequate training and be properly protected during an emergency. Arrangements need to be in place to integrate into the response those emergency workers who had not been designated prior to the emergency, and helpers who volunteer to assist in the emergency response.	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. The NRA introduced the requirements that licensees provide medical checkups to radiation workers after emergency works. The amendments will come into force in April 2016.

Observations and lessons		Current Status
Protecting the public	Arrangements need to be in place to allow decisions to be made on the implementation of predetermined, urgent protective actions for the public, based on predefined plant conditions.	Incorporating lessons from the Fukushima Dai-ichi accident and with reference to IAEA safety standards, the new framework for emergency preparedness and response (EPR) was established, which enables to ensure a decision making for a swift implementation of urgent protective actions. Under that framework, the classification of emergencies will be determined according to the plant conditions, and the urgent protective actions will be taken accordingly. These urgent protective actions may be extended or modified based on monitoring results. More specifically, the NRA EPR Guide clarifies the classification of nuclear emergencies and establishes the Emergency Action Levels (EALs). Evacuation measures will be taken for the residents inside Precautionary Action Zone (PAZ) by the decision based on plant conditions with reference to the EALs, which enables those residents to start evacuation before the release of radioactive materials.
	Arrangements need to be in place to enable urgent protective actions to be extended or modified in response to developing plant conditions or monitoring results. Arrangements are also needed to enable early protective actions to be initiated on the basis of monitoring results.	
	Arrangements need to be in place to ensure that protective actions and other response actions in a nuclear emergency do more good than harm. A comprehensive approach to decision making needs to be in place to ensure that this balance is achieved.	
	Arrangements need to be in place to assist decision makers, the public and others (e.g. medical staff) to gain an understanding of radiological health hazards in a nuclear emergency in order to make informed decisions on protective actions. Arrangements also need to be in place to address public concerns locally, nationally and internationally.	

Observations and lessons		Current Status
Radioactivity in the management	In case of an accidental release of radioactive substances to the environment, the prompt quantification and characterization of the amount and composition of the release is needed. For significant releases, a comprehensive and coordinated programme of long term environmental monitoring is necessary to determine the nature and extent of the radiological impact on the environment at the local, regional and global levels.	Once radioactive materials are released, emergency monitoring is swiftly carried out to make a decision on necessary protective actions based on the monitoring results with reference to the Operational Intervention Levels (OILs). For ensuring such monitoring, stationary monitoring posts, which are equipped with enhanced power supply and communication functions, are permanently installed within a 30-km radius of the nuclear facility (UPZ). Mobile monitoring posts and monitoring vehicles are also reinforced. Equipment for measuring the composition and concentration of radioactive materials in the atmosphere and environmental samples is also put in place. The government takes measures to monitor temporal changes in radiation dose of the environment and so forth and consolidate the results of monitoring during an emergency so that it can swiftly announce the results in an easy-to-understand manner.
Radiation exposure	A robust system is necessary for monitoring and recording occupational radiation doses, via all relevant pathways, particularly those due to internal exposure that may be incurred by workers during severe accident management activities. It is essential that suitable and sufficient personal protective equipment be available for limiting the exposure of workers during emergency response activities and that workers be sufficiently trained in its use.	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. The NRA introduced the requirements that licensees provide medical checkups to radiation workers after emergency works. The amendments will come into force in April 2016.

9.15 List of Authorizations

Table 1 : Authorizations and Inspections, etc. Required under the Reactor Regulation Act

Notes : Pursuant to the Reactor Regulation Act, the following NRA's authorizations or the passing of the following NRA's inspections, etc. are required to operate facilities and/or to conduct activities.

Facility type		Permission (or Designation) of installation (or activity) / Permission of its change	Approval of design and construction method / Approval of its change	Passing of pre-service inspection	Approval of design for fuel assembly	Passing of fuel assembly inspection	Approval of welding method	Passing of welding inspection	Passing and completion of periodic facility inspection	Approval of operational safety program / Approval of its change	Approval of extending the operating period to 40 years	Confirmation of waste disposal facilities and waste packages	Approval of tunnel closure	Confirmation of tunnel closure	Approval of decommissioning plans / Approval of its change	Confirmation of decommissioning completion
Nuclear power plants Commercial power reactors	Requirements for obtaining approval by regulatory body or passing (completing) inspections by regulatory body	○	○	○	○	○			○	○	○				○	○
	Basis in the Reactor Regulation Act	Reactor Regulation Act, Articles 43-3-5 to 43-3-8	Reactor Regulation Act, Article 43-3-9	Reactor Regulation Act, Article 43-3-11	Reactor Regulation Act, Article 43-3-12	Reactor Regulation Act, Article 43-3-12			Reactor Regulation Act, Article 43-3-15	Reactor Regulation Act, Article 43-3-24	Reactor Regulation Act, Article 43-3-32				Reactor Regulation Act, Article 43-3-33	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-33, paragraph (3) of the Act
	Provisions specifying scope of inspection			Reactor Regulation Act, Article 43-3-11, paragraph (1) (Processes to be inspected) Commercial Reactor Ordinance, Article 16 (Exemption) Commercial Reactor Ordinance, Article 17 (Implementation procedure) Commercial Reactor Ordinance, Article 19		Reactor Regulation Act, Article 43-3-12, paragraph (1) (Processes to be inspected) Commercial Reactor Ordinance, Article 24 (Exemption) Commercial Reactor Ordinance, Article 25 (Implementation procedure) Commercial Reactor Ordinance, Article 28			Reactor Regulation Act, Article 43-3-15, paragraph (1) (Facilities to be inspected) Commercial Reactor Ordinance, Article 45 (Matters to be inspected) Commercial Reactor Ordinance, Article 47 (Inspection period) Commercial Reactor Ordinance, Article 48 (Exemption) Commercial Reactor Ordinance, Article 49 (Implementation procedure) Commercial Reactor Ordinance, Article 51						

	Provisions specifying an application form and attached documents	(Application for installation permission) Reactor Regulation Act, Article 43-3-5, paragraph (2) Reactor Regulation Enforcement Cabinet Order, Article 20-2 Commercial Reactor Ordinance, Article 3 (Application for permission of changes) Reactor Regulation Act, Article 43-3-8, paragraph (1) Reactor Regulation Enforcement Cabinet Order, Article 20-3 Commercial Reactor Ordinance, Article 5	(Application for approval / Application for approval of changes) Reactor Regulation Act, Article 43-3-9, paragraphs (1) and (2) Commercial Reactor Ordinance, Article 9	Reactor Regulation Act, Article 43-3-11, paragraph (1) Commercial Reactor Ordinance, Article 15	Reactor Regulation Act, Article 43-3-12, paragraph (2) Commercial Reactor Ordinance, Article 26,	Reactor Regulation Act, Article 43-3-12, paragraph (1) Commercial Reactor Ordinance, Article 23			Reactor Regulation Act, Article 43-3-15, paragraph (1) Commercial Reactor Ordinance, Article 46	Reactor Regulation Act, Article 43-3-24, paragraph (1) Commercial Reactor Ordinance, Article 92	Reactor Regulation Act, Article 43-3-32, paragraph (4) Commercial Reactor Ordinance, Article 113				(Application for approval) Reactor Regulation Act, Article 43-3-33, paragraph (2) Commercial Reactor Ordinance, Article 116 (Application for approval of changes) Reactor Regulation Act, Article 12-6, paragraph (3), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-33, paragraph (3) of the Act Commercial Reactor Ordinance, Article 117	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-33, paragraph (3) of the Act Commercial Reactor Ordinance, Article 120
	Provisions specifying standards for approval or passing inspection	Reactor Regulation Act, Article 43-3-6Commercial Reactor Establishment Permit Ordinance	Reactor Regulation Act, Article 43-3-9, paragraph (3)Commercial Reactor Technical Standards OrdinanceCommercial Reactors QMS Ordinance	(Standards)Reactor Regulation Act, Article 43-3-11, paragraph (2)Commercial Reactor Technical Standards Ordinance(Delivery of certification of passing)Commercial Reactor Ordinance, Article 21	Commercial Reactor Technical Standards Ordinance, Article 23, paragraph (1)Commercial Reactors Fuel Technical Standard Ordinance	(Standards)Reactor Regulation Act, Article 43-3-12, paragraph (3)Commercial Reactors Fuel Technical Standard Ordinance(Delivery of certification of passing)Commercial Reactor Ordinance, Article 30			(Standards)Reactor Regulation Act, Article 43-3-15, paragraph (1)Commercial Reactor Technical Standards Ordinance(Delivery of certification of completion)Commercial Reactor Ordinance, Article 53	Reactor Regulation Act, Article 43-3-24, paragraph (2) Commercial Reactors Operational Safety Program Standards	Reactor Regulation Act, Article 43-3-32, paragraph (5)Commercial Reactor Ordinance, Article 114Commercial Reactor Technical Standards Ordinance				Reactor Regulation Act, Article 12-6, paragraph (4), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-33, paragraph (3) of the ActCommercial Reactor Ordinance, Article 119	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-33, paragraph (3) of the ActCommercial Reactor Ordinance, Article 121
Research reactors	Research and test reactors	Requirements for obtaining approval by regulatory body or passing (completing) inspections by regulatory body	○	○	○			○	○	○	○					○	○
		Basis in the Reactor Regulation Act	Reactor Regulation Act, Articles 23 to 26	Reactor Regulation Act, Article 27	Reactor Regulation Act, Article 28			Reactor Regulation Act, Article 28-2, paragraph (2)	Reactor Regulation Act, Article 28-2	Reactor Regulation Act, Article 29	Reactor Regulation Act, Article 37					Reactor Regulation Act, Article 43-3-2	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-2, paragraph (3) of the Act Research Reactors Ordinance, Articles

																16-10 to 16-11
	Provisions specifying scope of inspection			Reactor Regulation Act, Article 28, paragraph (1) (Matters to be inspected) Research Reactors Ordinance, Article 3-4 (Implementation procedure) Research Reactors Ordinance, Article 3-4-2				Reactor Regulation Act, Article 28-2, paragraph (1) (Facilities to be inspected) Research Reactors Ordinance, Article 3-7 (Processes to be inspected) Research Reactors Ordinance, Article 3-9 (Implementation procedure) Research Reactors Ordinance, Article 3-12-2	Reactor Regulation Act, Article 29, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Cabinet Order, Article 14 Research Reactors Ordinance, Article 3-14 (Implementation procedure) Research Reactors Ordinance, Article 3-15-2							
	Provisions specifying an application form and attached documents	(Application for installation permmission) Reactor Regulation Act, Article 23, paragraph (2)Reactor Regulation Enforcement Cabinet Order, Article 12Research Reactors Ordinance, Article 1-3(Application for permission of changes)Reactor Regulation Act, Article 26, paragraph (1)Reactor Regulation Enforcement Cabinet Order, Article 14Research Reactors Ordinance, Article 2	(Application for approval)Reactor Regulation Act, Article 27, paragraph (1)Research Reactors Ordinance, Article 3(Application for approval of changes)Reactor Regulation Act, Article 27, paragraph (2)Research Reactors Ordinance, Article 3-2	Reactor Regulation Act, Article 28, paragraph (1)Research Reactors Ordinance, Article 3-3			Reactor Regulation Act, Article 28-2, paragraph (2)Research Reactors Ordinance, Article 3-11, paragraph (1) and (2)	Reactor Regulation Act, Article 28-2Research Reactors Ordinance, Article 3-8	Reactor Regulation Act, Article 29Research Reactors Ordinance, Article 3-15	Reactor Regulation Act, Article 37, paragraph (1)Research Reactors Ordinance, Article 15, paragraph (1)					(Application for approval)Reactor Regulation Act, Article 43-3-2, paragraph (2) Research Reactors Ordinance, Article 16-6 (Application for approval of changes) Reactor Regulation Act, Article 12-6, paragraph (3), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-2, paragraph (3) of the ActResearch Reactors Ordinance, Article 16-7	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-2, paragraph (3) of the ActResearch Reactors Ordinance, Article 16-10

