The findings of the National System of Safeguards of Japan from its safeguards activities in 2021 are as follows;

It was confirmed by the safeguards activities conducted by the Nuclear Regulation Authority in 2021 that all nuclear material in Japan were properly accounted for and controlled by its licensees.

Attachment 1: Safeguards Activities in Japan in 2021
Attachment 2: Inventory and Inventory Changes of Nuclear Material in Japan

Safeguards Activities in Japan in 2021

Attachment 1

①Summary of Safeguards Activities under the National System of Safeguards of Japan

Categories under legal system for nuclear regulation[1]	Number of facilities and LOFs[2]		Person-days of national inspection			Number of actions taken based on the regulation for functioning SSAC							
						Licence granted for minor users of nuclear material[4]	Approval of accounting provisions[5]		Number of accounting reports submitted[6]				
	Total	Recipients of national inspections	Total	Conducted by JSGO inspectors	Conducted by NMCC[3] inspectors		Initial approval	Amendment approval	Total	ICR	MBR	PIL	Biannual reports from minor users
Nuclear Fuel Fabrication	6 (6)	6 (6)	311 (220)	12 (11)	299 (209)	N/A	1 (0)	26 (72)	68 (64)	53 (51)	8 (7)	7 (6)	N/A
Research Reactor	22 (22)	16 (15)	140 (126)	3 (4)	137 (122)				66 (62)	21 (18)	23 (22)	22 (22)	
Power Reactor	57 (57)	54 (54)	259 (168)	8 (14)	251 (154)				158 (170)	38 (46)	60 (62)	60 (62)	
Power reactor under R&D stage	2 (2)	2 (2)	16 (15)	0 (0)	16 (15)				6 (4)	2 (0)	2 (2)	2 (2)	
Reprocessing	3 (3)	3 (3)	742 (725)	3 (2)	739 (723)				42 (42)	36 (36)	3 (3)	3 (3)	
Various users (R&D etc.)	201 (201)	29 (32)	402 (403)	7 (10)	395 (393)				768 (757)	355 (338)	208 (209)	205 (210)	
Minor Users (Nuclear Use)	9 (10)	0 (1)	0 (2)	0 (0)	0 (2)	0 (0)	0 (0)	1 (2)	30 (35)	10 (12)	10 (12)	10 (11)	
Minor Users (Non-Nuclear Use)[4]	1,837 (1,821)	N/A	N/A			38 (67)	38 (67)	140 (125)	3,663 (3,570)	N/A			3,663 (3,570)
合計	2,137 (2,122)	110 (113)	1,870 (1,659)	33 (41)	1,837 (1,618)	38 (67)	39 (67)	167 (199)	4,801 (4,704)	515 (501)	314 (317)	309 (316)	3,663 (3,570)

＊Records in 2020 are shown in parentheses for comparison.

1 Categorized in accordance with the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (Nuclear Reactor Regulation Law).

2 When counting the number of facilities and LOFs, the categorization of IAEA safeguards implementation is followed. The categorization does not always correspond with the categorization of domestic regulation. Minor users are licenced to use natural and/or depleted uranium up to 300g and/or thorium up to 900g.

3 Nuclear Material Control Center (NMCC) is designated to carry out domestic inspections under the Nuclear Reactor Regulation Law (Art.61-23-2).

4 Only those who use Nuclear Fuel Material

5 All licencees except the category of uranium concentration shall have approved accounting provisions to account for and control internationally controled material (incl. nuclear material) properly.

6 All licencees except the category of uranium concentration shall submit accounting reports based on the requirement of the domestic regulation and accounting provisions.

② Design Information Verification (DIV) and Complementary Access (CA)

Type of verifications	Number of verifications	Person-days of verifications
Design Information Verification[7]	84 (86)	95 (88)
Complementary Access[8]	30 (23)	55 (48)
Total	114 (109)	150 (136)

7 The IAEA, in co-operation with JSGO, conducts DIVs based on safeguards agreement to verify the correctness and completeness of the design information of facilities provided to the IAEA.

