FY 2022

Annual Report

Nuclear Regulation Authority

The Nuclear Regulation Authority reports the state of affairs under its jurisdiction to the Diet based on the provisions of Article 24 of the Act for Establishment of the Nuclear Regulation Authority (Act No. 47 of 2012).

Major Activities in Fiscal Year 2022

(1) Rigorous and Proper Implementation of Review and Continuous Improvement of Regulatory Requirements

With regard to compliance with the new regulatory requirements for commercial power reactors, the NRA approved changes in the operational safety program for the Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. In addition, concerning the special facilities for severe accident management, the NRA permitted changes in basic design of Units 6 and 7 of TEPCO's Kashiwazaki-Kariwa NPS, partially approved changes in design and construction plans of Tokai Daini NPS of Japan Atomic Power Co., and approved changes in operational safety programs of Takahama PS Units 1 and 2 of Kansai Electric Power Co., Inc.

As for nuclear fuel cycle facilities, the NRA approved design and construction plans for spent fuel storage facilities and other plants of Recycled-Fuel Storage Co. in conjunction with changes in operational safety programs of uranium fuel fabrication facilities and other centers of Mitsubishi Nuclear Fuel. Likewise, the NRA monitored to ensure JAEA appropriately implements the transferring of fuel assemblies at the prototype fast breeder reactor MONJU, and treatment of high radioactivity liquid waste, vitrification and other measures at the Tokai Reprocessing Plant. As for the reprocessing plants of Japan Nuclear Fuel Limited, the NRA approved the first application for design and construction plans of the reprocessing facilities and the MOX fuel fabrication facilities.

With regard to the continuous improvement of regulatory requirements, the NRA made necessary studies and responses such as (1) determining matters to be considered for safety assurance in case of selecting areas for outline surveys on final disposal of specified radioactive waste and (2) improving regulatory requirements to reflect findings on hydrogen protection obtained from the "Interim Report on the TEPCO’s Fukushima Daiichi Nuclear Power Station Accident." In addition, to facilitate continuous improvement of regulatory activities, the NRA improved the review process by increasing the frequency of review meetings and other countermeasures for confirming the policy to respond to operators as well as organized the concept of backfitting and documented the review process.

Based on the status of discussions at the GX Implementation Council held from July 27 in 2022, the NRA conducted necessary studies to show that the safety of aged power reactors can continue to be thoroughly verified. At the 72th FY2022 NRA Commission Meeting (February 13, 2023), a draft act to partially revise the Electricity Business Act and other acts was decided upon in order to establish an electricity supply system for a decarbonized society in addition to a draft of safety regulations related to aging nuclear reactors. The draft act implemented the Cabinet Decision on February 28, 2023. In addition, a policy to ensure transparency in the operation of the committee was reviewed, and it was decided that, in principle, interviews with administrative organizations in charge of affairs related to the promotion of the use of nuclear energy would be disclosed to the public.

(For details, see Section 1 of Chapter 1 and Sections 1, 3 and 4 of Chapter 2.)

(2) Strict and appropriate implementation of inspections and continuous improvement of operations

A comprehensive assessment of the inspection results for FY2021 was conducted on May 25, 2022. For TEPCO's Kashiwazaki-Kariwa NPS, since it was evaluated that the operator's safety activities had been in a state of prolonged or significant deterioration, in FY2022, the NRA continued to increase the number of baseline inspections of the team related to physical protection of nuclear material, and also conducted supplemental inspections. Other nuclear facilities were evaluated to be in a state where autonomous improvements can be expected of the operators, and regular baseline inspections were continuously conducted in FY2022 as well.

There were 22 inspection findings in the nuclear regulatory inspections conducted up to the third quarter of FY2022 (commercial power reactors: significance level "green," severity level "SL IV"; nuclear fuel cycle facilities and other centers: significance level "no additional action," and severity level "SL IV," "minor"). In addition to the above, there was another case besides the case of Tsuruga NPS Unit 2 as below, in which only the severity level was evaluated although it was not an inspection finding, and it was "SLIV."

Regarding the rewriting of the borehole map data of the Tsuruga NPS Unit 2 of the Japan Atomic Power Company, which was confirmed in FY2020, a nuclear regulatory inspection was conducted on the improvement status in the work process for the preparation of review documents. Because this case was found to have a significant impact on the regulatory activities of the NRA, on October 26, 2022, the NRA notified the Japan Atomic Power Company that the severity level was determined to be "SL III" as well as determined that the system for preparing appropriate review documents was in place to resume the Review Meeting on Conformity to the New Regulatory Requirements.

Regarding the supplemental inspection of TEPCO's Kashiwazaki-Kariwa NPS, the NRA received a report on the interim summary of Phase II (confirmation of the operational status of corrective actions) on April 27, 2022, and on September 14, approved three verification policies to confirm supplemental inspections: (1) to realize strong protection of nuclear materials, (2) to take root of a system for autonomous improvement, and (3) to establish a system to ensure that improvement measures are not transitory. The NRA continued to receive reports on the status of supplemental inspections in accordance with the verification policy, and the NRA Commissioners (including its Chairman) conducted the on-site investigations.

The "Information Exchange Meeting on the Inspection Program" was held three times in FY2022 to exchange opinions with external experts, nuclear operators and other entities for the continuous improvement of the nuclear regulatory inspection system. In conjunction with this, the NRA received a report on the verification status on the appropriateness of the Probabilistic Risk Assessment (PRA) models developed by the operators in order to utilize them in nuclear regulatory inspections.

(For details, see Section 2 of Chapter 2.)

(3) Ensuring the Safety of the Decommissioning of TEPCO’s Fukushima Daiichi NPS and Efforts for Discharge of ALPS-Treated Water into the Sea

The NRA is conducting a rigorous review of the application for approval to change the implementation plan submitted by TEPCO, while monitoring various efforts to ensure the safety of the decommissioning of TEPCO’s Fukushima Daiichi Nuclear Power Station.

The application, which had been submitted by TEPCO on December 21, 2021 for

approval of changes in the implementation plan for the installation of facilities for discharge of ALPS-Treated Water into the sea, was reviewed and confirmed at a public meeting, and after public comment was solicited, the plan was approved on July 22, 2022. In addition, from January 16 to 20 of 2023, IAEA's second regulatory review on the discharge of ALPS-Treated Water to the sea was conducted, and the NRA largely shared the view that the regulatory process and content should be applied in accordance with the IAEA safety standards.

Also, the NRA began monitoring to understand the status of the area before discharging the ALPS-Treated Water into the sea as well as studied how the sea area should be monitored after the discharge in order to revise the Comprehensive Radiation Monitoring Plan on March 16, 2023.

(For details, see Section 1 of Chapter 1 and Sections 1 and 3 of Chapter 4.)

(4) Promotion of Nuclear Security Measures

The NRA made efforts to appropriately apply nuclear security plans, review criteria, etc., for physical protection measures for nuclear material related to computer security countermeasures, which had been revised on March 30, 2022. Similarly, to prevent nuclear security incidents and allow prompt response in the event of an incident, it promoted the stationing of nuclear security inspectors to the NRA Regional offices, as well as the development of a network for handling highly confidential information between the NRA and the NRA Regional Offices. Furthermore, in order to strengthen nuclear security measures, the NRA made a formal request to the IAEA to accept the International Physical Protection Advisory Service (IPPAS) mission, which is expected in the middle of 2024.

(For details, see Section 1 of Chapter 3.)

(5) Appropriate Implementation of Radiation Protection Measures and Emergency Response

The NRA appropriately reviewed applications for permissions and approvals and inspected operators based on the Radioisotope Regulation Act, and revised the enforcement order of the Act on the Regulation of Radioisotopes, etc., to eliminate the double regulation of unapproved radiopharmaceuticals and other products. In addition, the NRA established the guideline for review and the guideline for on-site inspection to help improve the predictability of reviews and on-site inspections based on the Radioisotope Regulation Act.

The NRA also revised the NRA Guide for Emergency Preparedness and Response to include enhanced radiation protection measures for emergency workers as well as formulated manuals for the evacuation and exit inspections and for simplified decontamination in the event of a nuclear disaster. Furthermore, based on the lessons learned from the alert level event following the earthquake offshore from Fukushima Prefecture on March 16, 2022, the Nuclear Emergency Response Manual was revised (September 2, 2022) to allow the Prime Minister's Office and the main office building of the Cabinet Office to be used as sites where the executives of the Secretariat of the Nuclear Emergency Response Headquarters make decisions along with the Secretariat of the Nuclear Emergency Response Headquarters. In line with this, a review was conducted on the initial response system for the information collection level event and for alert level events, and the Nuclear Emergency Response Manual was revised on December 16, 2022.

(For details, see Sections 2, 3 and 4 of Chapter 5.)

- All data for FY2022 in the report indicates figures up to March 31, 2023 unless otherwise specified.
- The legal personality such as "Corporation" or "National Research and Development Agency" is partially omitted.
- The following terms are partially abbreviated throughout this report.

Abbreviations used in the text, etc.	Official name and definition
Nuclear Reactor Regulation Law	Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (Act No. 166 of June 10, 1957)
Radioisotope Regulation Acty	Act on the Regulation of Radioisotopes, etc. (Act No. 167 of June 10, 1957)
Nuclear Emergency Act	Act on Special Measures Concerning Nuclear Emergency Preparedness (Act No. 156 of December 17, 1999)
Incident under obligation to report	In Chapter 2 and Section 1-8 of Chapter 4, events that nuclear operators and other entities are required to report to the NRA under Article 62-3 of the Reactor Regulation Act. In Chapter 5, events that are required to report to the NRA by the regulated parties in accordance with Article 31-2 of the Radioisotope Regulation Act
TEPCO	Tokyo Electric Power Company Holdings, Inc.
JAEA	Japan Atomic Energy Agency
IAEA	International Atomic Energy Agency
ICRP	International Commission on Radiological Protection

TABLE OF CONTENTS

Chapter 1 Ensuring Independence, Impartiality and Transparency, and Improving the Organizational Structure/ System

○ **Summary of Chapter 1**

(Nuclear Regulatory Activities that Embody the NRA's Core Values and Principles)

Based on the NRA's Core Values and Principles, the NRA has continued to strive to ensure transparency, including thorough public discussions, and has made its decisions in an impartial, neutral and independent manner from the scientific and technological perspective. In FY2022, the NRA held 84 NRA Commission Meetings, the largest number ever, and made decisions based on the scientific and technological perspective. In addition, in order to demonstrate the independence and impartiality of decision-making by improving the transparency of the NRA's operations, the NRA has revised its Policy on Ensuring Operational Transparency of the NRA and has decided to open, in principle, its meetings with administrative organizations that have jurisdiction over affairs related to the promotion of the use of nuclear energy. The NRA also strove for greater diversity of communications with local residents and regulated parties, including explanatory meetings in local communities on the status of the licensing review of conformity to the new regulatory requirements at Hamaoka NPS of Chubu Electric Power Co., Inc., exchanges of opinions with Chief Executive Officers (CEOs) of ten operators, and three opinion exchange meetings with Chief Nuclear Officers (CNOs). In addition, four "NRA Information Notices (NINs)" were issued with the issuance guidelines set forth at the end of FY2021.

As part of PR efforts, the NRA studied a method of real-time distribution of interviews with the NRA Chairman and other members of the NRA after the completion of on-site investigations and on-site inspections, using a video distribution service, which was put into operation on a trial basis. In addition, the NRA conducted a research study on its archive search system, "N-ADRES", to develop the system's next version.

(Enhancement of Infrastructure to Support Regulatory Operations)

Regarding the operation of the management system, the NRA revised its 2nd mid-term goals and also strived to promote operations steadily in accordance with the operational plan for FY2022.

Internal audits were conducted in six divisions of the Secretariat of the NRA, and operation improvements were studied. The NRA also studied and sought to improve corrective actions for the 24 newly reported issues requiring improvement, and began to alert the public by regularly disseminating information on past incidents. Regarding the ongoing questionnaire and interview survey of staff to foster a safety culture within the regulatory body, the NRA improved the survey to identify the status and issues for each section and office and also held meetings, etc. in order to improve communication within the regulatory body.

In terms of international relations, the NRA has continued to share the knowledge and lessons learned from the accident at TEPCO's Fukushima Daiichi NPS with the international community and has promoted cooperation with international organizations and nuclear regulatory agencies of other countries to improve international nuclear safety by collecting information and exchanging opinions. In FY2022, many face-to-face meetings were held, including those postponed due to the outbreak of COVID-19, and the NRA participated in the 7th Review Meeting of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (June 27 to July 8, FY2022) and the 8th and 9th Joint

Review Meetings of the Convention on Nuclear Safety (March 20 to 31, FY2023), as well as the International Conference on SMR (June 23 to 24, FY2022). In addition, the NRA proactively conducted international activities, such as holding the 49th INRA Meeting and the International Regulators' Meeting in Japan.

At the Top Regulators' Meeting on Nuclear Safety (TRM), the NRA provided information and answered questions on the regulation of TEPCO's Fukushima Daiichi NPS, as in the previous meeting. The NRA disseminated information to the international community, including receiving the IAEA's second regulatory review on the handling of ALPS-treated water at TEPCO's Fukushima Daiichi NPS from January 16 to 20, 2023.

Regarding the NRA's network system, the NRA responded to defects and other issues in order to contribute to the proper performance of the staff's duties and the improvement of their work. In addition, the NRA conducted research and studies in cooperation with the Digital Agency for the development of the next version of the system. Based on the response to information security incidents that occurred in FY2020, the NRA implemented initiatives to promptly share alerts and vulnerability information provided by relevant government ministries and agencies within the organization.

(Securing and Developing Personnel Resources)

In FY2023, the NRA offered 74 positions (including 34 with work experience). Universities, research institutes, and other organizations implemented a total of 14 nuclear regulatory human resource development programs aimed at securing and fostering human resources who will be involved in nuclear regulatory activities in the future.

In the human resource development of NRA staff, staff competence was managed by job qualifications in 5 job fields, which was reflected in the assignment and treatment of staff.

Career path images were established for research staff, following those for general technical staff, career-track staff, and general clerical staff established in FY2021.

In addition, the NRA revised the "Basic Policy on Human Resource Development of NRA Staff" to encourage continuous study and training and set a target for the number of hours of study that staff members should undertake per year. Furthermore, the NRA engaged a total of 54 research staff members in joint research to promote human resource development and exchange through joint research and continued dispatching some of the research staff to JAEA.

Section 1 Implementation of Regulatory Activities that Embody the NRA's Core Values and Principles

1. Efforts for Ensuring Independence, Impartiality and Transparency of Nuclear Regulatory Administration

(1) Ensuring Independence

Independent decision-making in nuclear regulation is vital for proper regulation and is also emphasized by many foreign nuclear regulatory organizations as one of the most significant factors of the NRA's Core Values and Principles. The NRA was established as a highly independent Article 3 Authority. In its Core Values and Principles, the principle of its activities is to “make decisions independently, based on the latest scientific and technological perspective, free from any outside pressure or bias.” Under these principles, while attempting to ensure transparency by thoroughly implementing public discussions and so on, the NRA is continuing to make decisions in an impartial, neutral and independent manner from a scientific and technological perspective. Independence of nuclear regulatory administration was ensured through thorough discussion and decision making from the scientific and technological perspective at 84 NRA Commission Meetings (on a total of 274 subjects) throughout the year in FY2022.

(2) Ensuring Impartiality

The NRA prohibits the Chairman and Commissioners from receiving donations from nuclear operators during their term of office. The NRA also discloses information about any donations they have received in the 3 years prior to assuming office and any situation in which their students find jobs with nuclear operators. Information on 5 members appointed as of the end of FY2022 has also been fully disclosed on the NRA website.

In addition, when the NRA takes advice from external experts as a reference in making a decision on nuclear safety regulations on electric operators, the NRA shall ensure the disclosure of information on the relationship between such external experts and electric operators, etc., to ensure transparency and impartiality. Furthermore, when asking external experts to review the safety of an individual facility of an electric operator, etc., or re-review the early assessments of an individual facility, the NRA requires the external experts to confirm that they have not served as executives of the relevant electric operators in the previous 3 years, that they have not personally received 500,000 yen or more as remuneration during one fiscal year from relevant electric operators and that they have not been involved in earlier reviews of said facility. Similar efforts are being made for the appointment of members of the Reactor Safety Examination Committee (Hereinafter referred to as "RSEC."), the Nuclear Fuel Safety Examination Committee (Hereinafter referred to as "NFSEC.") and the Radiation Council. In FY2022, based on self-reports from external experts belonging to various study groups, the stipulated information was posted on the NRA's website and made publicly available.

(3) Ensuring Transparency

The NRA has a fundamental policy of disclosing information without requiring disclosure requests, conducting thorough public discussions, and ensuring document-based administration, thereby holding meetings of the NRA, councils, review sessions, and study teams in public, as well as making the minutes and documents of these meetings

available to the public and disseminating them in real time via Internet video streaming sites[1].

In addition, a summary of all regulatory meetings attended by three or more Commissioners, as well as interviews of regulated parties by the NRA Chairman, Commissioners, or the NRA Secretariat staff, is prepared and published, along with the names of participants and reference materials used. In addition, briefings on important issues are reported at NRA Commission Meetings.

In light of a series of cases in which staff from the Ministry of Economy, Trade and Industry (METI) and staff from the NRA Secretariat met while studying regulations to ensure the safety of ageing power reactors, the NRA decided at its 66th meeting in FY2022 (January 25, 2023) to revise the "Policy on Ensuring Operational Transparency of the NRA" (adopted by the NRA on September 19, 2012), to demonstrate independence and impartiality in decision making by increasing transparency in meetings with administrative agencies in charge of affairs related to the promotion of nuclear power, and the contents of meetings with METI staff were organized and disclosed to the public.

In FY2022, the NRA continued to implement these efforts to ensure steady transparency and posted meeting materials on the NRA website to make them available simultaneously at the start of the meeting for the convenience of Internet video viewers. Also, regular press conferences by the NRA Chairman (hereinafter referred to as "Chairman's Press Conference") are generally held once a week. Regular briefings by the NRA Secretariat were held twice a week. The minutes were posted on the NRA website as soon as possible the following day (49 Chairman's Press Conferences and 91 regular briefings by the NRA Secretariat were held in FY2022). In addition, in response to the change of the NRA Chairman and NRA Commissioners, the NRA provided interviews for NRA Chairman YAMANAKA and former NRA Chairman FUKETA (26 interviews) and held inaugural press conferences for NRA Chairman YAMANAKA and NRA Commissioner SUGIYAMA. When the NRA Chairman and Commissioners conducted on-site investigations and on-site inspections, the NRA provided post-investigation interviews with the Chairman and others, as well as photographs and other media coverage (25 interviews conducted in FY2022).

Furthermore, to improve the transparency of the review process, the NRA posted the minutes of the interviews with the regulated parties on its website with automatic transcriptions (1,418 minutes posted in FY2022).

In addition to the above, the NRA decided to hold liaisons and coordination meetings with the Agency for Natural Resources and Energy, the Japan Nuclear Damage Liability and Decommissioning Corporation, TEPCO, and other related organizations as necessary from FY2019 to improve the transparency of work related to accident analysis and coordination required for the proper implementation of decommissioning work at TEPCO's Fukushima Daiichi NPS. In FY2022, the NRA held two liaison and coordination meetings related to decommissioning and accident investigation at Fukushima Daiichi NPP. The minutes and documents of these meetings were made available to the public and distributed in real time via the aforementioned Internet video

[1] "Youtube" and "Niconico Channel"

streaming sites.

2. Enhancing External Communication

(1) Enhancing Efforts on Diverse Communication

By the "Policy on Commissioners' Visits of Nuclear Facilities and Exchanges of Opinions with Local Parties" (adopted by the NRA Commission Meeting on November 15, 2017), NRA Commissioners visit nuclear facilities and exchange opinions with local parties.

The NRA provides explanations of its regulatory activities in response to requests from local governments. In FY2022, the NRA provided explanations to local governments regarding the results of the licensing review of conformity to the new regulatory requirements at the Hamaoka NPS of Chubu Electric Power Co. Ltd. and the Sendai NPS of Kyushu Electric Power Co. Ltd.

With regard to the regulated parties, the NRA held an exchange of opinions with Chief Executive Officers (CEOs) of 10 operators on the subject of mutual understanding between the management levels of both parties regarding the licensing review of conformity to the new regulatory requirements. Also, the NRA had three meetings with Chief Nuclear Officers (CNOs) of major nuclear power facilities installers and ATENA to exchange opinions about efforts to improve safety for the purpose of enhancing and clarifying regulatory requirements and reviews to ensure a smooth introduction of regulations and to increase predictability. In addition, the NRA Secretariat issued four "NRA Information Notices (NINs) for Regulated Parties" in FY2022, which were approved at the 58th FY2021 NRA Commission Meeting (January 12, 2022) in order to disseminate the regulatory authority’s awareness of the issues.

The NRA is striving to enhance communication through these activities.

(2) Efforts for Developing the Information Management System

The NRA conducted research studies and procurement preparations for the latest version of N-ADRES, a system for archiving and publishing important information that is currently available on the NRA's website.

(3) Reinforcing the Transmission of Information on NRA Initiatives

In light of the public interest in nuclear regulation, the NRA strived to disseminate information to the public in a timely and detailed manner. The NRA continued efforts to distribute through social networking services (SNS) the summary of discussions at the NRA Commission Meetings that are considered to be of high public interest, incidents under obligation to report, the impact of the earthquake on nuclear facilities, and other information determined to need immediate dissemination. In addition, the NRA posted a summary of the results of each NRA agenda item on the NRA website.

Furthermore, with regard to the analysis of the accident at TEPCO's Fukushima Daiichi NPP, the NRA continued to strengthen its efforts to disseminate information on the importance of accident analysis and matters of high social interest, such as on-site investigations inside the reactor buildings, by providing video footage taken at the site to news organizations, publishing it through video distribution services, and distributing it through social media.

Also in FY2022, the NRA studied and tested a method for real-time distribution of interviews with the NRA Chairman and Commissioners via social media following the completion of on-site investigations and on-site inspections.

3. Allegation Process Regarding Safety Information on Nuclear Facilities

To detect potentially illegal activities by nuclear operators at an early stage and prevent nuclear accidents, the Nuclear Reactor Regulation Act provides for an "Allegation Process Regarding Safety Information on Nuclear Facilities" to receive reports from employees and others regarding illegal activities by the operator, to thoroughly investigate the facts, and to issue instructions and other measures to the operator as necessary.

To ensure the impartiality and transparency of the investigations conducted by the NRA, the Nuclear Facility Safety Information Allegation Committee consisting of external experts was launched. Under the supervision of the Committee, the NRA will process allegations as promptly as possible while paying attention to privacy protection of the informant and disclose the operational status of the allegation system to the public. In FY2022, there were no new cases accepted, and the cumulative number of cases processed since the establishment of this system in FY2012 is six.

Section 2 Enhancement of Infrastructure to Support Regulatory Operations

1. Continuous Improvement of Management System

(1) Revision of NRA 2nd mid-term goals and steadfast execution of operations based on the NRA Annual Operational Plan

The former NRA Chairman FUKETA retired on September 25, 2022, and the NRA Chairman YAMANAKA and the NRA Commissioner SUGIYAMA took office on September 26 of the same year. This led to the 47th FY2022 NRA Commission Meeting (October 26, 2022), at which the future management policy of the NRA was discussed. Based on the discussions, the NRA held its 66th FY2022 NRA Commission Meeting (January 25, 2023), where it decided the revised NRA 2nd mid-term goals, established based on the Nuclear Regulation Authority Management Rules (December 18, 2019, Nuclear Regulation Director-General Issue No. 19). The revised goal aims to achieve the mission set forth in NRA's Core Values and Principles, including "continuous improvement of regulations" through "information transmission and dialogue," "site-oriented regulation," and "human resource development for nuclear regulation," as well as receiving "external review by international organizations" and other new goals to be achieved within the planned period.

In order to steadily carry out its operations, the NRA formulates an annual operational plan based on NRA mid-term goals and periodically checks the progress of its operations in light of the plan. In promoting the operational plan for FY2022, the forms for monitoring the implementation status of the NRA Annual Operational Plan and the form for policy assessment based on the Policy Evaluations Act were unified for the improvement of the efficiency of the operations, streamlining the work of monitoring and evaluating progress, and improved to make it easier to consider the next actions based on the evaluation and analysis of the measures. In addition, during the interim and end of fiscal year evaluations of the NRA Annual Operational Plan, the review of operations was

discussed within the section offices, and improvement measures were shared throughout the body.

(2) Conducting Internal Audits and Identifying Issues Requiring Improvement for Continuous Improvement of Operation

In accordance with the Nuclear Regulation Authority Management Rules, the NRA periodically conducts internal audits of the status of operations in each division to ascertain good practices that should be shared to other divisions, as well as issues where improvement is recommended. In the FY2022, 6 divisions were subject to internal audits and two cases of good practices and two cases of issues where improvement was recommended were identified.

There were 24 cases of issues requiring improvement, and among them the following 3 cases were promptly reported in the NRA Commission Meeting, and corrective actions were confirmed. The list of cases was reported at the 78th FY2022 NRA Commission Meeting (March 1, 2023) through the management review. In addition, for the improvement of operations, the NRA started a regular dissemination of past cases issues requiring improvement and corrective actions, arranged a systematic organization of the cases according to their nature, and prepared educational materials to be used in training sessions.

(a) Improper Paperwork in the Preparation of Specifications for Contract

In the ordering procedure of the contract for the "Investigation on the Dry Storage Method of Spent Fuel Using Canisters in FY 2020," it was discovered through a request for disclosure of information dated May 31, 2022, that an employee of this Authority had requested a specific contractor to prepare draft specifications. In addition, two other cases were discovered in which the employee had requested the preparation of draft specifications. The specifications and estimated prices for these contracts were based almost entirely on the draft specifications and reference quotations prepared by the contractors, and based on their contents the conditions for the bidding were not found to be limited to specific contractors and that it cannot be said that there had been any conduct that would impair the fairness of the bidding process. However, the contracting procedures in this case deviated from the internal rule of the Secretariat of the NRA, “Guidelines for Bidding and Contracting for Commissioned Projects” (established in November 2012; amended in February 27, 2015). Therefore, the NRA received a report at the 19th FY2022 NRA Commission Meeting (June 29, 2022), and has decided to conduct the following three corrective actions; (1) establish rules for market research within the Regulatory Standard and Research Department (research conducted on related parties in order to make specifications concrete during contracting procedures), (2) conduct a survey of contracts within the NRA Secretariat for the past five years, and (3) reinforce the basic precautions when conducting biddings and contracting, for the staff members who are in charge of bidding and contracting procedures. As a result of the investigation, no other cases of inappropriate behavior in bidding and contracting were identified. The details of the corrective actions and the results of the investigation were reported at the 55th FY2022 NRA Commission Meeting (November 30, 2022).

(b) Nuclear Inspectors Not Carrying Inspectors' Certificates due to Non-Issuance

During a total of 18 nuclear regulatory inspections conducted between January 2021 and September 2022, 5 nuclear inspectors were found to have entered commercial power reactors and nuclear fuel cycle facilities without carrying their inspectors' certificates. The inspectors had not been issued with inspectors' certificates and were unaware that they were required to carry them. In addition, it was found that an employee who had not been issued an inspectors' certificate had conducted a total of three safeguards inspections between February and September 2022. The employee was unaware that he was required to carry an inspectors' certificate.

The NRA has received reports regarding these incidents at the 39th FY2022 NRA Commission Meeting (September 21, 2022) and at the 44th FY2022 NRA Commission Meeting (October 12, 2022), and have decided to conduct the following three corrective actions; (1) Centralized issuance of ID cards for on-site inspection in accordance with laws and regulations under the jurisdiction of the NRA to the Human Resources Division. Also, registering information of the issuance inspectors and ID cards issuance status in Human Resources Management System for the prevention of omissions in the issuance of ID cards, (2) consolidating multiple ID cards for on-site inspections based on the laws and regulations under the jurisdiction of the NRA, and reviewing the forms of ID cards, and (3) implementing specific procedures to ensure that ID cards are carried when conducting inspections. The status of the corrective actions were reported at the 62nd FY2022 NRA Commission Meeting (January 11, 2023). The enactment of the Regulations Concerning Special Measures to the Forms of Identification Cards to be Carried by Employees during On-Site Inspections under the Regulations of the NRA (March 30, 2023 NRA Ordinance No. 1) was approved at the 78th FY2022 NRA Commission Meeting (March 1, 2023), and the new form of the inspectors' certificate will be issued from April 1, 2023.

(c) Improvement of the Method of Surveying the Data on Aircraft Crashes

The NRA Secretariat periodically publishes the NRA Technical Notes, which summarizes the results of the collection and compilation of aircraft crash accidents data for the past 20 years (hereinafter referred to as "the Survey" in this section) as reference information for checking the results of evaluations of the probability of aircraft crashing into nuclear reactor facilities conducted by nuclear operators. For the Survey, data on aircraft accidents involving civilian aircrafts is obtained from the accident reports published by the Japan Transport Safety Board (JTSB). On the other hand, for Self-Defense Forces aircrafts and U.S. military aircrafts (hereinafter, "military aircrafts"), since detailed reports on all accidents are not necessarily publicly available unlike civilian aircrafts, the data on military aircraft accidents (hereinafter, "military aircraft accident data") was obtained through contracted work using press reports and other information as the source. However, there was a problem: the method of investigation of such data varied from contractor to contractor. Therefore, in order to improve the quality of the NRA Technical Notes, the survey of aircraft accident data was switched from contracted work to work done by NRA staff. In addition, the survey method of military aircraft accident data was improved by expanding the number of information sources to be surveyed,

greatly increasing the number of search keywords, and clarifying the criteria for selecting accidents to be targeted (hereinafter, "target accidents") in the evaluation of aircraft crash probability. Based on the improved survey method of military aircraft accident data, we conducted a survey of military aircraft accident data from January 2001 to December 2019, which was included in the "Data on Aircraft Crashes (FY2000 - 2019)" and 8 new accidents were extracted. Based on the improved methods of survey of military aircraft accident data, the results of the survey conducted based on this survey method, and the results of the validation of the survey method were compiled into the "Data on Aircraft Crashes (FY2001 - 2020)", which was published on March 29, 2023. Moreover, a procedure manual for the improved survey method of military aircraft accident data was compiled to clearly indicate how to proceed with the work.

The publication of the NRA Technical Notes and the direct dissemination of the Notes to the relevant parties through the information notification document for the regulated parties were discussed at the 84th FY2022 NRA Commission Meeting (See Chapter 2, Section 3, 1. (1) for the publication of the NRA Technical Notes). The information notice for regulated parties was issued on March 31, 2023 by the NRA Secretariat division in charge.

(3) Fostering a Healthy Safety Culture Within the Regulatory Body

The NRA Secretariat has been conducting a questionnaire and interview survey of its employees involved in fostering a safety culture within the regulatory body. For the questionnaire survey conducted in FY2022, the set of questions designed in FY2021 were reviewed and were improved upon by setting a general indicator to continuously monitor the status of the regulatory body and some detailed indicators to ask about the status of efforts corresponding to each general indicator for each category of question: (There are five general indicators and 50 detailed indicators).(Safety Culture Within the Regulatory Body, Supervisor Management, Job Satisfaction, Sense of Growth, Work Environment). This allows the NRA to analyze the changes in each indicator, hence consider measures according to the status of the regulatory body. In addition, the results of the questionnaire will be organized by each section, and the NRA plans to examine future measures to be taken by each section based on the results. Furthermore, in light of the fact that the results of the FY2021 survey showed a tendency for many younger employees to respond negatively to items such as "Job Satisfaction" and "Communication With Other Departments," new initiatives to stimulate communication within the organization, improve engagement, and build relationships of trust, (including dialogue among staff members, thank-you cards to express gratitude, and messages from senior management to staff members) was implemented.

2. Cooperation with International Organizations and Contribution to the International Community

(1) Cooperation with International Organizations

The NRA continued to share with the international community the findings and the lessons learned from the accident at TEPCO's Fukushima Daiichi NPS, as well as to disseminate information and exchange opinions to improve international nuclear safety,

by attending various meetings of the International Atomic Energy Agency (IAEA[2]) and the Organization for Economic Cooperation and Development/Nuclear Energy Agency (OECD/NEA[3]) and dispatching expert staff to these organizations.

In FY2022, expert staffs attended international meetings such as the IAEA's Commission on Safety Standards (CSS), Nuclear Safety Standards Committee (NUSSC), Waste Safety Standards Committee (WASSC), Transport Safety Standards Committee (TRANSSC), Radiation Safety Standards Committee (RASSC), Emergency Preparedness and Response Standards Committee (EPReSC), Nuclear Security Guidance Committee (NSGC) and the International Commission on Radiological Protection (ICRP). The expert staff participated in discussions based on the latest knowledge obtained in Japan, and contributed to the formulation of international standards and common understanding. (For details on the joint research with international organizations, see Chapter 2, Section 3.)

Additionally, in order to identify issues and improve understanding of safety, security, and safeguards in the regulation of Small Modular Reactors (SMR[4]) the expert staffs participated in the SMR Regulators' Forum (SMR-RF[5]), and in FY2022, the NRA participated in the Nuclear Harmonization and Standardization Initiative (NHSI) to exchange views.

As part of the international information dissemination, the NRA continues to periodically publish the results of ocean monitoring near TEPCO's Fukushima Daiichi NPP and other areas, as well as conducting joint sampling of ocean samples and intercomparison of analysis results in cooperation with the IAEA. In FY2022, as part of the IAEA's review of the safety on handling ALPS-treated water at TEPCO's Fukushima Daiichi NPS (hereinafter, “ALPS-treated water”), an intercomparison was also conducted to corroborate the results of Japan's monitoring of the sea area. From November 7 to 14, 2022, experts from analytical laboratories in Finland and Republic of Korea, which are members of ALMERA[6] in addition to the IAEA, visited Japan to confirm the status including that of samples collected.

In addition, with regard to the International Radiation Monitoring Information System (IRMIS), which is a framework established by the IAEA to collect and share environmental radiation monitoring information from various countries, data on environmental radiation (air dose rates) at representative monitoring posts in Japan collected by the NRA, has been transmitted to IRMIS[7] since February 2020.

Furthermore, the NRA has received the IAEA’s regulatory review on the handling of ALPS-treated water, which is conducted based on the Terms of Reference for the comprehensive cooperation framework on the handling of ALPS-treated water signed between the IAEA and the Government of Japan on July 8, 2021. To follow up on the review received from March 21 to 25, 2022, and to share the progress of subsequent

[2] International Atomic Energy Agency
[3] Organization for Economic Co-operation and Development / Nuclear Energy Agency
[4] Small Modular Reactor (These reactors are smaller than conventional ones and are called this way because they are designed as standardized modules that are manufactured in a factory.)
[5] SMR Regulator’s Forum
[6] Analytical Laboratories for the Measurement of Environmental Radioactivity (A cooperative network of international analytical laboratories established by the IAEA.)
[7] International Radiation Monitoring Information Systems

reviews and inspections, the second review was conducted from January 16 to January 20, 2023, and there was a general understanding that was shared, that the NRA is moving in the direction of applying the regulatory processes and content in accordance with the IAEA safety standards.

Additionally, Japan has proactively contributed to improving the technical capacity of the IAEA and other member states on safeguards through frameworks including the Japan Support Programme for Agency Safeguards (JASPAS).

On June 22, 2022, NRA Chairman FUKETA attended an Exploratory Meeting for an NEA Multi-lateral Physical Security Initiative organized by the OECD/NEA, and exchanged views on the establishment of a multinational information exchange framework on nuclear security.

On November 28 and 29, 2022, the International Conference on Regulators' Views and Priorities on Nuclear Safety and Radiation Protection 10 Years After TEPCO Fukushima Daiichi NPS Accident was held in Tokyo, Japan, jointly with the OECD/NEA. At this meeting, the NRA introduced the activities over the past 10 years since the accident at TEPCO's Fukushima Daiichi NPS, and exchanged views with nuclear regulators from major countries, demonstrating the importance of international cooperation and the sharing of information. In addition, the NRA delivered its views on the report of the meeting (in English) published on the OECD/NEA website, and these views were reflected in the report.

(2) Participation in Initiatives under Various International Conventions on Nuclear Safety

The NRA, together with the relevant Ministries and Agencies, has been participating on various activities under the Convention on Nuclear Safety, the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, the Convention on Early Notification of a Nuclear Accident, the Convention on Assistance in the case of a Nuclear Accident or Radiological Emergency, the Convention on the Physical Protection of Nuclear Material, and the Amendment to the Convention on the Physical Protection of Nuclear Material.

The NRA Commissioner TANAKA attended the 7th Review Meeting of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management held in Vienna, Austria from June 27 to July 8, 2022, and introduced the efforts of the NRA to ensure safety in the management of spent fuel and radioactive waste, and had active discussions to identify good practices and overarching issues.

The NRA Commissioner TANAKA attended the 8th and 9th Joint Review Meeting of the Convention on Nuclear Safety held in Vienna, Austria, from March 20 to 31, 2023, and conducted peer review among the Contracting Parties on the national reports of each country including Japan's national report.

(3) Cooperation with Overseas Nuclear Regulatory Authorities in the Multinational Framework

From the viewpoint of improving nuclear safety, etc., the NRA is promoting information exchange with nuclear regulatory bodies in other countries as described below.

The International Nuclear Regulators Association (INRA), consisting of the heads of

regulatory bodies in major countries possessing nuclear power plants, is a framework to exchange opinions twice a year, as a rule, on a wide range of issues on nuclear safety regulations. Nine countries: Japan, the U.S., France, the U.K., Germany, Canada, Sweden, Spain and the Republic of Korea are members of the INRA. The 49th INRA Meeting was held in Sendai on May 3 and 4, 2022, hosted by the NRA, with NRA Chairman FUKETA as chairman of the meeting, and held a discussion on nuclear regulation.

The 50th Meeting was held in Vienna, Austria, on September 27, 2022, and the NRA Chairman YAMANAKA attended the meeting online, and provided an update on the regulation of ALPS-treated water.

The Top Regulators' Meeting on Nuclear Safety (TRM) is a framework among the three nuclear regulatory bodies of Japan, the People's Republic of China and Republic of Korea. To improve nuclear safety and strengthen regional cooperation by sharing useful information on common challenges and technological improvements, it has been annually held since 2008. The 14th TRM was held online on December 9, 2022 which was represented by the NRA Commissioner BAN. The participants exchanged information on updates of nuclear regulatory activities and safety analysis software in Japan, China and Republic of Korea. The NRA also provided information on the regulation of TEPCO's Fukushima Daiichi NPS, and sincerely answered questions from China and Republic of Korea.

(4) Cooperation with Overseas Nuclear Regulatory Authorities in the Bilateral Framework

The NRA has cooperation arrangements with 9 countries (11 nuclear regulatory organizations [8]) and in FY2022, exchanged information and opinions on nuclear regulations with foreign nuclear regulatory bodies through these bilateral frameworks.

The Japan-US Steering Committee was held in the US on February 8, 2023 under the cooperation arrangement with the U.S. NRC[9]. At the meeting, views were exchanged on the mechanisms for confirming the safety of nuclear reactors with deterioration due to age, and on the investigation and analysis of TEPCO's Fukushima Daiichi NPS accident.

In addition, the NRA Chairman YAMANAKA met and exchanged information with the Director General of the Swiss Federal Nuclear Safety Inspectorate (ENSI), Chairman of the NRC[10], Director General of the Swedish Radiation Safety Authority (SSM), the Chairman of the Canadian Nuclear Safety Commission (CNSC), and the Director General of the Finnish Radiation and Nuclear Safety Authority (STUK), who all came to Japan to attend the International Conference on Regulators' Views and Priorities on Nuclear Safety and Radiation Protection 10 Years After TEPCO Fukushima Daiichi NPS Accident held in November 28 and 29, 2022 (refer to (1) for details).

[8] U.S. Nuclear Regulatory Commission (NRC), Department of Energy (DOE), French Nuclear Safety Authority (AASN),Institute for Radiation Protection and Nuclear Safety (IRSN), Office for Nuclear Regulation (ONR),Federal Service for Environmental, Industrial, and Nuclear Supervision (Rostechnadzor), Swedish Radiation Safety Authority (SSM), German Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), Spanish Nuclear Safety Council (CNS), Finnish Radiation and Nuclear Safety Authority (STUK), Canadian Nuclear Safety Commission (CNSC).

[9] Nuclear Regulatory Commission

[10] Nuclear Regulatory Commission

(5) Opinion Exchange with International Advisors on Nuclear Regulation

The NRA, with the aim of proactively incorporating the latest overseas knowledge concerning the safe use of nuclear energy, commissions foreign experts with abundant experience and advanced knowledge on nuclear regulation as external advisors to exchange opinions on issues such as expectations for nuclear regulatory systems and the organization of the NRA. In FY2022, on May 16, 2022, the advisors and NRA Commission exchanged views on the "Communication on ALPS-treated water, information disclosure and staffing in security area, and effective utilization of activities under the Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management."

3. Stable Operation of Information System and Enhancement of Security Measures

The NRA network system, which is the core system for administrative work, was updated in FY2021. In order to ensure the appropriate execution and improvement of work by staff members, including the promotion of working from home, correction of problems that accompanied system updates, and a review of operations was conducted with the introduction of new communication tools. In addition, for the construction of the next system scheduled for FY2025 and beyond, research and studies on system specifications were conducted, in cooperation with the Digital Agency, based on the premise that the common government solution service (GSS[11]) will be utilized.

Based on the information security incident that occurred in FY2020, a mechanism was started to promptly share alerts and vulnerability information provided by related ministries and agencies within the organization, and conducted a penetration test (verifying whether there are any vulnerabilities in the system by conducting simulated attacks and attempting intrusions) on the NRA network system, and confirmed whether any problems exist.

4. Responses to Legal Affairs

(1) Steady Responses to Legal Affairs

The NRA responded to legal and litigation affairs related to the work of the NRA in cooperation with relevant authorities. Specifically, the NRA has rapidly and appropriately prepared briefs and responded to reviews of witnesses in collaboration with the Ministry of Justice and related agencies with respect to 45 pending cases and 11 cases for which judgment was made in FY2022.

(2) Continuous Review and Improvement of Laws and Regulations

The NRA constantly reviewed and improved laws and regulations under its jurisdiction, for example, incorporating the latest scientific and technological knowledge into the regulatory requirements.

Specifically, laws and regulations were established and revised as follows:

Names of Laws and Regulations	Overview

[11] Government Solution Service (Services that provide a standardized environment to implement work practices in common among government agencies.)