	Provisions specifying standards for approval or passing inspection	Reactor Regulation Act, Article 24 Research Reactors Establishment Permit Ordinance	Reactor Regulation Act, Article 27, paragraph (3) Research Reactors Ordinance, Article 3 Research Reactors Design Construction Ordinance Research Reactors QMS Ordinance	(Standards) Reactor Regulation Act, Article 28, paragraph (2) Research Reactors Technical Standards Ordinance (Delivery of certification of passing) Research Reactors Ordinance, Article 3-6			Reactor Regulation Act, Article 28-2, paragraph (2) Research Reactors Ordinance, Article 3-11, paragraph (3)	(Standards) Reactor Regulation Act, Article 28, paragraph (2) Research Reactors Welding Ordinance (Delivery of certification of passing) Research Reactors Ordinance, Article 3-13	(Standards) Reactor Regulation Act, Article 29, paragraph (2) Research Reactors Technical Standards Ordinance (Delivery of certification of passing) Research Reactors Ordinance, Article 3-16	Research Reactors Operational Safety Program Standards					Article 12-6, paragraph (4), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-2, paragraph (3) of the Reactor Regulation Act Research Reactors Ordinance, Article 16-9	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-2, paragraph (3) of the Act Research Reactors Ordinance, Article 16-11
Nuclear fuel cycle facilities	Requirements for obtaining approval by regulatory body or passing (completing) inspections by regulatory body	○ (Designation of activity)								○					○	○
Refining nuclear source or nuclear fuel materials facilities	Basis in the Reactor Regulation Act	Reactor Regulation Act, Articles 3 to 6								Reactor Regulation Act, Article 12					Reactor Regulation Act, Article 12-6, paragraphs (1) to (7)	Reactor Regulation Act, Article 12-6, paragraphs (8) and (9)
	Provisions specifying scope of inspection	(Application for designation of activity) Reactor Regulation Act, Article 3, paragraph (1) Reactor Regulation Enforcement Cabinet Order, Article 4 Refining Ordinance, Article 1-2 (Application for change of activity) Reactor Regulation Act, Article 6, paragraph (1) Reactor Regulation Enforcement Cabinet Order, Article 5 Refining Ordinance, Article 2								Reactor Regulation Act, Article 12, paragraph (1) Refining Ordinance, Article 7, paragraph (1)					(Approval of plan) Reactor Regulation Act, Article 12-6, paragraph (2) Refining Ordinance, Article 7-5-3 (Approval of changes) Reactor Regulation Act, Article 12-6, paragraph (3) Refining Ordinance, Article 7-5-4	Reactor Regulation Act, Article 12-6, paragraph (8) Refining Ordinance, Article 7-5-7
	Provisions specifying an application form and attached documents	Reactor Regulation Act, Article 4													Reactor Regulation Act, Article 12-6, paragraph (4) Refining Ordinance, Article 7-5-6	Reactor Regulation Act, Article 12-6, paragraph (8) Refining Ordinance, Article 7-5-8
	Provisions specifying standards for approval or passing inspection															

Fuel fabricating and Enrichment facilities	Requirements for obtaining approval by regulatory body or passing (completing) inspections by regulatory body	○	○	○			○	○	○	○					○	○
	Basis in the Reactor Regulation Act	Reactor Regulation Act, Articles 13 to 16	Reactor Regulation Act, Article 16-2	Reactor Regulation Act, Article 16-3			Reactor Regulation Act, Article 16-4, paragraph (2)	Reactor Regulation Act, Article 16-4	Reactor Regulation Act, Article 16-5	Reactor Regulation Act, Article 22					Reactor Regulation Act, Article 22-8	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 22-8, paragraph (3) of the Act Fuel Fabrication Ordinance, Articles 9-9 to 9-10
	Provisions specifying scope of inspection			Reactor Regulation Act, Article 16-3, paragraph (1)(Matters to be inspected)Fuel Fabrication Ordinance, Article 3-6(Implementation procedure)Fuel Fabrication Ordinance, Article 3-6-4				Reactor Regulation Act, Article 16-4, paragraph (1)(Facilities to be inspected)Fuel Fabrication Ordinance, Article 3-8(Processes to be inspected)Fuel Fabrication Ordinance, Article 3-10(Exemption)Fuel Fabrication Ordinance, Article 3-11(Implementation procedure)Fuel Fabrication Ordinance, Article 3-13-2	Reactor Regulation Act, Article 16-5, paragraph (1)(Facilities to be inspected)Reactor Regulation Enforcement Cabinet Order, Article 9Fuel Fabrication Ordinance, Article 3-15(Implementation procedure)Fuel Fabrication Ordinance, Article 3-16-3						
	Provisions specifying an application form and attached documents	(Application for permission of activity) Reactor Regulation Act, Article 13 Reactor Regulation Enforcement Cabinet Order, Article 7, paragraph (2) Fuel Fabrication Ordinance, Articles 2 and 3 (Application for permission of changes) Reactor Regulation Act, Article 16 Reactor Regulation Enforcement Cabinet Order, Article 8 Fuel Fabrication Ordinance, Article 3	(Application for approval) Reactor Regulation Act, Article 16-2, paragraph (1) Fuel Fabrication Ordinance, Article 3-2 (Application for approval of changes) Reactor Regulation Act, Article 16-2, paragraph (2) Fuel Fabrication Ordinance, Article 3-3	Reactor Regulation Act, Article 16-3, paragraph (1) Fuel Fabrication Ordinance, Article 3-5			Reactor Regulation Act, Article 16-4, paragraph (2) Fuel Fabrication Ordinance, Article 3-12, paragraph (1) and (2)	Reactor Regulation Act, Article 16-4, paragraph (1) Fuel Fabrication Ordinance, Article 3-9	Reactor Regulation Act, Article 16-5, paragraph (1) Fuel Fabrication Ordinance, Article 3-16	Reactor Regulation Act, Article 22, paragraph (1) Fuel Fabrication Ordinance, Article 8					(Application for approval) Reactor Regulation Act, Article 22-8, paragraph (2) Fuel Fabrication Ordinance, Article 9-5 (Application for approval of changes) Reactor Regulation Act, Article 12-6, paragraph (3), as applied mutatis mutandis by replacing certain terms pursuant to Article 22-8, paragraph (3) of the Act Fuel Fabrication Ordinance, Article	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 22-8, paragraph (3) of the Act Fuel Fabrication Ordinance, Article 9-9

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	Provisions specifying standards for approval or passing inspection	Reactor Regulation Act, Article 14Fuel Fabrication Permit Ordinance	Reactor Regulation Act, Article 16-2, paragraph (3)Fuel Fabrication Design Construction OrdinanceFuel Fabrication QMS Ordinance	(Standards)Reactor Regulation Act, Article 16-3, paragraph (2)Fuel Fabrication Facilities Technical Standard Ordinance(Delivery of certification of passing)Fuel Fabrication Ordinance, Article 3-7			Reactor Regulation Act, Article 16-4, paragraph (3)Fuel Fabrication Ordinance, Article 3-12, paragraph (3)	(Standards)Reactor Regulation Act, Article 16-4, paragraph (3)Welding Standard for Fabrication Facilities, Reprocessing Facilities, Specific Waste Interim Storage and Treatment Facilities (Delivery of certification of passing)Fuel Fabrication Ordinance, Article 3-14	(Standards)Reactor Regulation Act, Article 16-5, paragraph (2)Fuel Fabrication Facilities Technical Standard Ordinance(Delivery of certification of passing)Fuel Fabrication Ordinance, Article 3-17	Standard Review Plan on Approval of Operational Safety Program of Fuel Fabrication Facilities					Reactor Regulation Act, Article 12-6, paragraph (4), as applied mutatis mutandis by replacing certain terms pursuant to Article 22-8, paragraph (3) of the ActFuel Fabrication Ordinance, Article 9-8	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 22-8, paragraph (3) of the ActFuel Fabrication Ordinance, Article 9-10
Spent fuel interim storage facilities	Requirements for obtaining approval by regulatory body or passing (completing) inspections by regulatory body	○	○	○			○	○	○	○					○	○
	Basis in the Reactor Regulation Act	Reactor Regulation Act, Articles 43-4 to 43-7	Reactor Regulation Act, Article 43-8	Reactor Regulation Act, Article 43-9			Reactor Regulation Act, Article 43-10, paragraph (2)	Reactor Regulation Act, Article 43-10	Reactor Regulation Act, Article 43-11	Reactor Regulation Act, Article 43-20					Reactor Regulation Act, Article 43-27	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-27, paragraph (3) of the Act

	Provisions specifying scope of inspection			Reactor Regulation Act, Article 43-9, paragraph (1) (Matters to be inspected) Spent Fuel Storage Ordinance, Article 8 (Implementation procedure) Spent Fuel Storage Ordinance, Article 9-3				Reactor Regulation Act, Article 43-10, paragraph (1) and (4) (Facilities to be inspected) Spent Fuel Storage Ordinance, Article 11 (Processes to be inspected) Spent Fuel Storage Ordinance, Article 13 (Exemption) Spent Fuel Storage Ordinance, Article 14 (Implementation procedure) Spent Fuel Storage Ordinance, Article 16-2	Reactor Regulation Act, Article 43-11, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Cabinet Order, Article 24 (Implementation procedure) Spent Fuel Storage Ordinance, Article 20-3						
	Provisions specifying an application form and attached documents	(Application for permission of activity)Reactor Regulation Act, Article 43-4, paragraph (2)Reactor Regulation Enforcement Cabinet Order, Article 22Spent Fuel Storage Ordinance, Article 2(Application for permission of changes)Reactor Regulation Act, Article 43-7, paragraph (1)Reactor Regulation Enforcement Cabinet Order, Article 23Spent Fuel Storage Ordinance, Article 3	(Application for approval)Reactor Regulation Act, Article 43-8, paragraph (1)Spent Fuel Storage Ordinance, Article 4(Application for approval of changes)Reactor Regulation Act, Article 43-8, paragraph (2)Spent Fuel Storage Ordinance, Article 5	Reactor Regulation Act, Article 43-9, paragraph (1)Spent Fuel Storage Ordinance, Article 7			Reactor Regulation Act, Article 43-10, paragraph (2)Spent Fuel Storage Ordinance, Article 15, paragraph (1) and (2)	Reactor Regulation Act, Article 43-10, paragraph (1) and (4)Spent Fuel Storage Ordinance, Article 12 and Article 16	Reactor Regulation Act, Article 43-11, paragraph (1)Spent Fuel Storage Ordinance, Article 19	Reactor Regulation Act, Article 43-20, paragraph (1)Spent Fuel Storage Ordinance, Article 37					(Application for approval)Reactor Regulation Act, Article 43-27, paragraph (2)Spent Fuel Storage Ordinance, Article 43-3-2(Application for approval of changes)Reactor Regulation Act, Article 12-6, paragraph (3), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-27, paragraph (3) of the ActSpent Fuel Storage Ordinance, Article 43-4	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-27, paragraph (3) of the ActSpent Fuel Storage Ordinance, Article 43-7
	Provisions specifying standards for approval or passing inspection	Reactor Regulation Act, Article 43-5 Spent Fuel Storage Permit Ordinance	Reactor Regulation Act, Article 43-8, paragraph (3) Spent Fuel Storage Design Construction Ordinance Spent Fuel Storage QMS Ordinance	(Standards) Reactor Regulation Act, Article 43-9, paragraph (2) Spent Fuel Storage Technical Standards Ordinance (Delivery of certification of passing) Spent Fuel Storage Ordinance, Article 10			Reactor Regulation Act, Article 43-10, paragraph (2) Spent Fuel Storage Ordinance, Article 15, paragraph (3)	(Standards) Reactor Regulation Act, Article 43-10, paragraph (3) and (5) Welding Standards for Spent Fuel Storage Facilities (Delivery of certification of passing) Spent Fuel Storage Ordinance, Article 17	(Standards) Reactor Regulation Act, Article 43-11, paragraph (2) Spent Fuel Storage Technical Standards Ordinance (Delivery of certification of passing) Spent Fuel Storage Ordinance, Article 21	Spent Fuel Storage Operational Safety Program Standard					Reactor Regulation Act, Article 12-6, paragraph (4), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-27, paragraph (3) of the Act Spent Fuel Storage Ordinance, Article 43-6	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-27, paragraph (3) of the Act Spent Fuel Storage Ordinance, Article 43-8