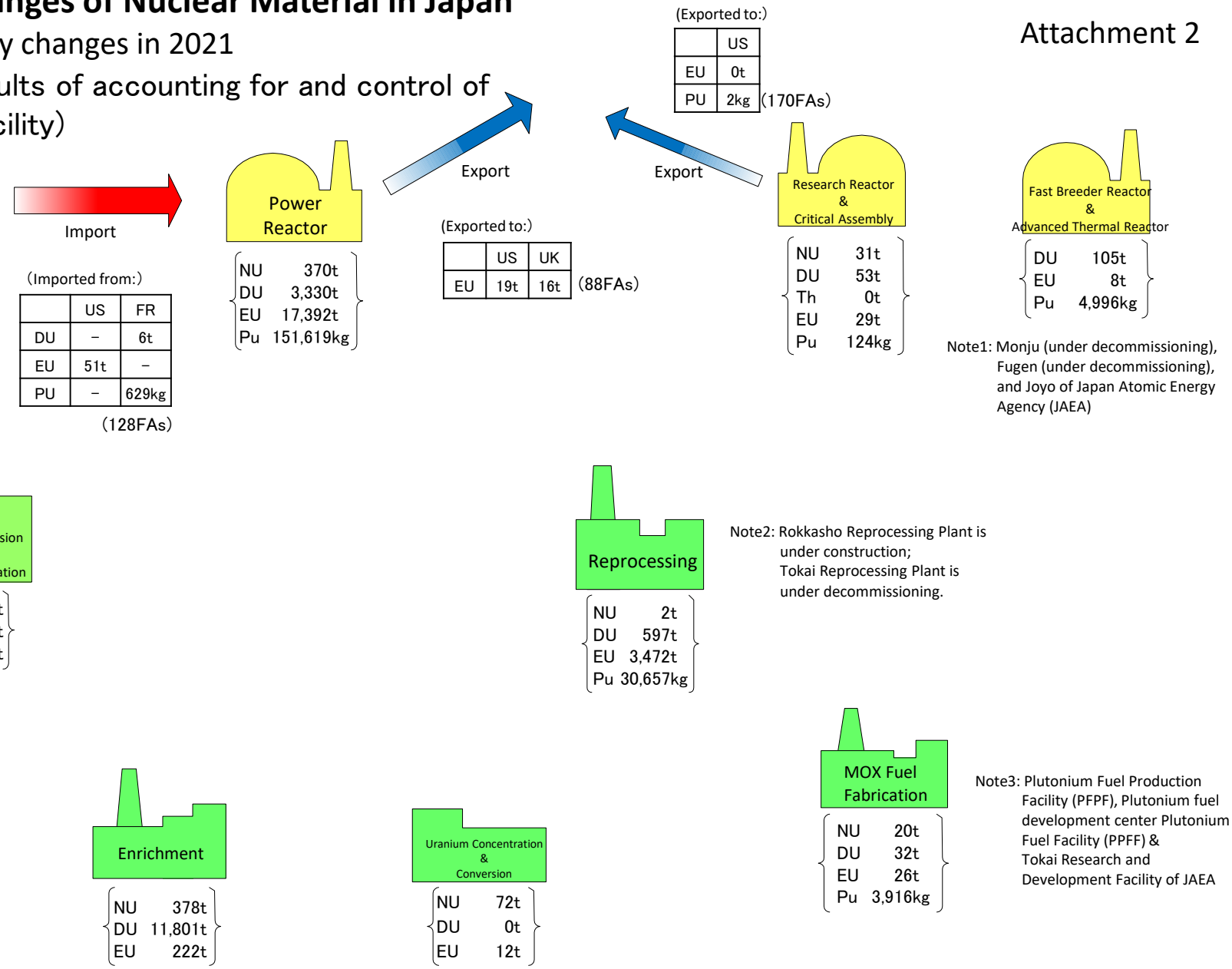
8 The IAEA conducts CAs based on additional protocol to the safeguards agreement to confirm the absense of undeclared nuclear material and activities.

Inventory and Inventory changes of Nuclear Material in Japan

Attachment 2

①Major inventory and inventory changes in 2021

(Figure summarizing the results of accounting for and control of nuclear material at each facility)



Note1: Monju (under decommissioning), Fugen (under decommissioning), and Joyo of Japan Atomic Energy Agency (JAEA)

Note2: Rokkasho Reprocessing Plant is under construction; Tokai Reprocessing Plant is under decommissioning.

Note3: Plutonium Fuel Production Facility (PFPF), Plutonium fuel development center Plutonium Fuel Facility (PPFF) & Tokai Research and Development Facility of JAEA

NU: Natural Uranium
DU: Depleted Uranium
Th: Thorium
EU: Enriched Uranium
Pu: Plutonium
FAs: Number of Fuel Assemblies

- Facilities are categorized according to the stages of nuclear fuel cycle and the categorization does not correspond to regulatory categorization.
- Each category does not include associated facilities of main facilities.
- Inventory is based on the weight of elements as of 31 December 2021.
- More than 0.1kg of Pu and more than 0.1t of another elements are described.