Revision of the NRA Guide for Emergency Preparedness and Response (Notification of the NRA No.2, June 2, 2022)	Enforced on April 6, 2022 Clarification of subjects of thyroid dose monitoring, method of measurement and implementation system, and strengthening the central and leading role of the Core Advanced Radiation Emergency Medical Support Center within the Advanced Radiation Emergency Medical Support Center.
Revision of the NRA Guide for Emergency Preparedness and Response (Notification of the NRA No.4, July 21, 2022)	Enforced on July 6, 2022 Enhancement of radiation protection measures for emergency workers
Partial revision of the Regulatory Guide of NRA Ordinance on Standards for the Location, Structure, and Equipment of Commercial Power Reactors, and the Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor (NRA Ordinance No.4, July 21, 2022)	Enforced on September 26, 2022 Clarified the requirements for water sources and water supply facilities required for restoration after severe accidents, based on the results of the review. Appropriately modifying the description in relation to the reactor containment and reactor containment pressure relief devices as "shall be capable of measuring radiation doses," and clarified the requirements based on the results of the review.
NRA Ordinance regarding the form of identification card to be carried by staff during on-site inspection, based on the provisions of laws under the jurisdiction of the NRA (NRA Ordinance No.1, 2023)	Enforced on April 1, 2023 A special form regarding the ID card carried during inspections including on-site inspections, was established as a measure for the omission to issue or failure to carry certificates by inspectors.
Cabinet Order partially revising the Enforcement Order for the Act on the Regulation of Radioisotopes, etc. (Cabinet Order No.349, 2022) Public Notice specifying those, which the NRA designates, to which the Radioisotope Regulation Act does not apply, based on the Enforcement Order for Article 1, Paragraph 2 of the Radioisotope Regulation Act. (Notification of the NRA No.5, December 20, 2022)	Scheduled to be enforced on January 1, 2024 The Enforcement Order was revised to eliminate the double regulation by exempting unapproved radiopharmaceuticals regulated by the Medical Care Act (Act No.205, 1948) from the application of the Radioisotope Regulation Act.

In addition, at the 17th FY2022 NRA Commission Meeting, the NRA reviewed the status of enforcement of the Reactor Regulation Act and other laws that were amended in FY2017 and confirmed that the revised law is being properly implemented, and that it will continue to improve the implementation of the law.

5. Responses to COVID-19 Transmission

(1) Maintaining and Strengthening Organization Function

On March 2, 2020, the NRA set up the NRA Secretariat Task Force on COVID-19, which is led by the Deputy Secretary-General of the Secretariat of the NRA as Director-General. In FY2022, the task force held meetings 5 times, and exchanged views on how

to improve communication within the agency and social gatherings based on the pandemic situation.

As for working arrangements, teleworking will continue to be utilized as it was in FY2021, and on June 2, 2022, the work starting time, frequency and location of telework was made more flexible. In addition, staggered work hours and lunch breaks were encouraged in order to reduce human contact even when coming to work.

For the NRA Commission Meetings, face-to-face format was maintained. Other meetings such as review meetings were held online in principle, and although it was possible to hold them face-to-face, most meetings were held online.

In addition, when business trips were required for nuclear regulatory inspections and other situations, they were conducted with thorough infection prevention measures in place, including avoidance of the three Cs.

(2) Steadfast Promotion of Review and Inspection based on the Reactor Regulation Act

For reviews, in FY2022 measures were taken to minimize the impact of COVID-19 transmission on review as much as possible by continuing the implementation policy revised in FY2021 of review meetings and hearings, and holding review meetings utilizing the online meeting system.

To maintain nuclear regulatory inspection functions even under the effects of COVID-19 transmissions, nuclear regulatory inspections were carried out while implementing basic infection prevention measures such as wearing masks and disinfecting with alcohol.

(3) Proper Implementation of National Examinations and Training

For the oral examination of the 64th Examination of Chief Engineer of Reactors held on September 16, 2022, as in FY2021, by setting the assembly time for examinees in stages and restricting admission, congestion was avoided at the exam venue. In addition, appropriate measures to prevent COVID-19 transmission were taken, including utilizing an online meeting system and having some of the examiners attend remotely to avoid transportation, and thus the examination was completed without delay. For the 55th Examination for Chief Engineer of Nuclear Fuel in March 1 and 2, 2023 and the written examination of the 65th Examination for Chief Engineer of Reactors in March 14 to 16, 2023, basic measures to prevent COVID-19 transmission, such as checking temperatures and disinfecting hands, were taken and the examinations were completed without delay.

The Nuclear Safety Technology Center, a registered examination organization, implemented the Radiation Protection Supervisor Examination from August 24 to 26, 2022, while taking appropriate measures to prevent COVID-19 transmission. In addition, registered training organizations implemented periodic training for radiation protection supervisors and periodic training for Specified Radioisotope Security Managers, while taking the appropriate measures to prevent COVID-19 transmission such as utilizing an online meeting system and e-learning.

6. Constructing a Workplace Environment where Each Staff can Feel

Fulfilled in their Work

(1) Formulation of Work-Life Balance Action Plan

In order to promote reforms in workstyles to promote work-life balance and women's activities, the NRA formulated the first phase of the "Specified Employer Action Plan for Measures to Support Women's Activities, Work-Life Balance and Support Raising Next-Generation Children" (hereinafter "Action Plan") in FY2016. From FY2021, the second phase of the Action Plan formulated by the Headquarters for Promotion of Women's Activities and Work-Life Balance has been in effect. In FY2022, the second phase action plan was revised to incorporate specific initiatives of particularly high priority, based on the results of a questionnaire survey of employees conducted by the Cabinet Bureau of Personnel Affairs in FY2021.

In addition, based on this action plan, the NRA publishes the "Follow-up on the Action Plan for Promotion of Women's Activities and Work-Life Balance of Employees" and "Information that Contributes to Choice of Occupations" on its website every fiscal year.

(2) Diversification of Working Styles

The NRA revised the “Nuclear Regulatory Authority Telework Implementation Guide” (June 2, 2022), to make the starting time, frequency and location of telework more flexible, since telework is becoming established as one of the various ways of working. In addition, the revised rules of the National Personnel Authority made it possible to take childcare leave more flexibly from October 1, 2022, and the NRA made this system well known to all employees.

Furthermore, upon receiving a request from an employee who was expecting, or whose spouse was expecting a childbirth, the NRA introduced various systems such as the pre-parenting and pre-maternity registration to that employee, thereby promoting the use of childcare leave.

(3) Introduction of 360-degree Evaluation

In the "Action Plan on the Management System and Nuclear Safety Culture" decided at the 16th FY2020 NRA Commission Meeting (July 15, 2020), the introduction of 360-degree evaluation was discussed in order to promote open communication from the viewpoint of fostering and maintaining nuclear safety culture.

Based on this, in FY2022, a total of 1,724 evaluations were conducted by all staff members of the NRA Secretariat and the NRA Human Resource Development Center, evaluating a total of 136 staff members in managerial positions such as designated positions and heads of divisions and offices. The evaluation results obtained were fed back to the evaluation targets to promote their own awareness.

Section 3 Securing and Developing Personnel Resources

1. Maintaining High Ethical Standards

Within NRA's Core Values and Principles, the NRA requires its employees to perform their duties with a "high sense of ethics," and to fulfill its mission to protect people and the environment. Each and every employee performs his or her duties in accordance with five Guiding Principles for Activities.

To ensure this, the NRA distributed the Core Values and Principles Card to all new staff members and conducted ethics training for public servants on April 12, 2022, and October 5, 2022.

In addition, during National Public Service Ethics Month in December, a message from the Ethics Supervisory Officer (Secretary-General of the NRA Secretariat) was distributed to all staff members. Furthermore, the NRA strives to effectively spread ethical awareness by distributing awareness posters and requiring all staff members to complete public service ethics training through e-learning.

2. Securing Human Resources for Nuclear Regulation

(1) Filling Personnel Positions

To attract large numbers of promising qualified personnel, the NRA actively carried out a campaign for recruitment including presentations on the activities/missions of the NRA to heighten interest in the organization. Specifically, for newly recruited staff members, the NRA participated in employment seminars where nuclear power-related industries gather and seminars hosted by employment websites, to introduce the NRA's activities. For mid-career recruited staff, posters were displayed at the nearest train stations where the nuclear power-related companies are located.

As for newly recruited staff, the NRA made unofficial offers to those selected through visits to government offices after passing the National Civil Service Examination. In addition, the NRA conducted the "NRA Secretariat Nuclear Engineering Staff Recruitment Examination," a unique recruitment examination for the NRA Secretariat to actively recruit students majoring in nuclear engineering or equivalent, and the Research Staff Selection and Recruitment Examination to recruit research staff in charge of technical research and technical investigation work, and made unofficial offers to those who were selected. The NRA made unofficial employment offers to 74 persons for FY2023 (5 for career positions, 18 for general positions (university graduates), 12 for general positions (high school graduates), two through a nuclear engineering exam, three through a research staff recruitment exam and thirty-four with work experience.

In FY2022, the NRA adopted 23 persons with work experience from the private sector, mainly in the areas of safety review/inspection, nuclear disaster prevention and radiation hazard prevention.

The number of NRA staff is 1,018 with the ratio of personnel to the prescribed number of personnel being 92.3%, as of January 1, 2023.

Table 1-1 Situation of securing human resources from FY2016 to 2022 (Unit: persons)

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	Total
Experienced personnel*1	39	44	23	33	21	16	23	199

New graduates*2	19	25	29	22	29	26	40	190
Total	58	69	52	55	50	42	63	389

*1: Number of personnel hired in the relevant fiscal year
*2: Number of personnel hired by April 1 of the next fiscal year based on the recruitment activities in the relevant fiscal year

(2) Efforts Concerning the Program of NRA Human Resource Development

To broadly secure personnel and develop human resources engaged in nuclear safety and regulation, aiming at steadily improving nuclear regulations, the NRA launched a subsidy program for human resource development for nuclear regulations, which has been carried out in collaboration with universities and other institutions since FY2016. In FY2022, this program was applied in a total of 14 cases (4 cases adopted in FY2020, 6 cases in FY2021, and 4 cases in FY2022) and implemented by universities and other institutions.

3. Developing Human Resources for Nuclear Regulation

(1) Personnel Career Paths

In order to clarify the basic principles and general framework of measures for staff development as human resources, the NRA established the "Basic Policy on Human Resource Development for NRA Staff" in FY2014, and on September 3, 2014, established career paths as a model for administrative and research staff to accumulate experience and deepen responsibility, taking into account the work to be performed by the NRA.

In FY2021, the NRA established a career path image for general technical staff, career-track staff, and general clerical staff, which embodied their expected roles according to their years of experience, areas of expertise they should possess, provision of opportunities to improve their expertise, and qualifications they can obtain, and held a briefing session on these career paths.

In FY2022, the NRA received a report on the career paths of research staff at the 37th FY2022 NRA Commission Meeting (September 7, 2022). Specifically, the report indicates the expected roles based on their years of experience and the opportunities they are granted to enhance their scientific and technological expertise. In addition, a briefing session was held to explain this career path image.

In addition, with regard to skill improvement related to back-office work, which is primarily carried out by general clerical staff, a provisional policy for the operation of a competency management system was established in the first half of FY2021, and a trial operation was conducted based on this policy. This competency management system is based on improving competency through OJT. In order to carry out OJT effectively, the NRA is preparing the skills and knowledge for each job that general clerical staff should acquire based on supporting laws, manuals, etc. Based on the results of this trial operation, the NRA will continue the trial operation and further studies, aiming for full-scale operation by the end of FY2023.

In the FY2022 NRA Annual Operational Plan, the NRA will survey its staff members to see whether they are able to demonstrate their abilities in their current positions, and establish a database to appropriately reflect the results in their appointments. As part of this effort, a satisfaction survey was conducted on all staff members regarding the

appointment to posts according to their abilities. The survey results showed that 41% were satisfied, 50% were normal, and 9% were dissatisfied. The NRA will continue to conduct surveys on an ongoing basis in order to improve satisfaction.

(2) Implementing and Improving Training

Under the job qualification system for 5 job fields, “nuclear inspection,” “nuclear safety review,” “safeguard inspection,” “emergency preparedness and response” and “radiation regulation” adopted in FY2017, the NRA provided training and OJT and bestowed job qualifications[12] for 171 personnel in FY2022.

The NRA also provided education and training courses for job qualifications in 5 job fields (basic qualifications) to continually secure and develop human resources capable of handling regulatory work. In FY2022, 9 personnel were selected to take the "Intensive Course" in which they leave their work duties to concentrate on training. 24personnel selected by FY2021 are continuing to take the "Part-time Course" in which they take training courses concurrently with their work duties. The 15 personnel who had been taking the "Intensive Course" since May 10, 2011, completed the education and training course on April 30, 2022. In addition, as a new initiative, the NRA began broadcasting lectures and distributing recorded videos for the Part-Time Course participants.

Furthermore, the NRA implemented an ongoing education program for those who have been certified for a certain period of time to learn the latest knowledge of standards from the viewpoint of maintaining their expertise, as well as to maintain and improve communication skills for those with intermediate level qualifications and management skills for those with advanced level qualifications.

In FY2022, the competence of the NRA staff continued to be managed by bestowing job qualifications in 5 job fields and reflected in their assignments and treatments.

Also, to improve and enhance the quality of training, the NRA reviewed the curriculum and teaching methods of education and training programs, continued to study measures to improve training content based on the results of participant questionnaires after the implementation of training programs, and began to study the improvement of effectiveness evaluation methods. In addition, the NRA fully implemented active learning methods in some of the education and training courses that had been piloted in FY2021, and also implemented e-learning for instructors to master the methods and made courses available throughout the year.

In light of measures to prevent COVID-19 transmission, appropriate steps were taken, such as adopting online lectures and changing the timing of implementation. The NRA also implemented part of the short-term overseas training program, which had been suspended since 2020. Despite the impact of COVID-19 transmission, around 2,000 persons in total received training throughout the year.

From the perspective that all staff members, regardless of their position, status, qualifications, or the amount of knowledge they have acquired, need to continue their learning and training and strive for self-improvement, the NRA revised the "Basic Policy on Human Resource Development for NRA Staff" on February 22, 2023, setting a target

[12] Qualifications that must be possessed by persons appointed to positions with high levels of expertise and experience in the in the Secretariat of the NRA or the NRA Human Resource Development Center

for the number of hours of study that staff members should undertake per year.

(3) Human Resource Development for Research Staff

To promote human resource development and exchange through joint research, the NRA engaged a total of 54 staff members in joint research in FY2022. In addition, two staff members dispatched to JAEA continued to work exclusively on research activities.

Furthermore, the NRA actively engaged in publication activities such as presentations at academic conferences based on safety research results, and sought to improve the skills of research staff through discussions with experts at academic conferences and other venues.

(4) Efforts Concerning Development and Securing of Global Human Resources

To enhance the necessary skills for international operations, the NRA recruited personnel with abundant international experience as mid-career professionals, improved the staff members' basic skills such as English language proficiency through education and training programs, enhanced their competence in international activities through joint research with foreign research institutions, and ensured that young staff members had opportunities to gain international experience. As opportunities for international experience, seven staff members have been dispatched to international organizations such as the IAEA and OECD/NEA, and two staff members have participated as reviewers in the IAEA Integrated Regulatory Review Service (IRRS). In addition, the NRA has promoted mid-career and young staff as members to participate in international conferences, striving to secure opportunities for them to gain international experience and work as international human resources on a long-term and continuous basis.

Chapter 2 Implementation of Strict and Appropriate Nuclear Regulations and the Reinforcement of the Technology Base

○ **Summary of Chapter 2**

(Implementation of Review based on the Reactor Regulation Act)

The NRA rigorously reviews nuclear operators' applications for permission to make changes in basic design, and so on, from scientific and technical perspectives in light of the new regulatory requirements established based on the lessons learned from the accident at TEPCO's Fukushima Daiichi NPS. In order to ensure transparency, the reviews are in principle conducted at open review meetings, except for those that cannot be disclosed due to security reasons.

In FY2022, as for commercial power reactors, the NRA approved changes in the operational safety program for the No. 2 reactor at the Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. Concerning the special facilities for severe accident management, the NRA permitted changes in basic design of Units 6 and 7 of TEPCO's Kashiwazaki-Kariwa NPS, approved changes in design and construction plans of Tokai Daini NPS of Japan Atomic Power Co. (1 of 4 installments in total), and approved changes in operational safety programs of Takahama PS Units 1 and 2 of Kansai Electric Power Co., Inc.

In addition, in order to ensure transparency and predictability of the review, the NRA disclosed a report to show the entire picture of the progress in the conformity review on new regulatory requirements and the like once per quarter.

Regarding nuclear fuel cycle facilities, the NRA approved design and construction plans for the Recyclable-Fuel Storage Center of Recyclable-Fuel Storage Co., the Kumatori Works of Nuclear Fuel Industries, Ltd, the JNFL's fuel reprocessing facility (1 of 5 applications in total) and the JNFL's MOX fuel fabrication facility (1 of 7 applications in total). The NRA also approved changes in operational safety programs for the JNFL's enrichment and disposal sites (fuel fabrication facilities), Mitsubishi Nuclear Fuel and the static experiment critical facility (STACY) of the research reactor facility at the Nuclear Science Research Institute of JAEA. In addition, the NRA granted 23 permissions for nuclear material utilization facilities.

In addition to ensuring transparency and predictability of the reviews, in order to organize the status of the reviews of various types of nuclear fuel cycle facilities and other centers, the NRA disclosed a report to show the entire picture of the progress in the conformity review on licensing review of conformity to the new regulatory requirements and the like semiannually.

(Implementation of inspections based on the Reactor Regulation Act)

In order to ensure the safety of commercial power reactors and nuclear fuel cycle facilities, the NRA conducts nuclear regulatory inspections, which are a combination of routine inspections and team inspections, based on the Reactor Regulation Act. On May 25, 2022, the NRA implemented a comprehensive assessment for FY2021, and evaluated TEPCO's Kashiwazaki-Kariwa NPS as being in a state where the operator's safety activities have continued to either deteriorate over a long period of time or significantly overall, as was the case in FY2021. In FY2022, the NRA continuously increased the number of baseline inspections and kept on carrying out supplemental inspections. Other nuclear facilities were evaluated to be in a state where autonomous improvement could be expected, and regular baseline inspections were conducted in FY2022 as well.

There were 22 inspection findings in the nuclear regulatory inspections conducted up to the third quarter of FY2022 (commercial power reactors: significance level

"green," severity level "SL IV"; nuclear fuel cycle facilities and other centers: significance level "no additional action," severity "SL IV", "minor"). Beyond that, in FY2021, the NRA completed 74 legal confirmations and 9 pre-service inspections which were carried out based on the transitional measures at the time of the revision of the Reactor Regulation Act. A public meeting was held on September 29, 2022 to investigate and analyze the causes of the rewriting of the borehole map data of the Tsuruga NPS Unit 2, and the results of the inspection were reported at the 47th FY2022 NRA Commission Meeting (October 26, 2022).

The "TEPCO's Kashiwazaki-Kariwa NPS Supplemental Inspection Team" was established and at the 7th FY2022 NRA Commission Meeting (April 27, 2022), the NRA received a report from the Secretariat of the NRA on the interim summary of inspection results for TEPCO's Kashiwazaki-Kariwa NPS, which had been undergoing supplemental inspections. Thereafter, the NRA reported on the status of inspections as needed, and at the 38th FY2022 NRA Commission Meeting (September 14, 2022), the NRA approved three policies for supplemental inspections: policy 1 "realization of robust physical protection of nuclear materials," policy 2 "establishment of a system for autonomous improvement," and policy 3 "establishment of a system to ensure that improvement measures are not transitory." In addition, the NRA Chairman YAMANAKA and all the NRA Commissioners conducted on-site investigations of supplemental inspections from December 2022 to February 2023.

In FY2022, an "Information Exchange Meeting on the Inspection Program" was held three times to exchange opinions with external experts and nuclear operators for the continuous improvement of the nuclear regulatory inspection system. With regard to the adequacy confirmation of the operator's probabilistic risk assessment (PRA) model used in nuclear regulatory inspections, the NRA received a report from the Secretariat of the NRA at the 26th FY2022 NRA Commission Meeting (July 27, 2022) on the status of the operator's responses to the points identified in the adequacy confirmation to date.

(Promotion of Safety Research and Continuous Improvement of Regulatory Requirements)

In FY2022, the NRA conducted 21 safety research projects in 13 fields. The results of the safety research were published as 1 NRA Technical Report and 3 NRA Technical Notes. Additionally, 26 papers and 4 international conference papers were published, 23 presentations at academic conferences were made and 1 academic award was received.

In the evaluation of safety research, the NRA carried out a post-evaluation of 3 safety research projects completed in FY2021, a mid-term evaluation of 3 ongoing safety research projects and a pre-evaluation of 1 safety research project to be started in FY2023. On July 6, 2022, the NRA formulated the "Safety Research Field to be Promoted and its Implementation Policy (For Safety Research in and after FY2023)."

In addition, the NRA conducted bilateral information exchange and participated in 17 international joint research projects in OECD/NEA and 10 meetings under OECD/NEA/CSNI to gather technical knowledge, including the latest trends in each research field. In addition, the NRA implemented 17 joint research projects with universities and other organizations.

For the continuous improvement of regulatory requirements, the NRA concretely determined the considerations to ensure nuclear safety in the site selection phases for

geological disposal. The NRA steadily developed regulatory requirements to reflect the findings of the " Interim Summary of Investigation and Analysis of TEPCO's Fukushima Daiichi NPS Accident compiled in March 2021" in regulations, revised the Guideline for Reviewing Approval of Design and Construction Plan for Tsunami-Resistant, and developed various other standards and so forth. In addition, the NRA amended the regulatory requirements reflecting the experience and achievements of the review, conducted technical evaluation of private standards, and collected information for analysis of accidents and troubles in Japan as well as natural phenomena.

(Continuous Improvement of Regulatory Activities and Response to New Regulatory Needs)

With regard to the review process, the NRA is making efforts to improve it by continuously exchanging opinions on how to proceed with reviews together with regulated parties such as electric power companies from the viewpoint of appropriately allocating the NRA's limited resources into issues relevant to safety. From April to September of 2022, the NRA discussed with the management of electric power companies regarding the review of new regulatory requirements for commercial power reactors. In light of the results, the NRA approved a policy on how to proceed with reviews at the 37th FY2022 NRA Commission Meeting (September 7, 2022). In response to this, the NRA Secretariat is proceeding with reviews as it works to eliminate rework as much as possible by holding review meetings frequently to confirm the operator's response policy.

The NRA considered formulating a document from FY2021 to organize the concept of backfitting, and discussed a draft image of the document at the 17th FY2022 NRA Commission Meeting (June 15, 2022) and the draft document at the 51st FY2022 NRA Commission Meeting (November 16, 2022) respectively. Based on these discussions, the NRA decided on the "Basic Approach to Backfitting" as well as approved the "Backfitting Review Process" at the 55th FY2022 NRA Commission Meeting (November 30, 2022).

Amidst an exchange of opinions with chairpersons of Reactor Safety Examination Committee and Nuclear Fuel Safety Examination Committee at the 50th FY2022 NRA Commission Meeting (November 9, 2022), the NRA instructed these Committees to revise the matters of study and deliberation of the Committees to compile improvement proposals, which are related with the nature and operation of the system concerning the evaluation for safety improvement of power reactor facilities conducted by the installer of power reactor pursuant to Article 43-3-29 of the Reactor Regulation Act. In light of this, at the 53rd FY2022 NRA Commission Meeting (November 22, 2022), the new items to be investigated and deliberated by the Committees were amended as follows: "In accordance with Article 43-3-29 of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors, regarding the evaluation of safety improvement of power reactor facilities to be conducted by the installers of power reactors for power generation, provide advice on the review of the system and its operation. First, report on the improvement of the operation of the system with the premise of the framework of the current system. "The Committees assigned the relevant investigation and deliberation items to each department.

In accordance with the provisions of Article 43-3-32 of the Reactor Regulation Act for aged power reactors, the period during which power reactors may be operated (hereinafter referred to as the "operational period") shall be determined as follows: the

NRA should not provide opinions, because it is nothing more than a policy decision on how nuclear energy should be used in the "View on the relationship between review of approval for operation period extension and ageing deterioration of nuclear power plants during long shutdowns" decided at the 18th FY2020 NRA Commission Meeting (July 29, 2020). In response to the policy discussions on how nuclear energy should be used at the GX Implementation Council, NRA Commission Meetings were held six times, including the 42nd FY2022 NRA Commission Meeting (October 5, 2022) so that the strict regulations on safety confirmation of ageing power reactors would not be undermined by the said discussions. After soliciting public comments and exchanging opinions with nuclear operators, the 72nd FY2022 NRA Commission Meeting (February 13, 2023) decided on the "Outline of Safety Regulations for Aged Power Reactors" as well as approved a bill to partially amend the Reactor Regulation Act based on this outline. The amendment bill was included in the draft act to partially revise the Electricity Business Act in order to establish an electricity supply system for the realization of a decarbonized society, which was approved by the Cabinet on February 28, 2023.
In addition, when the NRA revised the "Basic Policy for Nuclear Energy," it submitted its opinion on proceeding with a study on the intensive management of radioactive materials such as nuclear fuel materials that are not actually utilized.

Section 1 Conducting Reviews, etc. based on the Reactor Regulation Act

1. Status of Reviews, etc. for Commercial Power Reactors

Since the new regulatory requirements for commercial power reactors came into effect on July 8, 2013, the NRA is currently reviewing applications for changes in basic design compliance with the new regulatory requirements, based on the policy approved by the NRA. A total of 93 review meetings were held in FY2022. In addition, in order to ensure transparency and predictability of the review process, the NRA compiled the status of applications and dispositions regarding the licensing review of conformity to the new regulatory requirements once per quarter and published them on the NRA website. Furthermore, based on the exchange of opinions between the NRA and the executives of the electric power companies on how to proceed with the review, the 37th FY2022 NRA Commission Meeting approved a policy for improving the review process (for details, see Section 4.1). In accordance with this policy, the NRA is taking measures such as: (1) holding frequent review meetings to confirm the operator's response policy, (2) establishing an occasion to confirm that the points raised by the NRA Secretariat are accurately understood by the applicant, and (3) documenting them as necessary.

(1) Licensing Review of Conformity to the New Regulatory Requirements

(a) Status of Review for the Main Facility

To date, 27 plant applications have been submitted and are being reviewed as shown in Table 2-1. With regard to the review of permission for changes in basic design t of the Tomari NPS Unit 3 of Hokkaido Electric Power Co., Inc., the NRA has reviewed how the design basis ground motion and the design basis tsunami are set, and other matters since the first review meeting (July 16, 2013). The review of the seawall design policy and other items has begun since the 1076th review meeting (September 29, 2022) in parallel with it. In the review meetings, the issues pointed out by the Secretariat of the NRA are documented and shared with other parties to steadily proceed with the review. It was pointed out that the on-site faults may have been active since the Late Pleistocene according to the report of the "Evaluation of the On-Site Fracture Zone at the Shika Nuclear Power Station of Hokuriku Electric Power Co., Inc." (reported at the 6th FY2016 NRA Commission Meeting (April 27, 2016)), which was compiled by the Expert Meeting on the Investigation of Fracture Zones in the Site of the Shika Nuclear Power Plant of Hokuriku Electric Power Company, but the report also pointed out that the evaluation was based on limited data simultaneously. Subsequently, the Hokuriku Electric Power Co., Inc. significantly increased the number of data on the site based on the points raised, and evaluated that no activity had been found since the Late Pleistocene using a method that focused on contact relationships with mineral veins. The 1121st review meeting (March 3, 2023) evaluated that the assessment implemented by the operator was largely valid, and at the 82nd FY2022 NRA Commission Meeting (March 15, 2023), based on the results of the evaluation at the review meeting, it was approved that "there is no need to hear the opinions of experts again regarding the evaluation of the activity of S-1, S-2 and S-6 faults" regarding future action related to the evaluation of the onsite faults. The NRA continues to review the geology and geological structure of the zone surrounding the site. Regarding the Shimane Nuclear Power Station Unit 3 of Chugoku Electric Power Co., Inc., on June 29, 2022, the NRA received an amendment to the application for

permission for changes in basic design (received on August 10, 2018), and is proceeding with confirmation of the validity of the analysis code and other items. As for the Higashidori NPS Unit 1 of Tohoku Electric Power Co., Inc., the Ohma Nuclear Power Plant of J-POWER and the Hamaoka NPS Units 3 and 4 of Chubu Electric Power Grid Co., Inc., the NRA are reviewing the geology and geological structure of the sites and their surroundings in conjunction with the design basis ground motion and the design basis tsunami. In response to the rewriting of the borehole map in the review documents for the Tsuruga NPS Unit 2 of the Japan Atomic Power Company, which was revealed on February 7, 2020, the 25th FY2021 NRA Commission Meeting (August 18, 2021) decided not to hold a review meeting until the operational process for preparing review documents is confirmed to have been established. Subsequently, at the 47th FY2022 NRA Commission Meeting (October 26, 2022), it was confirmed that the operator had improved its work process for preparing review documents, and the NRA decided to resume the review. In light of this, the NRA resumed the review meeting on December 9, 2022 (for more details, see Section 2, 1. (2) (b)).

With regard to the review of the design and construction plan on Unit 6 of TEPCO's Kashiwazaki-Kariwa NPS, the review meeting confirmed the content of the analysis and the investigation which focused on the damage factors that TEPCO conducted concerning the damage to the piles in the building for carrying large items discovered in July, 2021 and other matters. The results and other items of the confirmation were reported at the 56th FY2022 NRA Commission Meeting (December 7, 2022). As for the application for approval of the design and construction plan for the Shimane NPS Unit 3 of Chugoku Electric Power Co., Inc. (received on December 25, 2013), the NRA received 7 amendment applications in total by December 23, 2022, and is now in the process of confirming the design and other aspects of the wave barrier at review meetings.

In FY2022, the NRA granted approval for changes in the operational safety program for the Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. on February 15, 2023.

(b) Review of Special Facilities for Severe Accident Management

In the review of special facilities for severe accident management, it is confirmed that there is no risk concerning functions necessary to respond to a major accident or other incidents even in the event of an intentional collision by a large aircraft or other terrorism. Applications for 19 plants have been submitted so far and the NRA is reviewing the applications as shown in Table 2-2.

On August 17, 2022, the NRA permitted the application for permission to changes in basic design of Units 6 and 7 of TEPCO's Kashiwazaki-Kariwa NPS. On November 16, 2022, the NRA also approved the first of four total applications to change the design and construction plan of the Tokai Daini NPS of Japan Atomic Power Co. In addition, the NRA granted approval on January 13, 2023 for changes to the operational safety program for the Takahama PS Units 1 and 2 of Kansai Electric Power Co., Inc.

(c) Others

To review protection against noxious gases, the 1st FY2017 NRA Commission Meeting (April 5, 2017) decided to revise the criteria and has added necessary measures to protect personnel in the reactor control room and other areas from noxious gases.

Applications for 17 plants have been submitted so far and are being reviewed as shown in Table 1 (2) 1 at Reference 3. In FY2022, the NRA granted 2 permissions for changes in basic design, 1 approval of design and construction plans, and 1 approval for changes in the operational safety program for the main facility. In addition, 2 approvals (3 plants) were accepted for changes in basic design and 1 approval (2 plants) was granted for changes in the operational safety program for special facilities for severe accident management.

The 3rd FY2021 NRA Commission Meeting (April 21, 2021) decided to revise the interpretation of the regulations regarding the review of incorporating the standard spectrum into regulations. It has also requested that nuclear facilities with earthquake resistance of S-class facilities (hereinafter referred to as "subject nuclear facilities") use the standard spectrum as the seismic motion to be considered nationwide when the "tremors evaluated without specifying seismic sources" are formulated within three years. So far, applications for 6 plants have been submitted and are being reviewed as shown in Table 1 (2) 2 at the Reference 3[13].

With regard to reviews concerning clarification of installation requirements for fire detection equipment, the 59th FY2018 NRA Commission Meeting (February 13, 2019) revised the review criteria on the installation requirements and other matters for the fire detection equipment and clarified it. This revision was requested at the stage of application for approval of design and construction plans in which fire zones and sections are specifically determined. Applications for 12 plants have been submitted so far and are being reviewed as shown in Table 1 (2) 3 in Reference 3. In FY2022, the NRA granted 2 approvals (2 plants) for the design and construction plans for the main facility.

[13] Documents to explain that no changes to the design basis for tremors are required were submitted by the operators of the Units 6 and 7 of TEPCO's Kashiwazaki-Kariwa NPS, the Units 3 and 4 of KEPCO's Ohi PS, the Takahama PS Units 1 to 4, the Mihama PS Unit 3, the Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. and the Shimane NPS Unit 2 of Chugoku Electric Power Co., Inc. After review at the public meeting, the NRA approved that no change of the design basis ground motion was necessary in FY2021.

Table 2-1 Status of Reviews and Inspections of Conformity of Commercial Power Reactors Concerning Conformity to New Regulatory Requirements

○ Commercial Power Reactors

No.	Applicant	Targeted Power Reactor			New Regulatory Requirements Conformity Review			Pre-service Check, etc.※1
					Permission of Change in Basic Design	Approval of Design and Construction Plans	Approval of Change in Safety Requirements	
1	Japan Atomic Power Company	Tokai Daini NPS		BWR	Completed	Completed	Under review	Under inspection
2		Tsuruga NPS	Unit 2	PWR	Under review	Not applied	Under review	
3	Electric Power Development Co., Ltd.	Ohma NPS		Under construction	Under review	Under review	Not applied	
4	Hokkaido Electric Power Co., Inc.	Tomari NPS	Unit 1	PWR	Under review	Under review	Under review	
5			Unit 2	PWR	Under review	Under review	Under review	
6			Unit 3	PWR	Under review	Under review	Under review	
7	Tohoku Electric Power Co., Inc.	Higashidori NPS		BWR	Under review	Under review	Under review	
8		Onagawa NPS	Unit 2	BWR	Completed	Completed	**Completed**	Under inspection
9			Unit 3	BWR	Not applied	Not applied	Not applied	
10	TEPCO Holdings	Higashidori NPS		Under construction	Not applied	Not applied	Not applied	
11		Kashiwazaki Kariwa NPS	Unit 1	BWR	Not applied	Not applied	Not applied	
12			Unit 2	BWR	Not applied	Not applied	Not applied	
13			Unit 3	BWR	Not applied	Not applied	Not applied	
14			Unit 4	BWR	Not applied	Not applied	Not applied	
15			Unit 5	BWR	Not applied	Not applied	Not applied	
16			Unit 6	BWR	Completed	Under review	Not applied	
17			Unit 7	BWR	Completed	Completed	Completed	Under inspection
18	Chubu Electric Power Co., Inc.	Hamaoka NPS	Unit 3	BWR	Under review	Not applied	Not applied	
19			Unit 4	BWR	Under review	Under review	Under review	
20			Unit 5	BWR	Not applied	Not applied	Not applied	
21	Hokuriku Electric Power Co., Inc.	Shika NPS	Unit 1	BWR	Not applied	Not applied	Not applied	
22			Unit 2	BWR	Under review	Under review	Under review	
23	Kansai Electric Power Co., Inc.	Mihama NPS	Unit 3	PWR	Completed	Completed	Completed	Completed
24		Ohi NPS	Unit 3	PWR	Completed	Completed	Completed	Completed
25			Unit 4	PWR	Completed	Completed	Completed	Completed
26		Takahama NPS	Unit 1	PWR	Completed	Completed	Completed	Under inspection
27			Unit 2	PWR	Completed	Completed	Completed	Under inspection
28			Unit 3	PWR	Completed	Completed	Completed	Completed
29			Unit 4	PWR	Completed	Completed	Completed	Completed
30	Chugoku Electric Power Co., Inc.	Shimane NPS	Unit 2	BWR	Completed	Under review	Under review	
31			Unit 3	Under construction	Under review	Not applied	Not applied	
32	Shikoku Electric Power Co., Inc.	Ikata NPS	Unit 3	PWR	Completed	Completed	Completed	Completed
33	Kyushu Electric Power Co., Inc.	Genkai NPS	Unit 3	PWR	Completed	Completed	Completed	Completed
34			Unit 4	PWR	Completed	Completed	Completed	Completed
35		Sendai NPS	Unit 1	PWR	Completed	Completed	Completed	Completed
36			Unit 2	PWR	Completed	Completed	Completed	Completed
					Permitted:17 Under review:10	Approved:15 Under review:9	Approved:14 Under review:9	Inspected:10 Under inspection:5

(Notes) Power reactors whose decommissioning plans have been approved or whose decommissioning has been announced by the nuclear operator are excluded.

※1) Including pre-service inspections pursuant to Article 7-1 of Supplementary Provisions of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors for Strengthening Safety Measures in the Use of Nuclear Power (Act No. 15 of 2017).

: Nuclear power stations whose status changed in FY2022

Table 2-2 Status of Reviews and Inspections of Conformity of Commercial Power Reactors Concerning Conformity to New Regulatory Requirements (Special Facilities for Severe Accident Management)

○ Commercial Power Reactors (Special Facilities for Severe Accident Management)

No.	Applicant	Targeted Power Reactor			New Regulatory Requirements Conformity Review			Pre-service Check, etc.*1
					Permission of Change in Basic Design	Approval of Design and Construction Plans	Approval of Change in Safety Requirements	
1	Electric Power Development Co., Ltd.	Ohma NPS		Special Facility	Under review			
2	Japan Atomic Power Company	Tokai Daini NPS		Special Facility	Completed	**1st time: Completed 2nd time: Under review 3rd time: Under review**		**Under inspection**
3	Hokkaido Electric Power Co., Inc.	Tomari NPS	Unit 3	Special Facility	Under review			
4	TEPCO Holdings	Kashiwazaki Kariwa NPS	Unit 6	Special Facility	**Completed**			
5			Unit 7	Special Facility	**Completed**	**1st time: Under review**		
6	Kansai Electric Power Co., Inc.	Mihama NPS	Unit 3	Special Facility	Completed	Completed	Completed	**Completed**
7		Ohi NPS	Unit 3	Special Facility	Completed	Completed	Completed	**Completed**
8			Unit 4	Special Facility	Completed	Completed	Completed	**Completed**
9		Takahama NPS	Unit 1	Special Facility	Completed	Completed	**Completed**	Under inspection
10			Unit 2	Special Facility	Completed	Completed	**Completed**	Under inspection
11			Unit 3	Special Facility	Completed	Completed	Completed	Completed
12			Unit 4	Special Facility	Completed	Completed	Completed	Completed
13	Chugoku Electric Power Co., Inc.	Shimane NPS	Unit 2	Special Facility	Under review			
14	Shikoku Electric Power Co., Inc.	Ikata NPS	Unit 3	Special Facility	Completed	Completed	Completed	Completed
15	Kyushu Electric Power Co., Inc.	Genkai NPS	Unit 3	Special Facility	Completed	Completed	Completed	**Completed**
16			Unit 4	Special Facility	Completed	Completed	Completed	**Completed**
17		Sendai NPS	Unit 1	Special Facility	Completed	Completed	Completed	Completed
18			Unit 2	Special Facility	Completed	Completed	Completed	Completed
19	Tohoku Electric Power Co., Inc.	Onagawa NPS	Unit 2	Special Facility	Under review			
					Permitted: 15 Under review: 4	Approved: 12 Under review: 3 (2 plants)	Approved: 12 Under review: 0	Inspected: 10 Under inspection: 3

(Notes) Power reactors whose decommissioning plans have been approved or whose decommissioning has been announced by the nuclear operator are excluded.

*1) Including pre-service inspections pursuant to Article 7-1 of Supplementary Provisions of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors for Strengthening Safety Measures in the Use of Nuclear Power (Act No. 15 of 2017).

: Nuclear power stations whose status changed in FY202

(2) System of Approval for Extension of Operational Period

The system of approval for extension of operational period is a system which defines the operational period of a commercial power reactor as 40 years from the start of operation that allows it to be extended only once for a period not exceeding 20 years. In the approval process, the NRA makes the operators evaluate whether they can maintain compliance with the technical standards for ensuring safety during the period of the extension even in consideration of the degradation of the reactor due to low cycle fatigue, neutron irradiation embrittlement and other matters in order to confirm this compliance is maintained.

In FY2022, the NRA received applications for the Sendai NPS Units 1 and 2 of Kyushu Electric Power Co., Inc. on October 12, 2022, and is reviewing the results of the special inspection[14] and the technical evaluation on the deterioration of facilities, and the facility management policy.

(3) Ageing Management System

The ageing management system is a system which makes it obligatory for operators to assess reactor facilities which have been in operation for 30 years since the start of operation, looking at the deterioration of components and structures in order either to establish or change long-term facility management policies every 10 years for the purpose of reflecting these in the operational safety program.

In FY2022, the NRA approved on August 24, 2022 the changes in the operational safety program concerning the assessment that the Unit 4 of Ohi PS of Kansai Electric Power Co., Inc. is presumed to be in operation (the 30th year).

(4) System for the Evaluation of Safety Improvement

The system for the evaluation of safety improvement is a system under which the installer of nuclear reactors for power generation conducts a comprehensive evaluation of the safety of the reactors, thereby simultaneously evaluating its safety and notifying the NRA of the results of the evaluation.

In FY2022, the NRA confirmed the contents of the notification in accordance with the Operational Guide for Safety Improvement Assessment of Commercial Power Reactors as well as received notification on the evaluation for safety improvement of the following: the Sendai NPS Unit 1 of Kyushu Electric Power Co., Inc. (July 15, 2022), the Ikata PS Unit 3 of Shikoku Electric Power Co., Inc. (July 22, 2022), the Sendai NPS Unit 2 of Kyushu Electric Power Co., Inc. (January 11, 2023), the Genkai NPS Unit 4 of Kyushu Electric Power Co., Inc. (February 9, 2023), the Ohi PS Unit 4 of Kansai Electric Power Co., Inc. (February 20, 2023), the Takahama PS Unit 3 of Kansai Electric Power Co., Inc. (March 3, 2023) and the Mihama PS Unit 3 of Kansai Electric Power Co., Inc. (March 28, 2023).

[14] Concerning facilities, equipment and structures (reactor vessel, reactor containment vessel and concrete structures) that have function necessary to ensure the safety of the plant, excluding those that should be handled by normal maintenance, it shall be identified those that have not been inspected for deterioration events or those for which the scope of inspection has been limited in order to carry out detailed inspections.

2. Status of Review on Type Certification, etc. of Specified Equipment Design related to Nuclear Power Reactor Facilities

The type certification system for type certification is a system that allows to partially omit the review of permission and approval in case of installation of the general-purpose equipment by confirming conformity to the standards for the design of such equipment.

(1) Specific Dual-use Casks

The NRA is reviewing the type certification of the specific dual-use casks[15] that can be used for both transportation and storage of spent fuel at the "Review Meeting on Type Certification, etc. of Specific Dual-Use Cask Design."

In FY2022, the NRA approved the modification of Mitsubishi Heavy Industries' type certification (for PWR[16]) on June 2, 2022.

(2) Fuel Assemblies

In FY2022, the NRA received one application of type certification for 10x10 fuel (for BWR[17]) from the Global Nuclear Fuel - Japan Co, Ltd. on January 12, 2023.