Reprocessing facilities	Requirements for obtaining approval by regulatory body or passing (completing) inspections by regulatory body	○ (Designation of activities)	○	○			○	○	○	○					○	○
	Basis in the Reactor Regulation Act	Reactor Regulation Act, Articles 44 to 44-4	Reactor Regulation Act, Article 45	Reactor Regulation Act, Article 46			Reactor Regulation Act, Article 46-2, paragraph (2)	Reactor Regulation Act, Article 46-2	Reactor Regulation Act, Article 46-2-3	Reactor Regulation Act, Article 50					Reactor Regulation Act, Article 50-5	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 50-10, paragraph (3) of the Act
	Provisions specifying scope of inspection			Reactor Regulation Act, Article 46, paragraph (1) (Matters to be inspected) Reprocessing Ordinance, Article 6 (Implementation procedure) Reprocessing Ordinance, Article 6-4				Reactor Regulation Act, Article 46-2, paragraph (1) (Facilities to be inspected) Reprocessing Ordinance, Article 7-2 (Processes to be inspected) Reprocessing Ordinance, Article 7-4 (Exemption) Reprocessing Ordinance, Article 7-5 (Implementation procedure) Reprocessing Ordinance, Article 7-7-2	Reactor Regulation Act, Article 46-2-3, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Cabinet Order, Article 28 Reprocessing Ordinance, Article 7-9 (Implementation procedure) Reprocessing Ordinance, Article 7-10-3						
	Provisions specifying an application form and attached documents	(Application for designation of activity) Reactor Regulation Act, Article 44, paragraph (2) Reactor Regulation Enforcement Cabinet Order, Article 26 Reprocessing Ordinance, Article 1-2 (Application for change of activity) Reactor Regulation Act, Article 44-4, paragraph (1) Reactor Regulation Enforcement Cabinet Order, Article 27 Reprocessing Ordinance, Article 1-4	(Application for approval) Reactor Regulation Act, Article 45, paragraph (1) Reprocessing Ordinance, Article 2 (Application for approval of changes) Reactor Regulation Act, Article 45, paragraph (2) Reprocessing Ordinance, Article 3	Reactor Regulation Act, Article 46, paragraph (1) Reprocessing Ordinance, Article 5			Reactor Regulation Act, Article 46-2, paragraph (2) Reprocessing Ordinance, Article 7-6, paragraph (1) and (2)	Reactor Regulation Act, Article 46-2, paragraph (1) Reprocessing Ordinance, Article 7-3	Reactor Regulation Act, Article 46-2-3 Reprocessing Ordinance, Article 7-10	Reactor Regulation Act, Article 50 Reprocessing Ordinance, Article 17					(Application for approval) Reactor Regulation Act, Article 50-5, paragraph (2) Reprocessing Ordinance, Article 19-5 (Application for approval of changes) Reactor Regulation Act, Article 12-6, paragraph (3), as applied mutatis mutandis by replacing certain terms pursuant to Article 50-5, paragraph (3) of the Act Reprocessing Ordinance, Article	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 50-10, paragraph (3) of the Act Reprocessing Ordinance, Article 19-9

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	Provisions specifying standards for approval or passing inspection	Reactor Regulation Act, Article 44-2Reprocessing Permit Ordinance	Reactor Regulation Act, Article 45, paragraph (3)Reprocessing Design Construction OrdinanceReprocessing QMS Ordinance	(Standards)Reactor Regulation Act, Article 46, paragraph (2)Reprocessing Technical Standards Ordinance(Delivery of certification of passing)Reprocessing Ordinance, Article 7			Reactor Regulation Act, Article 46-2, paragraph (2)Reprocessing Ordinance, Article 7-6, paragraph (3)	(Standards)Reactor Regulation Act, Article 46-2, paragraph (3)Welding Standard for Fabrication Facilities, Reprocessing Facilities, Specific Waste Interim Storage and Treatment Facilities(Delivery of certification of passing)Reprocessing Ordinance, Article 7-8	(Standards)Reactor Regulation Act, Article 46-2-3, paragraph (2)Reprocessing Technical Standards Ordinance(Delivery of certification of passing)Reprocessing Ordinance, Article 7-11	Reprocessing Operational Safety Program Standards					Reactor Regulation Act, Article 12-6, paragraph (4), as applied mutatis mutandis by replacing certain terms pursuant to Article 50-5, paragraph (3) of the ActReprocessing Ordinance, Article 19-8	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 50-10, paragraph (3) of the ActReprocessing Ordinance, Articles 19-5 and 19-10
Use of nuclear fuel materials	Requirements for obtaining approval by regulatory body or passing (completing) inspections by regulatory body	○		○ (Facility inspections)				○		○					○	○
	Basis in the Reactor Regulation Act	Reactor Regulation Act, Article 52		Reactor Regulation Act, Article 55-2				Reactor Regulation Act, Article 55-3		Reactor Regulation Act, Article 56-3					Reactor Regulation Act, Article 57-6	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 57-6, paragraph (3) of the Act

	Provisions specifying scope of inspection	Reactor Regulation Act, Article 52, paragraph (1)Reactor Regulation Enforcement Cabinet Order, Article 39		Reactor Regulation Act, Article 55-2, paragraph (1)(Inspection scope for nuclear fuel materials)Reactor Regulation Enforcement Cabinet Order, Article 41(Matters to be inspected)Nuclear Fuel Materials Use Ordinance, Article 2-3(Implementation procedure)Nuclear Fuel Materials Use Ordinance, Article 2-3-2				Reactor Regulation Act, Article 55-3, paragraph (1)(Facilities to be inspected)Nuclear Fuel Materials Use Ordinance, Article 2-6(Processes to be inspected)Nuclear Fuel Materials Use Ordinance, Article 2-8(Exemption)Nuclear Fuel Materials Use Ordinance, Article 2-9(Implementation procedure)Nuclear Fuel Materials Use Ordinance, Article 2-9-2								
	Provisions specifying an application form and attached documents	(Application for license) Reactor Regulation Act, Article 52, paragraph (2) Reactor Regulation Enforcement Cabinet Order, Article 40 Nuclear Fuel Materials Use Ordinance, Article 1-2 (Application for permission of changes) Reactor Regulation Act, Article 55, paragraph (1) Reactor Regulation Enforcement Cabinet Order, Article 40 Nuclear Fuel Materials Use Ordinance, Article 2		Reactor Regulation Act, Article 55-2, paragraph (1) Nuclear Fuel Materials Use Ordinance, Article 2-2				Reactor Regulation Act, Article 55-3, paragraph (1) Nuclear Fuel Materials Use Ordinance, Article 2-7		Reactor Regulation Act, Article 56-3, paragraph (1) Nuclear Fuel Materials Use Ordinance, Article 2-12					(Application for approval) Reactor Regulation Act, Article 57-6, paragraph (2) Nuclear Fuel Materials Use Ordinance, Article 6-2 (Application for approval of changes) Reactor Regulation Act, Article 12-6, paragraph (3), as applied mutatis mutandis by replacing certain terms pursuant to Article 57-6, paragraph (3) of the Act Nuclear Fuel Materials Use Ordinance, Article 6-3	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 57-6, paragraph (3) of the Act Nuclear Fuel Materials Use Ordinance, Article 6-6
	Provisions specifying standards for approval or passing inspection	Reactor Regulation Act, Article 53Nuclear Fuel Material Use Permit Ordinance		(Standards)Reactor Regulation Act, Article 55-2Nuclear Fuel Materials Use Ordinance, Article 2-5(Delivery of certification of passing)Nuclear Fuel Materials Use Ordinance, Article 2-4				(Standards)Reactor Regulation Act, Article 55-3, paragraph (2)Welding Standards for Nuclear Fuel Materials Use(Delivery of certification of passing)Nuclear Fuel Materials Use Ordinance, Article 2-10		Nuclear Fuel Materials Use Operational Safety Program Standards					Reactor Regulation Act, Article 12-6, paragraph (4), as applied mutatis mutandis by replacing certain terms pursuant to Article 57-6, paragraph (3) of the ActNuclear Fuel Materials Use Ordinance, Article 6-5	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 57-6, paragraph (3) of the ActNuclear Fuel Materials Use Ordinance, Article 6-7

Radioactive waste management facilities	Waste interim storage and treatment facilities	Requirements for obtaining approval by regulatory body or passing (completing) inspections by regulatory body	○	○	○			○	○	○	○					○	○
		Basis in the Reactor Regulation Act	Reactor Regulation Act, Articles 51-2 to 51-5	Reactor Regulation Act, Article 51-7	Reactor Regulation Act, Article 51-8			Reactor Regulation Act, Article 51-9, paragraph (2)	Reactor Regulation Act, Article 51-9	Reactor Regulation Act, Article 51-10	Reactor Regulation Act, Article 51-18					Reactor Regulation Act, Article 51-25	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act
		Provisions specifying scope of inspection		Reactor Regulation Act, Article 51-7, paragraph (1) Reactor Regulation Enforcement Cabinet Order, Article 34, paragraph (2) Waste Storage Ordinance, Article 18	Reactor Regulation Act, Article 51-8, paragraph (1) (Matters to be inspected) Waste Storage Ordinance, Article 8 (Implementation procedure) Waste Storage Ordinance, Article 9-3				Reactor Regulation Act, Article 51-9, paragraph (1) and (4) (Facilities to be inspected) Waste Storage Ordinance, Article 11 (Inspection scope of items) Waste Storage Ordinance, Article 13 (Exemption) Waste Storage Ordinance, Article 14 (Implementation procedure) Waste Storage Ordinance, Article 16-2	Reactor Regulation Act, Article 51-10, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Cabinet Order, Article 35 Waste Storage Ordinance, Article 18 (Implementation procedure) Waste Storage Ordinance, Article 20-3						
		Provisions specifying an application form and attached documents	(Application for business license)Reactor Regulation Act, Article 51-2, paragraph (2)Reactor Regulation Enforcement Cabinet Order, Article 30Waste Storage Ordinance, Article 2(Application for change of activity)Reactor Regulation Act, Article 51-5, paragraph (1)Reactor Regulation Enforcement Cabinet Order, Article 33Waste Storage Ordinance, Article 3	(Application for approval)Reactor Regulation Act, Article 51-7, paragraph (1)Waste Storage Ordinance, Article 4(Application for approval of changes)Reactor Regulation Act, Article 51-7, paragraph (2)Waste Storage Ordinance, Article 5	Reactor Regulation Act, Article 51-8, paragraph (1)Waste Storage Ordinance, Article 7			Reactor Regulation Act, Article 51-9, paragraph (2)Waste Storage Ordinance, Article 15, paragraph (1) and (2)	Reactor Regulation Act, Article 51-9, paragraph (1) and (4)Waste Storage Ordinance, Article 12 and Article 16	Reactor Regulation Act, Article 51-10, paragraph (1)Waste Storage Ordinance, Article 19	Reactor Regulation Act, Article 51-18, paragraph (1)Waste Storage Ordinance, Article 34					(Application for approval)Reactor Regulation Act, Article 51-25, paragraph (2)Waste Storage Ordinance, Article 35-6(Application for approval of changes)Reactor Regulation Act, Article 12-6, paragraph (3), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the ActWaste Storage Ordinance, Article 35-7	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the ActWaste Storage Ordinance, Article 35-10

	Provisions specifying standards for approval or passing inspection	Reactor Regulation Act, Article 51-3 Waste Storage Permit Ordinance	Reactor Regulation Act, Article 51-7, paragraph (3) Waste Storage Design Construction Ordinance Waste Storage QMS Ordinance	(Standards) Reactor Regulation Act, Article 51-8, paragraph (2) Waste Storage Technical Standards Ordinance (Delivery of certification of passing) Waste Storage Ordinance, Article 10			Reactor Regulation Act, Article 51-9, paragraph (2) Waste Storage Ordinance, Article 15, paragraph (3)	(Standards) Reactor Regulation Act, Article 51-9, paragraph (3) and (5) Welding Standards for Fuel Fabrication Facilities, Reprocessing Facilities, Specific Waste Disposal Facilities, Specific waste Interim Storage and Treatment Facilities (Delivery of certification of passing) Waste Storage Ordinance, Article 17	(Standards) Reactor Regulation Act, Article 51-10, paragraph (2) Waste Storage Technical Standards Ordinance (Delivery of certification of passing) Waste Storage Ordinance, Article 21	Waste Storage Operational Safety Program Standards					Reactor Regulation Act, Article 12-6, paragraph (4), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Waste Storage Ordinance, Article 35-9	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Waste Storage Ordinance, Article 35-11
	Requirements for obtaining approval by regulatory body or passing (completing) inspections by regulatory body	○	○	○			○	○	○	○		○	○	○	○	○
Category 1 waste disposal facilities	Basis in the Reactor Regulation Act	Reactor Regulation Act, Articles 51-2 to 51-5	Reactor Regulation Act, Article 51-7	Reactor Regulation Act, Article 51-8			Reactor Regulation Act, Article 51-9, paragraph (2)	Reactor Regulation Act, Article 51-9	Reactor Regulation Act, Article 51-10	Reactor Regulation Act, Article 51-18		<Confirmation of disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) <Confirmation of disposed materials> Reactor Regulation Act, Article 51-6, paragraph (2)	Reactor Regulation Act, Article 51-24-2	Reactor Regulation Act, Article 51-24-2	Reactor Regulation Act, Article 51-25	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act
	Provisions specifying scope of inspection		Reactor Regulation Act, Article 51-7, paragraph (1) Reactor Regulation Enforcement Cabinet Order, Article 34, paragraph (1) Category 1 Waste Disposal Ordinance, Article 14	Reactor Regulation Act, Article 51-8, paragraph (1) (Matters to be inspected) Category 1 Waste Disposal Ordinance, Article 19 (Implementation procedure) Category 1 Waste Disposal Ordinance, Article 22				Reactor Regulation Act, Article 51-9, paragraph (1) and (4) (Facilities to be inspected) Category 1 Waste Disposal Ordinance, Article 25 (Inspection scope of items) Category 1 Waste Disposal Ordinance, Article 27 (Exemption) Category 1 Waste Disposal Ordinance, Article 28 (Implementation procedure) Category 1 Waste Disposal Ordinance, Article	Reactor Regulation Act, Article 51-10, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Cabinet Order, Article 35 Category 1 Waste Disposal Ordinance, Article 32 (Implementation procedure) Category 1 Waste Disposal Ordinance, Article 37			<Confirmation of disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) (Matters to be inspected) Category 1 Waste Disposal Ordinance, Article 6 (Implementation procedure) Category 1 Waste Disposal Ordinance, Article 9 <Confirmation of disposed materials> Reactor Regulation Act, Article 51-6, paragraph (2) (Implementation procedure) Category 1 Waste Disposal Ordinance, Article 12-2				