② Nuclear Material Inventory by facility types

Categories of Nuclear Material[1] / Categories under legal system for nuclear regulation[1]	Natural uranium (t)	Depleted uranium (t)	Thorium (t)	Enriched uranium		Plutonium (kg)
				U (t)	U-235 (t)	
Nuclear Fuel Fabrication	463 (463)	11,839 (11,839)	0 (0)	1,368 (1,367)	55 (55)	– (–)
Research Reactor	31 (31)	63 (63)	0 (0)	34 (34)	2 (2)	1,840 (1,842)
Power Reactor	370 (370)	3,330 (3,324)	– (–)	17,392 (17,381)	349 (352)	151,619 (150,060)
Power Reactor under R&D stage	– (–)	95 (95)	– (–)	3 (3)	0 (0)	3,279 (3,306)
Reprocessing	2 (2)	597 (597)	0 (0)	3,472 (3,472)	33 (33)	30,657 (30,659)
Various users (R&D, etc.)	121 (121)	252 (252)	5 (5)	48 (48)	1 (1)	3,997 (3,999)
Minor Users (Nuclear Use)	0 (0)	0 (0)	0 (0)			
Minor Users (Non-Nuclear Use)	0 (0)	0 (0)	0 (0)			
Total[2]	987 (987)	16,177 (16,171)	5 (5)	22,317 (22,305)	440 (443)	191,391 (189,866)

＊ Figures are based on the data as of 31 December, 2021. For comparison, corresponding data as of 31 December, 2020 are provided in parantheses below.

＊ – In the table, "–" indicates that there is no inventory, and "0" indicates that there is an inventory of less than 0.5.

1 Categorized in accordance with the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (Nuclear Reactor Regulation Law) and the relevant cabinet order.

2 Due to rounding, total figure may not correspond to the sum of figures above.

③ Inventory of nuclear material subject to bilateral nuclear cooperation agreements

As of 31 December 2021

Categories of Nuclear Material* / Supplying Party	Natural Uranium (t)	Depleted Uranium (t)	Thorium (t)	Enriched Uranium		Plutonium (kg)
				U(t)	U-235(t)	
United States of America	80 (80)	3,754 (3,750)	1 (1)	16,137 (16,107)	314 (313)	136,429 (135,770)
United Kingdom of Great Britain and Northern Ireland	12 (13)	447 (447)	0 (0)	2,311 (2,325)	43 (45)	20,855 (20,372)
France	36 (36)	6,514 (6,507)	0 (0)	6,086 (6,089)	98 (99)	60,042 (59,268)
Canada	676 (676)	5,293 (5,293)	0 (0)	5,719 (5,723)	100 (101)	55,998 (55,096)
Australia	20 (20)	1,031 (1,031)	– (–)	3,994 (4,011)	79 (80)	31,803 (31,548)
China	27 (27)	254 (254)	– (–)	297 (277)	7 (7)	2,236 (2,237)
EURATOM	48 (49)	6,515 (6,509)	0 (0)	8,093 (8,120)	171 (175)	25,072 (23,729)
Kazakhstan	– (–)	– (–)	– (–)	37 (37)	1 (1)	– (–)
Republic of Korea	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)
Viet Nam	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)
Jordan	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)
Russia	– (–)	– (–)	– (–)	67 (67)	3 (3)	– (–)
Turkey	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)
United Arab Emirates	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)
India	– (–)	– (–)	– (–)	– (–)	– (–)	– (–)
IAEA	1 (1)	2 (2)	– (–)	0 (0)	0 (0)	1 (1)
Other	168 (168)	2,075 (2,075)	4 (4)	358 (358)	8 (8)	4,233 (4,231)

– This table shows the weight of nuclear material subject to each bilateral nuclear cooperation agreement or agreement on the supply of uranium from the IAEA. Multiple agreements sometimes apply to the same nuclear material. In such cases, the material is counted in multiple times.

– Records in 2020 are shown in parentheses below for comparison.

– In the table, "–" indicates that there is no inventory, and "0" indicates that there is an inventory of less than 0.5.

* Categorized in accordance with the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (Nuclear Reactor Regulation Law) and the relevant cabinet order.