3. Status of Licensing Review of Conformity to the New Regulatory Requirements of Nuclear Fuel Cycle Facilities, etc.

(1) Status of Review for Conformity with New Regulatory Requirements

After the new regulatory requirements were enforced on December 18, 2013, the NRA has been reviewing the application for permission to change facility operations in the nuclear fuel cycle facilities and other centers regarding compliance with the new regulatory requirements in accordance with the "Conducting Conformity Reviews of Nuclear Fuel Cycle Facilities, etc. after the Enactment of New Regulatory Requirements" (decided at the 37th FY2013 NRA Commission Meeting (December 25, 2013), partially revised on June 1, 2016), and review meetings were held 45 times in FY2022.

In addition, the NRA compiled reports showing the overall progress of licensing review of conformity to the new regulatory requirements once per every 6 months in order to organize the status of review on various nuclear fuel cycle facilities and other centers as well as to ensure the transparency and predictability of the review, and published them on the NRA website.

As for the permission to change facility operations, 9 operators have submitted applications for the permission to change facility operations at 21 facilities so far, and the NRA granted the permission to 19 facilities of 8 operators by FY2021, and is reviewing the remaining applications in accordance with the above-mentioned policy. At the 82nd NRA Commission Meeting (March 15, 2023), concerning the waste storage facility at Oarai Research & Development Institute of JAEA, the NRA summarized the results of the review as a draft of the application for the permission to change facility operations of

[15] Specified equipment stipulated in Article 100-2 of the Ordinance Concerning the Installation and Operation of Commercial Power Reactors (The Ministry of International Trade and Industry Order No. 77 of 1978) and also used as cask, and meets the provisions of Article 4-6 (i), Article 5-2 (i), and Article 6-4 (i) of the NRA Ordinance on Standards for the Location, Structure, and Equipment of Commercial Power Reactors (NRA Rule No. 5 of 2013).

[16] Pressurized water reactor

[17] Boiling water reactor

waste management with regard to the change of tornado countermeasures and partial suspension of use of the liquid waste treatment facility, and implemented the hearing of opinions to the Minister of Economy, Trade and Industry. In addition, a total of 23 permissions were granted in FY2022 to nuclear material utilization facilities, such as the Nuclear Science Research Institute of JAEA.

With regard to design and construction plans, the NRA approved the Recyclable-Fuel Storage Center of Recyclable-Fuel Storage Co. on August 16, 2022, and the Kumatori Works of Nuclear Fuel Industries, Ltd. on November 16, 2022, respectively (see 4 in this Section for the status of review of reprocessing facilities and MOX fuel fabrication facilities of Japan Nuclear Fuel Limited).

The NRA granted approvals for changes in the operational safety program as follows: for Mitsubishi Nuclear Fuel on May 30, 2022; for the fuel fabrication facility of the enrichment and disposal plant of Japan Nuclear Fuel Limited on June 22, 2022; and for the Static Experiment Critical Facility (STACY) at the research reactor facility of the JAEA's Nuclear Science Research Institute on December 23, 2022 respectively. In addition, the NRA approved a total of 11 cases in FY2022 for nuclear material utilization facilities, such as the Nuclear Fuel Cycle Engineering Laboratories of JAEA.

As for incorporating the standard response spectrum into regulations, applications for permission for changes in basic design (approved) or for permission to change facility operations of the following have been submitted so far and the NRA is in the process of reviewing[18]: (1) from JAEA for the research reactor facilities of the High Temperature Engineering Test Reactor (HTTR) at the Oarai Research & Development Institute (North District), (2) from Kyoto University for the research reactor facilities of research reactors (KUR[19]), (3) from Recyclable-Fuel Storage Co. for the recyclable-fuel storage center, and (4) from JNFL for the reprocessing facility, the MOX fuel fabrication facility and the waste storage facility. On February 8, 2023, the NRA granted permission to change facility operations at the recyclable-fuel storage center to add the design basis for tremors with consideration of the standard response spectrum.

(2) Status of Review for Approvals of Design and Container for Nuclear Fuel Shipments

As for approvals of design and container for nuclear fuel shipments, the NRA is in the process of reviewing them at the review meeting on specific containers related to transportation containers and spent fuel storage facilities. In FY2022, review meetings were held three times, and 13 nuclear fuel transport items were approved for design and 10 transport containers were approved.

4. Status of Review of Reprocessing Facilities and MOX Fuel Fabrication Facilities of Japan Nuclear Fuel Limited

The NRA is reviewing applications for approval of changes to the design and construction plans of reprocessing facilities at JNFL's reprocessing plant in accordance

[18] With regard to the Research reactor facility (JRR-3) at the JAEA's Nuclear Science Research Institute, the operator submitted a document explaining that no change to the design basis ground motion was necessary, and after deliberations at a public meeting, the 3rd NRA Commission Meeting accepted this.

[19] Kyoto University Research Reactor

with the "Conducting Review of Approval of Design and Construction Plans, and Checking of Pre-Service Operator Inspections, relating to Reprocessing Facilities of Japan Nuclear Fuel Limited," which was accepted at the 12th FY2020 NRA Commission Meeting (June 24, 2020). The first application (1 out of 5 applications in total) was approved on December 21, 2022. Currently, the second round of applications (4 out of 5 applications) was received on December 26, 2022 and is being reviewed.

As for the MOX fuel fabrication facilities at JNFL's reprocessing plant, the first application (1 out of 7 applications in total) was approved on September 14, 2022. Currently, the second round of applications (2 out of 7 applications in total) were received on February 28, 2023, and are being reviewed.

Table 2-3 Status of Licensing Review of Conformity on New Regulatory Requirements and Inspections of Nuclear Fuel Cycle Facilities, etc.

○ Nuclear Fuel Cycle Facilities, etc.

No.	Applicant	Facility	New Regulatory Requirements Conformity Review			Pre-service Check, etc. *4
			Permission of Change in Basic Design/ Facility Operation	Approval of Design and Construction Plans	Approval of Operational Safety Program	
2	Japan Nuclear Fuel Ltd.	Reprocessing facility	Completed	Under review	Not applied	Under inspection
3		MOX fuel fabrication facility	Completed	Under review	Not applied	Under inspection
4		Uranium enrichment facility	Completed	Completed	Completed	Under inspection
5		Waste storage facility	Completed	Under review	Not applied	
6		Waste disposal facility *5	Completed		Completed	
7	Recyclable-Fuel Storage Company	Spent fuel storage facility	Completed	Completed	Under review	Under inspection
8	Mitsubishi Nuclear Fuel	Uranium fuel fabrication facility	Completed	Completed	Completed	Completed
9	Japan Atomic Energy Agency	Waste storage facility	Completed	Under review	Under review	Under inspection
10		Research reactor facility (JRR-3)	Completed	Completed	Completed	Completed
11		Research reactor facility (HTTR)	Completed	Completed	Completed	Completed
12		Research reactor facility (Common radioactive waste disposal facility)	Completed	Under review	Not applied	Under inspection
13		Research reactor facility (NSRR)	Completed	Completed	Completed	Completed
14		Research reactor facility (STACY)	Completed	Completed	Completed	Under inspection
15		Research reactor facility (Jyo)	Under review	Not applied	Under review	
16	Nuclear Fuel Industries, Ltd	Uranium fuel fabrication (Tokai Works)	Completed	Under review	Not applied	Under inspection
17		Uranium fuel fabrication (Kumatori Works)	Completed	Completed	Under review	Under inspection
18	Global Nuclear Fuel Japan	Uranium fuel fabrication facility	Completed	Under review	Not applied	Under inspection
19	Kyoto University	Research reactor facility (KUR)	Completed	Completed	Completed	Completed
20		Uranium fuel fabrication facility (KUCA)	Completed	Completed	Completed	Completed
21	Kinki University	Research reactor facility (Kindai University Nuclear Reactor)	Completed	Completed	Completed	Completed
22	Japan Atomic Power Company	Category 2 waste disposal facility (trench disposal)	Under review		Not applied	

*1) ・Nuclear fuel facilities whose decommissioning plans have been approved or whose decommissioning has been announced by the nuclear operator are excluded.
・This shall not preclude implementation of activities other than "those that greatly increase facility risk or that reduce facility risk" only for 5 years.
(Refer to "Policies on the Application of New Regulatory Requirements to Nuclear Fuel Cycle Facilities" enacted by the Secretariat of the NRA on November 6, 2013)

*2) Regarding phased applications for permission to change design and construction plans, the review shall continue until the final application is approved.

*3) Regarding the review of permission to change operational safety programs, no application is assumed to be filed when only part of an application is submitted.

*4) Including pre-service inspections pursuant to Article 7-1 of Supplementary Provisions of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors for Strengthening Safety Measures in the Use of Nuclear Power (Act No. 15 of 2017).

*5) Waste burial is underway at facilities that have completed the confirmation of waste disposal stipulated in Article 51-6, item 1 of the Reactor Regulation Act.

In the table, the names of the following facilities are indicated in parentheses: the enrichment and disposal sites of Japan Nuclear Fuel Limited (Uranium enrichment facility), the recyclable fuel storage center of Recyclable-Fuel Storage Company (Spent fuel storage facility).

: Facilities whose status changed in FY2022

5. Actions related to Decommissioning

(1) Commercial Power Reactors

In general, in the decommissioning of a commercial power reactor, a plan for each stage is applied by the operators in order because the final dismantling of the facility takes a long time after the reactor functions are stopped, the fuel assemblies and other materials are removed and carried out, the system is isolated and the facility is sealed, and safe storage is performed to ensure temporal decay of the remaining radioactivity in the reactor facility.

Since the establishment of the NRA in 2012, the NRA has accepted decommissioning plans for 15 plants (see Table 8. at Reference 3 in the References) and approved all of the 15 plants. In FY2022, the NRA received 10 applications for modification of decommissioning plans, and approved 8 of them.

(2) Prototype Fast Breeder Reactor MONJU of the JAEA

In order to continuously confirm the current status of JAEA's prototype fast breeder reactor MONJU and the status of JAEA's efforts to ensure safety for decommissioning, it was decided on January 18, 2017 to establish the "Safety Oversight Team for Prototype Fast Breeder Reactor Monju Decommission" and the NRA has been monitoring it. A total of three meetings by the oversight team was held in FY2022.

At the oversight team, because the removal work of fuel assemblies from the reactor core was began from August 30, 2018 in accordance with the decommissioning plan approved at the 75th FY2017 NRA Commission Meeting (March 28, 2018), the NRA has been keeping up with the status of implementation of the work as well as the status of consideration of issues on decommissioning. The JAEA started the transfer of 124 fuel assemblies from the reactor vessel to the fuel storage tanks out of the vessel on March 30, 2022, and completed it on April 22, 2022.After that, the JAEA commenced the transferring of the fuel assemblies from the fuel storage tanks out of the vessel to the fuel pond on August 16, 2022, and completed it on October 13, 2022. Throughout these operations, all 530 fuel rods were removed.

(3) Tokai Reprocessing Plant of the JAEA

To periodically confirm the status of implementation of vitrification for risk reduction at JAEA's Tokai Reprocessing Plant, its safety, the way of ensuring safety for decommissioning and other matters. On January 27, 2016, it was decided to establish the "Safety Oversight Team for Tokai Reprocessing Facility and Other Facilities" to conduct the required monitoring. At the 4th FY2019 NRA Commission Meeting (April 17, 2019), the "JAEA Back-end Measures Monitoring Team" was divided from the oversight team and the reorganized "Safety Oversight Team for the Tokai Reprocessing Plant" (hereinafter referred to as the "oversight team") continues to monitor issues related to the decommissioning of the Tokai Reprocessing Plant. In FY2022, the oversight team meeting was held 6 times in total.

Regarding the decommissioning of JAEA's Tokai Reprocessing Plant, it is necessary to proceed with safety measures for high radioactivity liquid waste (hereinafter referred to as "safety measures" in (a) and (b)), vitrification and other measures with the immediate priority of reducing the risk of radioactive liquid waste and other matters at the Plant for

the time being.

(a) Status of Implementation of Safety Measures, etc.

The JAEA submitted applications for approval of change in the decommissioning plan for formulating safety measures five times from December 19, 2019 to September 30, 2021, and all of the applications were approved by March 3, 2022. Based on the decommissioning plan, the JAEA is to proceed with safety measures for the high-activity liquid waste storage facility (HAW) and the Tokai Vitrification Facility (TVF) with the highest priority, and it plans to complete constructions for safety measures including initiatives against earthquakes and tsunamis, such as ground improvement and installation of tsunami barriers, by the end of FY2023.

On December 17, 2021, the JAEA submitted application for approval of change in the decommissioning plan for process cleaning, which is an operation to recover and stabilize recoverable nuclear fuel materials (such as shear pulverization and uranium/ plutonium solution) in the process, and the application was approved on May 17, 2022. The JAEA plans to take out the shear pulverization and low-enriched plutonium solution and to complete the cleaning process by the end of FY2023. In addition, on June 30, 2022, the JAEA submitted application for approval of change in the decommissioning plan on the method to remove spent fuel from Fugen, where the spent fuel is stored in the fuel storage pool along with the modification of facilities, and on December 22, 2022, the NRA approved the applications.

(b) Status of Vitrification

In the initial approval of the decommissioning plan granted on June 13, 2018, the JAEA planned to produce 571 vitrified canisters from the point when the decommissioning plan is approved to FY2028.

The vitrification was resumed on August 17, 2021, after construction work for a leakage of electricity event that occurred on July 29, 2019, but was interrupted earlier than expected due to a decrease in the compensated resistance values between the main electrodes caused by the deposition of platinum group metals. As a result, there were only 20 vitrified canisters to be produced compared to the initial plan to produce 110 vitrified canisters by the end of FY2021 after the approval of the decommissioning plan.

Subsequently, the JAEA resumed the vitrification on July 12, 2022, but suspended it again due to a decrease in the compensated resistance values between the main electrodes caused by the deposition of platinum group metals. In FY2022, only 25 vitrified canisters were produced compared to the initial plan to manufacture 60 vitrified canisters.

At the oversight team meeting held on September 6, 2022, the JAEA explained that, based on the results of the shutdown at this time, the JAEA would consider the future operation of the vitrification on the premise that the replacement of the No. 2 melter with the No. 3 melter, which is planned for FY2025, will be carried out ahead of schedule with the intention of promoting the vitrification in the shortest possible time. The oversight team continuously confirms the status of the vitrification, including the detailed schedule for the updating to the No. 3 melter and the results of the investigation into the cause of the shutdown.

(4) Nuclear Material Utilization Facilities

In FY2022, decommissioning plans were approved for: Center for Life Science Research of University of Yamanashi (April 15, 2022), Central Research Laboratory of Technical Headquarters of AGC (August 29, 2022), Kyoto University Hospital (November 14, 2022), Store Storage Facility of Masao Matsumoto of Ikuno Corporation (December 22, 2022), Kobe Works of Mitsubishi Electric Corporation (March 3, 2023) and Iwakura Plant of Ishizuka Glass Co., Ltd. (March 28, 2023).

Section 2 Implementation of Inspections in accordance with the Reactor Regulation Act

1. Implementation of Nuclear Regulatory Inspections of Commercial Power Reactors and Nuclear Fuel Cycle Facilities, etc.

(1) Status of Inspections

In order to ensure the safety of commercial power reactors and nuclear fuel cycle facilities, nuclear regulatory inspections are conducted under the Reactor Regulation Act through routine inspections (mainly conducted by inspectors stationed at the NRA Regional Offices) and team inspections (mainly conducted by inspectors with expertise at the NRA headquarters). In FY2022, as a part of legal requirements, the NRA confirmed 74 cases' appropriateness of licensees' activities related to pre-operator inspections, waste disposal facilities, waste packages, vehicle transportation, decommissioning and radioactivity concentration by utilizing the results of nuclear regulatory inspections.

In addition, the NRA conducted 9 pre-service inspections in accordance with the transitional measures stipulated in Article 7 of the Supplementary Provisions of the Act partially amending the Reactor Regulation Act (Act No. 15 of 2017).

(a) Comprehensive Assessment of Inspection Results for FY2021 and Inspection Plans for FY2022

With regard to the nuclear regulatory inspections conducted in the fourth quarter of FY2021, the NRA confirmed 7 findings. The inspection findings were reported at the 10th FY2022 NRA Commission Meeting (May 18, 2022) and the Extraordinary Meeting of 11th FY2022 NRA Commission Meeting (May 18, 2022) for commercial power reactors, and safety significance level[20] of the findings was all "green." In addition, the NRA secretariat reported to the NRA that one case of a nuclear fuel cycle facility, which was only assessed as "SL IV" at severity level[21], and the result was notified to the operator. As a result, a total of 33 inspection findings were identified in the nuclear regulatory inspections in FY2021, and their severity and significance levels were rated as "green ("no additional action" for nuclear fuel cycle facilities) and "SL IV." In addition, there were 4 other cases in which only the severity level was assessed (3 cases of SL IV (with notification) and 1 case of SL IV).

In light of this, at the 12th FY2022 NRA Commission Meeting (May 25, 2022), the comprehensive assessment for FY2021 and the inspection plans for FY2022 were

[20] In the case of nuclear fuel cycle facilities, the evaluation is made at two levels (with additional measures and without additional measures).

[21] The severity level of the violation is rated on 4 levels (SL I to SL IV). "SL I" is the most serious and has resulted or could have resulted in a significant nuclear safety or physical protection situation.

approved. For nuclear facilities other than the TEPCO's Kashiwazaki-Kariwa NPS, the safety performance indicator[22] is "green" (or no additional action) and since there were no inspection finding during the nuclear regulatory inspections, or the significance and severity levels of the inspection finding found during the nuclear regulatory inspections were all "green (or no additional action), SL IV", the action matrix[23] was the first category throughout the year. It means that the facility condition is expected to improve autonomously by its licensee, and a regular baseline inspection was continued in FY2022 as the first category. For TEPCO's Kashiwazaki-Kariwa NPS, in FY2021 the inspection findings were confirmed, but the significance level and severity level were rated "green, SL IV", and the safety performance indicator was "green" for the entire year. The NPS had been classified as Category 4 in FY2020, and supplemental inspection was continued throughout FY2021 as well, in which the NRA evaluated the NPS as having a long deterioration trend or significant deterioration in safety activities. In FY2022, the NPS remained in Category 4 and supplemental inspection was conducted, and at the same time, the NRA performed baseline inspections more frequently as well as in FY2021.

(b) Inspection Results in FY2022

As for the results of nuclear regulatory inspections from the first to the third quarter in FY2022, a total of 22 inspection findings were reported (commercial power reactors: the significance level of "green" and the severity level of "SL IV," nuclear fuel cycle facilities: the significance level of "no additional action" and the severity level of "SL IV" and "minor") at the following meetings: the 28th FY2022 NRA Commission Meeting (August 17, 2022), the Extraordinary Meeting of the 30th FY2022 NRA Commission Meeting (August 17, 2022), the Extraordinary Meeting of the 52nd FY2022 NRA Commission Meeting (November 16, 2022), the 53rd FY2022 NRA Commission Meeting (November 22, 2022), the Extraordinary Meeting of the 54th FY2022 NRA Commission Meeting (November 22, 2022), the 55th FY2022 NRA Commission Meeting (November 30, 2022), the 73rd FY2022 NRA Commission Meeting (February 15, 2023) and the Extraordinary Meeting of the 76th FY2022 NRA Commission Meeting (February 24, 2023). In addition, the NRA secretariat reported to the NRA that there were two other cases (SL III and SL IV) where only the severity level was assessed.

(2) Response to Items Found during Inspections

(a) Nuclear Regulatory Inspection for Rewriting of Boring Column Data for the Tsuruga NPS Unit 2 of the Japan Atomic Power Company

At the 833rd Review Meeting on Conformity to the New Regulatory Requirements of Nuclear Power Plants (NPP) held on February 7, 2020, with regard to the onsite fault at the Tsuruga NPS Unit 2, it was confirmed that the description of the borehole map data had been deleted or changed without explanation, which is supposed to verify the validity of the evaluation regarding the continuity of the fault directly under the critical facilities. As a result of the nuclear regulatory inspection confirming the cause of the data rewriting,

[22] An indicator of the operators' performance in safety activities, rated in four levels (red, yellow, white and green)."Red" is the level with the greatest degree of deterioration and the greatest impact on the function or performance of safety assurance.

[23] When the operator's safety activities are found to be deteriorated, the regulatory action will be decided in five stages (Category 1 to 5) depending on the condition of the facility. Category 5 is a state in which plant operation is unacceptable.

it was decided, at the 25th FY2021 NRA Commission Meeting (August 18, 2021), not to hold the review meeting until the establishment of a work process that satisfies the following two points is confirmed regarding the preparation process of review documents of the Japan Atomic Power Company:

(1) to ensure the traceability of survey data and

(2) if the evaluation results are presented in the review documents by more than one research method, the basis for the decision shall be clarified.

Subsequently, the NRA was informed by the Japan Atomic Power Company that it had made improvements in these work processes, and as a result of the nuclear regulatory inspections at the head office of the Japan Atomic Power Company, which had been implemented several times since May 24, 2022, as well as the 4th public meeting to investigate and analyze the cause of the rewriting of borehole map data at Tsuruga NPS Unit 2 (September 29, 2022), the 47th FY2022 NRA Commission Meeting was reported by the Secretariat of the NRA (October 26, 2022) that it judged that the work processes had been established to ensure the above two points, and that measures were being taken to confirm the quality of the work on an ongoing basis. Elsewhere, it was judged that the rewriting of the borehole map data by the Japan Atomic Power Company had an impact on the regulatory activities of the NRA because this caused unnecessary confusion and a significant expenditure of human resources in the review process due to the lack of accurate information on the data to be provided for judging important issues in the review; the evaluation of the activity of fracture zones on the site. In light of this, the NRA decided on the severity level of this case as "SL III."

Based on these reports from the Secretariat of the NRA, the NRA decided to resume the Review Meeting on Conformity to the New Regulatory Requirements at the Tsuruga NPS Unit 2 because it was judged that the system to properly prepare the review documents was in place at the Japan Atomic Power Company.

(b) Nuclear Regulatory Inspection of Inadequate Fire Protection Measures Related to the Auxiliary Water Supply Function of the Mihama PS Unit 3 of Kansai Electric Power Co., Inc.

In the nuclear regulatory inspection of Mihama PS Unit 3 conducted from October 18, 2021 (the inspection based on the operational guide for the baseline inspection, "Fire Protection (3 Years)"), the NRA checked the status of fire protection measures for equipment related to the auxiliary water supply function of the Steam Generator (SG). The nuclear inspector found that the operator had not performed the required design evaluation of some equipment and that the equipment had not been constructed in accordance with the approved construction plan.

Specifically, control panels for two electric auxiliary water supply pumps and one turbine-driven auxiliary water supply pump were installed side by side in a row at intervals of approximately 0.6 m, and there were no necessary design evaluations to be performed even though the auxiliary water supply pumps may not be able to be operated and controlled in the event of a fire on these control panels. In addition, the conduit containing the power cable for the electric auxiliary water supply pump of the B system was located approximately 1.4 m above the electric auxiliary water supply pump motor of the A system, and if a fire were to occur in the motor of the A system, there was a

possibility that the B system power cable would be damaged by fire. However, the necessary design evaluation was not conducted.

In response to this situation, as a result of the NRA Secretariat conducting an evaluation of the impact on nuclear safety, it evaluated that the possibility of burning out the power cables of the B system was low in that (1) for adjacent control panels, it is unlikely that the fire will spread to the other control panels to cause multiple loss of function in case where a fire occurs in one of the control panels, (2) besides, in the event of a fire in the electric motor of system A, it can be detected by smoke detectors and heat detectors in the compartment where these facilities are installed, and (3) furthermore, it is believed that the fire can be extinguished by the halon fire extinguishing system.

Based on the results of the above evaluation, the 25th FY2022 NRA Commission Meeting (July 22, 2022) approved a judgment of "green, SL IV" for the significance and severity levels of the inspection findings although the operator's failure to conduct the necessary design evaluation corresponds to performance degradation, because the possibility of the failure affecting nuclear safety is low.

Subsequently, based on the findings of this inspection, as a result of the installers of power reactors with PWR-type reactors that comply with the new regulatory requirements (Kansai Electric Power Co., Inc., Shikoku Electric Power Co., Inc., and Kyushu Electric Power Co., Inc.) conducted surveys on the status of fire protection measures at their respective power plants, it turned out that there were facilities which were inconsistent with the approved design and construction plans at the power generation reactor facilities of Kansai Electric Power Co., Inc. and Kyushu Electric Power Co., Inc. The NRA received a report on the implementation status of nuclear regulatory inspections in response to the above at the 84th FY2022 NRA Commission Meeting (March 29, 2023) and approved the future action plan of the Secretariat of the NRA.

(c) Nuclear Regulatory Inspections of Fuel Fabrication Facilities of Mitsubishi Nuclear Fuel

Although Mitsubishi Nuclear Fuel had renewed or partially modified the analyzers and other equipment at its fuel fabrication facilities, which were listed as "unchanged" in the design and construction plan approved on August 5, 2020, the operator conducted a pre-operational inspection by treating them as existing facilities. In addition, on December 9 and 10, 2021, when the nuclear inspector who was conducting the nuclear regulatory inspection checked the site, the inspector asked whether any modification work had been carried out for the analyzers, the design and construction plans for which the operator stated "unchanged" in regard to the questionable condition of some of the analyzers. The operator gave an incorrect explanation that "it had not performed any changes on the equipment in question," and improperly replaced related construction inspection records and contract-related documents.

Subsequently, during the nuclear regulatory inspections conducted on December 27 and 28, 2021, the nuclear inspector found a construction record with photographs of the reinforcement fittings and other parts of the facilities in question that were different from their current condition. As a result, the operator accepted the fact that the current reinforcement fittings and other parts of the facility had been changed since the design

and the construction plans were approved, and responded that it would investigate when the changes were carried out.

As a result, the operator investigated whether or not there were any cases where changes were made to facilities that had been designated as "no change" in the design and construction plans. Similar to the case in question, it was identified that (1) there were 61 cases in which the design and construction plans required a review and the associated inspections had to be redone, and (2) there were 57 cases in which the pre-use operator inspections were incomplete or had not been conducted, and the inspections had to be redone. It was also confirmed that several departments were involved in the improper replacement of records and other documents related to the construction work, and that company executives had given their approval as well.

At the 10th FY2022 NRA Commission Meeting (May 18, 2022), based on the aforementioned facts from the Secretariat of the NRA, the NRA reported that it was determined that the modification work carried out by the operator did not affect nuclear safety because it resulted in the improvement of the earthquake resistance of the analysis facilities that handle nuclear fuel materials, etc., and thus does not fall under the inspection findings, although this case falls under the category of performance degradation because the operator did not follow the procedures required and did not properly conduct a pre-operational inspection.

On the other hand, the Meeting agreed that it was an intentional act of misconduct for the operator to provide an untrue explanation during the nuclear regulatory inspection and to inappropriately replace the construction inspection records in order to make them consistent with the explanation, which was judged to have affected the regulatory activities of the NRA, and therefore, the severity level of the case was rated as "SL IV (with notice)."

(3) Status of Supplemental Inspection of TEPCO's Kashiwazaki-Kariwa Nuclear Power Plant

On April 22, 2021, the "TEPCO's Kashiwazaki-Kariwa NPS Supplemental Inspection Team" was established and has been conducting supplemental inspections on the plant[24]. At the FY2022 7th meeting of the Nuclear Regulation Association (April 27, 2022), the interim report on Phase II was presented. Subsequently, the Nuclear Regulation Association (NRA) received 4 reports on the status of the Phase II inspections (Extraordinary Meeting of the 13th FY2022 NRA Commission Meeting (May 25, 2022), Extraordinary Meeting of the 20th FY2022 NRA Commission Meeting (June 29, 2022), Extraordinary Meeting of the 27th FY2022 NRA Commission Meeting (July 27, 2022), Extraordinary Meeting of the 34th FY2022 NRA Commission Meeting (August 31, 2022).

In light of this situation, in the 38th FY2022 NRA Commission Meeting (September 14th, 2022) the following three policies for future supplemental inspections were

[24] The supplemental inspections of the Kashiwazaki-Kariwa Nuclear Power Plant will be conducted in stages according to the implementation policy approved at the FY2021 3rd NRA meeting (April 14, 2021). Specifically, in Phase I, a detailed factual investigation of TEPCO's identification of root causes and plans of action for remedial measures will be conducted prior to the submission of the report. In Phase II, the operational status of action for remedial measures after submission of the report will be confirmed. In Phase III, the status of response to the items indicated in the inspection of Phase II will be confirmed if necessary.

approved: (Policy 1: “Realization of robust physical protection of nuclear materials),” Policy 2: “Establishment of an autonomous improvement system,” and Policy 3: “Establishment of a system to ensure that improvement measures are not transitory.”

The status of inspections that follows the verification policy was reported six times to the NRA (Extraordinary Meeting of the 43rd FY2022 NRA Commission Meeting (October 5, 2022), Extraordinary Meeting of the 52nd FY2022 NRA Commission Meeting (November 16, 2022), Extraordinary Meeting of the 60th FY2022 NRA Commission Meeting (December 21, 2022), Extraordinary Meeting of the 68th FY2022 NRA Commission Meeting (February 1, 2023), Extraordinary Meeting of the 76th FY2022 NRA Commission Meeting (February 24, 2023), 81st FY2022 NRA Commission Meeting (March 8, 2023). At the 81st FY2022 NRA Commission Meeting (March 8, 2023), the association received a report on the status of supplemental inspections and decided to continue checking the status of functional performance of the replaced intrusion detection equipment, installation of intrusion detectors, reduction of unwanted alarms, establishment of autonomous improvement systems, and implementation of behavioural observation by TEPCO.

In addition, the NRA Chairman and all members of the Nuclear Regulatory Association conducted a total of three on-site investigations for supplemental inspections (NRA Commissioners SUGIYAMA and BAN (December 2, 2022), NRA Chairman YAMANAKA (January 28, 2023), NRA Commissioners TANAKA and ISHIWATARI (February 17, 2023).

(Reference) Background of the Supplemental Inspection of TEPCO's Kashiwazaki-Kariwa Nuclear Power Plant

A nuclear regulatory inspection of TEPCO's Kashiwazaki-Kariwa Nuclear Power plant was conducted regarding the improper use of ID cards that occurred on September 20, 2020. After conducting a Nuclear Regulation Inspection, it was found that TEPCO's activities for the physical protection of nuclear materials had deprecated and obtained a provisional evaluation of "white SL III" in terms of significance and severity levels, which was approved at the Extraordinary Meeting of the 54th FY2020 NRA Commission Meeting (February 8, 2021) and notified to TEPCO. Subsequently, on February 9, 2021, the association received a response from TEPCO that there was no request for a statement of opinion, so the evaluation was finalized, and at the Extraordinary Meeting of the 55th FY2020 NRA Commission Meeting (February 9, 2021), the action matrix was changed from Category 1 to Category 2, and TEPCO was requested to report on the remedial action plan with analysis on the root cause and the results of implementation of those action. The report was received on March 10, 2021. In addition, at the Extraordinary Meeting of the 64th FY2020 NRA Commission Meeting (March 16, 2021), the association approved a provisional evaluation of the significance and severity levels of the partial loss of function of physical protection of nuclear material at the Kashiwazaki-Kariwa Nuclear Power Plant as "red, SL I", which was discovered as a result of a report made by TEPCO to the Secretariat of the NRA on January 27, 2021, and the association notified TEPCO of the results of the provisional evaluation. Subsequently, on March 18, 2021, TEPCO responded that it had no request for a statement of opinion, and the result of the evaluation of this case was finalized. Following this, the action matrix was changed from Category 2 to Category 4, and at the Extraordinary Meeting of the 66th FY2020 NRA Commission Meeting (March 23, 2021), the association notified TEPCO of its decision to request them to report within six months on its remedial action plan for the incident of misuse of ID cards and partial loss of function of physical protection of nuclear material at the Kashiwazaki-Kariwa Nuclear Power Plant. Furthermore, at the FY2020 67th meeting of the NRA (March 24, 2021), the association decided to issue an order for corrective measures, etc. to TEPCO based on the Reactor Regulation Act and to prohibit the transfer of specified nuclear fuel materials[25] at the Kashiwazaki-Kariwa Nuclear Power Plant until the effects of improvements can be confirmed. Subsequently, the order for corrective measures, etc. was issued on April 14, 2021.

[25] Radioactive materials contained in nuclear fuel (Fresh fuel and spent fuel) used in nuclear power plants, such as plutonium (excluding Pu238) and uranium-233, as defined in the Reactor Regulation Act.

2. Confirmation of Causes and Preventive Measures for Problems in Nuclear Facilities

When incidents under obligation to report occur, it must be reported to the NRA. In FY2022, there were three incidents under obligation to report: one in nuclear fuel cycle facilities, etc, and two in commercial nuclear power reactors. The NRA received reports on these incidents from the operators and confirmed that the investigations into the causes and preventive measures were taken by the operators.

Additionally, incidents under obligation to report are subject to evaluations according to the International Nuclear and Radiological Event Scale (INES[26]). The incidents that occurred at the Japan Nuclear Fuel's reprocessing facility (JNFL) on July 3, 2022 and at the Takahama PS of Kansai Electric Power Co., Inc. on July 8, 2022 and January 30, 2023 were evaluated as level 0 (no safety significance). Furthermore, the incidents that occurred at Toshiba Materials Co., Ltd.and the Takahama PS of Kansai Electric Power Co., Inc. in FY2021 were evaluated as Level 0 (no safety significance).

In addition, on July 26, 2022, an unplanned automatic reactor shutdown occurred at the reactor facility (JRR-3) of the Nuclear Science Research Institute of JAEA, but this was not the incident under obligation to report because it was caused by a false alarm generated in the primary coolant flow system.

(1) Response to Accidents and Failures in FY2022

(a) Temporary Loss of Safety Cooling Function in the Vitrification Facility of the JNFL Reprocessing Facility

On July 3, 2022, the association received a report from JNFL on the loss of the safety cooling function of the feed solution tank B of the safety cooling water system B (a safety-critical system with two lines, A and B), which cools in the Vitrification Facility of the reprocessing facility, for about eight hours. On July 8 of the same year, JNFL reported that this event was identified as the incident under obligation to report, because at that time, the safety cooling water line A was stopped for construction work and the cooling systems of both lines were stopped.

On July 19, 2022 (amended on September 5), JNFL reported the cause and countermeasures for this event, and the association heard the report from JNFL at the 18th public meeting on the response to accidents and failures at nuclear facilities (September 27, 2022). At the 45th FY2022 NRA Commission Meeting (October 19, 2022), the Secretariat of the NRA reported that the investigation into the cause of the accident and the preventive measures taken were deemed to be adequate and that the event was a significance level of "no additional action" and the inspection findings with a severity level of "SL IV" as a result of the nuclear regulatory inspection in the second quarter of FY2022.

(b) Wear on Steam Generator Tubes of Unit 4 of Takahama NPS of Kansai Electric Power Co., Inc.

On July 8, 2022, Kansai Electric Power Co., Inc. reported to the NRA that when eddy current testing (ECT) was conducted to confirm the integrity of heat transfer tubes in three

[26] The International Nuclear and Radiological Event Scale

steam generators (SGs) at the Takahama PS Unit 4, which has had periodic outages, significant signal indications showing wall thinning of the outer surface were observed in 10 tubes of all three SGs, and this corresponds to incidents under obligation to report.

On August 23, 2022, Kansai Electric Power Co., Inc. submitted a report on the cause of the event and countermeasures to be taken. In the report, Kansai Electric Power Co., Inc. attributed the thinning of the outer surface to abrasion caused by the dense scale that remained after the chemical cleaning during the previous periodic inspection and remained near the tube support plate during plant operation and repeatedly contacted the vibrating heat transfer tubes. Subsequently, at the 55th FY2022 NRA Commission Meeting (November 30, 2022), the Secretariat of the NRA reported that the investigation into the cause of the accident and measures to prevent recurrence were deemed adequate, and that the inspection findings were a significance level of "green" and severity level of "SL IV" as a result of nuclear regulatory inspections, etc. in the second quarter of FY2022.

(c) Automatic Reactor Shutdown at Unit 4 of Takahama NPS of Kansai Electric Power Co., Inc.

On January 30, 2023, the association received a report from Kansai Electric Power Co., Inc. that the Takahama PS Unit 4, which was operating at constant rated thermal power, was subject to an incident under obligation to report because the reactor automatically shut down after an alarm was activated for a sudden Power Range (PR) neutron flux decrease trip.

On March 7, 2023, Kansai Electric Power Co., Inc. submitted a report on the causes of the accident and countermeasures (amended on March 15), and at the 19th and 20th public meetings on the response to accidental trouble at nuclear facilities (March 7 and March 14, 2023), Kansai Electric Power Co., Inc. reported the contents. In the report, Kansai Electric Power Co., Inc. appraised the cause as follows. Inspection work following a "Control Rod Drive Mechanism (CRDM) heavy failure" alarm revealed that control rod M10 was in a single hold state with only a fixed gripping latch. Then, among the cables that supply current to the coil that holds the M10 control rod by electromagnetic force, the cable connection inside the reactor containment vessel penetration area was subjected to tensile force, which caused the soldering to delaminate, resulting in poor continuity and a drop in the current value. As a result, the fixed gripping latch of control rod M10 was released, and it was estimated that control rod M10 was inserted and the two-channel ex-core Nuclear Instrumentation System (NIS) reached the setpoint for rapid neutron flux reduction trip, causing the reactor to automatically shut down.

Subsequently, at the 83rd FY2022 NRA Commission Meeting (March 22, 2023), the Secretariat of the NRA approved the evaluation of the causes and countermeasures for this event, and as a result of the nuclear regulatory inspections, etc., the Secretariat of the NRA reported the event inspection findings as a significance level of "green" and severity level of "SL IV."

(2) Response to Accidents And Trouble That Occurred in 2022

(a) Leak of Nuclear Materials, etc. outside the Controlled Area at Toshiba Materials Co., Ltd.

On October 12, 2021, Toshiba Materials reported that an incident under obligation to

report had occurred due to the undeniable possibility of leakage of nuclear fuel materials outside the controlled area. On March 23, 2022, Toshiba Materials Co., Ltd reported the cause of the event and measures taken to prevent its recurrence. At the 12th FY2022 NRA Commission Meeting (May 25, 2022), the association reported that the investigation into the cause and preventive measures were appropriate. Additionally, at the 28th FY2022 NRA Commission Meeting (August 17, 2022), the Secretariat of the NRA reported that the inspection findings were a significance level of "no additional action" based on the result of the nuclear regulatory inspections, etc. conducted in the first quarter of FY2022.

(b) Wear on Steam Generator Tubes of Unit 3 of Takahama NPS of Kansai Electric Power Co., Inc.

On March 30, 2021, Kansai Electric Power Co., Inc. Reported to the NRA that when an eddy current test (ECT) was conducted to confirm the integrity of heat transfer tubes in three steam generators (SGs) at the Takahama PS Unit 3, which has had periodic outages, significant signal indications (one showing scratches on the inner surface and two showing thinning on the outer surface) were observed in three tubes of two SGs, and this corresponds to incidents under obligation to report.

On May 13, 2022, the association received a report from Kansai Electric Power Co., Inc. regarding the cause and countermeasures to prevent reoccurrence of the event. In the report, Kansai Electric Power Co., Inc. attributed the scratches on the inner surface to stress corrosion cracking in the primary coolant due to a combination of localized tensile residual stress on the inner surface of the heat transfer tubes during SG manufacturing, internal pressure during operation and the high temperature primary coolant environment. As for the thinning of the outer surface, it was attributed to contact between the tight-lattice scale and the vibrating heat transfer tube as in (1) (b) (see Section 2.2 (1) (b) for details). After hearing the report from Kansai Electric Power Co., Inc. at the 17th public meeting on the response to accidents and trouble at nuclear facilities (May 23, 2022), the report was amended by Kansai Electric Power Co., Inc. on May 25, 2022. Subsequently, at the 28th FY2022 NRA Commission Meeting (August 17, 2022), the Secretariat of the NRA reported that the investigation into the cause of the accident and the preventive measures taken against its recurrence were deemed adequate. The inspection findings were a significance level of "green" and a severity level of "SL IV" as a result of the nuclear regulatory inspection in the first quarter of FY2022.

3. Continuous Improvement of Nuclear Regulatory Inspections

In order to continuously improve the nuclear regulatory inspection system, which started from April in 2020, "Meeting for Exchange of Opinions on Inspection System" was established to exchange opinions with external experts and nuclear licensees. The meeting was held three times in FY2022 and exchanged opinions on the implementation status of nuclear regulatory inspections, the operation status of licensees' the Corrective Action Program (CAP) system, the status of the efforts and planned actions to address issues in nuclear regulatory inspections, etc.

The revision of the inspection guides for improvement based on the inspection practices in FY2021 was approved at the 15th FY2022 NRA Commission Meeting (June 8, 2022).

In FY2022, as efforts to improve and maintain the competence of inspectors, in addition to training and education necessary for acquisition of inspector qualifications, an inspector exchange program where inspectors from the Nuclear Regulation Offices in charge of non-operating plants were dispatched to Nuclear Regulation Offices in charge of operating plants was implemented. In addition, information on inspection practices and results was shared through inspectors' counterpart meetings, etc., and management observations were conducted by managers of the NRA Secretariat and others.

Results of appropriateness confirmation of the operator's Probabilistic Risk Assessment (PRA) model used in nuclear regulatory inspections were reported at the 26th FY2022 NRA Commission Meeting (July 27, 2022). In the meeting, the results of the level 1 PRA[27] models of Takahama NPS Units 3 and 4, and one of Sendai NPS Units 1 and 2 were reported to NRA. Also, the operator's responses to the areas identified by the NRA Secretariat in the process of the confirmation were reported to the NRA.

Section 3 Section 3 Promotion of Safety Research and Continuous Improvement of Regulatory Requirements

1. Proactive Study on Safety

(1) Implementation of Safety Research and Publication of Results

Based on the "Basic Policy on Safety Research in the NRA" (decided by the NRA on July 6, 2016) and the "Safety Research Field to be Promoted and its Implementation Policy (For Safety Research in and after FY2022)" (approved by the NRA on July 14, 2021), the NRA has conducted safety research projects. Additionally, the NRA published the results of its research through "NRA Technical Reports," which are reports that summarize the experimental data, etc. obtained in safety research from the viewpoint of their application to regulations and serve as the basis for decisions in regulatory requirements, various guidelines, reviews, and inspections, "NRA Technical Notes", which summarize data and information obtained through surveys, academic papers, conference presentations, and other means.

In FY2022, 21 safety projects were conducted in 13 fields, including 2 new projects (See Table 2-4).

[27] Probabilistic risk assessment of core damage during power operation for internal events (events such as automatic or manual shutdown of the reactor due to equipment failure, etc. that occur in the nuclear power plant).