								30-2								
Provisions specifying an application form and attached documents	(Application for permission of activity)Reactor Regulation Act, Article 51-2, paragraph (2)Reactor Regulation Enforcement Cabinet Order, Article 30Category 1 Waste Disposal Ordinance, Article 3(Application for change of activity)Reactor Regulation Act, Article 51-5, paragraph (1)Reactor Regulation Enforcement Cabinet Order, Article 33Category 1 Waste Disposal Ordinance, Article 4	(Application for approval)Reactor Regulation Act, Article 51-7, paragraph (1)Category 1 Waste Disposal Ordinance, Article 15(Application for change of approval)Reactor Regulation Act, Article 51-7, paragraph (2)Category 1 Waste Disposal Ordinance, Article 16	Reactor Regulation Act, Article 51-8, paragraph (1)Category 1 Waste Disposal Ordinance, Article 18			Reactor Regulation Act, Article 51-9, paragraph (2)Category 1 Waste Disposal Ordinance, Article 29, paragraph (1) and (2)	Reactor Regulation Act, Article 51-9, paragraph (1) and (4)Category 1 Waste Disposal Ordinance, Article 26 and Article 30	Reactor Regulation Act, Article 51-10, paragraph (1)Category 1 Waste Disposal Ordinance, Article 33	Reactor Regulation Act, Article 51-18, paragraph (1)Category 1 Waste Disposal Ordinance, Article 63		<Confirmation of disposal facilities>Reactor Regulation Act, Article 51-6, paragraph (1)Category 1 Waste Disposal Ordinance, Article 5<Confirmation of waste packages>Reactor Regulation Act, Article 51-6, paragraph (2)Category 1 Waste Disposal Ordinance, Article 11	(Application for approval)Reactor Regulation Act, Article 51-24-2, paragraph (1)Category 1 Waste Disposal Ordinance, Article 73(Application for approval of changes)Reactor Regulation Act, Article 51-24-2, paragraph (3), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-24-2, paragraph (3) of the ActCategory 1 Waste Disposal Ordinance, Article 74	Reactor Regulation Act, Article 51-24-2, paragraph (2)Category 1 Waste Disposal Ordinance, Article 76	(Application for approval)Reactor Regulation Act, Article 51-25, paragraph (2)Category 1 Waste Disposal Ordinance, Article 79(Application for approval of changes)Reactor Regulation Act, Article 12-6, paragraph (3), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the ActCategory 1 Waste Disposal Ordinance, Article 80	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the ActCategory 1 Waste Disposal Ordinance, Article 83

	Provisions specifying standards for approval or passing inspection	Reactor Regulation Act, Article 51-3	Reactor Regulation Act, Article 51-7, paragraph (3) Waste Storage Design Construction Ordinance	(Standards) Reactor Regulation Act, Article 51-8, paragraph (2) Waste Storage Technical Standards Ordinance (Delivery of certification of passing) Category 1 Waste Disposal Ordinance, Article 24			Reactor Regulation Act, Article 51-9, paragraph (2) Category 1 Waste Disposal Ordinance, Article 29, paragraph (3)	(Standards) Reactor Regulation Act, Article 51-9, paragraph (3) and (5) Welding Standards for Fuel Fabrication Facilities, Reprocessing Facilities, Specific Waste Disposal Facilities, Specific Waste Interim Storage and Treatment Facilities (Delivery of certification of passing) Category 1 Waste Disposal Ordinance, Article 31	(Standards) Reactor Regulation Act, Article 51-10, paragraph (2) NRA Ordinance on Technical Standards for the Capabilities of Specific Waste Disposal Facility or Specific Waste Management Facility (Delivery of certification of passing) Category 1 Waste Disposal Ordinance, Article 39			<Confirmation of disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) Category 1 Waste Disposal Ordinance, Article 7 (Delivery of certification of confirmation) Category 1 Waste Disposal Ordinance, Article 13 <Confirmation of waste packages> (Standards) Reactor Regulation Act, Article 51-6, paragraph (2) Category 1 Waste Disposal Ordinance, Article 12 (Delivery of certification of confirmation) Category 1 Waste Disposal Ordinance, Article 13	Reactor Regulation Act, Article 12-6, paragraph (4), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-24-2, paragraph (3) of the Act Category 1 Waste Disposal Ordinance, Article 77	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-24-2, paragraph (3) of the Act	Reactor Regulation Act, Article 12-6, paragraph (4), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Category 1 Waste Disposal Ordinance, Article 82	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Category 1 Waste Disposal Ordinance, Article 84
Category 2 waste disposal facilities	Requirements for obtaining approval by regulatory body or passing (completing) inspections by regulatory body	○								○		○			○	○
	Basis in the Reactor Regulation Act	Reactor Regulation Act, Articles 51-2 to 51-5								Reactor Regulation Act, Article 51-18 Category 2 Waste Disposal Ordinance, Article 20		<Confirmation of disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) <Confirmation of waste packages> Reactor Regulation Act, Article 51-6, paragraph (2)			Reactor Regulation Act, Article 51-25	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25 of the Act

	Provisions specifying scope of inspection											<Confirmation of disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) (Matters to be inspected) Category 2 Waste Disposal Ordinance, Article 5 (Implementation procedure) Category 2 Waste Disposal Ordinance, Article 6-3 <Confirmation of waste packages> Reactor Regulation Act, Article 51-6, paragraph (2) (Implementation procedure) Category 2 Waste Disposal Ordinance, Article 8-2				
	Provisions specifying an application form and attached documents	(Application for permission of activity)Reactor Regulation Act, Article 51-2, paragraph (2)Reactor Regulation Enforcement Cabinet Order, Article 30Category 2 Waste Disposal Ordinance, Article 2(Application for permission of changes)Reactor Regulation Act, Article 51-5, paragraph (1)Reactor Regulation Enforcement Cabinet Order, Article 33Category 2 Waste Disposal Ordinance, Article 3									Reactor Regulation Act, Article 51-18Category 2 Waste Disposal Ordinance, Article 20		<Confirmation of disposal facilities>Reactor Regulation Act, Article 51-6, paragraph (1)Category 2 Waste Disposal Ordinance, Article 4<Confirmation of waste packages>Reactor Regulation Act, Article 51-6, paragraph (2)Category 2 Waste Disposal Ordinance, Article 7			(Application for approval)Reactor Regulation Act, Article 51-25, paragraph (2)Category 2 Waste Disposal Ordinance, Article 22-7(Application for approval of changes)Reactor Regulation Act, Article 12-6, paragraph (3), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the ActCategory 2 Waste Disposal Ordinance, Article 22-8	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the ActCategory 2 Waste Disposal Ordinance, Article 22-11

		Provisions specifying standards for approval or passing inspection	Reactor Regulation Act, Article 51-3 Category 2 Waste Disposal Permit Ordinance								Category 2 Waste Disposal Operational Safety Program Standards		<Confirmation of disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) Category 2 Waste Disposal Ordinance, Article 6 etc. (Delivery of certification of confirmation) Category 2 Waste Disposal Ordinance, Article 9 <Confirmation of waste packages> (Standards) Reactor Regulation Act, Article 51-6, paragraph (2) Category 2 Waste Disposal Ordinance, Article 8 etc. (Delivery of certification of confirmation) Category 2 Waste Disposal Ordinance, Article 9			Reactor Regulation Act, Article 12-6, paragraph (4), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Category 2 Waste Disposal Ordinance, Article 22-10	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Category 2 Waste Disposal Ordinance, Article 22-12

Table 2 : Authorizations and Inspections, etc. Required under the Radiation Hazards Prevention Act

Notes : Pursuant to the Radiation Hazards Prevention Act, the following NRA's authorizations or the passing of the following NRA's inspections, etc. are required to operate facilities and/or to conduct activity.

Type of operator		Permission	On-site inspection	Facility inspection	Periodic inspection	Periodic confirmation	Notification of Radiation Hazards Prevention Program	Notification of decommissioning
Specified permitted user	Requirements for obtaining approval of licenses, etc. or passing inspections (confirmations) by regulatory bodies	○	○	○	○	○	○	○
A specified permitted user refers to a permitted user to whom either item (1) or (2) below applies. (1) A permitted user who uses the radioisotope which is 10 TBq or more for one sealed radioisotope or the radioisotope-equipped device which is 10TBq or more as total radioactivity per one device. (2) A permitted user whose amount of storage capacity for unsealed radioisotopes is 100,000-fold of the lower bound quantity* for each type or more and whose amount of storage capacity for sealed radioisotopes is 10 TBq or more. * The quantity specified in Article 1 and appended Table 1 of "the Notification to Specify Standards for the Amount, etc. of Radioisotopes"	Provisions specifying the framework for approvals and inspections	Radiation Hazards Prevention Act, Articles 3, 6, 9, and 10 Radiation Hazards Prevention Cabinet Order, Articles 3 and 8	Radiation Hazards Prevention Act, Article 43-2	Radiation Hazards Prevention Act, Article 12-8, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 13	Radiation Hazards Prevention Act, Article 12-9, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 14	Radiation Hazards Prevention Act, Article 12-10 Radiation Hazards Prevention Cabinet Order, Article 15	Radiation Hazards Prevention Act, Article 21	Radiation Hazards Prevention Act, Articles 27 and 28
	Provisions specifying scope of inspection			(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-8, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Article 12-8, paragraph 3 and Article 6 Radiation Hazards Prevention Ordinance, Articles 14-7, 14-9 and 14-11	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-9, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Article 12-9, paragraph 3 and Article 6 Radiation Hazards Prevention Ordinance, Articles 14-7, 14-9 and 14-11	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-10 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Articles 12-10, 20 and 25 Radiation Hazards Prevention Ordinance, Articles 20 and 24		
	Provisions specifying an application form and attached documents	(Application for permission) Radiation Hazards Prevention Act, Articles 3 and 6 Radiation Hazards Prevention Cabinet Order, Articles 3 Radiation Hazards Prevention Ordinance, Articles 2 and 10 (Application for permission of changes) Radiation Hazards Prevention Act, Article 10 Radiation Hazards Prevention Cabinet Order, Articles 8 Radiation Hazards Prevention Ordinance, Articles 9 and 10		Radiation Hazards Prevention Act, Article 12-8, paragraph 1 Radiation Hazards Prevention Ordinance, Article 14-14	Radiation Hazards Prevention Act, Article 12-9, paragraph 1 Radiation Hazards Prevention Ordinance, Article 14-17	Radiation Hazards Prevention Act, Article 12-10 Radiation Hazards Prevention Ordinance, Article 14-20	Radiation Hazards Prevention Act, Article 21, paragraph 1 Radiation Hazards Prevention Ordinance, Article 21	(Notification of decommissioning) Radiation Hazards Prevention Act, Article 27, paragraph 1 Radiation Hazards Prevention Ordinance, Article 25 and Article 39, paragraph 2) (Notification of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 2 Radiation Hazards Prevention Ordinance, Article 26, paragraph 4 (Notification of changes to decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 3 Radiation Hazards Prevention Ordinance, Article 26, paragraph 5 (Report on completion of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 5 Radiation Hazards Prevention Ordinance, Article 26, paragraph 6
	Provisions specifying standards and certification for authorization or passing inspection, etc.	(Standards) Radiation Hazards Prevention Act, Article 6 Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11 (Delivery of certification) Radiation Hazards Prevention Act, Article 9		(Standards) Radiation Hazards Prevention Act, Article 12-8, paragraph 3 and Article 3 Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11 (Delivery of certification of passing) Radiation Hazards Prevention Ordinance, Article 14-16	(Standards) Radiation Hazards Prevention Act, Article 12-9, paragraph 3 and Article 3 Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11 (Delivery of certification of passing) Radiation Hazards Prevention Ordinance, Article 14-19	(Standards) Radiation Hazards Prevention Act, Articles 12-10, 20 and 25 Radiation Hazards Prevention Ordinance, Articles 20 and 24 (Delivery of certification of confirmation) Radiation Hazards Prevention Ordinance, Article 14-21		