Table 2-4 Safety Research Projects Conducted in FY2022

No.	Area	Project Name
1	External Events	Study on the advancement of seismic hazard assessment methods near the epicentre (R2-R5)
2		Research on tsunami evaluation methods and source estimation of past tsunamis (R3-R6)
3		Study on evaluating the activity of faults (R2-R5)
4		Research on accumulation of knowledge on large-scale eruption processes (R1-R5)
5		Research on sophistication of fragility evaluation methods for facilities and equipment related to external events (R3-R6)
6	Fire Protection	Research on impact assessment for fire protection (Phase 2) (R3-R6)
7	Risk Assessment	Research on Level 1 PRA for Nuclear Regulatory Inspection (R4-R8, new)
8	Severe Accident	Experimental research for reducing uncertainties in important physicochemical phenomena during severe accidents (R2-R7)
9		Development of simulation codes for physical and chemical phenomena including large uncertainties under severe accident of LWR (H29-R4)
10		Development of analysis methods for the containment failure and probabilistic assessment of risks associated with severe accidents involving light water reactors (H29-R4)
11	Thermal Hydraulics Nuclear Properties	Study on best-estimate thermal-hydraulic evaluation for nuclear power plants (R1-R4)
12		Research on the optimal evaluation method and uncertainty evaluation method for nuclear characteristic analysis (R3-R6)
13	Nuclear Fuel	Research on evaluation of fuel failure effects on core cool-ability during accidents (R1-R5)
14	Materials and Structures	Research on evaluation and verification of ageing degradation using actual materials (R2-R6)
15	Specified Nuclear Facility	Development of criticality evaluation methods for fuel debris of Fukushima Daiichi Nuclear Power Plant (H26-R7)
16	Nuclear Fuel Cycle Facilities	Research on the development of events such as major accidents in reprocessing facilities and MOX fuel fabrication facilities (R3-R7)
17		Research on evaluation methods for the latest analytical methods in the field of transportation and storage of spent fuel (R2-R5)
18	Radioactive Waste Burial Facility	Research on evaluation of long-term performance of waste burial (R3-R6)
19	Decommissioning and Clearance	Research on quantitative evaluation techniques for radioactivity concentration of radioactive waste (R3-R6)
20	Nuclear Disaster Preparedness	Research on the revision of Emergency Action Levels (EAL) considering special facility for severe accident management (R3-R7)
21	Radiation Protection	Research on improving the accuracy of dose and health risk assessment for radiation protection (R4-R8, new)

In FY2022, the NRA published an NRA technical report on a simple equation to evaluate the maximum continuous wave pressure by tsunami acting on the seawalls, which are important structures to prevent flooding at nuclear power plant sites. In addition, three NRA Technical Notes were published (See Table 2-5).

Table 2-5 Publication of Safety Research Results
(NRA Technical Report and NRA Technical Note)

No.	Category	Report Title
1	NRA Technical Report	Proposal of new evaluation equation for maximum continuous wave pressure acting on seawalls
2	NRA Technical Note	Points of attention to prevent deterioration of components due to decontamination works in commercial fuel reprocessing facilities －Hydrogen embrittlement caused by alkaline corrosion of explosive bonded joints－
3		Background and Evidence of the Regulatory Requirements for Intermediate-depth Disposal
4		Data on Aircraft Crashes (2001-2020)

In addition, 26 papers were published, 4 proceedings (refereed) were published at international conferences, and 23 presentations were made at academic conferences. In addition, as an activity to promote publication of safety research, in cooperation with the

JAEA Nuclear Safety Research Center, six presentations were made by the research staff of the NRA at the joint debriefing session with the Center. Furthermore, the NRA received one academic award (the 55th (FY2022) Atomic Energy Society of Japan Award for Technology) in recognition of the creation of excellent academic results in safety research.

(2) Participation in Joint Research Activities

The NRA, in cooperation with the JAEA Nuclear Safety Research Center, participates in international joint research projects. In FY 2022, as bilateral international activities, they exchanged information with the U.S. NRC and the French Institute for Radiation Protection and Nuclear Safety (IRSN[28]), participated in 17 international joint research projects at OECD/NEA, 10 working groups and senior experts' meetings under OECD/NEA/CSNI[29] collecting technical knowledge including the latest trends in each research field.

With regard to the advancement of severe accident analysis of TEPCO's Fukushima Daiichi Nuclear PowerStation, they have been preparing to participate in the international joint project (FACE[30]) conducted by OECD/NEA to share information on accident progression and related fission product behavior and hydrogen explosion behavior, fuel debris analysis techniques, and accident investigation. Additionally, 17 joint research projects were conducted with universities, JAEA, and other organizations based on the joint research implementation rules established on April 21, 2017, with the intent to improve technical skills of research staff of the NRA.

(3) Evaluation of Safety Research and Formulation of Policies

At the 17th FY2022 NRA Commission Meeting (June 15, 2022), the NRA approved the post-evaluation of three safety research projects completed in FY2021 and the mid-term evaluation of one safety research project started in FY2014. In addition, at the 61st FY2022 NRA Commission Meeting (December 28,2022), the NRA approved the pre-evaluation of one new safety research project to be started in FY2023 and the mid-term evaluation of two safety research projects started in FY2020. Furthermore, at the 31st FY2022 NRA Commission Meeting (August 24, 2022), an evaluation of the performance of JAEA as a technical support organization for the third medium to long-term goals period (FY2015-FY2021) (the part under the jurisdiction of the NRA) was decided.

Based on the "Basic Policy on Safety Research in the NRA," the NRA approved "Safety Research Field to be Promoted and its Implementation Policy (For Safety Research in and after FY2023)" at the 21st FY2022 NRA Commission Meeting (July 6, 2022).

[28] Institut de radioprotection et de sûreté nucléaire
[29] Organisation for Economic Co-operation and Development / Nuclear Energy Agency / Committee on the Safety of Nuclear Installations
[30] Fukushima Daiichi Nuclear Power Station Accident Information Collection and Evaluation

2. Accumulation of the Latest Scientific and Technical Knowledge and Findings

(1) Collecting the Latest Scientific and Technical Knowledge and Findings

With regard to the method of collecting information on the latest findings in Japan and abroad as part of the activities for continuous improvement of regulatory requirements based on the latest scientific and technical findings, the NRA performs activities (Generic Issues Task Force) to identify information that needs to be considered in relation to Japanese regulations and the safety of nuclear facilities after organizing information on regulatory trends in other countries, safety research, international standards, academic societies, etc. This is based on the process to reflect the latest findings in the regulations approved at the 45th FY2016 NRA Commission Meeting (November 22, 2016). The Secretariat of the NRA establishes the Technical Information Committee within the Secretariat and holds regular public meetings with the participation of relevant NRA Commissioners in order to judge whether or not knowledge gained from accident troubles of Japan and abroad and safety research needs to be incorporated into regulations. For the cases where regulatory action is deemed necessary as a result of the deliberations, the matter is reported to the NRA to make it a standard and take other actions. In addition, the screening results of the Technical Information Committee are reported to the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee in order to receive their advice. In FY2022, the Technical Information Committee was held 6 times and reported 19 cases of the latest technical findings. Of these, the following three cases were identified as technical findings that could be judged to require some regulatory action: (1) "imaging sites under the Aira Caldera by using the high-resolution structure analysis with 3D seismic wave velocity," (2) "NRA Technical Report on " Proposal of new evaluation equation for maximum continuous wave pressure acting on seawalls"," and (3) " Effects of Modeling Uncertainties Regarding Tsunami Generation/ Propagation in Probabilistic Tsunami Hazard Analysis." As a policy for dealing with these issues, it was decided that the cases of (1) and (3) should be communicated to operators through regular meetings with ATENA, etc., and that the case of (2) should be covered by issuing the NRA Technical Report.

(2) Use of Scientific and Technical Findings from Safety Research in Regulatory Activities

The Research Division of the Secretariat of the NRA implements technical support such as providing information to the Nuclear Regulation Department for the purpose of applying the latest scientific and technical knowledge and findings of Japan and abroad, which was obtained from the safety research conducted by the NRA, to regulatory activities such as reviews and inspections. In FY2022, there were 54 cases of technical support to be delivered, including support for review of conformity to the new regulatory requirements and participation in the review meetings.

2. Continuous Improvement of Regulatory Requirements

(1) Reflecting the Latest Findings in Regulatory Requirements

(a) Matters to Be Considered at Least for Safety Assurance in Case of Selecting an Outline Survey Area for the Final Disposal of Specified Radioactive Waste

In the "Basic Policy on the Final Disposal of Specified Radioactive Wastes" decided by the Cabinet on May 22, 2015, "it is appropriate for the NRA to indicate, in sequence, matters that should at least be considered for safety assurance in case of selecting the outline investigation area and other items according to the progress of the selection so that the selection of the outline investigation area and other items can proceed in a reasonable manner under the basic premise that there will be no prejudgment of specific reviews of safety regulations for the future and other activities." Based on this policy, the NRA made a public comment on "matters that should be considered for safety assurance in case of selecting an outline survey area for the final disposal of specific radioactive waste" (hereinafter referred to as "matters to be considered"), which was decided at the 31st FY2022 NRA Commission Meeting (August 24, 2022).

In the deliberation of the "matters to be considered," the NRA held three meetings to hear the opinions of volcanologists from the viewpoint of confirming the latest scientific knowledge on the characteristics and other aspects of volcanic generation mechanisms and their regional characteristics in Japan. The "matters to be considered" decided by the NRA are: (1) faults, etc., (2) volcanic events, (3) erosion and (4) mining of mineral resources, which are difficult to respond to through the design of the final disposal facility and should be addressed by avoiding the establishment of the final disposal facility in case of selecting a site for the facility. In addition, "matters to be considered" are shown as those that should be appropriately considered at the time of selecting the outline survey area, etc., based on the information available at each site.

(b) Development of Guideline for Review for the Burial of Category II Wastes

The NRA solicited public comments on the revision to add items related to the evaluation of boring scenarios, etc. and natural and human-induced event scenarios for pit or trench disposal based on experience from the waste burial project of Japan Nuclear Fuel Limited, with regard to the guideline for review for disposal waste burial sites with intermediate depth, which was decided at the 5th FY2022 NRA Commission Meeting (April 20, 2022).

(c) Consideration of Reflecting the Findings from the "Interim Report on the Investigation and Analysis of the TEPCO’s Fukushima Daiichi NPS Accident" in the Regulations

The NRA will exchange views with operators and ATENA regarding the reflection in regulations of the findings on hydrogen protection from the "Interim Report on the Investigation and Analysis of TEPCO’s Fukushima Daiichi NPS Accident," as well as discuss the regulatory approach to phenomena with large uncertainties and consider regulatory responses to such phenomena. At the 12th FY2022 NRA Commission Meeting (May 25, 2022), it was reported that the results of the 1st meeting for hearing opinions from ATENA and operators (April 22, 2022) regarding the reflection of findings on

hydrogen protection in regulations. Based on the instructions of the committee, at the 15th FY2022 NRA Commission Meeting (June 8, 2022), the Secretariat of the NRA presented a draft of the concept on countermeasures against major accidents in the new regulatory requirements, which was discussed among the commissioners. After discussion, it was decided to continue work on reflecting the findings on hydrogen protection in the regulations.

Subsequently, at the 31st FY2022 NRA Commission Meeting (August 24, 2022), the results of the 15th opinion exchange meeting with chief officers at the nuclear division from major installers of nuclear facilities as well as the 2nd hearing opinion meeting with ATENA and operators regarding the reflection of findings on hydrogen protection in regulations (July 28, 2022) were reported, and future measures were discussed among the committees. As a result of the discussions, it was decided to organize the way of thinking on how the findings on hydrogen protection should be handled among regulations.

At the 38th FY2022 NRA Commission Meeting (September 14, 2022), the following ideas were presented from the viewpoint of requesting the operators to take further risk reduction measures, and were decided after discussion among the committees: (1) for reactor containment venting, which is "a measure to control hydrogen leakage from the primary containment vessel into the reactor building," hydrogen protection of the reactor building should be added to the purpose, and (2) "measures to discharge hydrogen leaked into the reactor building" and "measures to treat hydrogen leaked into the reactor building" require autonomous and systematic implementation of such measures by the operator, and the status of such measures should be continuously followed up on.

Based on this policy, the 56th FY2022 NRA Commission Meeting (December 7, 2022) discussed a proposal to partially revise the interpretation of the installation permit standard regulation to clarify the positioning of primary containment vessel venting as a hydrogen protection measure for reactor buildings in BWRs on a basis of the above-mentioned concept and decided to seek for public comments. The 75th FY2022 NRA Regulatory Commission Meeting (February 22, 2023) decided to revise the interpretation of the standard regulation of permission for basic design based on the results of public comments.

In addition, at the 3rd hearing opinion meeting with ATENA and operators regarding the reflection on findings on hydrogen protection in regulations (December 27, 2022), the status of formulation of action plans and measures for hydrogen protection by operators and others was discussed. The results were reported to the 71st FY2022 NRA Commission Meeting (February 8, 2023).

(d) Response of Japanese Nuclear Power Plants to Open Phase Condition (OPC)

The NRA decided to continue to collect information on the development of automatic detection technology for the Open Phase Condition (OPC[31]) at domestic nuclear power plants and other facilities, and to consider whether or not regulatory requirements for equipment response should be required.

The Secretariat of the NRA received an explanation from ATENA at the 2nd Technical

[31] Open Phase Condition

Opinion Exchange on the Response of Domestic NPPs to Open Phase Condition (OPC) (August 3, 2022), including the results of the verification of actual equipment at domestic NPPs. At the 55th Technical Information Committee (September 29, 2022), it was announced that operators shall voluntarily improve reliability by "installing a device to directly detect Open Phase Condition" and disclose their plans and achievements. In response to this, the Secretariat of the NRA will continue to hear the establishment plan and its progress from ATENA to confirm the status of implementation, organize whether or not the relevant interpretations of the rules need to be revised and the reasons for such revision, and submit them to the NRA for its consideration. A summary of the results was reported at the 47th FY2022 NRA Commission Meeting (October 26, 2022).

(e) Revision of the Guideline for Reviewing Approval of Design and Construction Plan for Earthquake Resistance

Based on the results of three volumes of the NRA technical reports on tsunami wave pressure evaluation published from 2014 to 2016, the 40th FY2020 NRA Commission Meeting (November 25, 2020) developed the "Draft Items to be Verified for Tsunami Wave Pressure Evaluation," which summarizes the evaluation method of tsunami wave pressure via review. The Secretariat of the NRA reported the revision policy of making this an annex to the "Guideline for Review for Approval of Design for Earthquake Resistance" and the NRA pointed out that the concept of maintainability of the wave pressure evaluation formula should be explained at that time.

At the 21st FY2021 NRA Commission Meeting (July 21, 2021), the Secretariat of the NRA explained the concept of maintainability of wave pressure evaluation formulas and other related issues. As a result, apart from the NRA technical reports in the three volumes, a new NRA technical report on the reconsidered wave pressure evaluation equation was prepared, and based on this report, the Secretariat of the NRA was instructed to consider the proposed revision of this Guide as a draft after formulating the Appendix to this Guide.

Subsequently, the NRA technical report, "Proposal of new evaluation equation for maximum continuous wave pressure acting on seawalls," was published in July, 2022.

In addition, at the 45th FY2022 NRA Commission Meeting (October 19, 2022), a draft revision of the Guide was discussed and public comments were solicited, and the revision was decided at the 64th FY2022 NRA Commission Meeting (January 18, 2023) and was enforced.

(f) Measures for Electromagnetic Compatibility in Nuclear Power Plants

The NRA decided at its 39th Technical Information Committee (November 20, 2019) to start a study on the specific level of Electromagnetic Compatibility (hereinafter referred to as "EMC") that should be achieved in the design of nuclear power plants. This is because mutual interference due to electromagnetic waves between devices used in measurement and control equipment and others is a possible cause of common factor failures of digital safety protection systems in power reactor facilities.

At the 17th Meeting on Meeting on Hearing Opinions of Operators regarding New Regulatory (December 16, 2021) and the 21st Meeting on Hearing Opinions of Operators regarding New Regulatory (September 12, 2022), ATENA explained specific measures for electromagnetic environment at nuclear power plants in Japan concerning EMC countermeasures. At the 55th Technical Information Committee (September 29, 2022), it

was decided that the Secretariat of the NRA would closely monitor ATENA's activities and listen to what it has to say about them because ATENA will compile its policies, plans, and results in the ATENA Report.

(g) Intergranular Cracking of Stainless Steel Piping in PWR Primary System

The NRA decided to interview the operators of the PWR primary systems on the plan, progress, and results of their investigations and studies concerning intergranular cracking of stainless steel piping. This is based on the investigation of cracks in the pressurizer spray line piping of the Unit 3 of Ohi PS of Kansai Electric Power Co., Inc. from the viewpoint of (1) the validity of Ultrasonic Testing (UT) during in-service inspection and (2) the feasibility of a Leak Before Break (LBB) for piping belonging to the reactor pressure boundary.

At the 20th Meeting on Hearing Opinions of Operators regarding New Regulatory (June 24, 2022), ATENA explained the mechanism of intergranular cracking and the contents of its study on the evaluation of soundness and improvement of inspection technology in the case of cracks. At the 54th Technical Information Committee (July 28, 2022), it was decided (1) to continue to monitor ATENA's efforts and the forthcoming ATENA Report through interviews, opinion hearings and other means, and (2) to confirm that horizontal deployment to other plants, management of welding, and education and training conducted by each operator are to be verified in nuclear regulatory inspections, which was reported at the 33rd FY2022 NRA Commission Meeting (August 31, 2022).

(h) Effects of Debris Passing through the Sump Screen on the Reactor Core

The NRA decided to continue to gather domestic and international information on the effects of foreign objects (debris) passing through the sump screen[32], for instance debris caused by damage to piping insulation, etc. in the event of a Loss-Of-Coolant Accident (LOCA), on the long-term cooling of the core. It was decided to consider whether or not it should be reflected in the "Performance Evaluation of Filtration System for Emergency Core Cooling System or Containment Heat Removal System (bylaws)."

The 14th (December 7, 2020) and 16th (May 28, 2021 and June 16, 2022) Meetings on Hearing Opinions of Operators regarding New Regulatory, ATENA explained the status of the study. At the 54th Technical Information Committee (July 28, 2022), it was decided not to revise the said bylaws and to document the circumstances of this case because the long-term core cooling was confirmed to have no problem as a result of hearing from the operator, although the bylaws do not stipulate any downstream effects in the reactor, which was reported at the 33rd FY2022 NRA Commission Meeting (August 31, 2022).

(i) Improvement of Concreteness and Expression of Descriptions on Regulatory Requirements, etc.

At the 68th FY2021 NRA Commission Meeting (February 24, 2022), the NRA agreed to solicit public comments on the draft revision of the guideline for review for design

[32] Screens and strainers installed in the containment recirculation sumps of PWRs and in the ECCS of BWRs to prevent foreign objects from entering the pumps

basis ground motion and earthquake resistance design policies and the like. This is based on the implementation plan for FY2021 regarding the improvement of concreteness and expression of descriptions on regulatory requirements and other regulations according to experience gleaned from reviews. In light of the results of the public comments, the NRA decided to partially revise them at the 15th FY2022 NRA Commission Meeting (June 8, 2022).

Furthermore, at the 26th FY2022 NRA Commission Meeting (July 27, 2022), the NRA agreed to solicit public comments on the proposed amendments to other regulatory requirements based on the implementation plan for FY2021 regarding the improvement of concreteness and expression of descriptions on regulatory requirements and other regulations according to review-based experiences. Thus, on the basis of the results of the public comments, at the 38th FY2022 NRA Commission Meeting (September 14, 2022), partial revision of the Standards for the Location, Structure, and Equipment of Commercial Power Reactors was decided as well as the interpretation of the Standards.

In addition, at the 53rd FY2022 NRA Commission Meeting (November 22, 2022), the implementation plans for FY2022 and FY2023 were reported to proceed with the revision work.

(j) Revision of the NRA Ordinance on Use, etc. of Nuclear Fuel Material and Other Regulations Based on the Results of the Review of Nuclear Material Utilization Facilities Not Subject to Article 41 of the Cabinet Order

At the 50th FY2022 NRA Commission Meeting (November 9, 2022), the Secretariat of the NRA reported that the attached documents would be abolished because the items required as criteria for the system necessary for quality management concerning activity for operational safety are limited and conformity can be judged from the main text of the application without any attached documents, with regard to the application for permission (approval) for change in nuclear material utilization facilities not subject to Article 41 of the Cabinet Order.

At the 83rd FY2022 NRA Commission Meeting (March 22, 2023), the NRA accepted the proposed revision of the NRA Ordinance on Use, etc. of Nuclear Fuel Material and the Review Standards for the Decommissioning Plans for Nuclear Material Utilization Facilities not subject to Article 41 of the Cabinet Order, etc., in order not to require the attachment of a written explanation regarding the development of the system necessary for quality management concerning activity for operational safety of nuclear material utilization facilities not subject to Article 41 of the Cabinet Order as well as to solicit public comments on the proposal.

(k) Improvement of Review Operations in Response to Fraud at Mitsubishi Nuclear Fuel

With regard to the inappropriate actions taken by Mitsubishi Nuclear Fuel in the nuclear regulatory inspection of its fuel fabrication facilities, at the 10th FY2022 NRA Commission Meeting (May 18, 2022), the NRA agreed to notify Mitsubishi Nuclear Fuel of the results concerning the severity level of the nuclear regulatory inspection (for details,

see Section 2.1 (2) (c))[33]. At that time, the Commissioner of the NRA suggested that the Secretariat of the NRA and the uranium fabrication operators should exchange opinions and develop a common understanding on the concept of descriptions in the license application. In response, a meeting was held on June 13, 2022 to exchange opinions in public with uranium fabrication operators (Mitsubishi Nuclear Fuel, Nuclear Fuel Industries, Ltd, and Global Nuclear Fuel - Japan Co, Ltd.) to foster a common understanding. The content of the exchange of opinions was also announced at the 23rd FY2022 NRA Commission Meeting (July 13, 2022). Furthermore, based on the results of the opinion exchange meeting, for the purpose that the Secretariat of the NRA documents the concept of applying the graded approach and the positioning of facilities that handle very small amounts of nuclear fuel material, those things in the review operation for fuel fabrication facilities were organized, and the "Flow of Review Operations for Nuclear Fuel Fabrication Facilities" was revised and published on the website on July 28, 2022.

(l) Studies on Countermeasures for Common Software Factor Failures for Digital Safety Protection Circuits

At the 25th FY2022 NRA Commission Meeting (August 18, 2021), it was decided to confirm the details of the voluntary measures to be taken by the operators based on the results of the Study Team on Countermeasures against Common Factor Failures of Digital Safety Protection Systems at Power Reactor Facilities. At the 6th and 7th meetings of the Study Team on Countermeasures against Common Factor Failures of Digital Safety Protection Systems at Power Reactor Facilities (February 17 and March 20, 2023), the Secretariat of the NRA interviewed ATENA and the operators about the status of voluntary efforts at the Sendai NPS of Kyushu Electric Power Co., Inc. Based on the results of the interview at the Study Team, the Secretariat of the NRA decided to continue to confirm the status of the operator's efforts at the nuclear regulatory inspection.

(2) Technical Evaluation of Private Standards

The NRA continuously held meetings of the "Study Team for Technical Evaluation of the Japan Electric Association Standards on Digital Safety Protection Systems" on the "Regulations Concerning Application of Digital Computer to Safety Protection Systems (JEAC4620) of 2020 Edition" and the "Guidelines for Verification and Validation (V&V) of Digital Safety Protection Systems (JEAG4609)" developed by the Japan Electric Association in accordance with the "Plan for Implementation of Technical Evaluation of Private Standards" for FY2021. A study was also conducted to formulate a technical evaluation report (the 3rd and 4th the Study Team for Technical Evaluation of the Japan Electric Association Standards on Digital Safety Protection Systems (April 26 and August 25, 2022, respectively)).

In addition, as for the "Basic Procedures for Determination of Radioactivity Concentration of Radioactive Waste for Medium-Deep Disposal: 2019 Edition" developed by the Atomic Energy Society of Japan, the "Study Team for Technical Evaluation of the Atomic Energy Society of Japan Standard for Determination of

[33] Facilities that do not use nuclear fuel materials listed in each item of Article 41 of the Order for Enforcement of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Radioactivity Concentration of Radioactive Waste for Medium-Deep Disposal" held a meeting as in FY2021, and discussed how to develop a technical evaluation document (the 4th and 5th Study Team for Technical Evaluation of the Atomic Energy Society of Japan Standard for Determination of Radioactivity Concentration of Radioactive Waste for Medium-Deep Disposal (October 27, 2022 and February 21, 2023, respectively)).

At the 44th FY2022 NRA Commission Meeting, the NRA approved the following as plans to conduct technical evaluation of private standards from FY2022 to FY2024: (1) the "Design and Construction Standards of 2020," "Material Standards of 2020," "Welding Standards of 2020" and the "2013 Edition of 'Consideration for Prevention of Stress Corrosion Cracking in Nuclear Power Plants of Design and Construction Standards and Case Standards' in Nuclear Power Plant Facilities" by the Japan Society of Mechanical Engineers, as well as (2) the "Technical Regulations for Earthquake Resistant Design of Nuclear Power Plants (JEAC 4601): 2021 Edition" by the Japan Electric Association. At the 51st FY2022 NRA Commission Meeting (November 16, 2022), the NRA approved of the establishment of the "Study Team for Technical Evaluation of Japan Society of Mechanical Engineers Standards for Design and Construction, Materials and Welding" in order to implement the technical evaluation of those as above by the Japan Society of Mechanical Engineers. In FY2022, a meeting of the Study Team was held once (February 2, 2023) to discuss the technical evaluation report.

(3) Collection and Analysis of Information on Troubles and Natural Phenomena in Japan and Abroad

(a) Collection and Analysis of Information on Domestic and International Problems

The NRA collects and analyzes information on accidents and troubles at nuclear facilities in Japan and abroad to incorporate the latest scientific and technical knowledge, and conducts a two-step screening process from the viewpoint of whether or not regulatory action is required. In FY2022, there were 179 cases to be conducted as primary screening, including information on accidents and troubles collected through cooperation with international organizations and foreign countries, as well as public information on accidents and troubles in Japan and overseas. As a result, 169 cases were screened out at the primary screening, and 7 cases were transferred to the secondary screening. In addition, there are 3 cases that are still under investigation as part of the secondary screening. Besides, there are two other cases where preparations are underway to implement regulations.

The Secretariat of the NRA reported the results of the screening of information on those domestic and overseas accidents and troubles, which were conducted by the Technical Information Committee, to the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee composed of external experts, and sought advice from them (the 11th Subcommittee on Reactor Safety and the 5th Subcommittee on Nuclear Fuel Safety (June 10, 2022) and the 12th Subcommittee on Reactor Safety and the 6th Subcommittee on Nuclear Fuel Safety (December 8, 2022)).

(b) Collection and Analysis of Information on Natural Phenomena in Japan and Abroad

The NRA gathered and analyzed information on natural phenomena in Japan and overseas, including publicly available materials from government agencies and academic papers. In particular, the Secretariat of the NRA considered whether or not future regulatory action is necessary with respect to the following: (1) a paper by Tameguri et al. titled "High Resolution Three-dimensional Seismic Velocity Imaging below Aira Caldera " published in the Journal of the Volcanological Society of Japan (March 2022), and (2) a paper by Sugino et al. titled "Effects of Modeling Uncertainties Regarding Tsunami Generation/Propagation in Probabilistic Tsunami Hazard Analysis" published in the Journal of the Japan Association for Earthquake Engineering (August, 2022). They were reported at the 53rd Technical Information Committee (May 26, 2022) and the 55th Technical Information Committee (September 29, 2022), respectively.

Additionally, at the 54th FY2021 and the 44th FY2022 NRA Commission Meetings (December 22, 2021 and October 12, 2022, respectively), the NRA ordered investigations on a tornado that had occurred in the United States in December, 2021 and a water column that had been observed in August, 2022 in Oshamanbe Town, Hokkaido, and the results of these investigations were reported at the 58th Technical Information Committee (March 30, 2023). As for the water column confirmed in Oshamanbe Town, the NRA was to issue a document to provide nuclear operators and other parties with information (NRA Information Notice) for regulated parties as a response policy.

(c) Review of Subcommittees on Volcanic Hazards of RSEC and NFSEC

The NRA Secretariat evaluated the results of volcanic activity monitoring in FY2021 by Kyushu Electric Power Company for the Sendai and Genkai NPPs as well as by Japan Nuclear Fuel Limited for reprocessing and waste management facilities using the report from the Subcommittee on Volcano Monitoring of the RSEC (regarding" measure to judge significant changes in observation data" during volcano monitoring[34]). At the 11th of Subcommittees on Volcano Monitoring of RSEC and NFSEC (November 18, 2022), The evaluation result by the Secretariat of the NRA concluding the adequacy of the assessment by monitored both Kyushu Electric Power and Japan Nuclear Fuel Limited that there is no significant change in the activity situation of the target caldera volcano was confirmed valid. At the same Subcommittee, the NRA reported on the technical information of volcanic events that need to be addressed, including the findings on Aira Caldera mentioned in (ii) above, which were shared by the Secretariat of the NRA at the Technical Information Committee, and it was confirmed that the direction of the response to these bits of information was appropriate. In addition, the Secretariat of the NRA reported on the site visit to the Sendai NPS of Kyushu Electric Power July 28, 2022.

[34] This is a set of guidelines to determine that a significant change has occurred and is continuing from the volcano monitoring data compared to that in the past from the long-term trend. The report was compiled at the 8th FY2020 Subcommittee on Volcano Monitoring and reported to the 72nd FY2021 NRA Commission Meeting (March 18, 2020).

(d) Review by the Subcommittee on Earthquake and Tsunami Hazards of RSEC and NFSEC

At the 2nd meeting of the Subcommittee on Earthquake and Tsunami Hazards of RSEC and NFSEC (June 23, 2022), it was reported that technical information on earthquakes, tsunamis and other events that require response and other information was presented, which included knowledge related to tsunami traces not found in historical records on the pacific coast of Chiba Prefecture, Japan. This was the finding by Pilarczyk et al. published in Nature Geoscience (September, 2021) as it was shared by the Technical Information Committee from the Secretariat of the NRA. The Subcommittee also confirmed the appropriateness of the direction in which this information should be handled.

Section 4 Continuous Improvement of Regulatory Activities and Response to New Regulatory Needs

1. Efforts to Improve the Review Process

Improving the review process is essential from the perspective of appropriately allocating the NRA's limited resources to safety-critical issues, and the NRA is striving to make improvements by continuously exchanging opinions with regulated parties, such as electric power companies, on how to proceed with the review process.

The NRA and the management of a number of power companies exchanged opinions from April to September 2022 regarding the review of commercial power reactors. Based on the results, the NRA approved the movement at the 37th FY2022 NRA Commission Meeting (September 7, 2022) to take the following actions to improve the review process: (1) to hold review meetings more frequently to confirm operators' response policies to eliminate rework as much as possible; (2) to establish a forum to confirm that applicants accurately understand the points raised by the NRA Secretariat; and (3) to document such confirmation, as necessary. The NRA Secretariat is conducting reviews based on these policies.

2. Organizing the Approach to Backfitting

At the 64th FY2021 NRA Commission Meeting (February 9, 2022), the NRA approved a method for proceeding with the study to develop a document on backfit.

Subsequently, the outline of the draft document was discussed at the 17th meeting of the NRA in FY2022 (June 15, 2022), and the draft document was discussed at the 51st meeting of the NRA in FY2022 (November 16, 2022).

Based on this discussion, the NRA decided at the 55th FY2022 NRA Commission Meeting (November 30, 2022) that the information to be backfitted should be determined from a scientific and technical perspective, taking into account the individual nature of the information, such as the expected impact on the safety of the facility, the probability and urgency of said impact, the importance of the information from a safety perspective, and the status of the measures taken by the nuclear operator, etc. In addition, the NRA adopted the "Backfitting Review Process" by summarizing the concept that backfitting requires certain transitional measures to be established as a basis and that, to the extent necessary for safety, the details of the transitional measures should be determined after consideration of specific individual circumstances, etc. The NRA also approved the

"Backfit Review Process."

3. Addition of advice, etc. on the Concept of Safety Improvement Evaluation Systems in the Matters of Study and Deliberation of RSEC and NFSEC

At the opinion exchange between the Chairmen of the RSEC and NFSEC at the 50th FY2022 NRA Commission Meeting (November 9, 2022), the NRA instructed the Committees to revise the matters of study and deliberation by the Committees to summarize suggestions for improvement in the review of the concept and operation of the evaluation system for improving the safety of power reactor facilities conducted by the power reactor installers under Article 43-3-29 of the Nuclear Reactor Regulation Act. Based on this, at the 53rd NRA Meeting in FY2022 (November 22, 2022), both Committees' investigated-and-deliberated item 4 as:

"4. to hear from operators and provide advice on how to utilize the evaluations for improving the safety of nuclear power reactor facilities conducted by the nuclear power reactor installers under the provisions of Article 43-3-29 of the Act on Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors." was revised to:

"4. to provide advice on the review of the concept and operation of the evaluation system for improving the safety of nuclear power reactor facilities conducted by the nuclear power reactor installers under the provisions of Article 43-3-29 of the Act on Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors. First, report on the improvement of operations based on the framework of the current system."

The advisory committees referred the matters of study and deliberation to their respective subcommittees.

4. Study of Safety Regulations of Ageing Power Reactors

Article 43-3-32 of the Reactor Regulation Act stipulates that the operational period of a power reactor shall be 40 years and may be extended only once with the permission of the NRA. The period for which an extension may be granted is limited to a period not exceeding 20 years. This stipulation is based on the Reactor Regulation Act, which was revised after deliberation in the Diet based on reflections and lessons learned from the accident at TEPCO's Fukushima Daiichi NPS.

The NRA is of the opinion that the operational period under the current system was established as a policy for legislation regarding the operational period of power reactor facilities and that how long power reactor facilities should be allowed to be used for power generation is nothing more than a policy decision regarding how nuclear power should be used and is not a matter on which the NRA should express an opinion. The NRA decided to take this position at the 18th FY2020 NRA Commission Meeting (July 29, 2020).

In response to the discussion on the extension of operational period of power reactors based on the premise of ensuring safety at the 2nd GX Implementation Council held on August 24, 2022, the Nuclear Energy Subcommittee of the Electricity and Gas Industry Committee of the Advisory Committee for Natural Resources and Energy of the Agency for Natural Resources and Energy of METI held its 31st meeting on September 22, 2022, and started deliberations on the ideal operational period from the perspective of nuclear energy utilization policy. In light of these developments, the 42nd FY2022 NRA Meeting (October 5, 2022) heard from the Agency for Natural Resources and Energy that it would

be necessary to develop the system, including revising related laws and regulations, in order to extend the operational period of nuclear power plants. Based on this, the NRA reaffirmed that there has been no change in its view that the nature of the operational period is nothing more than a policy decision regarding the use of nuclear energy and that it is not a matter on which the NRA should express an opinion, and instructed the NRA Secretariat to study a proposal for safety regulations of ageing power reactors to ensure that the strict regulation of safety confirmation is not undermined.

Subsequently, at the 48th FY2022 NRA Commission Meeting (November 2, 2022), the 51st FY2022 NRA Commission Meeting (November 16, 2022), the 55th FY2022 NRA Commission Meeting (November 30, 2022) and the 57th FY2022 NRA Commission Meeting (December 14, 2022), the NRA discussed the "Study of Safety Regulations of Ageing Power Reactors" presented by the NRA Secretariat. Based on this discussion, the NRA, at the 59th FY2022 NRA Commission Meeting (December 21, 2022), approved the "Outline of Safety Regulations of Ageing Power Reactors (Draft)," and approved soliciting public comments and exchanging opinions with nuclear operators in a phased manner regarding the draft. In response, the NRA Secretariat solicited public comments and held two "Opinion Exchange Meetings on Safety Regulations of Ageing Power Reactors" with nuclear operators and others (the first meeting was held on December 26, 2022, and the second meeting was held on January 11, 2023). In addition, at the Extraordinary Meeting of the 63rd FY2022 NRA Commission Meeting (January 11, 2022), the NRA received a report on the progress of the study of the draft articles of the Reactor Regulation Act based on this proposal.

Based on the results of the public comments and the exchange of opinions with nuclear operators, the NRA Secretariat further studied the "Outline of Safety Regulations of Ageing Power Reactors (Draft)" and discussed it at the 71st FY2022 NRA Commission Meeting (February 8, 2023), where NRA Commissioner ISHIWATARI expressed his opposition to the draft. Subsequently, at the 72nd FY2022 NRA Commission Meeting (February 13, 2023), the NRA decided on the "Outline of Safety Regulations of Ageing Power Reactors" and approved a bill to partially amend the Reactor Regulation Act based on this outline. The revision bill was included in the bill to partially revise the Electricity Business Act to establish an electricity supply system to realize a decarbonized society, and was decided upon by the Cabinet on February 28, 2023.

In addition, at the 73rd FY2022 NRA Commission Meeting (February 15, 2023), the NRA approved the establishment of a study team on safety regulations of ageing nuclear power reactors in order to study the matter in greater detail. In response, the Study Team on Safety Regulations for Ageing Power Reactors met three times (on February 22, 2023, March 9, 2023, and March 23, 2023) to study the details of safety regulations of ageing power reactors and to study materials in order to explain the regulatory system for ageing power reactors to the public in an easy-to-understand manner.

5. Intensive Management of Radioactive Materials including Nuclear Fuel Materials without Actual Use States

Radioactive materials (radioisotopes, nuclear fuel materials, and nuclear source materials) have been widely used in the fields of research, medicine, industry, agriculture,

etc. However, there are concerns that risks may emerge in terms of safety and nuclear material management if they are no longer used, stored without actual use, or not under legal control without a clear source or history.

At the 3rd Opinion Exchange Meeting (October 28, 2022) between the NRA and the Atomic Energy Commission to discuss issues in the nuclear energy field, the NRA raised the need for the relevant administrative agencies and JAEAs that promote the use of radioactive materials to cooperate with the NRA in developing a system to realize the centralized management of such radioactive materials. In response, the Atomic Energy Commission expressed the opinion that discussions are necessary involving both regulatory and usage-promoting ministries and agencies. Based on this exchange of opinions, the Atomic Energy Commission has described the following statement in its draft revision of the "Basic Policy for Nuclear Energy":

"Radioactive materials that are not in the actual state of use but only stored are scattered throughout Japan in many private and public facilities, and there are many cases of radioactive materials being discovered that are not under legal control, and there are concerns about the emergence of risks in physical protection of nuclear material. In order to reduce these risks, the relevant administrative agencies, JAEA, and others should cooperate and collaborate in conducting necessary studies on concrete measures to realize intensive management of radioactive materials," and requested the opinion of the NRA on February 14, 2023. In response to this request, the NRA decided at the 73rd FY2022 NRA Commission Meeting (February 15, 2023) to reply that it had no objections to this hearing.

The NRA Secretariat has established a contact point to receive consultations on the handling of such radioactive materials when they are discovered in a state where they are not properly managed, and is taking measures to ensure that they are properly managed according to the situation. In FY2022, a total of 91 discovery cases were reported: 21 cases for radioisotopes, 63 cases for nuclear fuel materials, and 7 cases for nuclear source materials.

Chapter 3 Promotion of Nuclear Security Measures and Steadfast Implementation of Safeguards

○ **Summary of Chapter 3**

(Promotion of Nuclear Security Measures)

The NRA rigorously conducted the review of applications for changes in security plans for commercial power reactor facilities (such as approval of QPS) and generally carried out planned nuclear regulatory inspections as scheduled. Additionally, the NRA effectively implemented security regulations for specified radioisotopes through on-site inspections and other means.

Furthermore, to prevent nuclear security incidents and ensure rapid response in case of occurrence, from FY2022, the NRA deployed nuclear security inspector s to the NRA Regional Offices, and worked in cooperation with the headquarters. The NRA also improved work environments, including the establishment of networks, to handle highly confidential information related to nuclear material protection among the central office and the NRA Regional Offices.

To further promote nuclear security measures, the NRA has formally requested the IAEA to have the International Physical Protection Advisory Service (IPPAS) mission in the middle of FY2024.

(Steady Implementation of Safeguards)

In the IAEA's report on safeguards activities in Japan for 2021, it was concluded that all nuclear materials in a State remained in peaceful activities (broader conclusion).

For the TEPCO's Fukushima Daiichi NPS of Units 1-3, where routine inspections cannot be conducted, in addition to the additional safeguards measures implemented until FY2021, the NRA conducted necessary verification activities including inspections for the transfer of fuel assemblies from the spent fuel pool to the dry cask interim storage facility through continuous discussions and consultation with the IAEA.

The IAEA has developed a state-level safeguards approach for each country to maintain efficient and effective safeguards measures with limited resources. In response to the development of such an approach for Japan, the NRA discussed and consulted with the IAEA on facility-type specific implementation procedures to be applied to each nuclear facility in Japan, and applied these procedures to facilities. Furthermore, the NRA facilitated the international community's understanding of Japan's safeguards measures and contributed to strengthening and improving the efficiency of international safeguards through participating in various international conferences related to safeguards support for education of safeguards personnel, and support for development of safeguards technologies. The NRA worked in coordination with relevant stakeholders to carry out inspections as per the IAEA's policy to conduct inspections as planned despite the challenges caused by the COVID-19 pandemic.

Additionally, the NRA provided necessary guidance and supervision for the designated information processing organizations and designated organization implementing safeguards inspections to ensure the appropriate and accurate performance of their duties.

Section 1 Promotion of Nuclear Security Measures

1. Rigorous and Proper Implementation of Regulations on Nuclear Security

(1) Rigorous and Proper Implementation of Regulations on Physical Protection of Nuclear Materials

(a) Rigorous Implementation of Nuclear Regulatory Inspection Relating to Physical Protection of Nuclear Materials

The NRA conducts nuclear regulatory inspections related to the physical protection of nuclear materials in accordance with the Reactor Regulation Act. Based on the inspection plan for FY2022, a total of 127 nuclear regulatory inspections were conducted, which included the confirmation of facilities related to the physical protection of nuclear materials and assessment of information system security measures (for the status of supplemental inspections at the Kashiwazaki-Kariwa NPS of TEPCO, please refer to Chapter 2, Section 2).

Furthermore, in order to prevent nuclear security incidents and enable a swift response in case of occurrence, nuclear security inspectors were stationed at the NRA Regional Offices from FY2022. They worked in collaboration with the NRA headquarters to carry out their duties. Additionally, necessary FY2023 budgets have been incorporated to further strengthen the system.

Furthermore, to significantly enhance nuclear regulatory inspections, efforts were made to establish a dedicated communication network and improve working environments, allowing real-time sharing of highly confidential information related to physical protection of nuclear material among the NRA headquarters and the NRA Regional Offices.

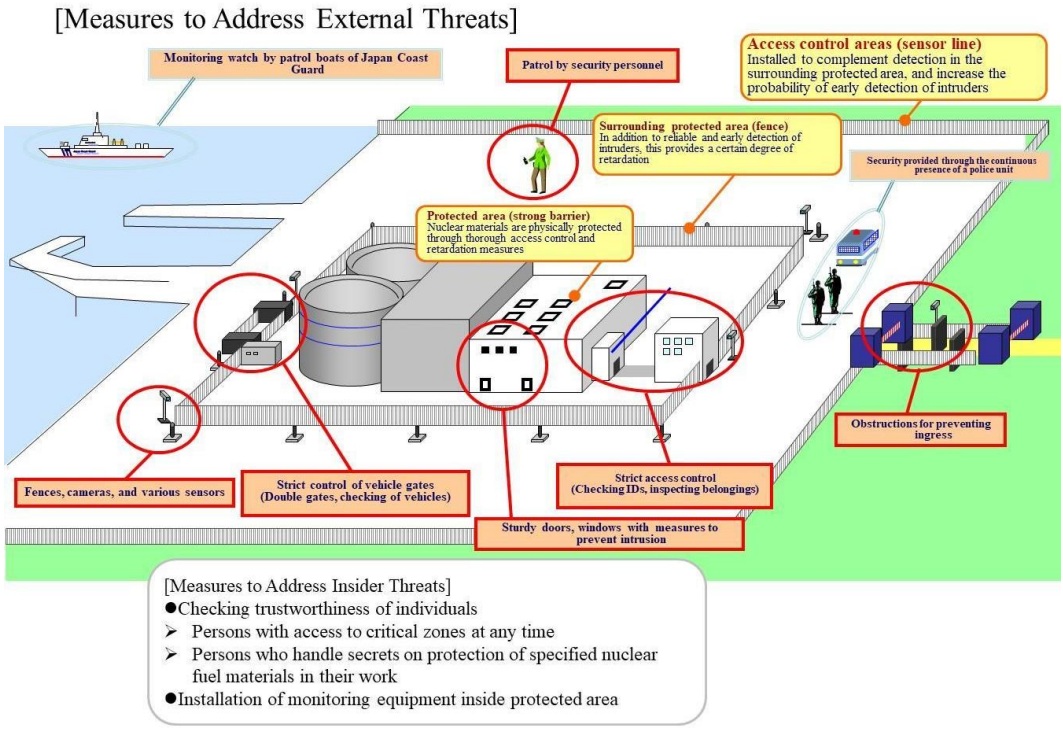


Figure 3-1: Overview of Protection Measures for Nuclear Facilities

(b) Rigorous Review of Security Plan

The NRA conducts reviews of the security plans in accordance with the Reactor Regulation Act to establish necessary matters related to the protection of specific nuclear fuel materials. In FY2022, 67 changes to security plans were approved.

Furthermore, the NRA continued the review on application to changes in security plan submitted by operators based on the Examination Standard for Security Plan (established on November 5, 2018), which had been revised on April 8, 2019 in light of the Threat of Sabotage and Destruction Acts related to the Information Systems of Nuclear Facilities (established on October 15, 2018). Among these, the review results for the requested changes to the security plan for the Mihama Power Station, which had been submitted by Kansai Electric Power Co., Inc. (dated April 7, 2020, with corrections dated January 14, 2022), were compiled during an Extraordinary Meeting of the 4th FY2022 NRA Commission Meeting (April 13, 2022). Following this, an opinion hearing was conducted with law enforcement agencies, and approval was granted on June 29, 2022. Additionally, changes to the security plans to address threats related to sabotage and destruction acts on information systems were approved for 6 cases.

(c) Efforts for Improving Physical Protection of Nuclear Material Training

Among the initial response measures that operators should take in the event of a physical protection of nuclear material, determination of whether it is an information collection level event or alert level event, implementation of measures such as evacuation instructions and sharing of information between the Secretariat of the NRA and security organizations are especially important. In FY2021, the NRA focused on checking the achievement status of these responses in nuclear regulatory inspections. Using the NRA Emergency Response Center (ERC), the NRA participated in simulated physical protection training provided by operators and issued technical advice as well as confirming the approach of the Secretariat of the NRA to nuclear safety.

(d) Nuclear Security Measures During the Transport of Specific Nuclear Fuel Materials

The NRA, based on the Reactor Regulation Act, requires nuclear operators to implement protective measures when they transport specific nuclear fuel materials outside of their facilities or premises. These measures include locking and sealing the transport containers containing specific nuclear fuel materials. Additionally, before transportation commences, agreements must be established among relevant parties, such as shippers and recipients, to clarify responsibilities related to the transportation process. These agreements must then be subject to confirmation by the NRA.

In FY2022, the NRA conducted confirmation of 8 agreements related to the transportation of specific nuclear fuel materials based on relevant regulations and engaged in discussions with relevant government agencies regarding nuclear security measures during transport.

(e) Consideration of Improvements to the System Related to the Physical Protection of Nuclear Material

In order to consider improvements to the system related to the physical protection of nuclear material, discussions were held on the challenges revealed in the operation of

physical protection of nuclear material regulations during the “Meeting for Exchange of Views on the Physical Protection of Nuclear Material” with nuclear operators and others. These meetings took place on October 6, 2022, and February 2, 2023.

(2) Steady Implementation of Security Regulations for Specified Radioisotopes

The NRA requires operators that handle highly hazardous radioisotopes (hereinafter referred to as “specified radioisotopes”) to take security measures to prevent theft under the Radioisotope Regulation Act and verifies that security measures have been in place through on-site inspections of the facility where specified radioisotopes are handled. In FY2022, the NRA carried out 137 on-site inspections related to the security of specified radioisotopes. Additionally, the Registered Training Organizations for Specified Radioisotope Security Managers implemented periodic training for Specified Radioisotope Security Manager twice in FY2022.

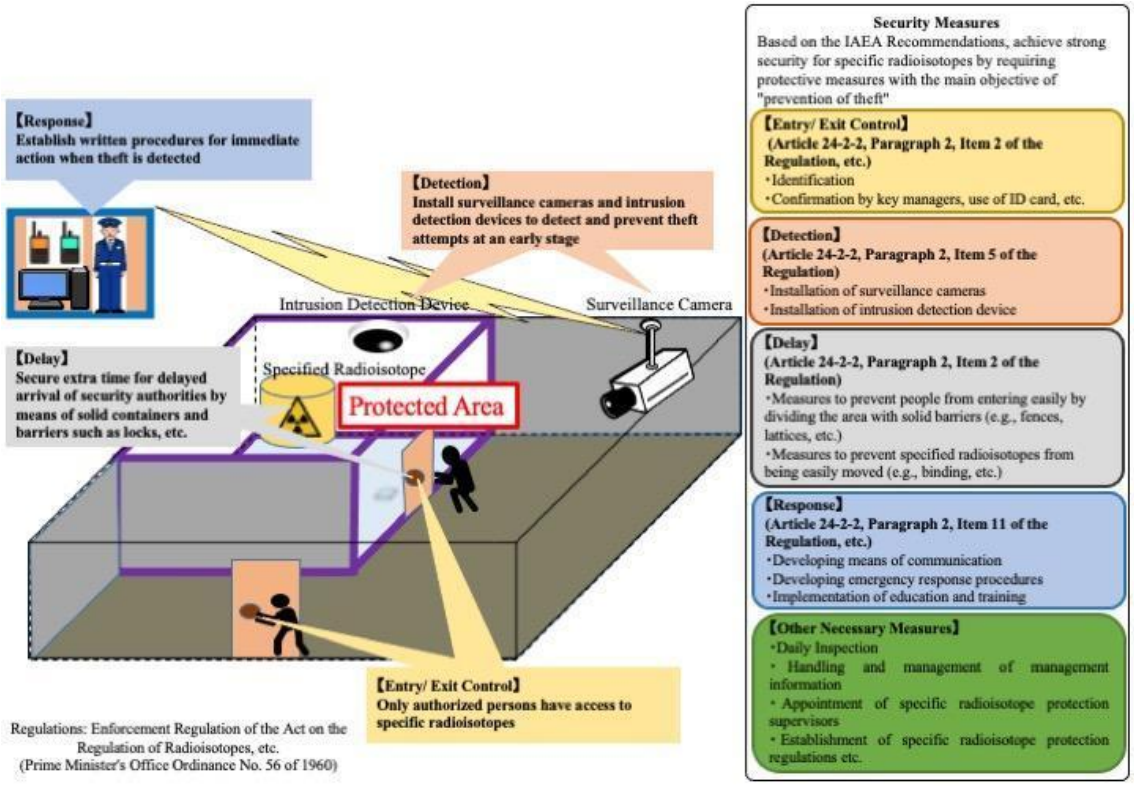


Figure 3-2: Protection Measures for Specific Radioisotopes

2. Response to Nuclear Security Challenges

(1) Fostering a Nuclear Security Culture

The NRA formulated a “Code of Conduct on Nuclear Security Culture” in January 14, 2015 as a guideline to foster and maintain a nuclear security culture based on the “NRA's Core Values and Principles” developed in January 2013. In line with these guidelines, the NRA continuously conducts training and activities related to nuclear security culture for newly recruited staff and inspectors, as well as those expected to assume new responsibilities within the organization.

(2) Enhancement of Computer Security Measures

The NRA made some revision based on advice received during the IAEA's International Physical Protection of Nuclear Material Consultation Service (IPPAS) Follow-Up Mission, which took place from November 26 to December 7 of 2018. The advice pertained to standardizing the criteria for the provisions outlined in the guidelines and ensuring the implementation of information system security measures as indicated in the guidelines among nuclear operators. These amendments involved positioning certain provisions of the guidelines within the "Examination Standard for Security Plan." The decision to make these changes was made on March 30, 2022, and they came into effect on October 1, 2023. In FY2022, with the revised examination criteria in place, the NRA continued its review of applications for changes to the security plans submitted by operators.

Additionally, the NRA provided technical advice to operators during physical protection of nuclear material training and other activities to enhance computer security measures further.

(3) Actions Taken to Prepare for the Acceptance of IPPAS (International Physical Protection of Nuclear Material Advisory Service) Missions

At the 47th FY2022 NRA Commission Meeting (October 26, 2022), the NRA discussed the acceptance of an IPPAS mission, including its timing and scope. The Secretariat of the NRA was instructed to consult at the NRA Commission Meeting regarding the timing and other details of the mission.

Subsequently, during the 59th FY2022 NRA Commission Meeting (December 21, 2022), it was assumed that the IPPAS mission would take place around the middle of 2024. The NRA approved the formal request for the IPPAS mission to the IAEA during this meeting and officially submitted the request on January 5, 2023.

3. Participation in International Conferences

To continually improve regulations for nuclear security measures, the NRA makes it its policy to incorporate the latest knowledge relating to nuclear security, obtained through international conferences and so on, into applicable laws and regulations.

The NRA actively participated in international conferences on nuclear security held in FY2022, gathered the latest information related to the physical protection of nuclear material and incorporated Japan's experiences and opinions into discussions. Notably, during meetings of the IAEA's Nuclear Security Guidance Committee (NSGC) held on June 13-16 and November 29-December 1 of 2022, the NRA contributed to discussions on the review process of nuclear security series documents and drafts of nuclear security series documents. The outcomes of these meetings were reported during an Extraordinary Meeting of the 65th FY2022 NRA Commission Meeting (January 18, 2023).

Furthermore, the NRA participated in the 11th meeting of the U.S.-Japan Bilateral Nuclear Security Working Group (NSWG) held on November 7-8 of 2022, and agreed on plans for technical information exchange activities related to the implementation of IAEA's physical protection of nuclear material Recommendation (INFCIRC/225/Rev.5). As part of this plan, technical information exchanges on computer security were conducted from December 6 to 9 of 2022, and technical information exchanges on Force-

on-Force exercises (FOF exercise) were conducted from January 16 to 20 of 2023.

Section 2 Steady Implementation of Safeguards

1. Steady Implementation of Safeguards Activities in Japan

In accordance with the Atomic Energy Basic Act (Act No. 186 of 1955), Japan has established a fundamental policy of limiting nuclear energy utilization to peaceful purposes. Japan is a signatory to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and has entered into agreements with the IAEA for the implementation of Article III, Paragraph 1, and Paragraph 4 of the NPT. These agreements, known as the “Japan-IAEA Safeguards Agreements” and their additional protocols, ensure that Japan adheres to non-proliferation commitments. Bilateral nuclear cooperation agreements to promote cooperation concerning the peaceful use of nuclear power have also been concluded with 14 countries and 1 international organization. By complying with these international commitments in good faith, Japan is demonstrating to the international community that it is limiting the use of nuclear power to peaceful purposes.

The NRA implements the prescribed regulatory controls in Japan and coordinates operations with the IAEA and other organizations in Japan and overseas in order that Japan can fulfill its obligations under its international commitments and maintain the trust of Japan by the international community pertaining to the peaceful use of nuclear power.

(1) Fulfilling the Japan-IAEA Safeguards Agreement

(a) Permission for the Use of Internationally Controlled Material and Approval of Accounting Provisions

As a general rule under the Japan-IAEA Safeguards Agreement, all nuclear materials possessed in Japan are subject to this agreement. Thus, even if nuclear fuel materials not subject to safety controls are used, they will be subject to permission or approval to use as safeguarded material. In FY2022, there were 43 permits or approvals for the use of such internationally controlled materials and 357 notifications of changes. To ensure the proper accounting for and control of internationally controlled materials in Japan, nuclear operators, including users of internationally controlled materials (hereinafter referred to as "internationally controlled material users"), are obligated to stipulate their accounting provisions. In FY2022, there were 44 approvals for accounting provisions and 135 approvals for changes to accounting provisions.

(b) Accounting Reports, Information Provisions Such as Facility Design and Declarations Based on the Additional Protocols

Nuclear material accounting is an important basic step in Safeguards. Internationally controlled material users are obligated to report the current inventory and changes of inventory of nuclear materials to the NRA in accordance with the Reactor Regulation Act. Once the submitted accounting information is processed at the Nuclear Material Control Center, which is specified as an information processing organization under the Reactor Regulation Act, the NRA compiles it into an accounting report and submits it to the IAEA through the Ministry of Foreign Affairs on a timely basis. In FY2022, 2,153 operators were subject to submitting accounting reports, with the number of reports for each category as shown in Table 3-1.

In addition, the NRA provides design information relating to facilities subject to the

Safeguards Agreement and other information required to implement safeguards and submits a declaration based on the Additional Protocol to the IAEA through the Ministry of Foreign Affairs.

Table 3-1: The Number of Accounting Reports for FY2022
(April 1, 2022, to March 31, 2023)

Type	No. of Cases
Inventory change reports	840
Material balance reports	407
Physical inventory listings	4,706
Nuclear fuel material management reports	3,692

(c) Verification Activities

The IAEA conducts on-site verification activities, including inspections of facilities, based on information submitted by Japan. Of these on-site verification activities, inspections are carried out after going through communications and adjustments by the NRA and at the same time as Japan's safeguards inspections are carried out, in the presence of officials of the national government or of an organization designated by the NRA. Most of the safeguards inspections are conducted by the Nuclear Material Control Center, which has been a designated organization implementing safeguards inspections under the Reactor Regulation Act, according to instructions issued by the NRA. However, the IAEA's verification of facility design information is conducted together with on-site inspections conducted by the NRA itself, in the presence of NRA staff. The IAEA's complementary access under the Additional Protocol is attended by the staff of the NRA and the Ministry of Foreign Affairs. In light of the IAEA's policy of conducting inspections as planned, despite the impact of COVID-19, the NRA coordinated with the relevant parties and the inspections were carried out based on the IAEA notifications. Table 3-2 shows the record of safeguards inspections carried out by the State in FY2022.

Table 3-2: The Results of Safeguards Inspections and Related Activities Conducted by Japanese Government Personnel in FY2022
(April 1, 2022, to March 31, 2023)

Type	Nuclear Regulation Authority	Nuclear Material Control Center	Ministry of Foreign Affairs
Safeguard inspections	98 person-days	1,731 person-days	
Design information verification	76 person-days		
Complementary access	34 person-days		19 person-days

(d) Coordination for Facilitating the Implementation of Safeguards

To facilitate the implementation of safeguards, the NRA has held meetings with the IAEA with the attendance of relevant domestic organizations for the purpose of sharing information on the state of facilities, investigating issues that arise when safeguards are

implemented and making adjustments. In FY2022, considering the situation with the COVID-19 pandemic, online meetings were utilized. A total of 13 specialized working group meetings focusing on specific types of facilities were held to facilitate discussions and coordination on safeguards-related issues.

(e) Treatment of Safeguards Equipment in Terms of Safety Regulations

To prevent the occurrence of safety problems caused by safeguards equipment such as monitoring cameras installed in nuclear facilities in line with the implementation of the Japan-IAEA Safeguards Agreement, close coordination was made among the IAEA, nuclear operators, relevant NRA Secretariat departments and others.

(f) IAEA's Safeguards Conclusions

At the 10th FY2022 NRA Commission Meeting (May 18, 2022), the NRA received a report from the Secretariat of the NRA regarding the implementation results of safeguard activities in Japan throughout 2021. This report was provided to contribute to the evaluation of Japan's safeguards activities by the IAEA. The IAEA draws a conclusion on safeguards based on the evaluation of all information obtained through safeguards activities carried out every year by the contracting parties to the Safeguards Agreement and reports it at the IAEA's Board of Governors meeting in June of the following year. For Japan, as a result of the safeguards activities, the IAEA found no indication of the diversion of declared nuclear material from peaceful nuclear activities and no indication of undeclared nuclear material or activities. On this basis, the IAEA also concluded in 2021 that all nuclear material remained in peaceful activities (Broader Conclusion). This conclusion marked the 19 consecutive years in which the broader conclusion was drawn for Japan, continuing from the results achieved in 2003.

(g) Response to the Occurrence of Complete Blackout Events in the Surveillance Area

On January 28, 2023, JNFL (Japan Nuclear Fuel Limited) planned a partial blackout in the feeder cells, which are under surveillance for safeguards, due to power panel maintenance in the Head end building of the Rokkasho Reprocessing Plant (RRP). However, when the IAEA checked the data of surveillance cameras installed to monitor the movement of spent fuel, it was found that one of the two feeding cells had a complete blackout for about 2 hours during the maintenance period, rendering surveillance impossible.

Considering the concern that similar safeguards-related issues might occur in the future, the NRA decided at the 75th FY2022 NRA Commission Meeting (February 22, 2023) to request JNFL to investigate the cause of the incident and implement measures to prevent recurrence, as well as report the results, and a document to this effect was issued on the same day. On March 22, 2023, the NRA received a report from JNFL in response to the document.

Additionally, the Nuclear Material Control Center, which is a designated organization implementing safeguards inspections, regularly checks surveillance camera data. However, despite the blackout inside the feeding cell where nothing was captured on camera, the Nuclear Material Control Center did not recognize any safeguards-related

issues and therefore did not communicate with the Secretariat of the NRA. As a result, the Secretariat of the NRA decided to seek improvements from the Nuclear Material Control Center. On March 24,2023, the Secretariat of the NRA received a report from the Nuclear Material Control Center summarizing the causes and measures to prevent recurrence, among other things.

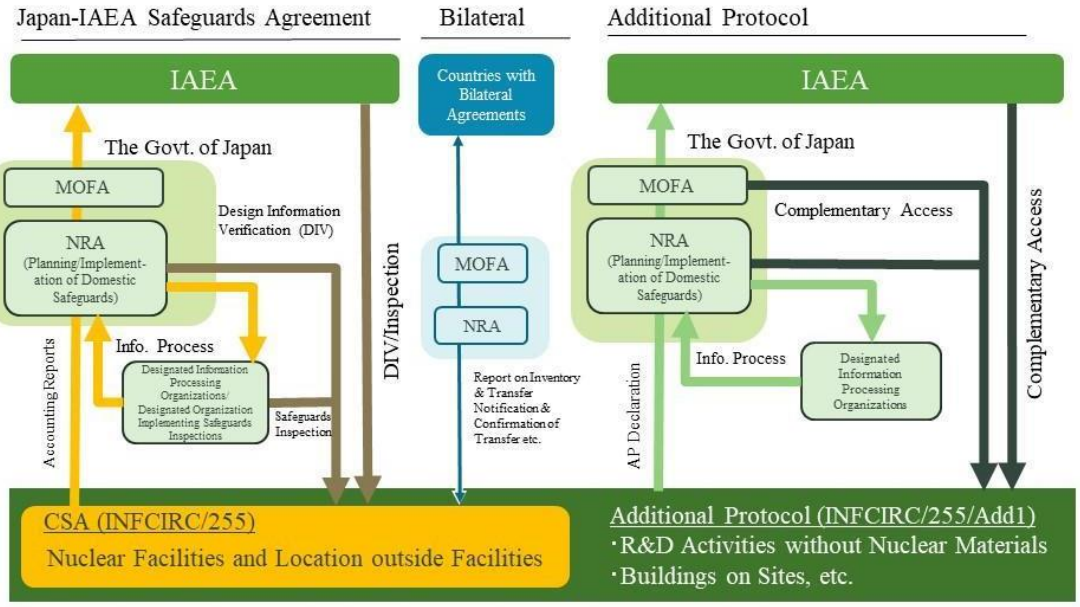


Figure 3-3: Safeguards Implementation Arrangement

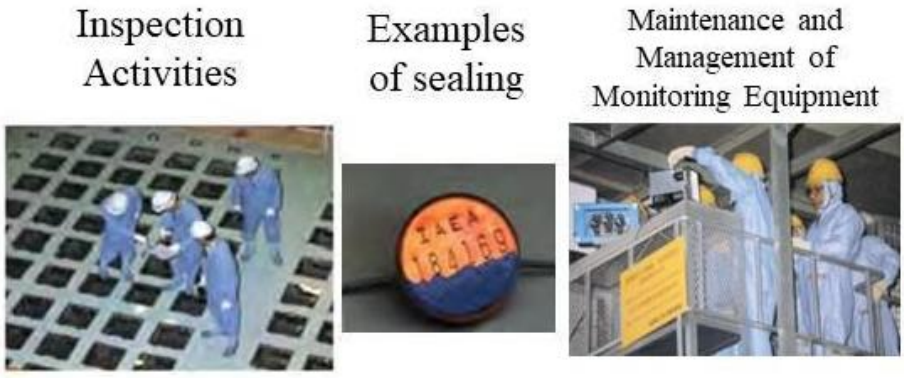


Figure 3-4: Safeguards-related Activities

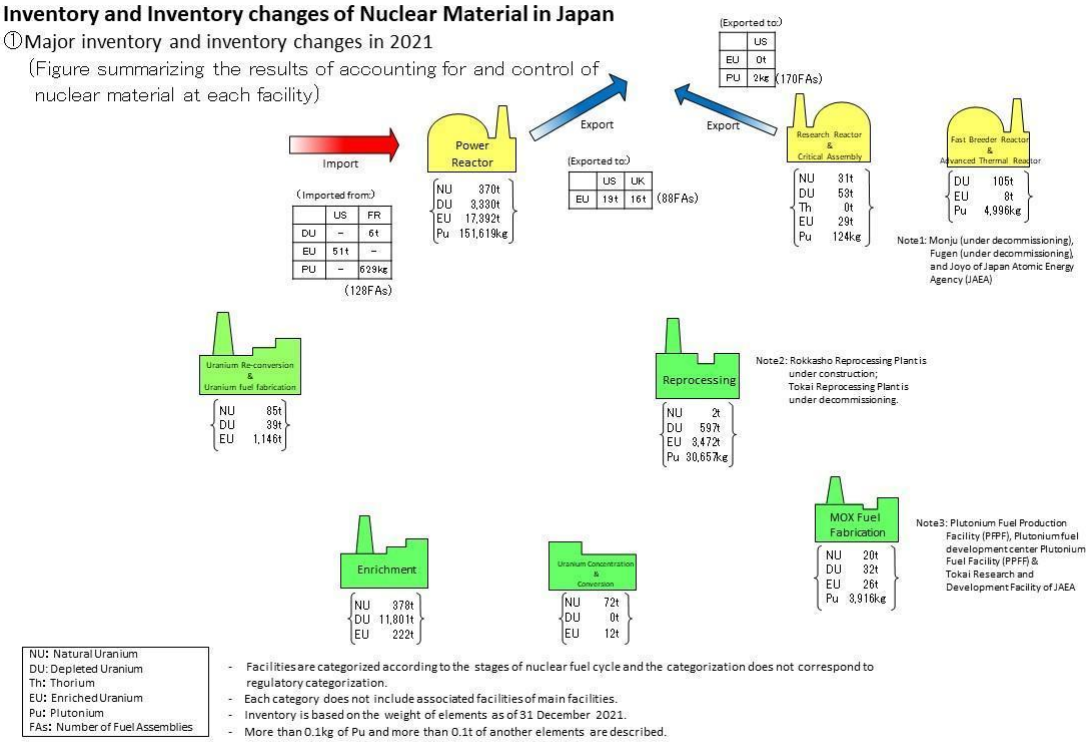


Figure 3-5: Amount of Nuclear Materials in Japan

(2) Implementation of Procedures related to Internationally Controlled Material based on Bilateral Nuclear Cooperation Agreements

Japan has concluded bilateral nuclear cooperation agreements with 14 countries and 1 international organization. Under these agreements, Japan and its partners commit to using transferred nuclear source materials, nuclear fuel materials, moderator materials, and nuclear fuel materials produced as a result of their use only for peaceful purposes. Japan also undertakes various procedures regarding the materials subject to these agreements. In FY2022, the NRA confirmed 27 cases of obligations related to the transferred nuclear materials, etc., from contracting parties, and 5 cases of obligations related to the transferred nuclear materials to contracting parties based on the agreements. Additionally, with the support of the designated information processing organization, the Nuclear Material Control Center, the NRA submitted 14 inventory lists to contracting parties.

2. Safeguards at TEPCO's Fukushima Daiichi NPS

Normal on-site verification activities have been carried out by the IAEA for all nuclear materials in reactors except Units 1 to 3 at the Fukushima Daiichi NPS. Normal inspections cannot be carried out for Units 1 to 3 reactors, due to the difficulty of entering these reactors. Therefore, through consultations with the IAEA and relevant domestic organizations, a continuous monitoring system composed of surveillance cameras and radiation monitors, and special additional verification activities applicable only to this NPS site have been introduced, contributing to building a framework to allow the IAEA to verify that no undeclared nuclear material has been moved from Units 1 to 3. In

FY2022, special additional inspection activities to Units 1-3 were conducted six times as part of complementary access. Additionally, inspections for the transfer of fuel assemblies from the spent fuel common pool to the dry cask interim storage facility were carried out.

Regarding the Fukushima Task Force Meeting, it has been held once a year starting from FY2022, and the meeting was held on December 6, 2022 in Japan. During this meeting, discussions were held on accounting and safeguards methods for the temporary storage facility for fuel debris to be constructed within the Fukushima Daiichi NPS site. Information on on-site activities necessary for the implementation of safeguards was also shared.

3. New Safeguard Inspections

The IAEA has developed "State-level safeguards approaches" for each Member State, considering their nuclear activities and technological capabilities as it utilizes its experience of safeguards implementation and new technologies to maintain efficient and effective safeguards within limited resources. In response to the implementation of this approach in Japan, discussions have been conducted with the IAEA at IAEA's working group meetings and others since FY2019 to formulate facility-type specific inspection procedures. These procedures have been gradually applied to facilities such as fuel fabrication plants and reprocessing plants. The last set of procedures, for the Nuclear Fuel Cycle Engineering Laboratories of the JAEA, was received from the IAEA as a draft on December 20, 2021, and an agreement was reached on March 20, 2023.

The IAEA has expressed its intention to strengthen verification activities for about 200 "locations outside facilities"[35] in Japan and has recommended that Japan conducts safeguards inspections independently to complement these activities. Therefore, in FY2022, with the aim of improving the quality of accounting control at "locations outside facilities" and enhancing the reliability of Japan's safeguards activities, the NRA conducted the domestic safeguards inspections independently for 9 such "locations outside facilities" based on the domestic safeguards inspection implementation guidelines established on February 19, 2020, by the NRA.

4. Information Transmission and Human Resource Development Related to Japan's Safeguards Activities

(1) Transmission of Information on Japan's Safeguards Activities

The NRA participated in the online conference of the European Safeguards Research and Development Association (ESARDA) held on May 17, 2022, where information about Japan's safeguards activities was shared to promote international understanding. Furthermore, with the Secretariat of the NRA joining the IAEA SMR (Small Modular Reactor[36]) Regulator's Forum from Phase III, and considering the experience related to the application of safeguards at the Japan Nuclear Fuel Limited (JNFL) reprocessing

[35] A structure or location that does not fall under the category of "facilities" (such as nuclear reactors, critical assemblies, conversion plants, fabrication plants, reprocessing plants, isotope separation plants, or independent storage facilities) and where quantities of nuclear material normally used do not exceed 1 effective kilogram. In terms of related laws and regulations under the Reactor Regulation Act, "usage facilities are primarily referred as "locations outside facilities". "

[36] It is a modular small nuclear reactor, and there is concern that weapons-grade plutonium may be secretly loaded inside as it crosses borders in a state with nuclear fuel loaded into a small nuclear reactor container, potentially leading to nuclear weapons proliferation.

plant, contributed to the enhancement and streamlining of international safeguards efforts from the perspective of "3S by Design"[37] by participating in the Design and Safety Analysis meeting.

(2) Support for the Implementation of Safeguards by the IAEA and Foreign Countries

The technological development required for the IAEA to implement safeguards has been supported by the key IAEA member states. Japan has proactively contributed to improving technological capabilities of the IAEA and member states and strengthening international safeguards through frameworks such as the Japan Support Programme for Agency Safeguards (JASPAS). The program covers a broad array of specific support plans including participation in the IAEA Network of Analytical Laboratories where environmental samples collected by IAEA inspectors are analyzed and training opportunities provided for IAEA inspectors and safeguards officials of member states. The NRA has coordinated overall support programmes and provided necessary funds. As of the end of FY2022, 29 projects are in progress. Furthermore, Japan has offered its expertise during the training course on nuclear material accountancy jointly organized by the JAEA and the IAEA.

5. Guidance and Supervision of Designated Information Processing Organizations and Designated Organizations Implementing Safeguards Inspections, etc. Under the Reactor Regulation Act

Nuclear Material Control Center (NMCC) is obligated to perform its duties accurately as a designated information processing organization and a designated organization[38] implementing safeguards inspections under the Reactor Regulation Act. In order to ensure the proper execution of NMCC's safeguards-related tasks, the NRA encourages the enhancement of the center's safeguards implementation structure. Additionally, the NRA conducts regular inspections based on the Reactor Regulation Act to confirm compliance with relevant provisions of the Act and the implementation status of information security measures. In FY2022, the NRA confirmed the establishment and operational status of the quality management system at the Rokkasho-Nuclear-Site Safeguards Analytical Laboratories[39].

Section 3 Reinforcement of Efforts at the Interface for Nuclear Safety, Nuclear Security and Safeguards

The fields of nuclear safety, nuclear security, and safeguards have mutual influences on each other. The NRA aims to achieve a higher level of harmony among nuclear safety, nuclear security, and safeguards (3S) by organizing the challenges, discussing the policy of its efforts during the 5th FY2018 NRA Commission Meeting (April 25, 2018), and

[37] It is planned to comprehensively consider Safety, Security, and Safeguards (3S) and to take them into account at the design stage (Safety-by-Design, Security-by-Design, Safeguard-by-Design) for each.

[38] The Nuclear Material Control Center has been designated as a designated information processing organization under Article 61-10 of the Reactor Regulation Act since 1977 and as a designated organization implementing safeguards inspections under Article 61-23-2 of the same Act since 1999.

[39] The on-site laboratory located within the JNFL reprocessing plant is used by the IAEA and the designated organization implementing safeguards inspections, the Nuclear Material Control Center, for the chemical analysis of safeguards inspection samples.

continuously reviewing them.

In the nuclear safety department, a staff study group was held in FY2022 to enhance knowledge in the fields of nuclear security and safeguards. The group also organized approaches to confirm mutual influences and coordinated with relevant departments. Additionally, there were discussions with the nuclear security department regarding changes to the security plan of the Kashiwazaki-Kariwa NPS of TEPCO. This included reviewing the nuclear safety implications of measures in response to security incidents at the plant. Furthermore, in the revision of the examination standard in the security plans related to information system security measures (decided on March 30, 2022), the department worked on organizing the approaches to select protected equipment used in physical protection and to confirm application from operators through interviews.

In the safeguards department, discussions with the IAEA on complementary access implementation methods and declaration methods for specialized safety facilities were conducted while sharing information with the nuclear safety department and the nuclear security department. The results of discussions with the IAEA were shared with those departments.

In the nuclear security department, participation in "Discussions on the Training and Regulatory Involvement Regarding Emergency Response of Nuclear Operators" allowed for collaboration with nuclear safety in matters related to emergency response based on events related to the physical protection of nuclear material. Progress was made in discussions on coordination and information sharing between the two departments.

Regarding reviews and approvals, in cases where applications related to nuclear safety, nuclear security, and safeguards are submitted, the responsible department shares the confirmation results provided by the applicant with relevant departments. The department also conducts operator meetings, if necessary, to assess potential adverse effects on other measures. The aim is to work together to eliminate mutual adverse effects to the greatest extent possible.

In terms of inspections, the NRA has been implementing procedures where inspection officers from the NRA regional office share information with the relevant departments if they have any observations related to nuclear security or safeguards during nuclear regulatory inspections related to nuclear safety. Additionally, nuclear security inspection officers or safeguard inspectors share information with the relevant departments if they have any observations related to other measures. Furthermore, inspection officers from the NRA regional office conduct on-site checks and inspections, including the verification of Corrective Action Programs (CAP) related to the physical protection of nuclear material. If any observations are made during these checks, they are shared with the relevant departments.

For those engaged in the work that requires harmonization of 3S, such as examinations and inspections related to nuclear safety, the trustworthiness and reliability of officials dealing with secrets on physical protection has been checked sequentially to ensure appropriate access to documents related to secrets on physical protection based on the "Instructions on Confirmation." Furthermore, the NRA issues alerts to the departments responsible for operating the trustworthiness and reliability check system appropriately, and provides education on physical protection for inspectors having undergone

trustworthiness and reliability check.

Moreover, the NRA is considering enhancing its response capabilities by collecting case studies and enriching 3S content in the training programs conducted by the NRA Human Resource Development Center.

Chapter 4 Ensuring the Safety of Decommissioning of TEPCO's Fukushima Daiichi NPS and Investigating the Causes of the Accident

○ **Summary of Chapter 4**

(Monitoring Efforts Toward Decommissioning of TEPCO's Fukushima Daiichi NPS)

The NRA reviewed applications submitted by TEPCO for approval of changes to the "Implementation Plan pertaining to Specified Nuclear Facility of the Fukushima Daiichi NPS" and approved 13 of them in FY2022.

Based on the "Basic Policy of Handling of ALPS-treated water at TEPCO's Fukushima Daiichi NPS" decided at the 5th Inter-Ministerial Council for Contaminated Water, Treated Water and Decommissioning Issues (April 13, 2021), regarding an application submitted by TEPCO on December 21, 2021 for approval of changes to the Implementation Plan for the installation and other aspects of multi-nuclide removal equipment for the offshore discharge of ALPS treated water, the NRA approved it on July 22, 2022 after review and confirmation at a public meeting through a call for scientific and technical opinions. The results of the review were also explained and questioned during visits to local governments and other entities that requested them.

In addition, the "Concept of Ground Motion and its Application in Seismic Design at TEPCO's Fukushima Daiichi NPS based on the Earthquake off the Coast of Fukushima Prefecture on February 13, 2021," which had been approved at the 30th FY2021 NRA Commission Meeting (September 8, 2021), was organized once again in accordance with the 103rd Committee on Oversight and Evaluation of Specified Nuclear Facilities (October 26, 2022; hereinafter referred to as the "Committee on Oversight and Evaluation"). It was approved at the 51st FY2022 NRA Commission Meeting (November 16, 2022) as the "Concept of Seismic Class Classification and Application of Seismic Ground Motions at TEPCO's Fukushima Daiichi NPS."

The efforts of TEPCO to comply with the Implementation Plan approved to date are monitored through operational safety inspections, pre-service inspections, welding inspections, periodic facility inspections, physical protection inspections, and daily patrol activities by nuclear operation inspectors stationed at the site.

(Revision of the Measures for Mid-term Risk Reduction)

The NRA reviews the "Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS" developed on February 18, 2015, in accordance with the progress of decommissioning work and other factors.

On one hand, there are items where steady progress is being made, but on the other hand, there are many items that are expected to fall behind the target, such as efforts to deal with radioactive materials in solid form. Therefore, for items that are lagging behind from the target, the factors and issues along with policies to deal with them are summarized. At the same time, the NRA discussed a proposal to revise the risk map, including a policy to place solid radioactive materials as an area to be prioritized for action at the 67th FY2022 NRA Commission Meeting (February 1, 2023). The opinions on the proposal were heard at the 105th Committee on Oversight and Evaluation (February 20, 2023). Based on the above, the NRA approved the revision of the risk map at the 78th FY2022 NRA Commission Meeting (March 1, 2023).

(Analysis of TEPCO's Fukushima Daiichi NPS Accidents)

As for accident analysis, which is one of the significant jurisdictions of the NRA, research and analysis are underway from the technical aspects. The accessibility to the inside of the reactor building has improved thanks to the improvement of the site environment, the progress of decommissioning work and other factors, and it is now possible to check the condition of the facility and collect samples, which leads to the promotion of on-site investigations.

The NRA jointly considered and reviewed information with universities and research institutions, focusing on points that are being considered and discussed in FY2022: (1) identification of the migration mechanism and part of the release pathway of Cs-137 during the accident from the distribution of Cs-137 contamination in the reactor buildings of Units 2 and 3, which was specified in the "Interim Summary of Investigation and Analysis of TEPCO's Fukushima Daiichi NPS Accident" compiled on March 5, 2021, and (2) the newly identified event in which the concrete was damaged by hot fuel debris and other factors and only the rebar remained from observations of the damage condition of the inner wall of the pedestal obtained from an internal survey about the primary containment vessel of Unit 1. The results of the considerations were compiled into the "Interim Summary of Investigation and Analysis of TEPCO's Fukushima Daiichi NPS Accident (2023 version)", which was approved at the 84th FY2022 NRA Commission Meeting (March 29, 2023). In addition, at the 83rd FY2022 NRA Commission Meeting (March 22, 2023), the Commissioners discussed how to proceed with the investigation and analysis of the accident, and at the 84th FY2022 NRA Commission Meeting (March 29, 2023), the procedures were accepted. Furthermore, in order to ensure consistency between operations related to accident analysis and decommissioning, the "Fukushima Daiichi NPS Decommissioning and Accident Investigation Liaison and Coordination Meeting" was held with the participation of relevant administrative agencies, and necessary coordination was carried out.

Besides, with regard to the investigation of the accident at TEPCO's Fukushima Daiichi NPS, the NRA has participated in projects such as PreADES and ARC-F of the OECD/NEA, and the FACE project was newly launched in FY2022. In this project, the NRA chaired discussions with 13 participating countries and 1 participating region on the future action plan.

(Monitoring After TEPCO's Fukushima Daiichi NPS Accidents)

Based on the "Comprehensive Radiation Monitoring Plan," the NRA continuously implemented general environmental monitoring throughout Fukushima Prefecture, as well as monitoring of the sea area around TEPCO's Fukushima Daiichi NPS and Tokyo Bay. In FY2022, the NRA started monitoring the sea area before the discharge of ALPS-Treated Water to the sea, and studied how the sea area should be monitored after the discharge in cooperation with related ministries and agencies.

Section 1 Oversight of Efforts to Decommission Reactors

1. Approval, Inspection and Others of the Implementation Plan Pertaining to the Fukushima Daiichi NPS

For implementing appropriate management methods in accordance with the state of the facility, the NRA designated the TEPCO's Fukushima Daiichi NPS as the "Specified Nuclear Facility" on November 7, 2012, and instructed TEPCO to take measures for the operational safety of nuclear power reactor facilities and protection of specified nuclear fuel material. Subsequently, the "Implementation Plan pertaining to Specified Nuclear Facility of the Fukushima Daiichi NPS" (hereinafter referred to as the "Implementation Plan") formulated by TEPCO based on this was approved on August 14, 2013, and the measures for the safety of the facility are implemented according to the Implementation Plan.

In FY2022, the NRA approved 13 cases in total for modification of Implementation Plan, including installation of facilities related to offshore discharge of ALPS-Treated Water and establishment of a storage yard and fuel handling facilities for spent fuel removal from Unit 2, and confirmed the compliance status through operational safety inspections and others by nuclear operational inspectors stationed at the site. There were 12 and 14 cases that were deemed to have completed pre-service and welding inspections, respectively. In addition, the NRA monitored TEPCO's efforts by focusing on facilities that are considered important to maintain performance at specified nuclear facilities through periodic facility inspections, and conducted nuclear material protection inspections for matters related to protective measures for specified nuclear fuel materials. In addition, at the 82nd FY2022 NRA Commission Meeting (March 15, 2023), the basic policy for the implementation plan inspections in FY2023 was approved.

The "Concept of Ground Motion and its Application in Seismic Design at TEPCO's Fukushima Daiichi NPS based on the Earthquake off the Coast of Fukushima Prefecture on February 13, 2021" (approved by the NRA on September 8, 2021; hereinafter referred to as the "Requirements of Earthquake Resistance in September, 2021") was reorganized to formulate the "Concept of Seismic Class Classification and Application of Seismic Ground Motions at TEPCO's Fukushima Daiichi NPS" (hereinafter referred to as the "1F Seismic Requirement"), and it was approved at the 51st FY2022 NRA Commission Meeting (November 16, 2022). The NRA requested TEPCO to classify the seismic resistance classes based on the 1F Seismic Requirement in the future (for details, see 5. (1)).

The NRA approved the application for approval of changes to the Implementation Plan for the Installation of Facilities Related to Offshore Discharge of ALPS-Treated Water at the 25th FY2022 NRA Commission Meeting (July 22, 2022) (for details, see 6. (1)).

2. Oversight of Efforts to Reduce by Half and Treat Stagnant Water in Reactor Buildings

(1) Monitoring Efforts to Lower S/C Water Levels in Unit 1/3

From the viewpoint of improving the performance of primary containment vessels and suppression chambers (suppression chamber below the primary containment vessel, hereinafter referred to as the "S/C") of Units 1 to 3, TEPCO has worked on lowering the water level in the primary containment vessels and S/C.

The water intake system from the S/C of Unit 3, which had been installed on March 27, 2022, was operated on a trial basis in April and has been in operation since October 3, 2022. The NRA will continue to confirm the status of efforts to lower the water level of the S/C of Unit 3, and will also ensure the status of the study on efforts to lower the water level of the S/C of Unit 1.

(2) Oversight of Efforts to Treat Untreated Water in Tanks

Because muddy precipitates as well as water supernatant of concentrated effluent (hereinafter referred to as the "concentrated effluent slurry") generated by evaporation and concentration equipment, which was used to treat contaminated water immediately after the TEPCO's Fukushima Daiichi NPS Accident, are highly concentrated with salt and other substances and difficult to treat with existing water treatment facilities, TEPCO proceeds with a conceptual study on the treatment methods.