Permitted user	Requirements for obtaining approval of permissions, etc. or passing inspections (confirmations) by regulatory bodies	○	○				○	○
	Provisions specifying the framework for approvals and inspections	Radiation Hazards Prevention Act, Articles 3, 6, 9, and 10	Radiation Hazards Prevention Act, Article 43-2				Radiation Hazards Prevention Act, Article 21	Radiation Hazards Prevention Act, Articles 27 and 28
	Provisions specifying scope of inspection		Radiation Hazards Prevention Act, Article 43-2, paragraph 1					
	Provisions specifying an application form and attached documents	(Application for permission) Radiation Hazards Prevention Act, Articles 3 and 6 Radiation Hazards Prevention Cabinet Order, Articles 3 Radiation Hazards Prevention Ordinance, Articles 2 and 10 (Application for permission of changes) Radiation Hazards Prevention Act, Article 10 Radiation Hazards Prevention Cabinet Order, Articles 8 Radiation Hazards Prevention Ordinance, Articles 9 and 10					Radiation Hazards Prevention Act, Article 21, paragraph 1 Radiation Hazards Prevention Ordinance, Article 21	(Notification of decommissioning) Radiation Hazards Prevention Act, Article 27, paragraph 1 Radiation Hazards Prevention Ordinance, Article 25 and Article 39, paragraph 2 (Notification of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 2 Radiation Hazards Prevention Ordinance, Article 26, paragraph 4 (Notification of changes to decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 3 Radiation Hazards Prevention Ordinance, Article 26, paragraph 5 (Report on completion of decommissioning plans) Radiation Hazards Prevention Act, Article 28, paragraph 5 Radiation Hazards Prevention Ordinance, Article 26, paragraph 6
	Provisions specifying standards and certification for authorization or passing inspection, etc.	(Standards) Radiation Hazards Prevention Act, Article 6 Radiation Hazards Prevention Ordinance, Articles 14-7, 14-9 and 14-11 (Delivery of certification) Radiation Hazards Prevention Act, Article 9						
Registered user	Requirements for obtaining approval of permissions, etc. or passing inspections (confirmations) by regulatory bodies	△ (Prior Notification)	○				○	○
	Provisions specifying the framework for approvals and inspections	Radiation Hazards Prevention Act, Article 3-3 Radiation Hazards Prevention Ordinance, Articles 5	Radiation Hazards Prevention Act, Article 43-2				Radiation Hazards Prevention Act, Article 21	Radiation Hazards Prevention Act, Articles 27 and 28
	Provisions specifying scope of inspection		Radiation Hazards Prevention Act, Article 43-2, paragraph 1					
	Provisions specifying an application form and attached documents	(Notification) Radiation Hazards Prevention Act, Article 3-2, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 4 Radiation Hazards Prevention Ordinance, Article 3 (Notification of changes) Radiation Hazards Prevention Act, Article 3-3, paragraph 2 Radiation Hazards Prevention Ordinance, Article 4					Radiation Hazards Prevention Act, Article 21, paragraph 1 Radiation Hazards Prevention Ordinance, Article 21	(Notification of decommissioning) Radiation Hazards Prevention Act, Article 27, paragraph 1 Radiation Hazards Prevention Ordinance, Article 26-2 paragraph 1 (Notification of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 2 Radiation Hazards Prevention Ordinance, Article 26-2, paragraph 2 (Notification of changes to decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 3 Radiation Hazards Prevention Ordinance, Article 26-2, paragraph 3 (Report on completion of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 5 Radiation Hazards Prevention Ordinance, Article 26, paragraph 4
	Provisions specifying standards and certification for authorization or passing inspection, etc.							

Registered user of approved devices with certification label	Requirements for obtaining approval of permissions, etc. or passing inspections (confirmations) by regulatory bodies	△ (Notification after commencement of use)	○					△ (Notification)
	Provisions specifying the framework for approvals and inspections	Radiation Hazards Prevention Act, Article 3-3 Radiation Hazards Prevention Cabinet Order, Article 5	Radiation Hazards Prevention Act, Article 43-2					Radiation Hazards Prevention Act, Articles 27 and 28
	Provisions specifying scope of inspection		Radiation Hazards Prevention Act, Article 43-2, paragraph 1					
	Provisions specifying an application form and attached documents	(Notification) Radiation Hazards Prevention Act, Article 3-3, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 5 Radiation Hazards Prevention Ordinance, Article 5 (Notification of changes) Radiation Hazards Prevention Act, Article 3-3, paragraph 2 Radiation Hazards Prevention Ordinance, Article 5 and Article 12						(Notification of decommissioning) Radiation Hazards Prevention Act, Article 27, paragraph 1 Radiation Hazards Prevention Ordinance, Article 26-2 paragraph 1 (Notification of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 2 Radiation Hazards Prevention Ordinance, Article 26-2, paragraph 2 (Notification of changes to decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 3 Radiation Hazards Prevention Ordinance, Article 26-2, paragraph 3 (Report on completion of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 5 Radiation Hazards Prevention Ordinance, Article 26-2, paragraph 4
	Provisions specifying standards and certification for authorization or passing inspection, etc.							
Registered dealer and lessor	Requirements for obtaining approval of permissions, etc. or passing inspections (confirmations) by regulatory bodies	△ (Prior Notification)	○				○	△ (Notification)
	Provisions specifying the framework for approvals and inspections	Radiation Hazards Prevention Act, Article 4 Radiation Hazards Prevention Cabinet Order, Article 6	Radiation Hazards Prevention Act, Article 43-2				Radiation Hazards Prevention Act, Article 21	Radiation Hazards Prevention Act, Articles 27 and 28
	Provisions specifying scope of inspection		Radiation Hazards Prevention Act, Article 43-2, paragraph 1					
	Provisions specifying an application form and attached documents	(Notification) Radiation Hazards Prevention Act, Article 4, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 6 Radiation Hazards Prevention Ordinance, Articles 6 and 12 (Notification of changes) Radiation Hazards Prevention Act, Article 4, paragraph 2 Radiation Hazards Prevention Ordinance, Article 6-2 and Article 12					Radiation Hazards Prevention Act, Article 21, paragraph 1 Radiation Hazards Prevention Ordinance, Article 21	(Notification of decommissioning) Radiation Hazards Prevention Act, Article 27, paragraph 1 Radiation Hazards Prevention Ordinance, Article 25 paragraph 1 (Notification of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 2 Radiation Hazards Prevention Ordinance, Article 26, paragraph 4 (Notification of changes to decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 3 Radiation Hazards Prevention Ordinance, Article 26, paragraph 5 (Report on completion of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 5 Radiation Hazards Prevention Ordinance, Article 26, paragraph 6

	Provisions specifying standards and certification for authorization or passing inspection, etc.							
Permitted waste management operator	Requirements for obtaining approval of permissions, etc. or passing inspections (confirmations) by regulatory bodies	○	○	○	○	○	○	○
	Provisions specifying the framework for approvals and inspections	Radiation Hazards Prevention Act, Articles 4-2, 7, 9, and 11 Radiation Hazards Prevention Cabinet Order, Articles 7 and 11	Radiation Hazards Prevention Act, Article 43-2	Radiation Hazards Prevention Act, Articles 12-8, paragraph 2 Radiation Hazards Prevention Cabinet Order, Article 13	Radiation Hazards Prevention Act, Articles 12-9, paragraph 2 Radiation Hazards Prevention Cabinet Order, Article 14	Radiation Hazards Prevention Act, Articles 12-10 Radiation Hazards Prevention Cabinet Order, Article 15	Radiation Hazards Prevention Act, Article 21	Radiation Hazards Prevention Act, Articles 27 and 28
	Provisions specifying scope of inspection		Radiation Hazards Prevention Act, Article 43-2, paragraph 1	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-8, paragraph 2 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Article 12-8, paragraph 3 and Article 7 Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-9, paragraph 2 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Article 12-9, paragraph 3 and Article 7 Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-10, paragraph 2 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Article 12-10, paragraph 1, Articles 20 and 25		
	Provisions specifying an application form and attached documents	(Application for license) Radiation Hazards Prevention Act, Article 4-2 (Application for licensing of changes) Radiation Hazards Prevention Act, Article 11		Radiation Hazards Prevention Act, Article 12-8, paragraph 2 Radiation Hazards Prevention Ordinance, Article 14-15	Radiation Hazards Prevention Act, Article 12-9, paragraph 2 Radiation Hazards Prevention Ordinance, Article 14-18	Radiation Hazards Prevention Act, Article 12-10 Radiation Hazards Prevention Ordinance, Article 14-20	Radiation Hazards Prevention Act, Article 21, paragraph 1 Radiation Hazards Prevention Ordinance, Article 21	(Notification of decommissioning) Radiation Hazards Prevention Act, Article 27, paragraph 1 Radiation Hazards Prevention Ordinance, Article 25 and Article39, paragraph 2 (Notification of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 2 Radiation Hazards Prevention Ordinance, Article 26, paragraph 4 (Notification of changes to decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 3 Radiation Hazards Prevention Ordinance, Article 26, paragraph 5 (Report on completion of decommissioning plan) Radiation Hazards Prevention Act, Article 28, paragraph 5 Radiation Hazards Prevention Ordinance, Article 26, paragraph 6
	Provisions specifying standards and certification for authorization or passing inspection, etc.	(Standards) Radiation Hazards Prevention Act, Article 7 (Delivery of license certificates)Radiation Hazards Prevention Act, Article 9		(Standards) Radiation Hazards Prevention Act, Article 12-8, paragraph 3 and Article 7 Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11 (Delivery of certification of passing) Radiation Hazards Prevention Ordinance, Article 14-16	(Standards) Radiation Hazards Prevention Act, Article 12-9, paragraph 3 Radiation Hazards Prevention Act, Article 7, items (1) to (3) Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10, and 14-11 (Delivery of certification of passing) Radiation Hazards Prevention Ordinance, Article 14-19	(Delivery of certification of confirmation) Radiation Hazards Prevention Ordinance, Article 14-21		

Table 3 : Inspections and Confirmation under the Reactor Regulation Act

Notes : *1 Pursuant to the Reactor Regulation Act, licensees are required to pass the following inspections, confirmation, and so on conducted by the Nuclear Regulation Authority (NRA). However, the licensee's inspections on welding and periodic licensee's inspections are obliged to be conducted by licensees, and the NRA shall review their QMS for these inspections in the welding safety management review or periodic safety management review, respectively(*1).

*2 On-site inspections are reactive inspections(*2).

*3 Licensees are obliged to conduct this inspection by themselves. Therefore, applications are not required to apply to regulatory bodies to implement this inspection

*4 On-site inspections are reactive inspections. Therefore, applications are not required to apply to regulatory bodies to implement such inspections

Facility type		Pre-service inspection	Fuel assembly inspection	Welding inspection	Licensee's inspection on welding(*1)	Welding safety management review	Periodic facility inspection	Periodic licensee's inspection(*1)	Periodic safety management review	Operational safety inspection	Confirmation of waste disposal facilities and waste packages	Confirmation of tunnel closure	Confirmation of the completion of decommissioning	On-site inspection(*2)
Nuclear reactors	Nuclear power reactors	Requirements for passing (completing) inspections	○	○		○	○	○	○	○	○			○	○
		Provisions specifying the framework for inspections	Reactor Regulation Act, Article 43-3-11	Reactor Regulation Act, Article 43-3-12		Reactor Regulation Act, Article 43-3-13, paragraphs (1) and (2)	Reactor Regulation Act, Article 43-3-13, paragraphs (3) to (6)	Reactor Regulation Act, Article 43-3-15	Reactor Regulation Act, Article 43-3-16, paragraphs (1) and (2)	Reactor Regulation Act, Article 43-3-16, paragraphs (4) through (6)	Reactor Regulation Act, Article 43-3-24			Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-33, paragraph (3) of the Act	Reactor Regulation Act, Article 68
		Provisions specifying scope of inspection	Reactor Regulation Act, Article 43-3-11, paragraph (1) (Processes to be inspected) Commercial Reactors Ordinance, Article 16 (Exemption) Commercial Reactors Ordinance, Article 17 (Implementation procedure) Commercial Reactors Ordinance, Article 19	Reactor Regulation Act, Article 43-3-12, paragraph (1) (Processes to be inspected) Commercial Reactors Ordinance, Article 24 (Exemption) Commercial Reactors Ordinance, Article 25 (Implementation procedure) Commercial Reactors Ordinance, Article 28		Reactor Regulation Act, Article 43-3-13, paragraph (1) (Facilities to be inspected) Commercial Reactors Ordinance, Article 35 (Exemption) Commercial Reactors Ordinance, Article 38 (Inspection method) Commercial Reactors Ordinance, Article 36	Reactor Regulation Act, Article 43-3-13, paragraph (3) (Matters to be inspected) Reactor Regulation Act, Article 43-3-13, paragraph (4) Commercial Reactors Ordinance, Article 42 (Review period) Commercial Reactors Ordinance, Article 41	Reactor Regulation Act, Article 43-3-15, paragraph (1) (Facilities to be inspected) Commercial Reactors Ordinance, Article 45 (Matters to be inspected) Commercial Reactors Ordinance, Article 47 (Inspection period) Commercial Reactors Ordinance, Article 48 (Exemption) Commercial Reactors Ordinance, Article 49 (Implementation procedure) Commercial Reactors Ordinance, Article 51	Reactor Regulation Act Article 43-3-16, paragraph (1) (Facilities to be inspected) Commercial Reactors Ordinance, Article 54 (Inspection period) Commercial Reactors Ordinance, Article 55 (Inspection method) Commercial Reactors Ordinance, Article 56	Reactor Regulation Act, Article 43-3-16, paragraph (4) (Matters to be inspected) Reactor Regulation Act, Article 43-3-16, paragraph (5) Commercial Reactors Ordinance, Article 61 (Review Period) Commercial Reactors Ordinance, Article 60	Reactor Regulation Act, Article 43-3-24 (Inspection period) Commercial Reactors Ordinance, Article 93, paragraphs (1) and (2) (Inspection items) Commercial Reactors Ordinance, Article 93, paragraph (3)				(On-site inspection of licensed facilities under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (1) (Inspection for the parties contracted to conduct welding work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (2) (Inspection for the offices, etc. of related parties contracted to conduct design or construction work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (3)