In FY2022, TEPCO plans to treat the supernatant water from the concentrated effluent by ALPS after dilution. At the same time, it was confirmed that TEPCO was considering the policy of dehydrating the concentrated effluent slurry by using the ALPS slurry stabilization treatment facility (for details, see Section 4). TEPCO has stated that it will begin preliminary treatment of supernatant water from the concentrated liquid waste on a trial basis in 2023, while it cannot foresee when to start dehydration treatment of the concentrated effluent slurry because it needs to review the design of the ALPS slurry stabilization treatment facility to perform the dehydration treatment. Therefore, the NRA requested TEPCO to examine the process related to the start of dehydration treatment of the concentrated effluent slurry in light of the review of the design of the facility concerned and to report again. The NRA continuously confirms the status of the preliminary experimental treatment on a trial basis for the water supernatant of concentrated effluent in conjunction with the above-mentioned process.

3. Oversight of Efforts to Address Spent Fuel

(1) Oversight of Efforts to Remove Fuel From Unit 1

At the 78th Oversight and Review Meeting (February 17, 2020), TEPCO proposed a procedure for removal of spent fuel from Unit 1 spent fuel pool by installing a large cover to enclose the entire Unit 1 reactor building, removing collapsed roofs and other large debris (such as overhead cranes left on operating floors of the reactor building) scattering on the operating floor and installing fuel handling equipment and ancillary devices to remove fuel.

On October 27, 2022, the NRA approved the application (received on August 23, 2021) for approval of changes to the Implementation Plan for the installation of ancillary facilities of large covers. With regard to the application for approval of changes to the Implementation Plan for the installation of the large covers (received on June 24, 2021), the seismic design classification was appropriately set in light of the requirements for the 1F Seismic Requirement, and the NRA approved it on March 23, 2023 because it was confirmed that the design is sufficiently strong enough to withstand the seismic forces applicable to this category and that appropriate measures are taken to ensure the integrity of the exterior walls, which are the support portion of the large cover.

(2) Oversight of Efforts to Remove Fuel from Unit 2

At the 76th Oversight and Review Meeting (November 18, 2019), TEPCO suggested a method for removing fuel from the spent fuel pool of Unit 2 through an opening with a gantry built on the south side outer wall of the reactor building as the dose was still high in the Unit 2 reactor building. The NRA approved the application for approval of change in the Implementation Plan for the establishment of the yard (received on December 25, 2020) on April 22, 2022.

In addition, the NRA approved, on April 22, 2022, the application for approval of modification of the Implementation Plan for the installation of fuel handling facilities to remove fuel from the spent fuel pool of Unit 2 (received on March 22, 2022). For the installation of fuel handling equipment, it is underway to remove obstructions in the operating floor of Unit 2 at the reactor building and to install a fuel removal platform, and the NRA will continue to monitor the progress of these works.

In order to verify the aging deterioration trend of the Unit 2 of the reactor building, seismographs were installed on the outdoor floor of the first floor and on the exterior wall of the fifth floor of the building (for details, see 5. (2)).

(3) Oversight of Efforts to Remove Fuel from Unit 6

TEPCO started removing spent fuel from Unit 6 on August 30, 2022, which is scheduled to be completed between FY2022 and FY2024. Since it is necessary to secure free capacity of the common pool in order to proceed with the removal of spent fuel from the Unit 6, the spent fuel stored in the common pool is sequentially stored in dry casks, and the casks are transported to the temporary storage facility for storage. However, in May of 2022, when the spent fuel was stored in the dry casks, there occurred an event in which the airtightness of the cask lids could not be sufficiently secured. Therefore, TEPCO is considering adding a procedure to ensure the airtightness of the lid to the work procedures when the spent fuel is stored in the dry casks. TEPCO has stated that the addition of this procedure may delay the completion of the spent fuel removal from Unit 6 from the scheduled date, and is recalculating the completion date as well as when to start removing the spent fuel from Unit 5, which will be done after the completion of the project.

The NRA will continue to confirm the progress of the spent fuel removal from Unit 6 and the impact on the process related to that from Unit 5.

4. Oversight of Efforts to Address Solid Radioactive Material

(1) Oversight of Efforts to Install ALPS Slurry Stabilization Treatment Equipment

Muddy sediment generated in the ALPS pretreatment facility (hereinafter referred to as the “ALPS slurry”) is stored in a high integrity container of polyethylene (HIC), but there are concerns about degradation of the HIC due to beta-rays along with overflow of the supernatant liquid due to expansion of the slurry by the hydrogen generated by the radiolysis of water. Because of this, TEPCO is considering a stabilization treatment facility to dehydrate and solidify the ALPS slurry as soon as possible and to store the ALPS slurry in a more stable condition, and the NRA received an application for approval of changes to the Implementation Plan on January 7, 2021. The Secretariat of the NRA

pointed out (1) that TEPCO's original design for the filter press machine that dehydrates the ALPS slurry was insufficient to maintain the confinement function, prevent dust dispersion and protect workers from radiation exposure, and (2) that the concept of seismic class classification was different. However, TEPCO did not respond adequately to the points raised, and discussions stalled for a time. Therefore, at the 102nd Committee on Oversight and Evaluation (September 12, 2022), the Secretariat of the NRA requested specific measures such as placing filter presses in cells or glove boxes from the viewpoints of maintaining confinement function, preventing dust dispersion, and protecting workers from being exposed to radiation and received a response from TEPCO that it would make the filter presses smaller and install them inside the glove box at the 103rd Committee on Oversight and Evaluation (October 26, 2022). In addition, because there was a discrepancy with TEPCO regarding the seismic resistance classifications in the seismic resistance requirements of September in 2021, the 1F Seismic Requirement was submitted to TEPCO after reorganizing the said requirements. Since there was generally common understanding, it was requested that seismic classifications be made based on the 1F Seismic Requirement henceforth.

Besides, the relocation of 45 ALPS slurries stored in HIC, where there is concern about maintaining integrity because the accumulated absorbed dose exceeds or is likely to exceed 5,000 kGy, was completed as scheduled by the end of FY2022. TEPCO has also stated that the transfer of ALPS slurries stored in HIC, which may exceed 5,000 kGy, will be completed by the end of FY2023, and the NRA will continuously confirm the progress of this work.

(2) Oversight of Efforts to Investigate Inside Unit 1 Containment Vessel

The NRA approved the application (received on July 25, 2018) to approve change in the Implementation Plan on March 1, 2019 in order to conduct an internal survey of the primary containment vessel for understanding the distribution of the fuel debris, the condition of the existing structure and other factors for the purpose of removing the fuel debris still remaining in the primary containment vessel. Since then, the NRA has been monitoring efforts to drill through the X2 penetration and build a route for the survey equipment to place it into the primary containment vessel.

In FY2022, TEPCO reported the contents of the investigation on the inside of the primary containment vessel of Unit 1, which started from February 8 to May in 2022, at the 100th Committee on Oversight and Evaluation (June 20, 2022). Based on reports that the concrete near the opening of the pedestal (the foundation supporting the reactor body) inside the primary containment vessel had melted and the rebar was exposed, the NRA requested TEPCO to proceed with a study on the transition to negative pressure management in the primary containment vessel because there is a possibility that radioactive dust may be dispersed if the damaged part of the primaey containment vessel is enlarged. Furthermore, in light of the fact that high concentrations of hydrogen and oxygen were found to have accumulated in the piping of the Unit 1's RCW (reactor auxiliary cooling system) in November 2022, the NRA asked TEPCO to consider a policy on how to maintain the containment function in the primary containment vessel, including measures to deal with hydrogen at the 106th Committee on Oversight and Evaluation (March 20, 2023).

(3) Monitoring of Efforts to Start Operation of Analysis Building 1 and to Establish Analysis System

The properties of rubble and secondary waste produced by water treatment from the decommissioning work at the Fukushima Daiichi NPS must be clarified to determine treatment and disposal methods and their safety. TEPCO constructed Analysis and Research Facility Laboratory-1 within its power plant site to determine the properties of these wastes. Regarding the commencement of operation of said facility, which had been delayed due to insufficient airflow from the ventilation and air-conditioning system, the NRA approved the application submitted by TEPCO for approval of changes to the Implementation Plan (received on February 1, 2022) on April 20, 2022, after reviewing the required wind capacity, and the operation started on October 1, 2022.

In order to steadily proceed with the decommissioning of TEPCO's Fukushima Daiichi NPS, in addition to the analysis and measurement of liquids and other substances collected on a daily basis, it is important to analyze the properties of high-dose wastes and to conduct analysis with improved detection performance for ALPS-Treated Water and the like. However, even at this point, the analysis to determine the type and amount of radioactive materials is still insufficient. The NRA requests that TEPCO should make its utmost efforts to secure an analysis system in order to resolve issues such as (1) the increase in the types and quantities of samples that need to be analyzed, including those arising from the building demolition expected in the future, and (2) the lack of analysis to promote studies on the stabilization treatment and long-term storage of radioactive waste. At the same time, in order to make these efforts steady, at the 102nd Committee on Oversight and Evaluation (September 12, 2022), the NRA stated that TEPCO should study the resolution of the above-mentioned issues and present the status of the study in the future to the Agency for Natural Resources and Energy.

5. Oversight of Efforts to Address External Events

(1) Oversight of Efforts to Improve Earthquake Resistance

The NRA approved the seismic resistance requirements of September in 2021 at the 30th FY2021 NRA Commission Meeting (September 8, 2021), and the subsequent review of the Implementation Plan was carried out in accordance with the requirements, however, there were different views with TEPCO on the scope to consider for realistic mitigation measures in setting the seismic classifications for new facilities and equipment, and this was beginning to affect risk reduction activities, for example, by prolonging the review process. Therefore, the seismic resistance requirements of September in 2021 were reorganized, and realistic mitigation measures that were to be considered after setting the seismic resistance class can now be considered before setting it. In addition, at the 103rd Committee on Oversight and Evaluation (October 26, 2022), the NRA discussed with TEPCO the requirements for the seismic resistance of 1F, which reflect the evaluation of the impact of the ground motion of the Earthquake Centered Off the Coast of Fukushima Prefecture on March 16 in 2021 on facilities and equipment of B+ class. As a result, a common understanding was generally obtained, and this was approved at the 51st FY2022 NRA Commission Meeting (November 16, 2022). The NRA requested that TEPCO should adopt the 1F seismic requirements to design new facilities and equipment

in the future.

(2) Monitoring Efforts to Install Seismographs for Units 1 and 2

TEPCO is to install seismographs in the reactor buildings of Units 1 and 2, and confirm the integrity of the buildings by analyzing and evaluating the data obtained. For Unit 2, the seismographs were installed by March, 2022 on the outdoor floor at the same height as the first floor of the reactor building as well as on the exterior wall at the same height as the operating floor on the fifth floor of the reactor building. For Unit 1, the seismographs were installed on the first floor of the reactor building on March 26, 2023. TEPCO is considering installing seismometers in the upper levels of the buildings in the future, and the NRA will continue to confirm the status of their installation.

6. Oversight of Efforts to Address Important Points for Moving forward with Decommissioning Work

(1) Oversight of Efforts to Discharge ALPS-Treated Water into the Sea

At the 5th Inter-Ministerial Council for Contaminated Water, Treated Water and Decommissioning Issues (April 13, 2021), the NRA reviewed in an open meeting about an application for approval of changes to the implementation plan for installation and other measures for facilities related to offshore discharge of ALPS-Treated Water (received on December 21, 2021) in light of the decision of the "Basic Policy on Handling of ALPS-Treated Water at the Tokyo Electric Power Company Holdings' Fukushima Daiichi NPS" (hereinafter referred to as the "Government Policy"), and after soliciting scientific and technical opinions, the application was approved on July 22, 2022. The results of the review were also explained and questioned through visits to local municipalities and other entities that requested them.

With regard to the application for approval of modification of the Implementation Plan for Operational Measures of ALPS Treated Water Discharge (received on November 14, 2022), there have been five public meetings for reviewing, and the review draft was compiled at the 75th FY2022 NRA Commission Meeting (February 22nd, 2023).

From January 16 to 20 in 2023, the second IAEA regulatory review regarding the discharge of ALPS-Treated Water into the ocean was conducted (for details, see Chapter 1, Section 2).

(2) Monitoring of Efforts to Ensure Proper Waste Management

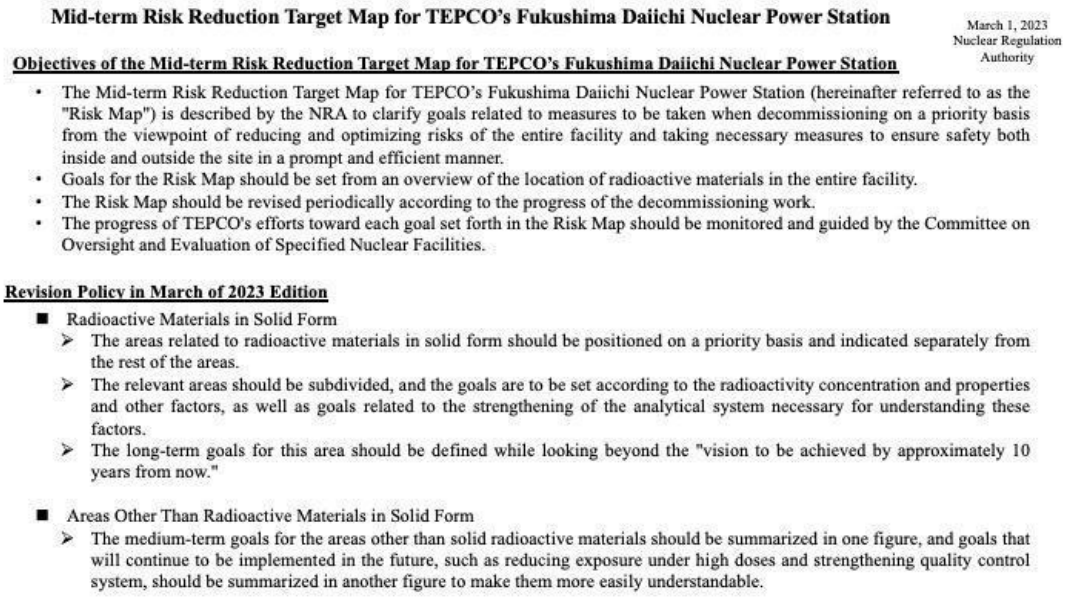
TEPCO plans to shift all radioactive waste stored outdoors at TEPCO's Fukushima Daiichi NPS into indoor storage by FY2028. Although large waste storage and other facilities are being installed, the review process for the application for approval of changes to the Implementation Plan has been protracted due to insufficient explanations regarding the concept of classification of seismic resistance and the evaluation of seismic resistance. The NRA continued to request answers from TEPCO on the issues under the review, and called for more rapid responses to the review.

In addition, the NRA reviewed the application for approval of changes to the implementation plan related to the establishment of an additional temporary waste storage site (received on October 20, 2022) to resolve the temporary storage area at an early date, which had been pointed out to TEPCO at the Committee on Oversight and Evaluation

and other meetings in FY 2021, and approved the application on March 7, 2023. It was confirmed that the temporary storage sites were appropriately minimized, for example, by expanding the temporary waste storage sites in accordance with the approved Implementation Plan.

7. Revision of the Measures for Mid-term Risk Reduction

For the purpose of indicating targets for decommissioning of TEPCO's Fukushima Daiichi NPS, the NRA established the "Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station" (hereinafter referred to as the "Risk Map") on February 18, 2015, and continuously revises the Risk Map according to the progress of decommissioning work. On one hand, there are items where steady progress is being made, but on the other hand, there are many items that are expected to be delayed from the target, such as solid radioactive materials, thus, at the 59th FY2022 NRA Commission Meeting (December 21, 2022), the Secretariat of the NRA reported factors and issues on those items that are likely to be delayed from the target in conjunction with solutions for these issues. Based on the above, at the 67th FY2022 NRA Commission Meeting (February 1, 2023), it was discussed that the draft revision of the Risk Map should be revised to place priority on solid radioactive materials, and the Meeting accepted the interview for the Committee on Oversight and Evaluation. After the acceptance by the NRA, the interview about the said draft revision was given at the 105th Committee on Oversight and Evaluation (February 20, 2023). In light of those procedures, the 78th FY2022 NRA Commission Meeting (March 1, 2023) approved the revision of the Risk Map (Figures 4-1 to 4-7).



Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station

March 1, 2023
Nuclear Regulation Authority

Objectives of the Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station

- The Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station (hereinafter referred to as the "Risk Map") is described by the NRA to clarify goals related to measures to be taken when decommissioning on a priority basis from the viewpoint of reducing and optimizing risks of the entire facility and taking necessary measures to ensure safety both inside and outside the site in a prompt and efficient manner.
- Goals for the Risk Map should be set from an overview of the location of radioactive materials in the entire facility.
- The Risk Map should be revised periodically according to the progress of the decommissioning work.
- The progress of TEPCO's efforts toward each goal set forth in the Risk Map should be monitored and guided by the Committee on Oversight and Evaluation of Specified Nuclear Facilities.

Revision Policy in March of 2023 Edition

- Radioactive Materials in Solid Form
  - The areas related to radioactive materials in solid form should be positioned on a priority basis and indicated separately from the rest of the areas.
  - The relevant areas should be subdivided, and the goals are to be set according to the radioactivity concentration and properties and other factors, as well as goals related to the strengthening of the analytical system necessary for understanding these factors.
  - The long-term goals for this area should be defined while looking beyond the "vision to be achieved by approximately 10 years from now."
- Areas Other Than Radioactive Materials in Solid Form
  - The medium-term goals for the areas other than solid radioactive materials should be summarized in one figure, and goals that will continue to be implemented in the future, such as reducing exposure under high doses and strengthening quality control system, should be summarized in another figure to make them more easily understandable.

Figure 4-1: Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station (March, 2023 edition)

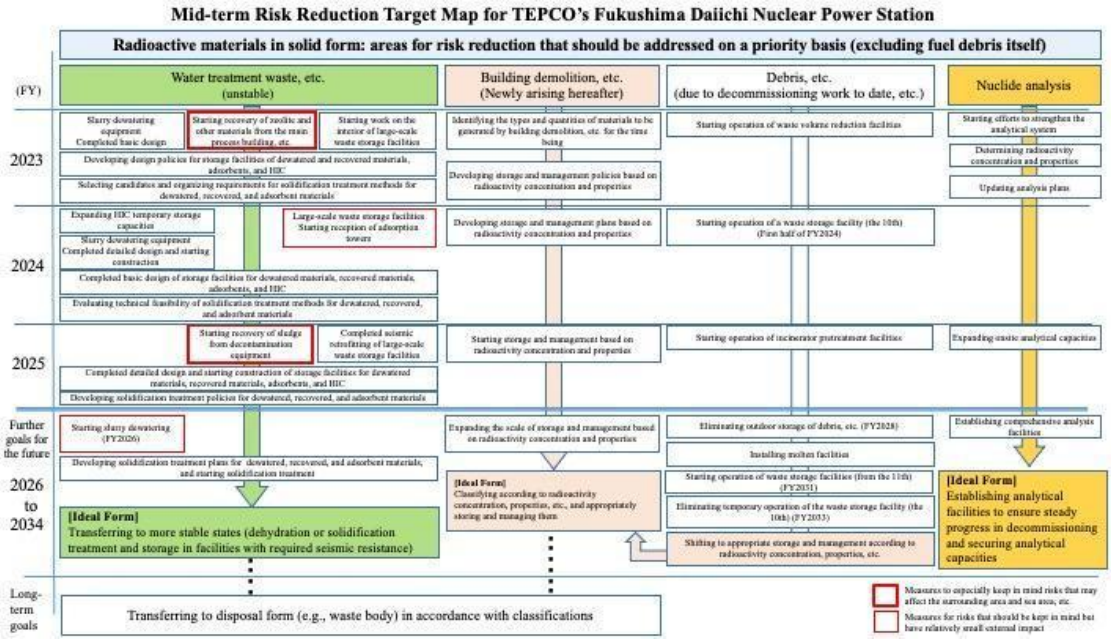


Figure 4-2: Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station (March, 2023 edition) Radioactive material in solid form

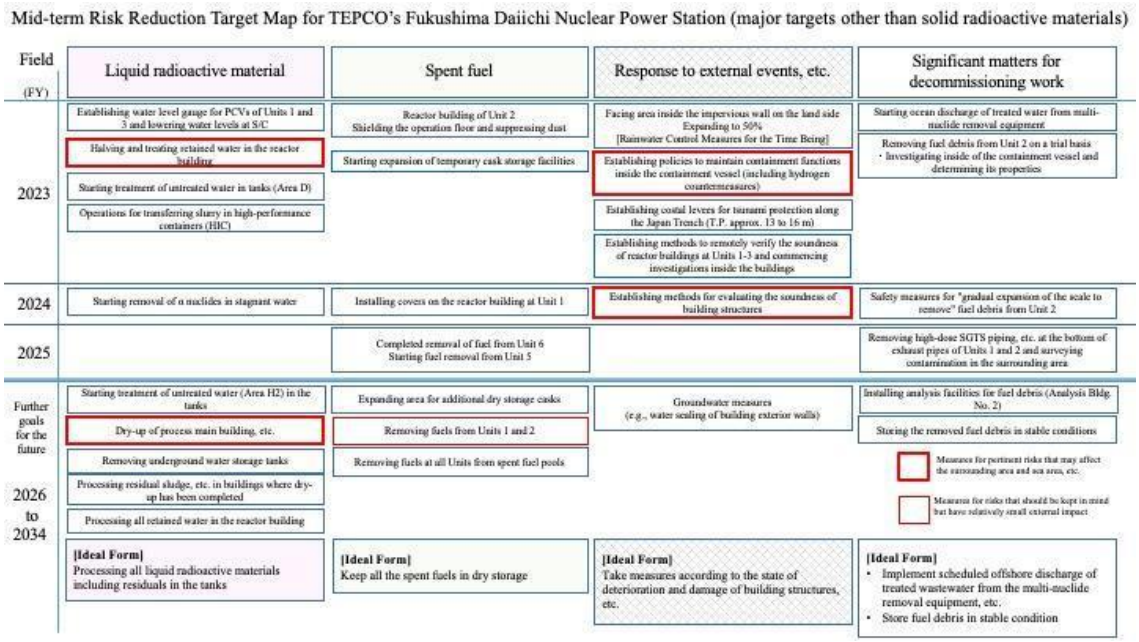


Figure 4-3: Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station (March, 2023 edition) Main goals targeting other than radioactive materials in solid form

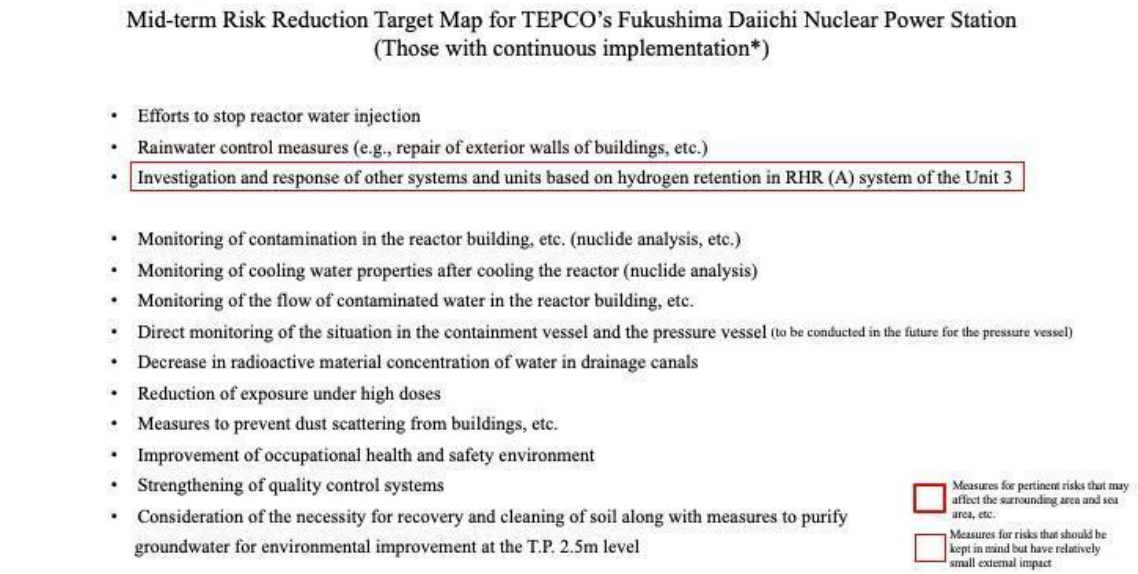


Figure 4-4: Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station (March, 2023 edition) Those with ongoing implementation

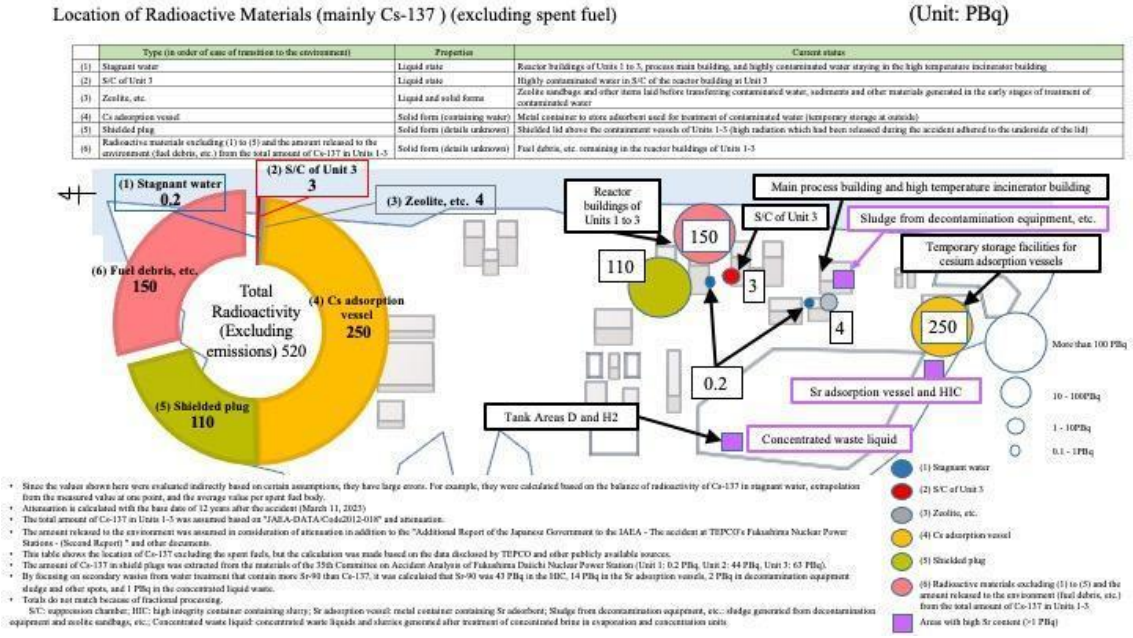


Figure 4-5: Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station (March, 2023 edition) Location of radioactive materials (mainly Cs-137, excluding spent fuel)

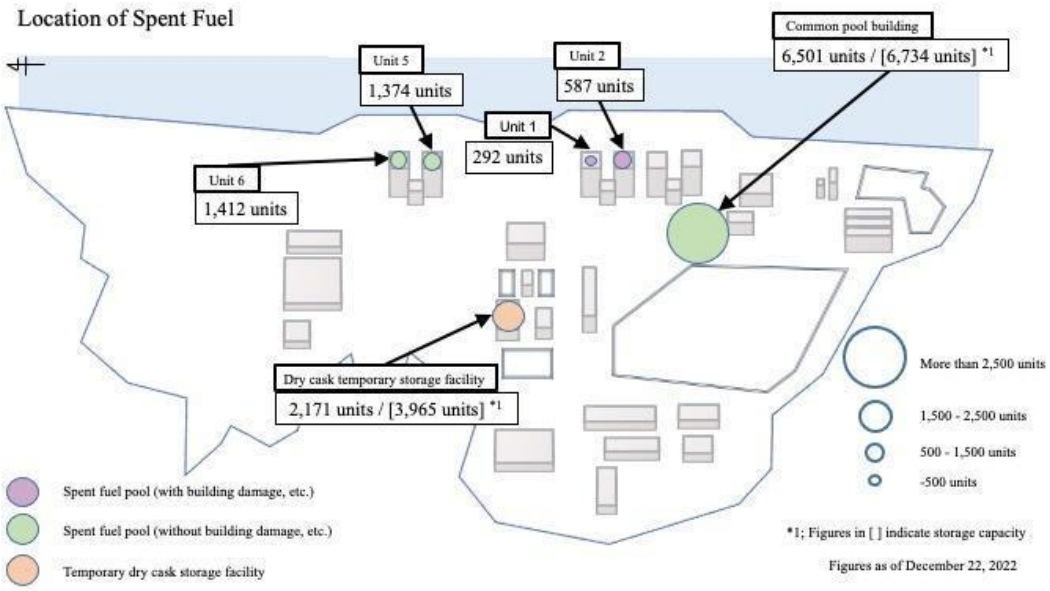


Figure 4-6: Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station (March, 2023 edition) Location of spent fuel

List of Major Inventory (Cs-137)

Existing in Buildings or Adsorption Vessels

Location	Inventory (PBq)
(1) Stagnant water	0.2
(2) S/C of Unit 3	3
(3) Zeolite, etc.	4
(4) Cs adsorption vessel	250
(5) Shielded plug	110
Radioactive materials excluding (1) to (5) and the amount released to the environment (fuel debris, etc.) from the total amount of Cs-137 in Units 1-3	150
Amount released into the environment (atmosphere and ocean) during a several week period after the accident	14
Total amount of Cs-137 in Units 1-3	520

Spent Fuel

Location	Inventory (PBq)
Spent fuel pool at Unit 1	120
Spent fuel pool at Unit 2	340
Spent fuel pool at Unit 3	0
Spent fuel pool at Unit 4	0
Spent fuel pool at Unit 5	730
Spent fuel pool at Unit 6	750
Common pool	3,500
Dry storage casks	1,100
Total amount	6,540

As of December 22, 2022

- Red boxes indicate high priority items which should be addressed.
- Since the values shown here were evaluated indirectly based on certain assumptions, they have large errors. For example, they were calculated based on the balance of radioactivity of Cs-137 in stagnant water, extrapolation from the measured value at one point, and the average value per spent fuel body.
- Figures at the S/C were listed only for Unit 3, for which analytical results were available.
- Totals do not match because of fractional processing.

Figure 4-7: Mid-term Risk Reduction Target Map for TEPCO's Fukushima Daiichi Nuclear Power Station (March, 2023 edition) List of major inventories (Cs-137)

8. Identification of Causes of Trouble at TEPCO's Fukushima Daiichi NPS and Confirmation of Measures to Prevent Their Recurrence

(1) Incident under Obligation to Report Concerning TEPCO's Fukushima Daiichi NPS

The NRA received reports from TEPCO concerning: (1) one incident under obligation to report coming from the fact that contaminated nuclear fuel materials in the temporary

storage area of W2 had leaked in the controlled area on March 25, 2021 (hereinafter referred to as a "reportable incident in Area W2"), and (2) the other incident under obligation to report arising from the fact that contaminated nuclear fuel materials in the temporary storage area of P had leaked outside of the controlled area on July 19, 2021 (hereinafter referred to as a "reportable incident in Area P"). The reports covered causes and countermeasures against those incidents and were submitted to the NRA as for the reportable incident in Area W2, on September 2021 (partially amended on February 22 and March 18, 2022), and as for the reportable incident in Area P, on February 22, 2022 (partially amended on March 18, 2022). TEPCO has stated that for the reportable incident in Area W2, it will check the contents in the containers and, in principle, drain the containers if they contain water. It also plans to prevent the recurrence of such an incident in the future by operating a system in which the construction supervisor takes photos of containers and the solid waste group checks the photos to prevent debris containing water and other materials from being stored in the containers. For the reportable incident in Area P, TEPCO is to prevent recurrence by nurturing the notch tanks with weatherproof sheeting to prevent rainwater from intruding into the tanks due to corrosion. The NRA confirmed that the above measures to prevent recurrence were properly implemented. TEPCO stated that it will prevent any recurrence of the reportable incident in Area P by visually checking for the presence of water through opening the lid of the notch tanks and by draining the tank if there is any water found. The NRA will continuously confirm the status of this measure.

Also, in FY2022, there were no new incidents under obligation to report related to TEPCO's Fukushima Daiichi NPS.

Section 2 Analysis of Accidents

1. Continuous Analysis of Accidents

Accident analysis is one of the important jurisdictions of the NRA which carries out investigations and analyses from a technological viewpoint.

The NRA decided on the implementation policy and system for supplemental investigation and analysis at the 28th FY2019 NRA Commission Meeting (September 11, 2019) based on the fact that the accessibility to the inside of the reactor building has enhanced due to the improvement of the environment at the site and the progress of decommissioning work, and that it has become possible to check the condition of the facility and collect samples. The "Committee on Accident Analysis of Fukushima Daiichi Nuclear Power Station" (hereinafter referred to as the "Accident Analysis Review Committee") is conducting research and analysis using the results of the on-site investigation, records and other sources at the time of the accident at TEPCO's Fukushima Daiichi NPS.

In FY2022, a total of 21 on-site investigations were conducted and the Accident Analysis Review Committee was held 8 times to discuss the state of damage inside the primary containment vessel of Unit 1, based on the information obtained from the on-site investigations. The results of the discussions were compiled into the "Interim Report on the Investigation and Analysis of the Accident at TEPCO's Fukushima Daiichi NPS (2023 version)" at the 36th Accident Analysis Review Committee (March 7, 2023), and

approved at the 84th FY2022 NRA Commission Meeting (March 29, 2023). The interim report summarizes the status of the following issues, which are being examined and discussed jointly with universities and research institutions: (1) to partially identify the migration mechanism and release pathway of Cs-137 at the time of the accident from the distribution of Cs-137 contamination in the reactor buildings of Units 2 and 3 identified in the "Interim Report on the Investigation and Analysis of the Accident at TEPCO's Fukushima Daiichi NPS," which was compiled in March 2021, and (2) the fact that the concrete was damaged by fuel debris with high temperature and other factors and that only the reinforcing steel bars remained, which was newly identified from observations of damage state on the inner wall of the pedestal according to the inside investigation of the nuclear reactor containment vessel of Unit 1.

In addition, at the 83rd FY2022 NRA Commission Meeting (March 22, 2023), the Commissioners discussed how to proceed with the investigation and analysis of the accident at TEPCO's Fukushima Daiichi NPS, and the 84th FY2022 NRA Commission Meeting (March 29, 2023) approved it.

In addition, in order to ensure consistency between the accident analysis and the decommissioning work, the "Decommissioning and Accident Investigation Liaison and Coordination Meeting" was held twice with the participation of the Agency for Natural Resources and Energy, the Nuclear Damage Compensation and Decommissioning Facilitation Corporation, TEPCO and the Secretariat of the NRA.

2. Efforts to Transmit Information About Analysis of TEPCO's Fukushima Daiichi NPS Accident

The NRA disseminates information on the accident analysis both domestically and internationally. The NRA actively participated in international conferences held by the Nuclear Regulatory Commission (NRC), the IAEA-INSAG Forum, and other overseas organizations to disseminate information on the status of accident analysis. The NRA disseminated information on its past investigations and studies to the participants from Japan and abroad at the International Regulators' Meeting on Regulatory Activities, which was held from November 27 to 29, 2022, to discuss regulatory activities 10 years after the accident at TEPCO's Fukushima Daiichi NPS.

With regard to the investigation of the accident at the TEPCO's Fukushima Daiichi NPS, the NRA has been taking part in the PreADES[40] and ARC-F of OECD/NEA and other projects, but the FACE project has been newly launched since FY2022. This project was chaired by the NRA, and discussions were held with 13 participating countries and 1 region regarding future activity plans.

Section 3 Implementation of Radiation Monitoring

1. Implementation of Radiation Monitoring of Land and Sea Areas in Response to TEPCO's Fukushima Daiichi NPS Accident

The NRA engaged in post-accident radiation monitoring of TEPCO's Fukushima Daiichi NPS according to the Comprehensive Radiation Monitoring Plan (established at

[40] Preparatory Study of Analysis of Fuel Debris: This is a preparatory project for the removal of fuel debris from TEPCO's Fukushima Daiichi NPS, and aims to study and analyze the fuel debris in order to share the information internationally.

the Monitoring Coordination Meeting on August 2, 2011 and revised on March 16, 2023) including general environmental monitoring throughout Fukushima Prefecture and monitoring of the waters around TEPCO's Fukushima Daiichi NPS and of Tokyo Bay, and released the analysis results every quarter of the fiscal year on the NRA website. The NRA is also monitoring details of difficult-to-return zones and released the results on the NRA website.

(1) Long-term Perspective on the Distribution of Radioactive Materials in Fukushima and Neighboring Prefectures

Air-borne monitoring was conducted in Fukushima Prefecture and neighboring prefectures, and a distribution map of air dose rates in Fukushima Prefecture and neighboring prefectures was published on March 10, 2023. It also released the results of surveys on the distribution status of air dose rates by driving surveys, radioactive cesium deposition in soil in Fukushima and neighboring prefectures and other matters on the NRA website on November 18, 2022.

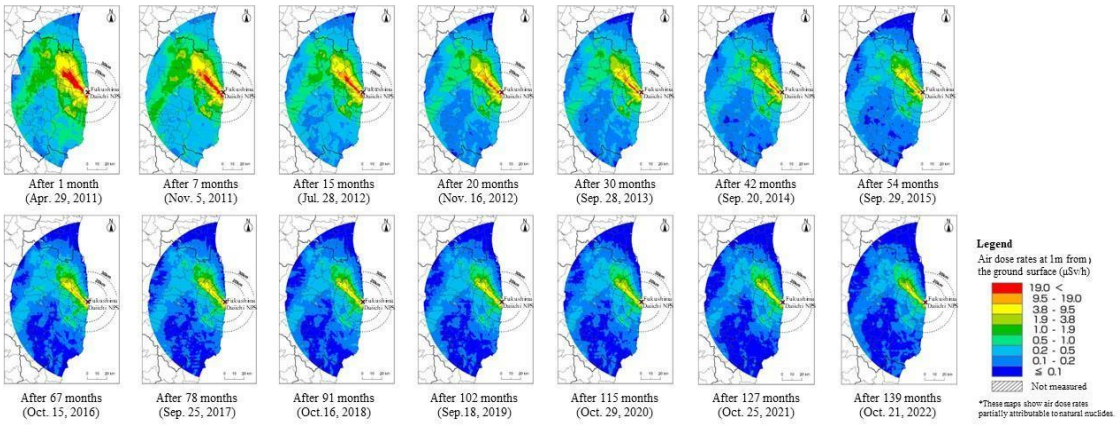


Figure 3-1: Changes in Air Dose Rate Distribution Map Within 80 km Zone

(2) Measuring Air Dose Rates in Fukushima and Neighboring Prefectures through Monitoring Posts

At the request of local governments, the air dose rates are measured continuously with about 700 units of Monitoring Posts and about 3,000 units of Real-time Dose Measuring Systems installed at public locations, such as schools in Fukushima and its neighboring prefectures. The results are released on the NRA website in real time.

(3) Monitoring Sea Area

Based on the "Comprehensive Radiation Monitoring Plan," the relevant organizations are cooperating to conduct monitoring of the sea area. The NRA collects seawater and sediment from nearshore, coastal, offshore, and open sea of TEPCO's Fukushima Daiichi NPS and from Tokyo Bay, analyzes the radioactivity in those samples, and releases the results on the NRA website.

Based on the Government Policy decided on April 13, 2021, the government and TEPCO were to strengthen and enhance monitoring before and after the discharge of ALPS -treated water. In this case, it was decided that they should ensure reliability of

analytical capabilities as part of a joint project with the IAEA, for instance, by laboratory comparison of the monitoring results. In response to this, the NRA started monitoring from FY2022 to understand the situation in the sea area before discharging the ALPS - treated water to the sea. Also, the NRA proceeded with the study on the monitoring of ALPS - treated water after its discharge in cooperation with related ministries and agencies, and revised the “Comprehensive Radiation Monitoring Plan” on March 16, 2023.

Since FY 2014, joint collection of samples in the vicinity of TEPCO’s Fukushima Daiichi NPS and inter-laboratory comparison of analysis results have been conducted annually as part of a joint project with the IAEA. In FY2022, as part of the IAEA review of safety related aspects of the handling of ALPS -treated water stored at TEPCO’s Fukushima Daiichi NPS, the NRA also conducted an inter-laboratory comparison to corroborate the results of monitoring in the Japanese sea area. From November 7 to 14 in 2022, experts from analytical laboratories in Finland and the Republic of Korea, which are members of ALMERA, visited Japan in addition to the IAEA to confirm the status of sample collection and other activities.

Chapter 5 Implementation of Effective Radiation Protection Measures and Emergency Response

○ **Summary of Chapter 5**

(Promotion of Radiation Protection Measures)

At the Radiation Council, follow-up activities were conducted regarding the reassessment of the equivalent dose limit for the lens of the eye. The implementation status and progress of the adoption of the ICRP 2007 recommendation into domestic regulations were reviewed, and future response strategies were deliberated. Additionally, discussions progressed on radiation protection measures concerning natural radioactive nuclides in rocks and other materials.

(Implementation and Continuous Improvement of Regulations Under the Radioisotope Regulation Act)

The NRA reviewed applications for permission and approval, and inspected operators regarding the use, sale, lease, waste management and other handling of radioisotopes, use of radiation generators, disposal of radioactively contaminated objects and other handling based on the Radioisotope Regulation Act.

In addition, the NRA revised the Enforcement Order of the Act on the Regulation of Radioisotopes, etc., (Cabinet Order No. 259 of 1960, hereinafter referred to as the "the Enforcement Order of the Radioisotope Regulation Act") and established a public notice to resolve the double regulations under the Medical Care Act and the Radioisotope Regulation Act, particularly for unapproved radio pharmaceuticals used in specific clinical researches. Furthermore, the NRA developed a guideline for reviews and a guideline for on-site inspection under the Radioisotope Regulation Act.

(Continuous Improvement of the NRA Guide for Emergency Preparedness and Response)

On July 6, 2022, the NRA Guide for Emergency Preparedness and Response was revised to enhance radiation protection measures, etc. for emergency workers.

In addition, at the 41st FY2022 NRA Commission Meeting (September 28, 2022), approval was given to establish the "Radiation Survey and Simple Decontamination Manuals for Evacuees in Nuclear Emergency" in collaboration with the Secretariat of the NRA and the Cabinet Office. Furthermore, at the 73rd FY2022 NRA Commission Meeting (February 15, 2023), in line with the amendment of the NRA Guide for Emergency Preparedness and Response on April 6, 2022 (reflecting basic matters related to thyroid radiation dose monitoring), the NRA discussed and approved the draft of the "Implementation manual for thyroid exposure dose monitoring" created jointly by the Secretariat of the NRA and the Cabinet Office, and consented to conduct public opinions solicitation.

(Establishment and Operation of Crisis Management System)

Based on the lessons learned from the Nuclear Energy Disaster Prevention Drill conducted from February 10 to 12, 2022, and the alert level event caused by the Fukushima Offshore Earthquake on March 16, 2022, a review of the initial response system for information collection level events and alert level events was conducted. As a result, the "Initial Response Manual for Nuclear Disaster Countermeasures" was revised on December 16, 2022.

Furthermore, to enhance emergency response capabilities, tabletop training for

emergency response, involving decision-makers such as the NRA Chairman, Commissioners, and executives of the Secretariat of the NRA, was conducted. Additionally, participation in certain nuclear operator disaster prevention drills took place. Moreover, efforts were made in the implementation and evaluation of training, identification, and improvement of challenges identified during training, and strengthening of communication network facilities and systems.

To enhance the emergency response capabilities of operators, discussions were initiated with operators regarding the training approach. Initiatives included conducting peer reviews among nuclear operators using diverse accident scenarios, improving the effectiveness of emergency response organizations, and collaborating with administrative agencies to enhance disaster response. These efforts, including the use of evaluation criteria by the NRA, were operated as a trial starting from FY2022 nuclear operator disaster prevention training.

Moreover, the Secretariat of the NRA confirmed that institutions such as the National Institutes for Quantum and Radiological Science and Technology, designated as Core Advanced Radiation Emergency Medical Support Center and Advanced Radiation Emergency Medical Support Center, and institutions like Hirosaki University, designated as Advanced Radiation Emergency Medical Support Center and Nuclear Emergency Medical Support Center, continue to meet the roles and designated requirements to Medical Institutions of Nuclear Emergency Core Hospitals (approved by the NRA on April 6, 2022). This confirmation was endorsed at the 41st FY2022 NRA Commission Meeting (September 28, 2022). Additionally, in furtherance of strengthening the nuclear emergency medical system, the NRA decided, at the 81st FY2021 NRA Commission Meeting (March 8, 2022), to designate Fukui University as an Advanced Radiation Emergency Medical Support Center starting from April 1, 2023.

(Conducting Radiation Monitoring)

The NRA publishes monitoring information on a routine basis using the "Radiation Monitoring Information Sharing and Publication System (RAMIS)" aimed at aggregating results of emergency monitoring in the event of a nuclear emergency, sharing them among the parties concerned, and disclosing relevant information promptly. It also continuously measures environmental radiation dose nationwide and publishes results on its website.

Technical considerations related to radiation monitoring are actively discussed, leading to the establishment of Series of Environmental Radioactivity Measuring Method No.36, titled "Measurement of Radioactive Substances in the Atmosphere," on June 22, 2022.

Section 1 Promotion of Radiation Protection Measures

1. Investigation and Deliberation by the Radiation Council

The NRA has established the Radiation Council, based on the law (Law No. 162 of 1958) related to technical standards for prevention of radiation hazards. The purpose of the Radiation Council is to ensure uniformity in technical standards for prevention of radiation hazards.

The Radiation Council held three meetings, addressing issues highlighted in the report related to the review of the equivalent dose limit for the lens of the eye. It conducted follow-up discussions on the operation after amendments to regulations such as the Regulation on Prevention of Ionizing Radiation Hazards. The Council also received reports from the Secretariat of the NRA on international developments in radiation protection.

Furthermore, the Radiation Council discussed the incorporation of the ICRP 2007 recommendation into domestic regulations, reviewing progress and discussing future strategies. To consider the approach to radiation protection from naturally occurring radioactive materials in rocks, the Council received reports from external experts and the Secretariat of the NRA, discussing insights from both international and domestic perspectives.

Section 2 Implementation and Continuous Improvement of Regulations Related to the Radioisotope Regulation Act

1. Rigorous and Proper Implementation of the Radioisotope Regulation Act

To prevent radiation hazards due to the use of radioisotopes or radiation generators, and ensure public safety by protecting specific radioisotopes, the NRA regulates the use, sale, lease, waste management and other handling of radioisotopes, the use of radiation generators, disposal of radioactively contaminated objects, etc. based on the Radioisotope Regulation Act.

The implementation status of these regulations is as follows.

(1) Applications and Notifications

In FY2022, there were approximately 7,500 applications and notifications based on the Radioisotope Regulation Act.

The number of licenses granted for radiation protection supervisors in FY2022 were 540 for first-class, 248 for second-class, and 260 for third-class.

(2) Inspection

While taking preventive measures against the spread of COVID-19, the NRA carried out 90 inspections for radiation hazard protection and 137 inspections for security of specified radioisotopes in FY2022.

(3) Confirmation of Causes and Preventive Measures for Problems in Operator's Site

Based on the Act, operators have to report to the NRA when an incident under obligation to report occurs. The NRA conducts INES evaluation on events that occur at operator's sites.

In FY2022, the NRA responded to the two incidents under obligation to report that

occurred in FY2021 as below.

(a) Leakage of Radioisotopes in a Controlled Area at Oji F-Tex

On June 1, 2021, Oji F-Tex. reported a leakage of radioisotopes in the controlled area at Fuji Factory of Tokai Mill in Shizuoka Prefecture. At the 9th FY2022 NRA Commission Meeting (May 11, 2022), the NRA evaluated this incident as Level 0 (an incident with no safety significance).

(b) Leakage of Radioisotopes in a Controlled Area at Koa Kogyo

On January 28, 2022, Koa Kogyo. reported a leakage of radioisotopes in the controlled area at their head factory in Shizuoka Prefecture. The company provided a report on the causes and countermeasures on October 27, 2022. The report concluded that there is no impact on human health or the environment as a result of measuring the dose in the surroundings of the controlled area and assessments of the indoor radiation dose outside the controlled area and worker exposure dose. The report also said the leakage was caused mainly by the welding of the sealed source's retaining ring in the wrong way during its manufacturing. Additionally, the company decided to confirm that the retaining rings that have no shape differences for inside and outside, which are the recurrence prevention measures in the manufacturing company, are used in sealed sources to prevent recurrence.

In FY2022, five incidents under obligation to report were reported, which were all evaluated as not being likely to cause radiation hazards to any employees or the public.

These incidents under obligation to report in FY2022 are outlined as below.

(c) Loss of Radioisotopes at Japan Ministry of Defense's Air Self-Defense Force 6th Air Wing

On April 15, 2022, Japan Ministry of Defense's Air Self-Defense Force 6th Air Wing reported that the event was categorized as an incident under the obligation to report (the loss of radioisotopes) due to the fact that a part of the sealed source (Krypton-85) within the engine ignition device of the F-15 fighter jet that crashed off the coast of Komatsu City, Ishikawa Prefecture on January 31, 2022 has not been found.

On June 9, 2022, the Chief of Staff, Japan Air Self-Defense Force submitted the report regarding the cause and measures of this incident. In this report, the Chief of Staff concluded that there was no impact on human health and the environment, considering the following facts: a) the crashed site of the fighter jet is the ocean and therefore the sealed source is likely to be sunk in the ocean, b) even if the sealed container is damaged, the gaseous Krypton diffuses immediately, and c) the analysis on the exposure dose when the undamaged engine ignition device drifts ashore as well as the environmental assessment of the case that the gaseous Krypton diffuses.

(d) Leakage of Radioisotopes Outside the Controlled Area at Sekisui Medical

On August 5, 2022, Sekisui Medical reported a leak of radioisotopes (Tritium, Carbon-14) from the drain pipe beneath the floor of the facility at their Sekisui Medical Creative Laboratory in Ibaraki Prefecture. They conducted research on the ground around the damaged or fallen pipe and found that the radio isotopes were leaking. This incident was categorized as an incident under obligation to report (leakage outside the controlled area).

Investigations are ongoing, and preventive measures are under consideration within the company.

(e) Unplanned Exposure of Radiation Workers at WITHSOL

On October 16, 2022, WITHSOL. reported that the incident at their oil refinery in Ibaraki Prefecture was categorized as an incident under obligation to report (unplanned exposure). During non-destructive testing of pipes using a gamma-ray transmitting testing device containing a sealed source (Iridium-192, 370 giga becquerels), one of the two radiation workers conducting the testing received an unplanned exposure exceeding 5 millisieverts. On October 25, 2022, following the measurements by the measurement agency, the company confirmed that both workers had received unplanned exposure exceeding 5 millisieverts. The company is investigating the cause and considering preventive measures.

(f) Leakage of Radioisotopes Outside the Controlled Area at Tohoku Medical and Pharmaceutical University

On December 23, 2022, Tohoku Medical and Pharmaceutical University reported that the glass bottle of the wastewater containing radioisotopes (tritium) was found outside the controlled area at their Komatsushima Campus in Miyagi Prefecture. As a result of their investigation, it was discovered that there was a tritium leakage around where the glass bottle was found, and they concluded that this incident should be categorized as an incident under obligation to report (leakage outside the controlled area). The university is investigating the cause and considering preventive measures.

(g) Loss of Radioisotopes at Nippon Soda

On February 7, 2023, Nippon Soda. reported an incident at their Odawara Research Institute in Kanagawa Prefecture. During an inventory check of radioactive compounds stored in the Controlled Area, they were unable to confirm the presence of unsealed sources (Carbon-14). They reported this incident to be categorized as an incident under obligation to report (loss of radioisotopes). The company is currently investigating the cause and considering preventive measures.

2. Continuous Improvement of Regulation pertaining to the Radioisotope Regulation Act

(1) Amendment of Cabinet Order Regarding the Resolution of Double Regulations for Unapproved Radioactive Pharmaceuticals and Similar Items

In FY2019, an amendment to the Enforcement Regulations of the Medical Care Act (Ministry of Health, Labour and Welfare Order No. 50 of 1948) included unapproved radiopharmaceuticals[41], specifically those used in specific clinical researches, within the regulations for radiation protection under the Medical Care Act. Recognizing that these unapproved radiopharmaceuticals were regulated under both the Medical Care Act and the Radioisotope Regulation Act, efforts were made to eliminate this double regulation.

[41] It refers to radioactive pharmaceuticals that have not received approval for sale under the Pharmaceuticals, Medical Devices, and Other Therapeutic Products Act (Law No. 145 of 1960), which ensures the quality, efficacy, and safety of pharmaceuticals and medical devices.

In addition, the NRA amended Article 1 of the Enforcement Order of the Radioisotope Regulation Act to exclude certain items that are designated by the NRA public notice. This notice specifies the radiopharmaceuticals and medical devices that their use and other handling are equally regulated under the Medical Care Act, etc., compared to the Radioisotope Regulation Act, and the Enforcement Order of the Radioisotope Regulation Act was amended. The amended Cabinet Order was promulgated on November 11, 2022, after the decision at the 47th FY2021 NRA Commission Meeting for the petition to the Cabinet Office (October 26, 2021). The notice was decided at the 56th FY2021 NRA Commission Meeting (December 7, 2021) and promulgated on December 20, 2021. The amended Cabinet Order and notice will come into effect on January 1, 2023.

(2) Development of Guidelines for Reviews and Guidelines for On-site Inspections related to Regulations Based on the Radioisotope Regulation Act

In response to the gradual enforcement of the Radiation Regulation Act, which was amended in 2017, the NRA has been developing guidelines related to the Radioisotope Regulation Act that include references which the NRA uses when it assesses compliance with regulatory requirements stipulated in the Act.

Based on the policy approved by the NRA in FY2019, draft guidelines for review and on-site inspection related to the Radioisotope Regulation Act that provide references for reviews and on-site inspections and contribute to better foreseeability were deliberated upon in the 48th FY2022 NRA Commission Meeting (November 2, 2022) and were subsequently established in the 84th FY2022 NRA Commission Meeting (March 29, 2023) after public opinions were solicited.

(3) Response to The Action Plan for Promotion of Production and Utilization of Medical Radioisotopes

The Japan Atomic Energy Commission decided on May 31, 2022, to implement “The Action Plan for Promotion of Production and Utilization of Medical Radioisotopes” to achieve the domestic production of medical radioisotopes and important radioisotopes. This plan outlines a comprehensive approach throughout research and development using test research reactors and accelerators, practical application, and eventual dissemination. In response to this Action Plan, the NRA will improve the necessary regulation, based on the progress in the use of radioisotopes in the medical field and the deliberations of relevant ministries and agencies.

Section 3 Continual Improvement of the NRA Guide for Emergency Preparedness and Response

1. Revision of the NRA Guide for Emergency Preparedness and Response

Based on the Nuclear Emergency Act, the NRA has developed the NRA Guide for Emergency Preparedness and Response to ensure smooth implementation of nuclear emergency measures to be taken by nuclear operators, the national government, and local governments, etc. The Guide is to be continuously improved based on newly acquired knowledge, status of efforts by local governments and the results of nuclear emergency drills.

(1) Revision of the NRA Guide for Emergency Preparedness and Response Concerning Thyroid Exposure Dose Monitoring and Review of the Nuclear Emergency Medical System

Based on the considerations up to FY2021 regarding emergency thyroid exposure dose monitoring in the event of a nuclear disaster involving inhalation of radioactive iodine and facility requirements to medical institutions for nuclear emergency, the NRA Guide for Emergency Preparedness and Response was revised in the 1st FY2022 NRA Commission Meeting (April 6, 2022). The revision included a comprehensive amendment to the "Facility Requirements to Medical Institutions for Nuclear Emergency," renamed as "Roles and Designation Requirements to Medical Institutions for Nuclear Emergency," and was approved.

(2) Revision of the NRA Guide for Emergency Preparedness and Response to Enhance Radiation Protection Measures, etc. for Emergency Workers

In order to ensure the smooth implementation of nuclear disaster countermeasures, it is essential to take appropriate radiation protection measures for emergency workers supporting the implementation of protective measures for residents, as well as those radiation protection measures for residents. Not only to enhance radiation protection measures for emergency workers but also to reflect description of nuclear disaster countermeasures at TEPCO's Fukushima Daiichi NPS based on the review of the evacuation order area following the TEPCO's Fukushima Daiichi NPS accident, the NRA Guide for Emergency Preparedness and Response was revised during the 21st FY2022 NRA Commission Meeting (July 6, 2022).

(3) Establishment of the Radiation Survey and Simple Decontamination Manuals for Evacuees in Nuclear Emergency

In response to a request for review from the local government regarding the "Radiation Survey and Simple Decontamination Manuals for Evacuees in Nuclear Emergency," the structure and content of the manual were revised. Subsequently, it was approved for establishment by the Secretariat of the NRA and the Cabinet Office in the 41st FY2022 NRA Commission Meeting (September 28, 2022).

(4) Establishment of the Implementation manual for Thyroid Exposure Dose Monitoring

In consideration of the revision of the "NRA Guide for Emergency Preparedness and Response" on April 6, 2022, it has been decided to establish the "Implementation manual for thyroid exposure dose monitoring," outlining the procedures for thyroid exposure dose monitoring. The manual will be jointly formulated by the Secretariat of the NRA and the Cabinet Office. The NRA deliberated on the draft of the new manual during the 73rd FY2022 NRA Commission Meeting (February 15, 2023), and approved the implementation of a public consultation.

(5) Revision of Emergency Action Levels (EALs)

In light of the review of Emergency Action Levels (EAL) to assess whether nuclear operators fall under the classification of emergency situations, as reported in the 14th FY2022 NRA Commission Meeting (June 1, 2022), discussions have been held in a series of meetings titled "Meetings on Responses to the Review of Emergency Action Levels"

with focusing on the revision of EALs by taking into account the Special Facility for Severe Accident Management, and other relevant considerations. These meetings have been conducted a total of 4 times, providing a platform for the exchange of opinions on the revision of EALs involving nuclear operators and Special Facilities for Severe Accident Management. Based on the outcomes of these meetings, there are plans to proceed with the revision of relevant regulations and rules in the future.

Section 4 Establishment and Operation of Crisis Management System

1. Strengthening Emergency Response Capabilities

(1) Emergency Response

On October 21, 2022, at 15:19 local time, an earthquake occurred off the coast of Fukushima Prefecture. A seismic intensity of 5- was observed in Namie Town, which is a municipality where nuclear facilities are located. The NRA determined that this event constituted an information collection level event at 15:26 on the same day. Consequently, an information coordination office was established promptly. The NRA immediately collected information from operators regarding the status of facilities and radiation measurements in the surrounding environment. After confirming that there were no abnormalities, the NRA shared this information with relevant government agencies. Additionally, information was disseminated through the NRA's website and email communications. The information collection level event was concluded at 16:06 on the same day, and the information coordination office was deactivated.

Furthermore, in response to other incidents, such as the earthquake in Noto, Ishikawa Prefecture, on June 19, 2022, the eruption of Sakurajima on July 24, 2022, and the missile launched by North Korea on November 3, 2022, the NRA strengthened its information collection and coordination system. This allowed for a quick confirmation of the absence of abnormalities at nuclear facilities, and information was promptly shared with relevant government agencies. External communication of information was also conducted.

(2) Establishment of Manuals for Crisis Management Response

From February 10 to 12, 2022, the Nuclear Energy Disaster Prevention Drill was conducted. Taking lessons from events such as the Fukushima Offshore Earthquake that occurred on March 16, 2022, and other alert level events, the Nuclear Emergency Response Headquarters Secretariat and the Nuclear Emergency Response Headquarters played a proactive role in the revision of the "Nuclear Emergency Response Manual" (September 2, 2022). In this revision, the Prime Minister's Official Residence and the Cabinet Office Main Building were made available as decision-making locations. Based on the revision of the manual, a review of the initial response system for information collection level events and alert level events was conducted. On December 16, 2022, the "Initial Response Manual for Nuclear Disaster Measures" was revised.

To clarify the initial response in the event of disasters related to the overland transport of radioactive materials, a manual for transport accident response was developed. To confirm its effectiveness, training was conducted on June 22, 2022.

(3) Functional Enhancement in Disaster Preparedness Training

The NRA continues to enhance the capabilities of its staff involved in disaster

preparedness through various training exercises, aiming at improving disaster response capabilities and addressing challenges in the disaster management system.

In FY2022, to enhance emergency response capabilities, the NRA conducted tabletop exercises for emergency response, focusing on decision-makers such as the NRA Chairman, Commissioners, and the Secretariat of the NRA (3 times). Additionally, the Chairman of the NRA participated in certain operator disaster preparedness training.

Furthermore, training exercises connected to operator disaster preparedness were conducted to pursue smoother information sharing between the Secretariat of the NRA Emergency Response Center (ERC) Plant Team and the operator's Nuclear Facility Emergency Response Center. Two training sessions were held to confirm off-site response procedures based on scenarios and the flow of the day during operator disaster preparedness training. To verify communication with local governments in the vicinity of nuclear facilities using landlines and satellite communication, emergency communication drills were conducted 17 times. Activity training for the swift establishment and smooth operation of the emergency monitoring center was conducted 13 times. Additionally, to establish effective information sharing with operators in the event of a physical protection of nuclear material during an incident, drills related to physical protection of nuclear material were conducted 26 times.

Moreover, considering the challenges identified from participation in the Nuclear Energy Disaster Prevention Drill held from November 4 to 6, 2022, the NRA planned and implemented new tabletop exercises for off-site teams to maintain and improve coordination functions with the on-site team.

Furthermore, to enhance the effectiveness of service continuity plans in response to events like the Tokyo Inland Earthquakes, drills such as foot gathering exercises, communication exercises, headquarters establishment exercises, and alternative off-site center activation exercises were conducted to confirm equipment and functionality.

(4) Strengthening and Enhancement of Nuclear Emergency Medical System

Currently, the National Institutes for Quantum and Radiological Science and Technology, designated as the Advanced Radiation Emergency Medical Support Center and Core Advanced Radiation Emergency Medical Support Center, and institutions such as Hirosaki University, Fukushima Medical University, Hiroshima University, and Nagasaki University, designated as Nuclear Emergency Medical Support Center and Advanced Radiation Emergency Medical Support Center, have been confirmed by the NRA to continue meeting the roles and designation requirements outlined in the "Nuclear Emergency Core Hospital Roles and Designation Requirements" (approved on April 6, 2022). This confirmation was acknowledged during the 41st FY2022 NRA Commission Meeting (September 28, 2022).

Furthermore, for the further enhancement of the nuclear emergency medical system, the NRA decided in the 81st FY2022 NRA Commission Meeting (March 8, 2023), to designate Fukui University as an Advanced Radiation Emergency Medical Support Center starting from April 1, 2023.

Additionally, concerning the next medium to long-term goals of the Core Advanced Radiation Emergency Medical Support Center, the National Institutes for Quantum and Radiological Science and Technology, in light of the opinions of the National Institutes

for Quantum and Radiological Science and Technology Subcommittee of the Council for National Research and Development, the NRA approved the target proposal for the jointly managed portion during the 64th FY2021 NRA Commission Meeting (January 18, 2022). Following the guidance for the next medium to long-term goals, the NRA approved the next medium to long-term plan submitted by the National Institutes for Quantum and Radiological Science and Technology during the 81st FY2022 NRA Commission Meeting (March 8, 2023), and granted approval on March 29, 2023.

2. Strengthening Disaster Preparedness for Nuclear Operators

(1) Implementation and Continuous Improvement of Nuclear Operator Disaster Preparedness Training

The NRA has been holding the Debriefing Session of Emergency Drills by Nuclear Operators and evaluating drills conducted by nuclear operators since FY2013.

In the report meeting held on July 21, 2022, the evaluation results for nuclear operator disaster preparedness training were presented by the Secretariat of the NRA. For commercial power reactor facilities, improvements were acknowledged in the areas of "Information Sharing with ERC Plant Team" and "Utilization of Tools for Information Sharing" for operators where improvements were in progress, while other indicators showed that crisis response capabilities had been enhanced for many operators through their improvement efforts. Based on the evaluation over the past five years (FY2017 to FY2022), it was decided to continue monitoring the progress of improvement efforts for all operators.

Furthermore, nuclear operators have been implementing training based on scenarios developed during the working group meetings held under the debriefing sessions. In FY2022, training to improve the judgment abilities of commanders in the emergency response facilities of power plants and those to enhance on-site response capabilities were conducted based on the scenarios created in FY2020 and FY2021, respectively, at 8 nuclear power plants and 10 nuclear power plants. Additionally, considering the achievements of these trainings, the Scenario Development Working Group started planning for the scenarios in FY2023.

Starting from FY2021, the NRA initiated discussions with operators on the implementation of more effective training and the role of regulations. In these discussions, various accident scenarios leading to improved emergency response capabilities, collaboration with administrative agencies for effective disaster response, and peer reviews among nuclear operators using the evaluation indicators of the NRA were discussed. These discussions led to the trial implementation of these approaches in the nuclear operator disaster preparedness training in FY2022.

Regarding nuclear fuel facilities and other operators, the NRA confirmed the improvement of crisis response capabilities for the Japan Atomic Energy Agency and Japan Nuclear Fuel Limited through their improvement efforts. Monitoring will continue in the future to ensure that improvement efforts are well-established.

For other nuclear fuel facilities, measures were taken to address the identified problems and challenges to establish appropriate information sharing with the ERC Plant Team and to ensure that improvement efforts are well-established. In addition, for 11 out of 12 facilities classified as having relatively low risk (those falling under Category III of

the IAEA's hazard classification or those covered by Cooling Notification[42] for all nuclear facilities), two-part drills (Part 1: Training based on realistic scenarios, Part 2: Confirmation of responses in emergency response facilities and headquarters) were conducted. In FY2022, the NRA reported at the 14th FY2022 NRA Commission Meeting (June 1, 2022), that for nuclear facilities with relatively low risk, there was no risk of a nuclear emergency due to the characteristics of these facilities, and unnecessary EALs were not set. In response to this, the Secretariat of the NRA will verify that the nuclear operator's disaster preparedness operational plan for the corresponding facility has been revised and that the review of EALs has been appropriately conducted.

[42] Notification specifying facilities for the operation of a reactor, etc., where irradiated fuel assemblies have been adequately cooled for a sufficient period, based on the provisions of Table H and Table C of Article 7, Item 1, and Table H and Table C of Article 14 of the Regulations concerning Events to be Reported by the Nuclear Emergency Preparedness Manager under the Act on Special Measures Concerning Nuclear Emergency Preparedness.

Table 5-1: Results of Nuclear Operator Disaster Preparedness Training in FY2022 for Commercial Power Reactors

○ Record of Emergency Drills Held by Nuclear Operators at Commercial Power Reactors in FY2022

№	Implementation date	Place	
1	August 30, 2022	Kansai Electric Power Co., Inc	Takahama NPS
2	October 7, 2022	Tokyo Electric Power Company Holdings, Inc.	Fukushima Daiichi NPS
			Fukushima Daini NPS
3	October 25, 2022	Kyushu Electric Power Co., Inc	Sendai NPS
4	November 15, 2022	Chugoku Electric Power Co., Inc.	Shimane NPS
5	November 25, 2022	Tohoku Electric Power Co., Inc	Higashidori NPS
6	December 2, 2022	Japan Atomic Power Company	Tsuruga NPS
7	December 9, 2022	Shikoku Electric Power Co., Inc.	Ikata NPS
8	January 20, 2023	Kansai Electric Power Co., Inc	Ohi NPS
9	January 27, 2023	Hokkaido Electric Power Co., Inc.	Tomari NPS
10	January 31, 2023	Hokuriku Electric Power Co., Inc.	Shika NPS
11	February 3, 2023	Tokyo Electric Power Company Holdings, Inc.	Kashiwazaki-Kariwa NPS
12	February 10, 2023	Chubu Electric Power Co., Inc	Hamaoka NPS
13	February 17, 2023	Japan Atomic Power Company	Tokai Daini NPS
14	February 28, 2023	Kyushu Electric Power Co., Inc	Genkai NPS
15	March 3, 2023	Kansai Electric Power Co., Inc	Mihama NPS
16	March 7, 2023	Tohoku Electric Power Co., Inc	Onagawa NPS

○ Assessment Indices for Emergency Drills by Nuclear Operators at Commercial Power Reactors in FY2021

Category	№	Index
Information sharing / notification	1	Information flow for information sharing
	2	Information sharing with ERC plant team: (1) Status of the accident and plant, (2) forecast of progress and strategies for dealing with the accident, and (3) progress of the strategies
	3	Use of tools for information sharing, etc.: (1) Use of plant information display system (drills using ERSS or SPDS), (2) liaison activities, (3) use of COP, and (4) use of documents provided with ERC
	4	Ensuring reliable reporting and communication: (1) Accuracy of notification text, (2) explanation grounds for EAL judgment, (3) response of Article10 confirmation meeting, and (4) report on Article 25
Efforts to improve emergency drills by nuclear operators	5	Formulation of drill implementation plan based on issues in previous drills
	6	Diversification and difficulty of scenarios
	7	Implementation of on-site field training
	8	Public relations activities: (1) Press response linked with ERC public relations team, (2) participation of players from outside company such as reporters, (3) participation of players from outside company such as persons in charge of public relations at other nuclear operators, (4) holding mock press conferences, and (5) dissemination of information to the outside using information dissemination tools
	9	Logistical support activities: (1) Support activities among nuclear operators, (2) linkage with disaster response support centers of nuclear operators, and (3) linkage with nuclear emergency support organizations
	10	Site-visits and observations of drills: (1) Site-visits of other nuclear operators, (2) acceptance for inspections to operators' drills, (3) acceptance of peer review, and (4) inspection of on-site field training of other nuclear operators
	11	Self-assessment and analysis of drill results: (1) Identification of issues from problem points, (2) analysis of causes, and (3) countermeasures based on causal analysis results

Table 5-2: Results of Nuclear Operator Disaster Preparedness Training in FY2022 for Nuclear Fuel Cycle Facilities (excluding facilities subject to the 2-part training by Japan Atomic Energy Agency and Japan Nuclear Fuel Limited) training by Japan Atomic Energy Agency and Japan Nuclear Fuel Limited)

○ Record of Emergency Drills by Nuclear Operators at Nuclear Fuel Facilities (other than Japan Atomic Energy Agency and Japan Nuclear Fuel Ltd. (excluding facilities with two-part training programs)) in FY2022

№	Implementation date	Place	
1	December 13, 2022	Japan Nuclear Fuel Limited	Reprocessing facility
2	December 20, 2022	JAEA	Oarai Research and Development Institute
3	January 24, 2023	JAEA	Prototype Fast Breeder Reactor MONJU
4	February 21, 2023	JAEA	Nuclear Science Research Institute
			Nuclear Fuel Cycle Engineering Laboratories

○ Evaluation Indices of Emergency Drills by Nuclear Operators at Nuclear Fuel Facilities (other than Japan Atomic Energy Agency and Japan Nuclear Fuel Ltd. (excluding facilities with two-part training programs)) in FY2022

Category	№	Index
Information sharing / notification	1	Information flow for information sharing
	2	Information sharing with ERC plant team: (1) Status of the accident and plant, (2) forecast of progress and strategies for dealing with the accident, and (3) progress of the strategies
	3	Use of tools for information sharing, etc.: (1) Use of plant information display system (drills using ERSS or SPDS), (2) liaison activities, (3) use of COP, and (4) use of documents provided with ERC
	4	Ensuring reliable reporting and communication: (1) Accuracy of notification text, (2) explanation grounds for EAL judgment, (3) response of Article10 confirmation meeting, and (4) report on Article 25
Efforts to improve emergency drills by nuclear operators	5	Formulation of drill implementation plan based on issues in previous drills
	6	Implementation of drills with no scenario indicated
	7	Diversification and difficulty of scenarios
	8	Public relations activities: (1) Press response linked with ERC public relations team, (2) participation of players from outside company such as reporters, (3) holding mock press conferences, and (4) dissemination of information to the outside using information dissemination tools
	9	Logistical support activities: (1) Support activities among nuclear operators, (2) linkage with disaster response support centers of nuclear operators, and (3) linkage with nuclear emergency support organizations
	10	Site-visits and observations of drills: (1) Site-visits of other nuclear operators, (2) acceptance for inspections to operators' drills, and (3) acceptance of peer review
	11	Self-assessment and analysis of drill results: (1) Identification of issues from problem points, (2) analysis of causes, and (3) countermeasures based on causal analysis results
Record of emergency drills by nuclear operators	12	Percentage of participation in training by emergency response personnel (facilities)
	13	Percentage of participation in training by emergency response personnel (immediate response centers)

Table 5-3: Results of Nuclear Operator Disaster Preparedness Training in FY2022 for Nuclear Fuel Cycle Facilities (Japan Atomic Energy Agency and Japan Nuclear

Fuel Limited facilities subject to the 2-part training)

○ Record of Emergency Drills by Nuclear Operators at Nuclear Fuel Facilities (other than Japan Atomic Energy Agency and Japan Nuclear Fuel Ltd. (excluding facilities with two-part training programs)) in FY2022

№	Implementation date	Place
1	September 20, 2022	The JAEA, FUGEN, prototype advanced converter reactors
2	September 27, 2022	Nuclear Material Control Center, Rokkasho Safeguard Center
3	October 11, 2022	Japan Atomic Power Company, Tokai Power Station
4	October 18, 2022	Toshiba Energy Systems & Solutions Corporation, Nuclear Engineering Laboratory
5	October 21, 2022	The JAEA, Ningyo-toge Environmental Engineering Center
6	November 8, 2022	Japan Nuclear Fuel Limited, the enrichment and disposal plant (enrichment division and burial division)
7	November 11, 2022	Mitsubishi Heavy Industries (MHI) Nuclear Fuel Corporation
8	November 18, 2022	Japan Atomic Power Company
9	November 22, 2022	Kindai University, Atomic Energy Research Institute
10	November 29, 2022	Global Nuclear Fuel-Japan Co., Ltd.
11	December 6, 2022	Nuclear Material Control Center, Tokai Safeguard Center
12	January 10, 2023	Kyoto University, Institute for Integrated Radiation and Nuclear Science
13	January 17, 2023	Nuclear Fuel Industries Ltd, Tokai Works
14	February 7, 2023	Nuclear Fuel Industries, Ltd, Kumatori Works
15	February 14, 2023	Mitsubishi Nuclear Fuel Co., Ltd.
16	February 24, 2023	University of Tokyo, Nuclear Professional School, School of Engineering

○ Evaluation Indices of Emergency Drills by Nuclear Operators at Nuclear Fuel Facilities (other than Japan Atomic Energy Agency and Japan Nuclear Fuel Ltd. (excluding facilities with two-part training programs)) in FY2022

Category	№	Index
Information sharing / notification	1	Information sharing with emergency response station and ERC plant team
	2	Ensuring reliable reporting and communication: (1) Fax and other calls within 15 minutes, (2) accuracy of notification text, (3) explanation grounds for EAL judgment, and (4) report on Article 25
	3	Operation of communications equipment (operation of communications equipment for connecting emergency response station with ERC plant team)
Efforts to improve emergency drills by nuclear operators	4	Formulation of drill implementation plan based on issues in previous drills
	5	Implementation of drills with no scenario indicated
	6	Diversification and difficulty of scenarios
	7	Public relations activities: (1) Press response linked with ERC public relations team, (2) participation of players from outside company such as reporters (including persons in charge of public relations at other nuclear operators), (3) holding mock press conferences, and (4) dissemination of information to the outside using information dissemination tools
	8	Logistical support activities: (1) Support activities among nuclear operators, and (2) linkage with disaster response support centers of nuclear operators
	9	Site-visits and observations of drills: (1) Site-visits of other nuclear operators, (2) acceptance for inspections to operators' drills, and (3) acceptance of peer review
	10	Self-assessment and analysis of drill results: (1) Identification of issues from problem points, (2) analysis of causes, and (3) countermeasures based on causal analysis results
Record of emergency drills by nuclear operators	11	Percentage of participation in training by emergency response personnel (facilities)

(2) Cooperation With Relevant Government Agencies on Nuclear Disaster Preparedness

Based on the provisions of the Basic Disaster Management Plan and to coordinate emergency responses and necessary support at nuclear sites, the NRA has been holding Central Liaison Council for Nuclear Emergency Preparedness and Responses, which consists of relevant ministries and agencies, nuclear operators and the Atomic Energy Association (ATENA). In FY2022, Central Liaison Council for Nuclear Emergency Preparedness and Responses were held twice to discuss the implementation status of training and cooperation with relevant agencies, as well as the efforts of nuclear operators. Additionally, in the regions where Nuclear Power Plants (NPPs) are located, the NRA holds Nuclear Disaster Preparedness Regional Liaison Meetings, involving regional branches of the constituent ministries of the Central Liaison Council, prefectural police headquarters responsible for the region (and, if necessary, those serving as evacuation destinations for wide-area evacuations), fire departments, regional Coast Guard headquarters (and, if necessary, the Coast Guard divisions covering the region), the Self-Defense Forces, and nuclear operators as members. In FY2022, these meetings were held in nine regions, contributing to the strengthening of collaboration among relevant agencies.

3. Improvement of Communication Network Infrastructure and System

The Integrated Nuclear Disaster Prevention Network System undergoes regular inspections and functional checks to ensure stable and reliable usage. Plans for the next system update scheduled from FY2023 have been developed based on the concept and procurement support results. Draft procurement specifications and requirements

definition documents have been created, and opinions have been solicited, followed by contract procedures.

The Emergency Response Support System (ERSS[43]), updated in FY2019, underwent planned system modifications in coordination with the nuclear operator's facility update plans. Proper system maintenance has been consistently carried out to ensure the continuous provision of information from nuclear facilities. Plans and strategies for the next system update, scheduled from FY2024, have been formulated following research and investigation.

The Radiation Monitoring Information Sharing and Publication System (RAMIS[44]), designed for aggregating emergency monitoring results and facilitating rapid public sharing and disclosure among stakeholders, is subject to proper system maintenance. System modifications have been implemented based on operational use, training, and identified challenges in order to enhance the system's performance. To facilitate smooth information dissemination to the public during emergencies, monitoring information is publicly disclosed even during normal times.

To strengthen coordination regarding disaster information among relevant government ministries and agencies, discussions have taken place with the Cabinet Office based on the content of the Disaster Digital Platform-related meeting held on February 6, 2023. The coordination involves connecting the radiation monitoring information collected by RAMIS with disaster-related information held by the Cabinet Office's Comprehensive Disaster Information System.

Considering suggestions received during FY2022 Administrative Project Review Public Process regarding the utilization of the radiation monitoring information collection system funded by the Radiation Surveillance Grant Program, efforts have been made to investigate current conditions and technological trends for fundamental enhancement and efficiency, including exploring the use of the Government Cloud[45] (G-Cloud).

Section 5 Implementation of Radiation Monitoring

1. Implementation of the Emergency Monitoring System in the Vicinity of Nuclear Facility Locations

The NRA Guide for Emergency Preparedness and Response stipulates that the level of emergency will be determined in accordance with the situation of the affected nuclear facility to implement preventive protective measures. Emergency measures at an early stage or measures after the release of radioactive materials, for instance, evacuation or temporary relocation, will be decided and conducted appropriately based on the actual measurement values of the emergency monitoring. In line with this, the NRA is working to establish an effective emergency monitoring system, including the permanent presence of a senior radiation protection specialist to command emergency monitoring around nuclear facilities. Furthermore, the authority provides technical support to local

[43] The Emergency Response Support System is a system designed to collect parameters and information from nuclear facilities, allowing real-time monitoring of the status of equipment at nuclear facilities.

[44] The Radiation Monitoring Information Sharing and Publication System is a system that aggregates emergency monitoring information, including measurements from monitoring posts, atmospheric monitors, and analytical results of environmental samples. This information is shared among emergency workers in Emergency Response Centers (ERC) and is also publicly disclosed.

[45] The cloud service usage environment commonly provided by the Digital Agency of Japan.

governments responsible for maintaining and managing measurement equipment like monitoring posts, aiming to further enhance the measurement system.

2. Operation of the Radiation Monitoring Information Sharing and Publication System

The purpose of RAMIS is to aggregate emergency monitoring results in the event of a nuclear disaster, share them among relevant parties, and promptly disclose them. To facilitate the smooth communication of information to the public during emergencies, monitoring information is regularly disclosed even during normal times.

3. Strengthening Emergency Response Capabilities Through Training, etc.

To enhance the effectiveness of emergency monitoring in local public entities, basic courses on monitoring technology were conducted for local public entity employees and others a total of 24 times in FY2022. Additionally, 13 training sessions for emergency monitoring center activities were carried out.

4. Measuring Radiation and Other Environmental Factors Nationwide

(1) Survey for Environmental Radioactivity Levels

In the 47 prefectures throughout Japan, the NRA collected environmental samples, such as atmospheric suspended dust, fallout and soil for radioactivity analysis. The results of measurement were put into a database in sequence and published on the NRA website. Furthermore, dose rate is continuously measured at 296 monitoring posts throughout Japan to open the measured data on the NRA website in real time.

(2) Comprehensive Assessment on Radioactivity in Oceanic Environment

To investigate radiation effects in the surrounding areas of nuclear power plants and nuclear fuel reprocessing facilities as well as nationwide environmental radioactivity levels, the NRA continued the radiation analysis of sea water in 16 ocean areas. The results from FY2022 are planned to be entered into a database and disclosed on the NRA's website.

(3) Radiation Monitoring around Nuclear Power Plants

Financial support by the NRA was provided for the development of facilities necessary for radiation monitoring and radioactivity measurement implemented by prefectures where nuclear facilities are located or neighboring prefectures (24 prefectures). In addition, the measured results reported by those local governments were put into a database sequentially to be published on the NRA website.

(4) Monitoring the Impact of Overseas Nuclear Incidents

The NRA has installed monitoring posts on Tsushima and Yonaguni Islands to assess the impact of radioactive substances on Japan in the event of nuclear incidents occurring abroad. In FY2022, the measured values continue to be disclosed on the NRA website.

(5) Training Program for Local Government Officers Engaging in Radiation Monitoring

The NRA carried out "training for environmental radiation analysis" 18 times,

targeting environmental radiation monitoring personnel in each prefecture.

5. The Strengthening of Environmental Radiation Measurement and Emergency Monitoring Capabilities in Ports Visited by Nuclear Warships

(1) Measurement of Radiation in the Environment at Ports where Nuclear Warships Are Anchored

The NRA periodically conducted radiological surveys in cooperation with related organizations such as the Japan Coast Guard at the 3 ports of Yokosuka, Sasebo and Kinnakagusuku, where the United States nuclear-powered warships make port calls, regardless of the presence or absence of such ships. Specifically, during the anchoring of nuclear warships, on-site radiation survey teams are formed to conduct radiation measurements and analyze seawater samples. The results of these measurements are confirmed to be consistent with pre-entry survey values. The radiation survey results during the entry and exit of nuclear warships and their port calls are published daily on the NRA's website. Additionally, past survey results, including regular surveys, are stored in a database, and made publicly available.

(2) Strengthening the Emergency Monitoring System

Completed the renewal design for one monitoring station each at Yokosuka Port and Sasebo Port to address the aging of the facility where monitoring equipment is installed.

6. Consideration of Technical Matters Related to Monitoring

The NRA holds the meeting of the "Technical Study Team on Environmental Radiation Monitoring" which is engaged in continuous studies on technical aspects of monitoring. On June 22, in the meeting considering discussions until FY2021, a new manual, "Series of Environmental Radioactivity Measuring Method No.36: Measurement of Radioactive Substances in the Atmosphere," was established. This manual is structured into two parts for routine and emergency situations, allowing each part to be used independently. Part 1 covers continuous measurement by dust monitors, as well as the collection and analysis of atmospheric samples using dust samplers. Part 2 includes continuous measurement by atmospheric monitors, as well as the collection and analysis of atmospheric samples using iodine samplers, outlining procedures for measurements in each case.

Furthermore, during the 55th FY2023 NRA Commission Meeting (November 30, 2023), a report was presented on the achievements and future issues of the study team. Meetings of the study team were held on December 22, 2023, and March 20, 2024, where discussions took place on the revision proposals for "Series of Environmental Radioactivity Measuring Method No.15: Radioiodine Analysis in Emergencies" and No.9: Tritium Analysis Method," as well as the organization of the Series of Environmental Radioactivity Measuring Method.

References

TABLE OF CONTENTS

Reference 1 Materials related to Ensuring Independence, Impartiality and Transparency, and Improving the Organizational Structure/ System (related to Chapter 1)

1. Members of NRA

	Sep. 19, 2012 to Sep. 18, 2014	Sep. 19, 2014 to Sep. 18, 2015	Sep. 19, 2015 to Sep. 21, 2017	Sep. 22, 2017 to Sep. 25, 2022	Sep. 26, 2022 to present
Chairman	TANAKA Shunichi	TANAKA Shunichi	TANAKA Shunichi	FUKETA Toyoshi	YAMANAKA Shinsuke
Commissioner (Substitute for the Chairman)	SHIMAZAKI Kunihiko	FUKETA Toyoshi	FUKETA Toyoshi	TANAKA Satoru	TANAKA Satoru
Commissioner (Second substitute for the Chairman)	FUKETA Toyoshi	TANAKA Satoru	TANAKA Satoru	YAMANAKA Shinsuke	SUGIYAMA Tomoyuki
Commissioner (Third substitute for the Chairman)	NAKAMURA Kayoko	NAKAMURA Kayoko	ISHIWATARI Akira	BAN Nobuhiko	BAN Nobuhiko
Commissioner (Fourth substitute for the Chairman)	OHSHIMA Kenzo	ISHIWATARI Akira	BAN Nobuhiko	ISHIWATARI Akira	ISHIWATARI Akira

(As of March 31, 2023)

2. Establishment of the NRA and Organizational Changes

○ September 19, 2012: NRA was established.

○ March 1, 2014: Japan Nuclear Energy Safety Organization (JNES) was abolished and integrated.