Research reactors / Test and research reactors	Provisions specifying an application form and attached documents	Reactor Regulation Act, Article 43-3-11, paragraph (1) Commercial Reactors Ordinance, Article 15	Reactor Regulation Act, Article 43-3-12, paragraph (1) Commercial Reactors Ordinance, Article 23		(*3)	Reactor Regulation Act, Article 43-3-13, paragraph (3) Commercial Reactors Ordinance, Article 39	Reactor Regulation Act, Article 43-3-15, paragraph (1) Commercial Reactors Ordinance, Article 46	(*3)	Reactor Regulation Act Article 43-3-16, paragraph (4) Commercial Reactors Ordinance, Article 59				Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-33, paragraph (3) of the Act Commercial Reactors Ordinance, Article 120	(*4.)
	Provisions specifying standards for passing inspections	(Standards) Reactor Regulation Act, Article 43-3-11, paragraph (2) Commercial Reactors Technical Standards Ordinance (Delivery of certification of passing) Commercial Reactors Ordinance, Article 21	(Standards) Reactor Regulation Act, Article 43-3-12, paragraph (3) Commercial Reactors Fuel Technical Standard Ordinance (Delivery of certification of passing) Commercial Reactors Ordinance, Article 30		(Standards) Reactor Regulation Act, Article 43-3-13, paragraph (2) Commercial Reactors Technical Standards Ordinance		(Standards) Reactor Regulation Act, Article 43-3-15, paragraph (1) Commercial Reactors Technical Standards Ordinance (Delivery of certification of completion) Commercial Reactors Ordinance, Article 53	(Standards) Reactor Regulation Act, Article 43-3-16, paragraph (2) Commercial Reactors Technical Standards Ordinance					Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-33, paragraph (3) of the Act Commercial Reactors Ordinance, Article 121	
	Requirements for passing (completing) inspections	○		○			○			○			○	○
	Provisions specifying the framework for inspections	Reactor Regulation Act, Article 28		Reactor Regulation Act, Article 28-2			Reactor Regulation Act, Article 29			Reactor Regulation Act, Article 37			Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-2, paragraph (3) of the Act Research Reactors Ordinance, Articles 16-10 and 16-11	Reactor Regulation Act, Article 68
	Provisions specifying scope of inspection	Reactor Regulation Act, Article 28, paragraph (1) (Matters to be inspected) Research Reactors Ordinance, Article 3-4 (Implementation procedure) Research Reactors Ordinance, Article 3-4-2		Reactor Regulation Act, Article 28-2, paragraph (1) (Facilities to be inspected) Research Reactors Ordinance, Article 3-7 (Processes to be inspected) Research Reactors Ordinance, Article 3-9 (Implementation procedure) Research Reactors Ordinance, Article 3-12-2			Reactor Regulation Act, Article 29, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Cabinet Order, Article 14 Research Reactors Ordinance, Article 3-14 (Implementation procedure) Research Reactors Ordinance, Article 3-15-2			(Inspection period) Reactor Regulation Act, Article 37, paragraph (1) Research Reactors Ordinance, Article 15-2, paragraph (1) (Matters to be inspected) Reactor Regulation Act, Article 37, paragraph (2) Research Reactors Ordinance, Article 15-2, paragraph (2)				(On-site inspection of licensed facilities under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (1) (Inspection for the parties contracted to conduct welding work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (2) (Inspection for the offices, etc. of related parties contracted to conduct design or construction work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (3)

	Provisions specifying an application form and attached documents	Reactor Regulation Act, Article 28, paragraph (1) Research Reactors Ordinance, Article 3-3		Reactor Regulation Act, Article 28-2 Research Reactors Ordinance, Article 3-8			Reactor Regulation Act, Article 29 Research Reactors Ordinance, Article 3-15						Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-2, paragraph (3) of the Act Research Reactors Ordinance, Article 16-10	(*4)
	Provisions specifying standards for passing inspections	(Standards) Reactor Regulation Act, Article 28, paragraph (2) NRA Ordinance on Research Reactors Technical Standards Ordinance (Delivery of certification of passing) Research Reactors Ordinance, Article 3-6		(Standards) Reactor Regulation Act, Article 28, paragraph (2) NRA Ordinance on Research Reactors Technical Standards Ordinance (Delivery of certification of passing) Research Reactors Ordinance, Article 3-13			(Standards) Reactor Regulation Act, Article 29, paragraph (2) NRA Ordinance on Research Reactors Technical Standards Ordinance (Delivery of certification of passing) Research Reactors Ordinance, Article 3-16						Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-3-2, paragraph (3) of the Act Research Reactors Ordinance, Article 16-11	

Nuclear fuel cycle facilities	Refining nuclear sources and nuclear fuel material facilities	Requirements for passing (completing) inspections									○			○	○
		Provisions specifying the framework for inspections									Reactor Regulation Act, Article 12			Reactor Regulation Act, Article 12-6, paragraphs (8) and (9)	Reactor Regulation Act, Article 68
		Provisions specifying scope of inspection									(Inspection period) Reactor Regulation Act, Article 12, paragraph (5) Refining Ordinance, Article 7-2, paragraph (1) (Inspection items) Reactor Regulation Act, Article 12, paragraph (6) Refining Ordinance, Article 7-2, paragraph (2)			Reactor Regulation Act, Article 12-6, paragraph (8) Refining Ordinance, Article 7-5-7	(On-site inspection of licensed facilities under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (1) (Inspection for the parties contracted to conduct welding work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (2) (Inspection for the offices, etc. of related parties contracted to conduct design or construction work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (3)
		Provisions specifying an application form and attached documents												Reactor Regulation Act, Article 12-6, paragraph (8) Refining Ordinance, Article 7-5-8	(*4)
		Provisions specifying standards for passing inspections													

Fuel fabrication and enrichment facilities	Requirements for passing (completing) inspections	○		○			○			○			○	○
	Provisions specifying the framework for inspections	Reactor Regulation Act, Article 16-3		Reactor Regulation Act, Article 16-4			Reactor Regulation Act, Article 16-5			Reactor Regulation Act, Article 22			Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 22-8, paragraph (3) of the Act Fuel Fabrication Ordinance, Articles 9-9 and 9-10	Reactor Regulation Act, Article 68
	Provisions specifying scope of inspection	Reactor Regulation Act, Article 16-3, paragraph (1) (Matters to be inspected) Fuel Fabrication Ordinance, Article 3-6 (Implementation procedure) Fuel Fabrication Ordinance, Article 3-6-4		Reactor Regulation Act, Article 16-4, paragraph (1) (Facilities to be inspected) Fuel Fabrication Ordinance, Article 3-8 (Processes to be inspected) Article 3-10 (Exemption) Article 3-11 (Implementation procedure) Article 3-13-2			Reactor Regulation Act, Article 16-5, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Cabinet Order, Article 9 Fuel Fabrication Ordinance, Article 3-15 (Implementation procedure) Fuel Fabrication Ordinance, Article 3-16-3			(Inspection period) Reactor Regulation Act, Article 22, paragraph (5) Fuel Fabrication Ordinance, Article 8-2, paragraph (1) (Matters to be inspected) Reactor Regulation Act, Article 22, paragraph (6) Fuel Fabrication Ordinance, Article 8-2, paragraph (2)			(On-site inspection of licensed facilities under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (1) (Inspection for the parties contracted to conduct welding work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (2) (Inspection for the offices, etc. of related parties contracted to conduct design or construction work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (3)
	Provisions specifying an application form and attached documents	Reactor Regulation Act, Article 16-3, paragraph (1) Fuel Fabrication Ordinance, Article 3-5		Reactor Regulation Act, Article 16-4, paragraph (1) Fuel Fabrication Ordinance, Article 3-9			Reactor Regulation Act, Article 16-5, paragraph (1) Fuel Fabrication Ordinance, Article 3-16						Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 22-8, paragraph (3) of the Act Fuel Fabrication Ordinance, Article 9-9	(*4)

	Provisions specifying standards for passing inspections	(Standards) Reactor Regulation Act, Article 16-3, paragraph (2) Fuel Fabrication Facilities Technical Standard Ordinance (Delivery of certification of passing) Fuel Fabrication Ordinance, Article 3-7		(Standards)Reactor Regulation Act, Article 16-4, paragraph (3) The NRA Ordinance on Technical Standards for Welding of Fuel Fabrication Facilities, Reprocessing Facilities, Specified Disposal Facilities and Specified Waste Interim Storage and Treatment Facilities (Delivery of certification of passing) Fuel Fabrication Ordinance, Article 3-14			(Standards)Reactor Regulation Act, Article 16-5, paragraph (2) Fuel Fabrication Facilities Technical Standard Ordinance (Delivery of certification of passing) Fuel Fabrication Ordinance, Article 3-17						Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 22-8, paragraph (3) of the Act Fuel Fabrication Ordinance, Article 9-10	
Spent fuel interim storage facilities	Requirements for passing (completing) inspections	○		○			○			○			○	○
	Provisions specifying the framework for inspections	Reactor Regulation Act, Article 43-9		Reactor Regulation Act, Article 43-10			Reactor Regulation Act, Article 43-11			Reactor Regulation Act, Article 43-20			Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-27, paragraph (3) of the Act	Reactor Regulation Act, Article 68
	Provisions specifying scope of inspection	Reactor Regulation Act, Article 43-9, paragraph (1) (Matters to be inspected) Spent Fuel Storage Ordinance, Article 8 (Implementation procedure) Spent Fuel Storage Ordinance, Article 9-3		Reactor Regulation Act, Article 43-10, paragraphs (1) and (4) (Facilities to be inspected) Spent Fuel Storage Ordinance, Article 11 (Processes to be inspected) Spent Fuel Storage Ordinance, Article 13 (Exemption) Spent Fuel Storage Ordinance, Article 14 (Implementation procedure) Spent Fuel Storage Ordinance, Article 16-2			Reactor Regulation Act, Article 43-11, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Cabinet Order, Article 24 (Implementation procedure) Spent Fuel Storage Ordinance, Article 20-3			(Inspection period) Reactor Regulation Act, Article 43-20, paragraph (5) Spent Fuel Storage Ordinance, Article 38, paragraph (1) (Matters to be inspected) Reactor Regulation Act, Article 12, paragraph (6), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-20, paragraph (6) of the Act Spent Fuel Storage Ordinance, Article 38, paragraph (2)			(On-site inspection of licensed facilities under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (1) (Inspection for the parties contracted to conduct welding work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (2) (Inspection for the offices, etc. of related parties contracted to conduct design or construction work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (3)

	Provisions specifying an application form and attached documents	Reactor Regulation Act, Article 43-9, paragraph (1) Spent Fuel Storage Ordinance, Article 7		Reactor Regulation Act, Article 43-10, paragraphs (1) and (4) Spent Fuel Storage Ordinance, Articles 12 and 16			Reactor Regulation Act, Article 43-11, paragraph (1) Spent Fuel Storage Ordinance, Article 19						Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-27, paragraph (3) of the Act Spent Fuel Storage Ordinance, Article 43-7	(*4)
	Provisions specifying standards for passing inspections	(Standards) Reactor Regulation Act, Article 43-9, paragraph (2) Spent Fuel Interim Storage Technical Standards Ordinance (Delivery of certification of passing) Spent Fuel Storage Ordinance, Article 10		(Standards) Reactor Regulation Act, Article 43-10, paragraphs (3) and (5) The NRA Ordinance on Technical Standards for Welding of Spent Fuel Interim Storage Facilities (Delivery of certification of passing) Spent Fuel Storage Ordinance, Article 17			(Standards) Reactor Regulation Act, Article 43-11, paragraph (2) Spent Fuel Interim Storage Technical Standards Ordinance (Delivery of certification of passing) Spent Fuel Storage Ordinance, Article 21						Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 43-27, paragraph (3) of the Act Spent Fuel Storage Ordinance, Article 43-8	
Reprocessing activity licensees	Requirements for passing (completing) inspections	○		○			○			○			○	○
	Provisions specifying the framework for inspections	Reactor Regulation Act Article 46		Reactor Regulation Act, Article 46-2			Reactor Regulation Act, Article 46-2-3			Reactor Regulation Act, Article 50			Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 50-10, paragraph (3) of the Act	Reactor Regulation Act, Article 68

	Provisions specifying scope of inspection	Reactor Regulation Act, Article 46, paragraph (1) (Matters to be inspected) Reprocessing Ordinance, Article 6 (Implementation procedure) Reprocessing Ordinance, Article 6-4		Reactor Regulation Act, Article 46-2, paragraph (1) (Facilities to be inspected) Reprocessing Ordinance, Article 7-2 (Processes to be inspected) Reprocessing Ordinance, Article 7-4 (Exemption) Reprocessing Ordinance, Article 7-5 (Implementation procedure) Reprocessing Ordinance, Article 7-7-2			Reactor Regulation Act, Article 46-2-3, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Cabinet Order, Article 28 Reprocessing Ordinance, Article 7-9 (Implementation procedure) Reprocessing Ordinance, Article 7-10-3			(Inspection period) Reactor Regulation Act, Article 50, paragraph (5) Reprocessing Ordinance, Article 17-2, paragraph (1) (Matters to be inspected) Reactor Regulation Act, Article 50, paragraph (6) Reprocessing Ordinance, Article 17-2, paragraph (2)				(On-site inspection of licensed facilities under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (1) (Inspection for the parties contracted to conduct welding work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (2) (Inspection for the offices, etc. of related parties contracted to conduct design or construction work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (3)
	Provisions specifying an application form and attached documents	Reactor Regulation Act, Article 46, paragraph (1) Reprocessing Ordinance, Article 5		Reactor Regulation Act, Article 46-2, paragraph (1) Reprocessing Ordinance, Article 7-3			Reactor Regulation Act, Article 46-2-3 Reprocessing Ordinance, Article 7-10						Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 50-10, paragraph (3) of the Act Reprocessing Ordinance, Article 19-9	(*4)
	Provisions specifying standards for passing inspections	(Standards) Reactor Regulation Act, Article 46, paragraph (2) Reprocessing Technical Standards Ordinance (Delivery of certification of passing) Reprocessing Ordinance, Article 10		(Standards) Reactor Regulation Act, Article 46-2, paragraph (3) The NRA Ordinance on Technical Standards for Welding of Fuel Fabrication Facilities, Reprocessing Facilities, Specified Disposal Facilities and Specified Waste Interim Storage and Treatment Facilities (Delivery of certification of passing) Reprocessing Ordinance, Article 7-8			(Standards) Reactor Regulation Act, Article 46-2-3, paragraph (2) Reprocessing Technical Standards Ordinance (Delivery of certification of passing) Reprocessing Ordinance, Article 7-11						Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 50-10, paragraph (3) of the Act Reprocessing Ordinance, Articles 19-5 and 19-10	

Facilities using nuclear fuel materials	Requirements for passing (completing) inspections	○ (Facility inspection)		○						○			○	○
	Provisions specifying the framework for inspections	Reactor Regulation Act, Article 55-2		Reactor Regulation Act, Article 55-3						Reactor Regulation Act, Article 56-3			Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 57-6, paragraph (3) of the Act	Reactor Regulation Act, Article 68
	Provisions specifying scope of inspection	Reactor Regulation Act, Article 55-2, paragraph (1) (Inspection scope of nuclear fuel materials) Reactor Regulation Enforcement Cabinet Order, Article 41 (Matters to be inspected) Nuclear Fuel Materials Use Ordinance, Article 2-3 (Implementation procedure) Nuclear Fuel Materials Use Ordinance, Article 2-3-2		Reactor Regulation Act, Article 55-3, paragraph (1) (Facilities to be inspected) Nuclear Fuel Materials Use Ordinance, Article 2-6 (Processes to be inspected) Nuclear Fuel Materials Use Ordinance, Article 2-8 (Exemption) Nuclear Fuel Materials Use Ordinance, Article 2-9 (Implementation procedure) Nuclear Fuel Materials Use Ordinance, Article 2-9-2						(Inspection period) Reactor Regulation Act, Article 56-3, paragraph (5) Nuclear Fuel Materials Use Ordinance, Article 2-13, paragraph (1) (Matters to be inspected) Reactor Regulation Act, Article 56-3, paragraph (6) Nuclear Fuel Materials Use Ordinance, Article 2-13, paragraph (2)				(On-site inspection of licensed facilities under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (1) (Inspection for the parties contracted to conduct welding work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (2) (Inspection for the offices, etc. of related parties contracted to conduct design or construction work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (3)
	Provisions specifying an application form and attached documents	Reactor Regulation Act, Article 55-2, paragraph (1) Nuclear Fuel Materials Use Ordinance, Article 2-2		Reactor Regulation Act, Article 55-3, paragraph (1) Nuclear Fuel Materials Use Ordinance, Article 2-7									Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 57-6, paragraph (3) of the Act Nuclear Fuel Materials Use Ordinance, Article 6-6	(*4)

	Provisions specifying standards for passing inspections	(Standards) Reactor Regulation Act, Article 55-2 Nuclear Fuel Materials Use Ordinance, Article 2-5 (Delivery of certification of passing) Nuclear Fuel Materials Use Ordinance, Article 2-4		(Standards) Reactor Regulation Act, Article 55-3, paragraph (2) The NRA Ordinance on Technical Standards for Welding of Facilities using Nuclear Fuel Materials, etc. (Delivery of certification of passing) Nuclear Fuel Materials Use Ordinance, Article 2-10									Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 57-6, paragraph (3) of the Act Nuclear Fuel Materials Use Ordinance, Article 6-7	
Radioactive waste management facilities Waste interim storage and treatment facilities	Requirements for passing (completing) inspections	○		○			○			○			○	○
	Provisions specifying the framework for inspections	Reactor Regulation Act, Article 51-8		Reactor Regulation Act, Article 51-9			Reactor Regulation Act, Article 51-10			Reactor Regulation Act, Article 51-18			Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act	Reactor Regulation Act, Article 68
	Provisions specifying scope of inspection	Reactor Regulation Act, Article 51-8, paragraph (1) (Matters to be inspected) Waste Storage Ordinance, Article 8 (Implementation procedure) Waste Storage Ordinance, Article 9-3		Reactor Regulation Act, Article 51-9, paragraphs (1) and (4) (Facilities to be inspected) Waste Storage Ordinance, Article 11 (Matters to be inspected) Waste Storage Ordinance, Article 13 (Exemption) Waste Storage Ordinance, Article 14 (Implementation procedure) Waste Storage Ordinance, Article 16-2			Reactor Regulation Act, Article 51-10, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Ordinance, Article 35 Waste Storage Ordinance, Article 18 (Implementation procedure) Waste Storage Ordinance, Article 20-3			(Inspection period) Reactor Regulation Act, Article 51-18, paragraph (5) Waste Storage Ordinance, Article 34-2, paragraph (1) (Matters to be inspected) Reactor Regulation Act, Article 12, paragraph (6), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-18, paragraph (6) Waste Storage Ordinance, Article 34-2, paragraph (2)			(On-site inspection of licensed facilities under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (1) (Inspection for the parties contracted to conduct welding work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (2) (Inspection for the offices, etc. of related parties contracted to conduct design or construction work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (3)

	Provisions specifying an application form and attached documents	Reactor Regulation Act, Article 51-8, paragraph (1) Waste Storage Ordinance, Article 7		Reactor Regulation Act, Article 51-9, paragraphs (1) and (4) Waste Storage Ordinance, Articles 12 and 16			Reactor Regulation Act, Article 51-10, paragraph (1) Waste Storage Ordinance, Article 19						Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Waste Storage Ordinance, Article 35-10	(*4)
	Provisions specifying standards for passing inspections	(Standards) Reactor Regulation Act, Article 51-8, paragraph (2) The NRA Ordinance on Technical Standards for the Capabilities of Specific Waste Disposal Facilities or Specific Waste Interim Storage and Treatment Facilities (Delivery of certification of passing) Waste Storage Ordinance, Article 10		(Standards) Reactor Regulation Act, Article 51-9, paragraphs (3) and (5) The NRA Ordinance on Technical Standards for Welding of Fuel Fabrication Facilities, Reprocessing Facilities, Specific Waste Disposal Facilities and Specific Waste Interim Storage and Treatment Facilities (Delivery of certification of passing) Waste Storage Ordinance, Article 17			(Standards) Reactor Regulation Act, Article 51-10, paragraph (2) The NRA Ordinance on Technical Standards for the Capabilities of Specific Waste Disposal Facilities or Specific Waste Interim Storage and Treatment Facilities (Delivery of certification of passing) Waste Storage Ordinance, Article 21						Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Waste Storage Ordinance, Article 35-11	
Category 1 waste disposal facilities	Requirements for passing (completing) inspections	○		○			○			○	○	○	○	○
	Provisions specifying the framework for inspections	Reactor Regulation Act, Article 51-8		Reactor Regulation Act, Article 51-9			Reactor Regulation Act, Article 51-10			Reactor Regulation Act, Article 51-18	<Confirmation of waste disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) <Confirmation of waste packages > Reactor Regulation Act, Article 51-6, paragraph (2)	Reactor Regulation Act, Article 51-24-2	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act	Reactor Regulation Act, Article 68

	Provisions specifying scope of inspection	Reactor Regulation Act, Article 51-8, paragraph (1) (Matters to be inspected) Category 1 Waste Disposal Ordinance, Article 19 (Implementation procedure) Category 1 Waste Disposal Ordinance, Article 22		Reactor Regulation Act, Article 51-9, paragraphs (1) and (4) (Facilities to be inspected) Category 1 Waste Disposal Ordinance, Article 25 (Matters to be inspected) Category 1 Waste Disposal Ordinance, Article 27 (Exemption) Category 1 Waste Disposal Ordinance, Article 28 (Implementation procedure) Category 1 Waste Disposal Ordinance, Article 30-2			Reactor Regulation Act, Article 51-10, paragraph (1) (Facilities to be inspected) Reactor Regulation Enforcement Cabinet Order, Article 35 Category 1 Waste Disposal Ordinance, Article 32 (Implementation procedure) Category 1 Waste Disposal Ordinance, Article 37			(Inspection period) Reactor Regulation Act, Article 51-18, paragraph (5) Category 1 Waste Disposal Ordinance, Article 64, paragraph (1) (Matters to be inspected) Reactor Regulation Act, Article 12, paragraph (6), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-18, paragraph (6) of the Act Category 1 Waste Disposal Ordinance, Article 64, paragraph (2)	<Confirmation of waste disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) (Matters to be inspected) Category 1 Waste Disposal Ordinance, Article 6 (Implementation procedure) Category 1 Waste Disposal Ordinance, Article 9 <Confirmation of waste packages > Reactor Regulation Act, Article 51-6, paragraph (2) (Implementation procedure) Category 1 Waste Disposal Ordinance, Article 12-2			(On-site inspection of licensed facilities under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (1) (Inspection for the parties contracted to conduct welding work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (2) (Inspection for the offices, etc. of related parties contracted to conduct design or construction work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (3)
	Provisions specifying an application form and attached documents	Reactor Regulation Act, Article 51-8, paragraph (1) Category 1 Waste Disposal Ordinance, Article 18		Reactor Regulation Act, Article 51-9, paragraphs (1) and (4) Category 1 Waste Disposal Ordinance, Articles 26 and 30			Reactor Regulation Act, Article 51-10, paragraph (1) Category 1 Waste Disposal Ordinance, Article 33				<Confirmation of waste disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) Category 1 Waste Disposal Ordinance, Article 5 <Confirmation of waste packages > Reactor Regulation Act, Article 51-6, paragraph (2) Category 1 Waste Disposal Ordinance, Article 11	Reactor Regulation Act, Article 51-24-2, paragraph (2) Category 1 Waste Disposal Ordinance, Article 76	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Category 1 Waste Disposal Ordinance, Article 83	(*4)
	Provisions specifying standards for passing inspections	(Standards) Reactor Regulation Act, Article 51-8, paragraph (2) The NRA Ordinance on Technical Standards for the Capabilities of Specific Waste Disposal Facilities or Specific Waste Interim Storage and Treatment Facilities (Delivery of certification of passing) Category 1 Waste Disposal Ordinance, Article 24		(Standards) Reactor Regulation Act, Article 51-9, paragraphs (3) and (5) NRA Ordinance on Technical Standards for Welding of Fuel Fabrication Facilities, Reprocessing Facilities, Specific Waste Disposal Facilities and Specific Waste Interim Storage and Treatment Facilities (Delivery of certification of passing) Category 1 Waste Disposal Ordinance, Article 31			(Standards) Reactor Regulation Act, Article 51-10, paragraph (2) The NRA Ordinance on Technical Standards for the Capabilities of Specific Waste Disposal Facilities or Specific Waste Interim Storage and Treatment Facilities (Delivery of certification of passing)Category 1 Waste Disposal Ordinance, Article 39				<Confirmation of disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) Category 1 Waste Disposal Ordinance, Article 7 (Delivery of certification of confirmation)Category 1 Waste Disposal Ordinance, Article 13 <Confirmation of waste packages>(Standards)Reactor Regulation Act, Article 51-6, paragraph (2) Category 1 Waste Disposal Ordinance, Article 12 (Delivery of certification of confirmation)Category 1 Waste Disposal Ordinance, Article 13	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-24-2, paragraph (3) of the Act	Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the ActCategory 1 Waste Disposal Ordinance, Article 84	

Category 2 waste disposal facilities	Requirements for passing (completing) inspections									○	○		○	○
	Provisions specifying the framework for inspections									Reactor Regulation Act, Article 51-18 Category 2 Waste Disposal Ordinance, Article 20	<Confirmation of disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) <Confirmation of waste packages> Reactor Regulation Act, Article 51-6, paragraph (2)		Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25 of the Act	Reactor Regulation Act, Article 68
	Provisions specifying scope of inspection									(Inspection period) Reactor Regulation Act, Article 51-18, paragraph (5) Category 2 Waste Disposal Ordinance, Article 20-2, paragraph (1) (Matters to be inspected) Reactor Regulation Act, Article 12, paragraph (6), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-18 of the Act, paragraph (6) Category 2 Waste Disposal Ordinance, Article 20-2, paragraph (2)	<Confirmation of disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) (Matters to be inspected) Category 2 Waste Disposal Ordinance, Article 5 (Implementation procedure) Category 2 Waste Disposal Ordinance, Article 6-3 <Confirmation of waste packages> Reactor Regulation Act, Article 51-6, paragraph (2) (Implementation procedure) Category 2 Waste Disposal Ordinance, Article 8-2			(On-site inspection of licensed facilities under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (1) (Inspection for the parties contracted to conduct welding work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (2) (Inspection for the offices, etc. of related parties contracted to conduct design or construction work subject to approvals under the Reactor Regulation Act) Reactor Regulation Act, Article 68, paragraph (3)
	Provisions specifying an application form and attached documents										<Confirmation of disposal facilities> Reactor Regulation Act, Article 51-6, paragraph (1) Category 2 Waste Disposal Ordinance, Article 4 <Confirmation of waste packages> Reactor Regulation Act, Article 51-6, paragraph (2) Category 2 Waste Disposal Ordinance, Article 7		Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Category 2 Waste Disposal Ordinance, Article 22-11	(*4)

	Provisions specifying standards for passing inspections										<Confirmation of disposal facilities>Reactor Regulation Act, Article 51-6, paragraph (1) Category 2 Waste Disposal Ordinance, Article 6, etc. (Delivery of certification of confirmation)Category 2 Waste Disposal Ordinance, Article 9 <Confirmation of waste packages> (Standards)Reactor Regulation Act, Article 51-6, paragraph (2) Category 2 Waste Disposal Ordinance, Article 8, etc. (Delivery of certification of confirmation)Category 2 Waste Disposal Ordinance, Article 9		Reactor Regulation Act, Article 12-6, paragraph (8), as applied mutatis mutandis by replacing certain terms pursuant to Article 51-25, paragraph (3) of the Act Category 2 Waste Disposal Ordinance, Article 22-12	

Table 4 : Inspections and Confirmation under the Radiation Hazards Prevention Act

Notes : Pursuant to the Radiation Hazards Prevention Act, permitted or registered users are required to undergo the following inspections and/or confirmation conducted by the NRA. In addition, on-site inspections are reactive inspections(*1).

Type of operator		Facility inspection	Periodic inspection	Periodic confirmation	On-site inspection(*1)
Specified permitted user A specified permitted user refers to a permitted user to whom either item (1) or (2) below applies. (1) A permitted user who uses the radioisotope which is 10 TBq or more for one sealed radioisotope or the radioisotope-equipped device which is 10TBq or more as total radioactivity per one device. (2) A permitted user whose amount of storage capacity for unsealed radioisotopes is 100,000-fold of the lower bound quantity* for each type or more and whose amount of storage capacity for sealed radioisotopes is 10 TBq or more. * The quantity specified in Article 1 and appended Table 1 of "the Notification to Specify Standards for the Amount etc. of Radioisotopes"	Requirements for obtaining approval of permission, etc. or passing (completing) inspection	○	○	○	○
	Provisions specifying the framework for permission and inspection	Radiation Hazards Prevention Act, Article 12-8, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 13	Radiation Hazards Prevention Act, Article 12-9, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 14	Radiation Hazards Prevention Act, Article 12-10 Radiation Hazards Prevention Cabinet Order, Article 15	Radiation Hazards Prevention Act, Article 43-2
	Provisions specifying scope of inspection	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-8, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Article 12-8, paragraph 3 and Article 6 Radiation Hazards Prevention Ordinance, Articles 14-7, 14-9 and 14-11	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-9, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Article 12-9, paragraph 3 and Article 6 Radiation Hazards Prevention Ordinance, Article 14-7, 14-9 and 14-11	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-10 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Articles 10, 20 and 25 Radiation Hazards Prevention Ordinance, Articles 20 and 24	(On-site inspection of places of activity, etc. of permitted or registered users, etc. under the Radiation Hazards Prevention Act) Radiation Hazards Prevention Act, Article 43-2, paragraph 1
	Provisions specifying an application form and attached documents	Radiation Hazards Prevention Act, Article 12-8, paragraph 1 Radiation Hazards Prevention Ordinance, Article 14-14	Radiation Hazards Prevention Act, Article 12-9, paragraph 1 Radiation Hazards Prevention Ordinance, Article 14-17	Radiation Hazards Prevention Act, Article 12-10 Radiation Hazards Prevention Ordinance, Article 14-20	(*1) On-site inspections are reactive inspections. Therefore, applicants for licenses, etc. do not apply to regulatory bodies to undergo such inspections.)
	Provisions specifying standards for certification of passing, etc.	(Standards) Radiation Hazards Prevention Act, Article 12-8, paragraph 3 Radiation Hazards Prevention Act,	(Standards) Radiation Hazards Prevention Act, Article 12-9, paragraph 3 Radiation Hazards Prevention Act, Article 6	(Standards) Radiation Hazards Prevention Act, Articles 10, 20 and 25 Radiation Hazards Prevention Ordinance,	

		Article 6 Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11 (Delivery of certification of passing) Radiation Hazards Prevention Ordinance, Article 14-16	Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11 (Delivery of certification of passing) Radiation Hazards Prevention Ordinance, Article 14-19	Articles 20 and 24 (Delivery of certification of passing) Radiation Hazards Prevention Ordinance, Article 14-21	
Permitted user	Requirements for obtaining approval of permission, etc. or passing (completing) inspection				○
	Provisions specifying the framework for permission and inspection				Radiation Hazards Prevention Act, Article 43-2
	Provisions specifying scope of inspection				(On-site inspection of places of activity, etc. of permitted or registered users, etc. under the Radiation Hazards Prevention Act) Radiation Hazards Prevention Act, Article 43-2, paragraph 1
	Provisions specifying an application form and attached documents				(*1) On-site inspections are reactive inspections. Therefore, applicants for licenses, etc. do not apply to regulatory bodies to undergo such inspections.)
	Provisions specifying standards and certification for authorization or passing inspection, etc.				
Registered user	Requirements for obtaining approval of permission, etc. or passing (completing) inspection				○

	Provisions specifying the framework for permission and inspection				Radiation Hazards Prevention Act, Article 43-2
	Provisions specifying scope of inspection				(On-site inspection of places of activity, etc. of permitted or registered users, etc. under the Radiation Hazards Prevention Act) Radiation Hazards Prevention Act, Article 43-2, paragraph 1
	Provisions specifying an application form and attached documents				(*1) On-site inspections are reactive inspections. Therefore, applicants for licenses, etc. do not apply to regulatory bodies to undergo such inspections.)
	Provisions specifying standards and certification for authorization or passing inspection, etc.				
Registered user of approved devices with certification label	Requirements for obtaining approval of permission, etc. or passing (completing) inspection				○
	Provisions specifying the framework for permission and inspection				Radiation Hazards Prevention Act, Article 43-2
	Provisions specifying scope of inspection				(On-site inspection of places of activity, etc. of permitted or registered users, etc. under the Radiation Hazards Prevention Act) Radiation Hazards Prevention Act, Article 43-2, paragraph 1
	Provisions specifying an application form and attached documents				(*1) On-site inspections are reactive inspections. Therefore, applicants for licenses, etc. do not apply to regulatory bodies to undergo such inspections.)
	Provisions specifying standards and				

	certification for authorization or passing inspection, etc.				
Registered dealer and lessor	Requirements for obtaining approval of permission, etc. or passing (completing) inspection				○
	Provisions specifying the framework for permission and inspection				Radiation Hazards Prevention Act, Article 43-2
	Provisions specifying scope of inspection				(On-site inspection of places of activity, etc. of permitted or registered users, etc. under the Radiation Hazards Prevention Act) Radiation Hazards Prevention Act, Article 43-2, paragraph 1
	Provisions specifying an application form and attached documents				(*1) On-site inspections are reactive inspections. Therefore, applicants for licenses, etc. do not apply to regulatory bodies to undergo such inspections.)
	Provisions specifying standards and certification for authorization or passing inspection, etc.				
Permitted waste management operator	Requirements for obtaining approval of permission, etc. or passing (completing) inspection	○	○	○	○
	Provisions specifying the framework for permission and inspection	Radiation Hazards Prevention Act, Article 12-8, paragraph 2 Radiation Hazards Prevention Cabinet Order, Article 13	Radiation Hazards Prevention Act, Article 12-9, paragraph 1 Radiation Hazards Prevention Cabinet Order, Article 14	Radiation Hazards Prevention Act, Article 12-10 Radiation Hazards Prevention Cabinet Order, Article 15	Radiation Hazards Prevention Act, Article 43-2

	Provisions specifying scope of inspection	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-8, paragraph 2 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Article 12-8, paragraph 3 and Article 7 Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-9, paragraph 2 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Article 12-9, paragraph 3 and Article 7 Radiation Hazards Prevention Ordinance, Article 14-8, 14-10 and 14-11	(Facilities to be inspected) Radiation Hazards Prevention Act, Article 12-10 Radiation Hazards Prevention Cabinet Order, Article 13 (Matters to be inspected) Radiation Hazards Prevention Act, Articles 10, paragraph 1 and Articles 20 and 25	(On-site inspection of places of activity, etc. of permitted or registered users, etc. under the Radiation Hazards Prevention Act) Radiation Hazards Prevention Act, Article 43-2, paragraph 1
	Provisions specifying an application form and attached documents	Radiation Hazards Prevention Act, Article 12-8, paragraph 2 Radiation Hazards Prevention Ordinance, Article 14-15	Radiation Hazards Prevention Act, Article 12-9, paragraph 2 Radiation Hazards Prevention Ordinance, Article 14-18	Radiation Hazards Prevention Act, Article 12-10 Radiation Hazards Prevention Ordinance, Article 14-20	(*1) On-site inspections are reactive inspections. Therefore, applicants for licenses, etc. do not apply to regulatory bodies to undergo such inspections.)
	Provisions specifying standards and certification for authorization or passing inspection, etc.	(Standards) Radiation Hazards Prevention Act, Article 12-8, paragraph 3 Radiation Hazards Prevention Act, Article 7 Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11 (Delivery of certification of passing) Radiation Hazards Prevention Ordinance, Article 14-16	(Standards) Radiation Hazards Prevention Act, Article 12-9, paragraph 3 Radiation Hazards Prevention Act, Article 7, paragraph2 1 to 3 Radiation Hazards Prevention Ordinance, Articles 14-8, 14-10 and 14-11 (Delivery of certification of passing) Radiation Hazards Prevention Ordinance, Article 14-19	(Standards) Radiation Hazards Prevention Act, Articles 10, 20 and 25 Radiation Hazards Prevention Ordinance, Articles 20 and 24 (Delivery of certification of passing) Radiation Hazards Prevention Ordinance, Article 14-21	