○ October 14, 2014: Policy Director for Nuclear Emergency Preparedness was established in the Cabinet Office. Officials belonging to the NRA were primarily appointed as concurrent officials of the Office for the Nuclear Emergency Preparedness, Cabinet Office. To reinforce the nuclear emergency response system, changing the appointment scheme, full-time officials were assigned to the Cabinet Office.

3. Breakdown of Budget of NRA (after the second supplementary budget in FY2022)

	Budget section	Budget for FY2022 (after budget revision) (million yen)
General account	General and administrative costs	4,421
	NRA facility costs	4,525
	Costs of ensuring nuclear safety	4,915
	Radioactivity investigation and research costs	1,296
Special account for energy measures	Costs of power-usage measures	818
	Costs of nuclear safety regulatory measures	18,661
	Administrative handling costs	24,870
	Disbursements	0.27
	Reserve funds	100

Special account for reconstruction after the Great East Japan Earthquake	Costs of policies for environmental conservation and restoration	3,488
Total		63,093

4. Organization of the NRA

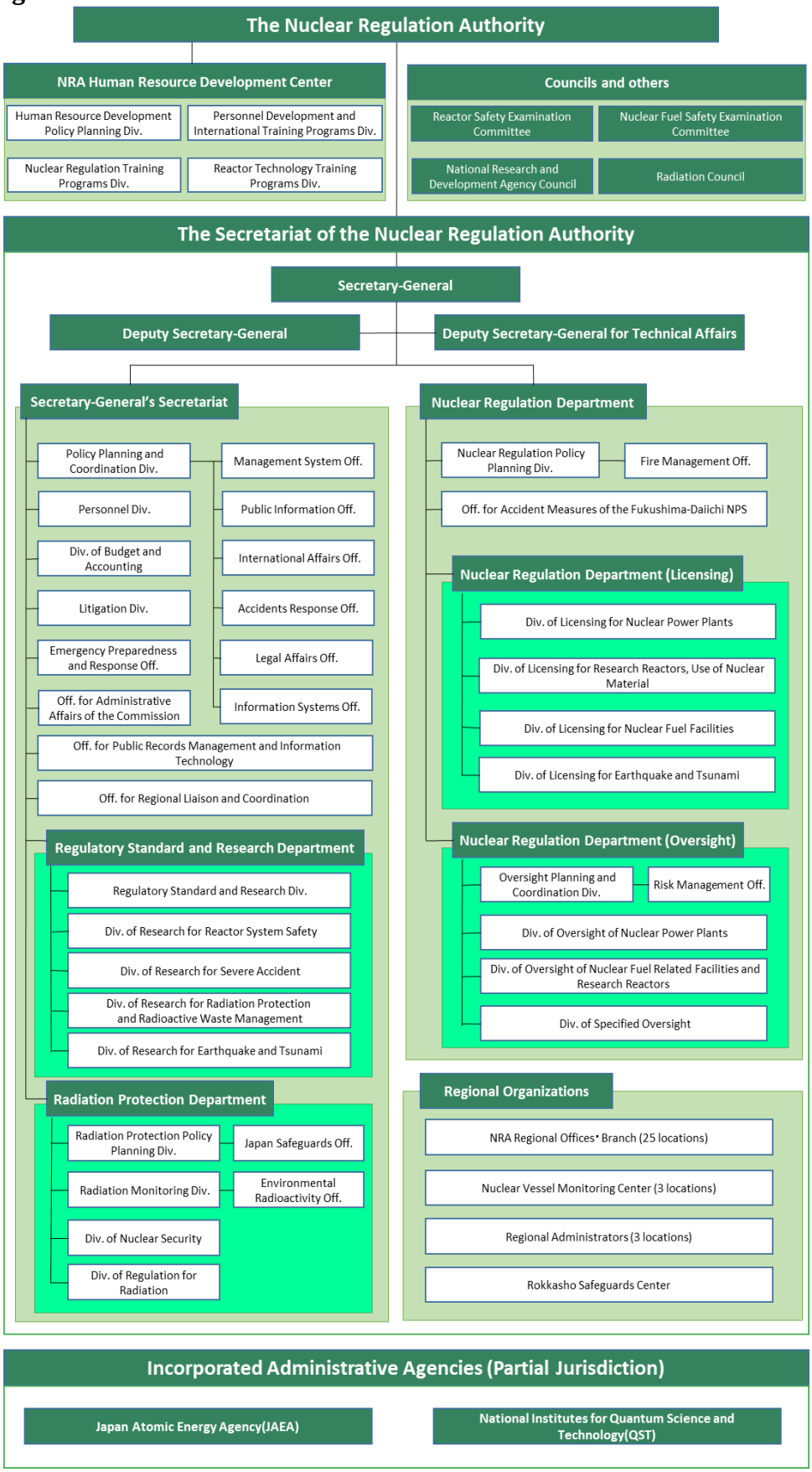


Figure i Organizational Structure of the NRA (April 2022 - March 2023)

Figure ii Location of NRA Regional Offices and Stationing of Regional Administrators

5. NRA's Core Values and Principles

(Determined on January 9, 2013 by the NRA)

Bearing in mind that:

- The NRA was established to learn from the Fukushima Daiichi nuclear accident of March 11, 2011;

- 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 regulation 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 diligent 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 emergencies, while ensuring that in

‘normal’ times a fully effective response system is always in place.

6. Code of Conduct on Nuclear Security Culture

(Determined on January 14, 2015 by the NRA)

The Nuclear Regulation Authority (NRA) recognizes that it is the responsibility of everyone involved in nuclear activities to establish and maintain a positive nuclear security culture.

The NRA has therefore decided to establish a code of conduct to foster and continually enhance its own nuclear security culture.

On this basis, the NRA is committed to take action to enhance nuclear security culture throughout Japan.

Code of Conduct

1. Recognizing Threat

The NRA and its Secretariat shall recognize that nuclear security threats exist at all times and constantly keep the importance of nuclear security in mind.

2. Interface with Safety

Nuclear security and safety do not exist independently and measures for security and safety are mutually dependent on each other and could negatively affect one another. We shall make all possible efforts for the harmonization of both measures and senior management shall be responsible for providing the most appropriate solution in cases of conflicts.

3. Responsibilities of Senior Management

Senior management shall demonstrate their commitment to nuclear security and shall make an assessment on how a positive nuclear security culture is developed within the NRA. In addition, senior management shall continuously work to foster a positive culture through setting up concrete goals and measuring achievements.

4. Capacity Building and Self-improvement

Nurturing competent staff is the responsibility of an organization, and the NRA shall provide capacity building programs on nuclear security. We shall have a ‘questioning attitude’ towards nuclear security issues at all times and strive to improve our effectiveness.

5. Confidentiality and Communication

While strictly observing confidentiality of nuclear security information, we shall proactively communicate with relevant stakeholders, as necessary, with a view to fostering a positive nuclear security culture in Japan.

7. Statement on Nuclear Safety Culture

(Determined on May 27, 2015 by the NRA)

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 Daiichi Nuclear Power Station of Tokyo Electric Power Company, Inc. The NRA will take the initiative in acting based on it.

Thereby, the NRA will strive to raise 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 on Safety

In full 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

Decisions shall be made in an independent and objective manner taking due account of the risks. Anyone who makes a decision is responsible for logically explaining 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 on 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 utilize 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 a 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 concerning 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 quickly take necessary actions.

8. Harmonization with Nuclear Security

It is necessary to recognize that nuclear safety and security activities do not exist independently, they 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.

8. NRA Commission Meetings (April 1, 2022 - March 31, 2023)

No.	Date	Deliberation Topic
1	Apr. 6	・Revision of the NRA Guide for Emergency Preparedness and Response (thyroid radiation dose monitoring, nuclear emergency medical care system) and establishment of "Nuclear Emergency Core Hospital Roles and Designation Requirements" (for the second time) ・Report on the status of the FY2021 Radiation Council meetings ・Status of Review on licensing conformity to the new regulatory requirements of Nuclear Power Plants ・Status of Review on licensing conformity to the new regulatory requirements of nuclear fuel cycle facilities and other centers
2	Apr. 12	・Discussion between the NRA and the management of Hokkaido Electric Power Co., Inc.
3	Apr. 13	・Outline of the FY2021 Annual Report of the NRA (draft) ・Report on the deliberation results of the 10th Subcommittee on Reactor Safety and the 4th Subcommittee on Nuclear Fuel Safety ・Summary of Results of the 52nd Technical Information Committee
4 *1	Apr. 13	・Compilation of review reports for the application for approval of changes to the provisions on the Security Plan at the Mihama PS of Kansai Electric Power Co., Inc. in relation to the threat of interference and vandalism to information systems of nuclear power facilities ・Status of additional inspections of TEPCO's Kashiwazaki-Kariwa NPS
5	Apr. 20	・Establishment of Review Guide for category 2 waste disposal site ・Draft revision of the NRA Guide for Emergency Preparedness and Response (Enhancement of radiation protection measures for emergency workers, etc.) and solicitation of public comments ・Status of Investigation and Analysis of the TEPCO’s Fukushima Daiichi NPS Accident
6 *2	Apr. 20	・Status of additional inspections of TEPCO's Kashiwazaki-Kariwa NPS
7	Apr. 27	・Summary of review results as a draft for application for permission of change in basic design of Takahama PS Units 1 to 4 of Kansai Electric Power Co., Inc. (Draft) - change of storage location for reduced volume of spent burnable poison - ・Summary of review results as a draft for application for permission of change in basic design of Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. (Draft) - changes based on regulations concerning protection against toxic gases - ・Appointment of review members of the Reactor Safety Examination Committee ・Interim summary of supplemental inspections of TEPCO's Kashiwazaki-Kariwa NPS in response to incidents of unauthorized use of ID cards and partial loss of functionality of nuclear material protection equipment
8 *3	Apr. 27	・Selection of review members for the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee
9	May 11	・Evaluation of accidents and failures s at sites handling radioisotopes, etc. in FY2021 ・Results of on-site inspections for registered organizations that conduct inspections and other services based on the Radioisotope Regulation Act (FY2021)

		・Summary of results (report) of the CSS meeting (the 51st) of the International Atomic Energy Agency (IAEA) -- Status of development of IAEA safety standards -- ・Summary of results of the International Nuclear Regulators Association (INRA) meeting
10	May 18	・Compilation of draft review reports for application for approval of changes to the Implementation Plan with Regards to Fukushima Daiichi NPS's Specified Nuclear Facilities (installation of facilities related to the offshore discharge of ALPS-Treated Water, etc.) ・Consideration of issues that should be taken into account for safety assurance in geological disposal (the 3rd meeting) - results of interviews with volcano experts - ・Notice based on results of the nuclear regulatory inspection of fuel fabrication facilities of Mitsubishi Nuclear Fuel ・Results of nuclear regulatory inspection and the like for the fourth quarter of FY2021 ・Results of implementation of safeguard activities in Japan in 2021 ・Summary of results of Advisory Group on Nuclear Security (AdSec) of the International Atomic Energy Agency (IAEA) ・Information Exchange Meeting between International Advisors of nuclear regulations and the NRA
11 *4	May 18	・Results of nuclear regulatory inspections and other items for the fourth quarter of FY 2021 (related to physical protection of nuclear material) ・Review policies on application for permission of change in basic design of special facilities for severe accident management at the Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc.
12	May 25	・Response to the inquiry regarding the "Action Plan for Production and Use of Radioisotopes for Medical Purposes" from the Atomic Energy Commission ・Annual Report of the NRA in FY2021 (draft) ・Study on matters to be considered to ensure safety in geological disposal (4th) - draft study policy - ・Inspection results and comprehensive assessment for FY2021 and inspection plans for FY2022 ・Evaluation of legal reports based on the Reactor Regulation Act for FY2021 ・Status of review of the introduction of knowledge on hydrogen protection to regulations (interim report No. 2 - results of the meeting for hearing opinions from operators)
13 *5	May 25	・Status of additional inspection of TEPCO's Kashiwazaki-Kariwa NPS
14	Jun. 1	・Permission for change in basic design of Takahama PS of Kansai Electric Power Co., Inc. (changes in nuclear reactor facilities at Units 1 to 4) - change of storage location for reduced volume of spent burnable poison - ・Permission for change in basic design of a power reactor for the Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. (change of power reactor facility of Unit 2) - changes based on regulations concerning protection against toxic gases - ・Status of Review on licensing conformity to the new regulatory requirements of the experimental fast reactor facility, "Joyo" at the Oarai Research and Development

		Institute (south area) of the JAEA - report on the results of the element evaluation and how to proceed with future reviews - ・Future progress in revisions to the emergency action levels (EAL) and the like ・Arbitrary decisions in the 4th quarter of FT2021
15	Jun. 8	・Revisions of the Review Guide for Design Basis Ground Motion and Seismic Design Policy ・Consideration of items to be taken into account for safety assurance in geological disposal (5th) - draft study policy - ・Revisions of the guidelines for operational improvements based on operational results of nuclear regulatory inspections in FY2021 ・Proposed arrangement of countermeasures against severe accidents and other incidents in the new regulatory requirements
16 *6	Jun. 8	・Approval of appointment of executives at designated organizations implementing safeguard inspections ・Review policies on application for permission of change in basic design of special facilities for severe accident management at the Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. (2nd) ・Results of survey to contribute to the study of the required level of physical protection of nuclear materials
17	Jun. 15	・Results of ex-post and interim evaluations (drafts) for safety research ・Results of the study on the enforcement status of the Reactor Regulation Act and other regulations revised in 2017 ・Moving toward the formulation of "Organizing the Approach to Backfitting" (interim report)
18	Jun. 22	・Summary of progress report on the IAEA regulatory review of offshore discharge of ALPS-Treated Water ・The NRA's response based on the plan for comprehensive review of regulations in light of digital principles ・Summary of results of the 53rd Technical Information Committee ・Release of the 2021 Safeguard Statement by the International Atomic Energy Agency (IAEA)
19	Jun. 29	・Consideration of items to be taken into account for safety assurance surrounding geological disposal (6th) - discussion with METI and NUMO - ・Draft amendments and notifications to the Enforcement Order of the Radioisotope Regulation Act (elimination of double regulation of unapproved radiopharmaceuticals, etc.) and implementation of pre-evaluation and solicitation of public comments ・Establishment of the Radiation Survey and Simple Decontamination Manuals for Evacuees in Nuclear Emergency and implementation of solicitation of public comments ・Items in need of improvement and corrective actions related to contracting agreements of the NRA Secretariat ・Report on NRA Chairman FUKETA's overseas business trip
20 *7	Jun. 29	・Status of additional inspection of TEPCO's Kashiwazaki-Kariwa NPS
21	Jul. 6	・Appointment of review committees of the Reactor Safety Examination Committee

		and the Nuclear Fuel Safety Examination Committee ・ Revision of the NRA Guide for Emergency Preparedness and Response (Enhancement of radiation protection measures for emergency workers, etc.) ・ How to proceed with safety research in FY2023 and beyond ・ Status of Review on licensing conformity to the new regulatory requirements of Nuclear Power Plants ・ Report on NRA Committee TANAKA's overseas business trip
22 *8	Jul. 6	・ Draft of review results as a draft for application for permission of change in basic design of Kashiwazaki-Kariwa NPS of TEPCO (change of power reactor facilities for Units 6 and 7) - installation of Special Facility for Severe Accident Management -
23	Jul. 13	・ Summary of review results as a draft for application for permission of change in basic design of Kashiwazaki-Kariwa NPS of TEPCO (change of power reactor facilities for Units 6 and 7) - installation of Special Facility for Severe Accident Management - ・ Summary of review results as a draft for application for permission of change in basic design of JAEA's Nuclear Science Research Institute (change of disposal facilities, etc. for radioactive waste) - changes due to suspension of use of asphalt solidification equipment, etc. - ・ Issues and responses in nuclear regulatory inspections ・ Report on the results of opinion exchange meeting with uranium fabrication operators
24	Jul. 20	・ Review of operations and the overall organization of the National Institutes for Quantum and Radiological Science and Technology for the formulation of the next medium to long-term goals ・ Proposed amendments to the Regulations Concerning the Installment, Operation, etc. of commercial power reactors and their annexed facilities (the improvement of concreteness and expression of description on regulatory requirements and other regulations according to review experiences) and implementation of solicitation of public comments ・ Japan's 9th National Report to the Convention on Nuclear Safety (report of the draft)
25	Jul. 22	・ Approval to change implementation plans at TEPCO's Fukushima Daiichi NPS (facilities for discharging ALPS-treated water into the sea and others) ・ Review of operations and the overall organization of the National Institutes for Quantum and Radiological Science and Technology for the formulation of the next medium to long-term goals (2nd) ・ Results of inspection regarding inadequate fire protection at Mihama PS Unit 3 of Kansai Electric Power Co., Inc. ・ Report on deliberation results of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee ・ Results of the selection in the NRA Human Resource Development Program in FY2022
26	Jul. 27	・ Comments by external experts on the NRA's administrative review of FY2022 ・ Japan's 9th National Report to the Convention on Nuclear Safety (2nd) ・ Proposed amendments to the Regulations Concerning the Installment, Operation, etc. of commercial power reactors and their annexed facilities (the improvement of concreteness and expression of description on regulatory requirements and other

		regulations according to review experiences) and implementation of solicitation of public comments (2nd) ・Confirmation of the appropriateness of operator's probabilistic risk assessment (PRA) model used in nuclear regulatory inspections ・Results of discussions regarding the involvement of inspectors for facilities with no regulatory requirements
27 *9	Jul. 27	・Status of additional inspection of TEPCO's Kashiwazaki-Kariwa NPS ・Status of response to the study of the required level of physical protection of nuclear material ・Implementation status of nuclear regulatory inspections in the field of physical protection of nuclear material
28	Aug. 17	・Permission for change in basic design of Kashiwazaki-Kariwa NPS of TEPCO (change of power reactor facilities for Units 6 and 7) - installation of Special Facility for Severe Accident Management - ・Policy assessment report on policies implemented in FY2021 (draft) , a pre-analysis tables to evaluate policies implemented in FY2022 (drafts), and ex-post-evaluation report of regulations (draft) ・Report of results of emergency drills by nuclear power operators and approaches during this fiscal year ・Results of nuclear regulatory inspection and the like for the first quarter of FY2022
29	Aug. 17	・Discussion between the NRA and executives of Tohoku Electric Power Co. Inc.
30 *10	Aug. 17	・Results of nuclear regulatory inspection and the like for the first quarter of FY2022 (related to physical protection of nuclear material)
31	Aug. 24	・Consideration of items to be taken into account for safety assurance in geological disposal (7th) - determination of matters to be considered, etc. - ・Approval of change in the operational safety program for power reactor facilities related to technical assessment of the ageing management of Ohi PS Unit 4 of Kansai Electric Power Co., Inc. ・Evaluation etc., concerning the operational performance of National Institutes for Quantum and Radiological Science and Technology (joint jurisdiction portion with the NRA) ・Evaluation etc., concerning the operational performance of JAEA (joint jurisdiction portion with the NRA) ・Status of review of the introduction of knowledge on hydrogen protection into regulations (interim report No. 3 - results of the meeting for hearing opinions from operators -)
32	Aug. 24	・Discussion between the NRA and executives of Electric Power Development Co., Ltd.
33	Aug. 31	・Summary of results as a draft on the review of the application for permission to change facility operations of reprocessing at the Reprocessing Plant of Japan Nuclear Fuel Ltd. - changes etc., in light of regulations concerning toxic gas protection - ・Summary of results as a draft on the review of the application for permission to change facility operations of waste management at the Reprocessing Plant of Japan Nuclear Fuel Ltd. - storage facilities for Low Level Waste and related facilities for shared use - ・Annual evaluation and ex-post evaluation of the projects in FY2021 for the Strategic

		Program for Promoting Regulatory Radiation Safety Research (report) ・ Results of designated information processing organizations and designated organization implementing safeguards inspections ・ Summary of results of the 54th Technical Information Committee
34 *11	Aug. 31	・ Status of supplemental inspection of TEPCO's Kashiwazaki-Kariwa NPS ・ Implementation status of nuclear regulatory inspections in the field of physical protection of nuclear material
35	Sep. 2	・ Discussion between the NRA and executives of Chubu Electric Power Co., Inc.
36	Sep. 5	・ Discussion between the NRA and executives of Hokuriku Electric Power Company
37	Sep. 7	・ Summary of review results as a draft for application for permission of change in basic design of Kashiwazaki-Kariwa NPS of TEPCO (change of power reactor facilities for Units 6 and 7) - installation of permanent DC power supply (3rd system) in the station - ・ How to proceed with the review of conformity to the new regulatory requirements based on the exchange of opinions with the executives of Electric Power Companies ・ Budget request for FY2023 and request for the organization and capacity of the NRA ・ Arbitrary decisions in the 1st quarter of FY2022 (report) ・ Image of career path for NRA staff (research staff)
38	Sep. 14	・ Amendments to the Regulations Concerning the Installment, Operation, etc. of commercial power reactors and their annexed facilities (the improvement of concreteness and expression of description on regulatory requirements and other regulations according to review experiences) ・ Response to reflection on findings regarding hydrogen protection in regulations ・ Policies to confirm future supplemental inspections at the Kashiwazaki-Kariwa NPS of TEPCO
39	Sep. 21	・ Summary of review results as a draft for application for permission of change in basic design of Takahama PS of Kansai Electric Power Co., Inc. (change of power reactor facilities for Units 1 and 2) - abolition of neutron absorber for Spent Fuel Pit, etc. - ・ Summary of results of the 7th Review Meeting of the Joint Convention on Spent Fuel and Radioactive Waste Safety and on the Safety of Radioactive Waste Management ・ Failure to carry a nuclear inspector's certificate due to its non-issuance
40	Sep. 26	・ Designation of Commissioners to act on behalf of the NRA Chairman
41	Sep. 28	・ The NRA's comments on "FY2022 Plans for Nuclear Energy Disaster Prevention Drill" ・ Confirmation of designation requirements for Nuclear Emergency Medical Support Center, Advanced Radiation Emergency Medical Support Center and Core Advanced Radiation Emergency Medical Support Center ・ Results of soliciting public comments on the Radiation Survey and Simple Decontamination Manuals for Evacuees in Nuclear Emergency (draft) and its constitution
42	Oct. 5	・ Status of studies of Nuclear Energy Subcommittee at Electricity and Gas Industry Committee of Advisory Committee for Natural Resources and Energy ・ Permission of change in basic design of Kashiwazaki-Kariwa NPS of TEPCO

		(change of power reactor facilities for Units 6 and 7) - installation of permanent DC power supply (3rd system) in the station - ・Status of Review on licensing conformity to the new regulatory requirements of Nuclear Power Plants ・Status of Review on licensing conformity to the new regulatory requirements of nuclear fuel cycle facilities and other centers ・Summary of results at the International Nuclear Regulators Association (INRA)
43 *12	Oct. 5	・Selection of review members for the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee, etc. ・Status of additional inspection of TEPCO's Kashiwazaki-Kariwa NPS
44	Oct. 12	・Establishment of Technical Meetings for review and other measures for the implementation plans of specific nuclear facilities ・Plan for implementation of technical evaluation of private standards ・Reporting of incidents of failure to carry identification cards due to omissions in issuance for inspections and measures to prevent recurrence of such incidents ・Status of efforts to address issues in nuclear regulatory inspections and policies on how to respond to them
45	Oct. 19	・Appointment of review members for the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee, etc. ・Revision of the Guide for the Review of Approval of Design and Construction Plan for Earthquake Resistance and solicitation of public comments on this Guide ・Evaluation regarding temporary loss of safety cooling function in the Vitrification Facility at reprocessing facilities in Rokkasho, Japan Nuclear Fuel Ltd. and results of nuclear regulatory inspections
46	Oct. 24	・Discussion between the NRA and executives of Chugoku Electric Power Co., Inc.
47	Oct. 26	・Discussion on the future management policy of the NRA ・Results of implementation of solicitation of public comments regarding partial amendments to the Enforcement Order of the Radioisotope Regulation Act (elimination of double regulation of unapproved radiopharmaceuticals, etc.), petition of the draft of the revised Cabinet Order and consultation with the Ministry of Health, Labour and Welfare and the Ministry of Agriculture, Forestry and Fisheries regarding the draft notification ・Results of the nuclear regulatory inspection and future actions concerning the rewriting of borehole map data at Tsuruga NPS Unit 2, Japan Atomic Power Co. ・Summary of results of the 55th Technical Information Committee ・Summary of results of the 11th Meeting of Working Group on Safety Culture (WGSC) of the Committee on Nuclear Regulatory Activities (CNRA) at Organization for Economic Co-operation and Development/Nuclear Energy Agency (OECD/NEA)
48	Nov. 2	・Study of safety regulations of ageing power reactors ・Summary of review results as a draft for application for permission of change in basic design of Takahama PS of Kansai Electric Power Co., Inc. (change of power reactor facilities for Units 1 and 2) - abolition of neutron absorber for Spent Fuel Pit, etc. - (2nd) ・Implementation of solicitation of public comments on the drafts of (1) the guideline for review and the guideline for on-site inspection regarding the Radioisotope

		Regulation Act, and (2) a revision of the implementation guideline for on-site inspections
49	Nov. 2	・Discussion between the NRA and executives of National Institutes for Quantum and Radiological Science and Technology
50	Nov. 9	・Exchange of opinions with the Chairmen of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee ・Improvement activities based on non-conformity cases in permissions and approvals related to the revision in Article 3 ・Summary of results of the 52nd Meeting of Commission on Safety Standards (CSS) of the IAEA ・Summary of the NRA's proposed 2nd supplementary budget for FY2022
51	Nov. 16	・Study of safety regulations of ageing power reactors (2nd) ・Response to the application for approval of changes to the Implementation Plan with Regards to Fukushima Daiichi NPS's Specified Nuclear Facilities (operation at the time of discharge of ALPS-Treated Water to the sea, etc.) ・Concept of Seismic Class Classification and Application of Seismic Ground Motions at TEPCO's Fukushima Daiichi NPS ・Development of documentation on backfitting ・Implementation for technical evaluation of Japan Society of Mechanical Engineers Standards for design, construction, materials and welding
52 *13	Nov. 16	・Status of additional inspections of TEPCO's Kashiwazaki-Kariwa NPS ・Results of nuclear regulatory inspections and the like for the second quarter of FY2022 (related to physical protection of nuclear material)
53	Nov. 22	・Revision of matters of study and deliberation at the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee ・Formulation of the next medium to long-term goals of the National Institutes for Quantum and Radiological Science and Technology (1st) ・Improvement of concreteness and expression of descriptions on regulatory requirements and other regulations according to review experiences - development of implementation plan for FY2022 and FY2023 - ・Results of nuclear regulatory inspections and the like for the second quarter of FY2022 ・Summary of results of the ICRP meetings
54 *14	Nov. 22	・Results of nuclear regulatory inspection and the like for the second quarter of FY2022 (related to physical protection of nuclear material) (2nd)
55	Nov. 30	・Study of safety regulations of ageing power reactors (3rd) ・Development of documentation on backfitting (2nd) ・Corrective actions related to the items in need of improvement concerning contracting agreements of the NRA Secretariat ・Previous efforts and issues to be considered in the future of Technical Study Team on Environmental Radiation Monitoring ・Results of nuclear regulatory inspections etc., for the second quarter of FY2022 (2nd) ・Summary of results of the Advisory Group on Nuclear Security (AdSec) of the International Atomic Energy Agency (IAEA)

56	Dec. 7	・Establishment of the notification regarding the elimination of double regulation of unapproved radiopharmaceuticals, etc. ・Proposed revisions to the interpretation and other aspects of the Regulations Concerning the Installment, Operation, etc. of commercial power reactors and their annexed facilities, as well as implementation of public comments on these revisions and policies for reviewing them - clarification of position of primary containment vessel venting as a hydrogen protection measure for BWR type reactor buildings - ・Results of confirmation of damage factors to piles of the building for carrying large items at the Kashiwazaki-Kariwa NPS Unit 6 and future actions ・Arbitrary decisions in the 2nd quarter of FY2022 (report)
57	Dec. 14	・Study of safety regulations of ageing power reactors (4th) ・Summary of review results as a draft for application for permission of change in basic design of Tokai Daini PS of Japan Atomic Power Co., Inc. (change of power reactor facilities) - changes based on regulations concerning protection against toxic gases - ・Revision of "Concept of New Regulatory Requirements for Commercial Power Reactors" ・Outline of results of the 14th Top Regulators Meeting on Nuclear Safety (TRM)
58	Dec. 19	・Discussion between the NRA and executives of Japan Atomic Power Co.
59	Dec. 21	・Study of safety regulations of ageing power reactors (5th) ・Permission of change in basic design of Takahama PS of Kansai Electric Power Co., Inc. (change of power reactor facilities for Units 1 and 2) - abolition of neutron absorber for Spent Fuel Pit, etc. - ・Acceptance of the International Physical Protection Advisory Service (IPPAS) missions of the International Atomic Energy Agency (IAEA) ・Status of review of approval of design and construction plans for the reprocessing facilities of JNFL, and confirmation of pre-operational inspections, etc. ・Progress of efforts on the Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi Nuclear Power Station ・Summary of results of the 56th Technical Information Committee
60 *15	Dec. 21	・Selection of candidates for members on the National Research and Development Agency Council ・Status of additional inspection of TEPCO's Kashiwazaki-Kariwa NPS ・Answers to questions about Japan's 9th National Report to the Convention on Nuclear Safety (draft) (1st)
61	Dec. 28	・Summary of review results as a draft for application for permission of change in basic design of Ikata PS of Shikoku Electric Power Co., Inc. (change of power reactor facilities for Unit 3) - expansion of spent resin storage tanks - ・Preliminary and interim evaluations for safety research ・Outline of the NRA's proposed initial budget for FY2023 ・The NRA's response to the process chart for the review of analog regulations based on the digital principles ・Summary of results of International Conference on Regulators' Views and Priorities on Nuclear Safety and Radiation Protection 10 Years After TEPCO Fukushima Daiichi NPS Accident (10-Year Reflection, Now and the Way Forward)
62	Jan. 11	・Summary of results as a draft on the review of the application for permission to

		change facility operations of the spent fuel storage facility of Recyclable Fuel Storage Center, Recyclable-Fuel Storage Company - changes in consideration of standard response spectrum, etc. - ・Status of review and future policies regarding the introduction of standard response spectrum ・Status of Review on licensing conformity to the new regulatory requirements of Nuclear Power Plants ・Status of review on application for approval of changes to the Implementation Plan with Regards to Fukushima Daiichi NPS's Specified Nuclear Facilities (operation at the time of discharge of ALPS-Treated Water to the sea, etc.) ・Report on the implementation status of measures to prevent recurrence of cases concerning failure to carry identification cards for inspections, etc., and draft regulations concerning special measures to the forms of identification cards for inspections, etc., and public comments on said draft regulations ・Policy for compilation of the "NRA's initiatives (March 11 report)" and the "NRA's Annual Report" in FY2022
63 *16	Jan. 11	・Study of safety regulations of ageing power reactors (6th) - status of consideration of the bill -
64	Jan. 18	・Revision of the NRA2nd mid-term goals ・Revision of the Guide for the Review of Approval of Design and Construction Plan for Earthquake Resistance ・Formulation of the next medium to long-term goals of the National Institutes for Quantum and Radiological Science and Technology (2nd) ・Report on the deliberation results of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee
65 *17	Jan. 18	・Summary of results of the 22nd Nuclear Security Guidance Committee (NSGC) of the International Atomic Energy Agency (IAEA) ・Answers to questions about Japan's 9th National Report to the Convention on Nuclear Safety (draft) (2nd)
66	Jan. 25	・Permission of change in basic design of Tokai Daini PS of Japan Atomic Power Co., Inc. (change of power reactor facilities) - changes based on regulations concerning protection against toxic gases - ・Revision of Policy on Ensuring Operational Transparency of the NRA ・Revision of the NRA 2nd mid-term goals (2nd) ・Interim report on the investigation and analysis of the accident at TEPCO's Fukushima Daiichi NPS (2023 version) ・Summary of meeting on the IAEA regulatory review of offshore discharge of ALPS-Treated Water (2nd)
67	Feb. 1	・Revision of the Measures for Mid-term Risk Reduction at TEPCO’s Fukushima Daiichi Nuclear Power Station (1st) ・Confirmation for new designation of Advanced Radiation Emergency Medical Support Center
68 *18	Feb. 1	・Status of supplemental inspections of TEPCO's Kashiwazaki-Kariwa NPS
69 *19	Feb. 2	・Answers to questions about Japan's 9th National Report to the Convention on Nuclear Safety (draft) (3rd)

		・Draft agenda for the FY2023 International Advisors Meeting
70 *20	Feb. 6	・Study of safety regulations of ageing power reactors (7th) - status of consideration of the bill (No.2) -
71	Feb. 8	・Study of safety regulations of ageing power reactors (8th) ・Permission of change in basic design of Ikata PS of Shikoku Electric Power Co., Inc. (change of power reactor facilities for Unit 3) - expansion of spent resin storage tanks - ・Permission for modification of the spent fuel fabrication facility of Recyclable Fuel Storage Center, Recyclable-Fuel Storage Company - changes in consideration of standard response spectrum, etc. - ・Proposed revisions to the operational guide for safety improvement assessment at fuel fabrication facilities (excluding uranium fuel fabrication facilities) and reprocessing facilities in conjunction with public comments on proposed revisions ・Status of efforts by operators and others regarding hydrogen protection measures (interim report No. 4 - results of the hearing on operators' opinions)
72	Feb. 13	・Study of safety regulations of ageing power reactors (9th)
73	Feb. 15	・Response to inquiry from the Atomic Energy Commission regarding the revision of the "Basic Policy for Nuclear Energy" ・Preliminary evaluation related to the revision of the Reactor Regulation Act and establishment of a study team for the management of deterioration of power reactors ・Summary of results as a draft on the review of the approval of a demerger of Mitsubishi Nuclear Fuel Company, Limited, a fabricator, into Mitsubishi Heavy Industries (MHI) Nuclear Fuel Corporation ・Establishment of drafts on the implementation manual for thyroid exposure dose monitoring and solicitation of public comments ・Results of nuclear regulatory inspections etc., for the third quarter of FY2022
74	Feb. 15	・Discussion between the NRA and executives of the JAEA
75	Feb. 22	・Revisions to the interpretation and other aspects of the Regulations Concerning the Installment, Operation, etc. of commercial power reactors and their annexed facilities - clarification of position of primary containment vessel venting as a hydrogen protection measure for the reactor building with BWR type - ・Compilation of draft review documents for application for approval of changes to the Implementation Plan with Regards to Fukushima Daiichi NPS's Specified Nuclear Facilities (operation at the time of discharge of ALPS-Treated Water to the sea, etc.) ・Response policy based on the lights-out incident in an area monitored by inspection equipment at the reprocessing plant of Japan Nuclear Fuel Ltd. ・Revision of the Basic Policy on Human Resource Development for NRA Staff ・FY2023 Implementation Plan of the NRA Human Resource Development Program
76 *21	Feb. 24	・Selection of review members for the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee ・Status of additional inspection of TEPCO's Kashiwazaki-Kariwa NPS, etc. ・Policy on response based on the study of the required level of physical protection of nuclear material ・Results of nuclear regulatory inspection and the like for the third quarter of FY2022 (related to physical protection of nuclear material)

77	Feb. 24	・Discussion between the NRA and executives of Kyushu Electric Power Company, Inc.
78	Mar. 1	・Revision of the Measures for Mid-term Risk Reduction at TEPCO’s Fukushima Daiichi Nuclear Power Station (2nd) ・Publication of the NRA's initiatives (March 11 report) ・Management review for FY2022 ・Enactment of regulations concerning special measures related to identification forms pertaining to inspections, etc. ・Supply delay and response status of depleting agent for internal radioactive cesium ・Summary of results of the 57th Technical Information Committee ・Arbitrary decisions in the 3rd quarter of FY2022 (report)
79	Mar. 1	・Discussion between the NRA and executives of Kansai Electric Power Co., Inc.
80 *22	Mar. 6	・Selection of Immediate Emergency Response members ・Selection of Radiation Council members ・Selection of candidates for members on the National Research and Development Agency Council
81	Mar. 8	・Approval of the next medium to long-term goals of the National Institutes for Quantum and Radiological Science and Technology ・Approval of demerger of Mitsubishi Nuclear Fuel, a fabricator, into Mitsubishi Heavy Industries (MHI) Nuclear Fuel Corporation ・New designation of Advanced Radiation Emergency Medical Support Center ・Status of additional inspection of TEPCO's Kashiwazaki-Kariwa NPS ・Management review for FY2022 (2nd)
82	Mar. 15	・Status of review of licensing conformity to the new regulatory requirements and future actions for Unit 2 of Shika Nuclear Power Station, Hokuriku Electric Power Co., Inc. - assessment of activity of faults on site - ・Summary of review results as a draft for application for permission to change facility operations of waste management at the Oarai Research and Development Institute of the JAEA - modification of tornado countermeasures and partial shutdown of liquid waste treatment facilities - ・Revisions to the NRA Organization Regulation ・Basic policy for the inspection of plans to be implemented at TEPCO's Fukushima Daiichi NPS in FY2023
83	Mar. 22	・Revision of the management review documents for FY2022 and determination of the NRA Annual Operational Plan for FY2023 ・Policy assessment implementation plan in FY2023 and the status of their reflection in the policy of the policy assessment results (published in FY2022) ・Proposed revisions to the Rules on Use of Nuclear Fuel Materials, etc. and solicitation of public comments ・Evaluation of reports on the automatic reactor shutdown of Takahama PS Unit 4 from Kansai Electric Power Co., Inc. ・Investigation and analysis related to the accident at TEPCO's Fukushima Daiichi NPS
84	Mar. 29	・Result of solicitation of public comments and the establishment of the drafts of (1) the guideline for review and the guideline for on-site inspection regarding the

		Radioisotope Regulation Act, and (2) a revision of the implementation guideline for on-site inspections ・Partial revision of the operational guide for safety improvement assessment at fuel fabrication facilities (excluding uranium fuel fabrication facilities) and reprocessing facilities ・Result of public comments on the way to proceed with investigation and analysis of the accident at TEPCO's Fukushima Daiichi NPS and the interim report (2023 version) (draft) ・Report on current status of nuclear regulatory inspections related to system separation of cables subject to fire protection in conjunction with future action policy ・Publication of the NRA Technical Note, "Data on Aircraft Crash Accidents (2001-2020)" and future actions accordingly ・Revision of Comprehensive Radiation Monitoring Plan ・Report on NRA Committee TANAKA's overseas business trip

＊1 The 4th FY2022 NRA Commission Meeting was closed to the public (1) because the first of the agenda items included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities, and (2) because the second of the agenda items addressed information on inspection and it could be difficult to ascertain accurate facts if such information and deliberations became public and indicated inspection details such as targets and policies. Additionally, the second agenda item included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

＊2 The 6th FY2022 NRA Commission Meeting was closed to the public because the Meeting addressed information on inspection and it could be difficult to ascertain accurate facts if such information and deliberations became public and indicated inspection details such as targets and policies. Additionally, the Meeting included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

＊3 The 8th FY2022 NRA Commission Meeting was closed to the public because it selected the NRA Commissioners for the Advisory Committees and partially handled personal information and information related to human resources management.

＊4 The 11th FY2022 NRA Commission Meeting was closed to the public (1) because the first of the agenda items included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities, and (2) as for the second of the agenda items, because it handled information on the review contents related to the special facilities for severe accident management, and there is a risk of disruption to the maintenance of public safety and order.

＊5 The 13th FY2022 NRA Commission Meeting was closed to the public because the Meeting addressed information on inspection and it could be difficult to ascertain accurate facts if such information and deliberations became public and indicated inspection details such as targets and policies. Additionally, the Meeting included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

＊6 The 16th FY2022 NRA Commission Meeting was closed to the public (1) because the first of the agenda items to be discussed was the selection of personnel at the organization, and there was a risk of harm to the rights and interests of individuals and an obstacle to ensuring fair and smooth personnel affairs related to personnel management at the organization if this information and discussion were to become public, (2) because it handled, as the second agenda item, information on the review contents related to the special facilities for severe accident management, and there is a risk of disruption to the maintenance of public safety and order, and (3) because the third of the agenda items included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

＊7 The 20th FY2022 NRA Commission Meeting was closed to the public because the Meeting addressed information on inspection and it could be difficult to ascertain accurate facts if such information and deliberations became public and indicated inspection details such as targets and policies. Additionally, the Meeting included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

＊8 The 22th FY2022 NRA Commission Meeting was closed to the public because it handled information on the review contents related to the special facilities for severe accident management, and there is a risk of disruption to the maintenance of public safety and order.

＊9 The 27th FY2022 NRA Commission Meeting was closed to the public because the first of the agenda items addressed information on inspection and it could be difficult to ascertain accurate facts if such information and

deliberations became public and indicated inspection details such as targets and policies. Additionally, the second of the agenda items included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

*10 The 30th FY2022 NRA Commission Meeting was closed to the public because the second and third agenda items included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

*11 The 34th FY2022 NRA Commission Meeting was closed to the public because the first agenda item covered information on inspection and it could be difficult to ascertain accurate facts if such information and deliberations became public and indicated inspection details such as targets and policies. Additionally, the Meeting dealt with information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

*12 The 43rd FY2022 NRA Commission Meeting was closed to the public (1) because, as for the first of the agenda items, it selected the NRA Commissioners for the Advisory Committees and partially handled personal information and information related to human resources management, and there was an obstacle to ensuring fair and smooth personnel affairs, and (2) because the second agenda item addressed information on inspection and it could be difficult to ascertain accurate facts if such information and deliberations became public and indicated inspection details such as targets and policies. Additionally, it included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

*13 The 52nd FY2022 NRA Commission Meeting was closed to the public because the first agenda item covered information on inspection and it could be difficult to ascertain accurate facts if such information and deliberations became public and indicated inspection details such as targets and policies. Additionally, the Meeting dealt with information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

*14 The 54th FY2022 NRA Commission Meeting was closed to the public because the second and third agenda items included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

*15 The 60th FY2022 NRA Commission Meeting was closed to the public (1) because the first agenda item covered selection of candidates of the NRA Commissioners for the Advisory Committees and others and partially handled personal information and information related to human resources management, and there was an obstacle to ensuring fair and smooth personnel affairs t, (2) because the second agenda item addressed information on inspection and it could be difficult to ascertain accurate facts if such information and deliberations became public and indicated inspection details such as targets and policies, and also because the second agenda item included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities, and (3) because the third agenda item covered information concerning answers to the questions about Japan's 9th National Report to the Convention on Nuclear Safety and there is a risk that public disclosure of such information and deliberations may impede the maintenance of reliable relations with other countries.

*16 The 63rd FY2022 NRA Commission Meeting was closed to the public because it dealt with information on deliberations, studies or consultations among or between national institutions, and if such information was made public, this may (1) unreasonably impair the frank exchange of opinions or the impartiality of decision-making, (2) unjustly cause confusion among the public, or (3) unfairly bring benefit or disadvantage to specific persons.

*17 The 65th FY2022 NRA Commission Meeting was closed to the public (1) because the first of the agenda items included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities, and (2) because the second agenda item covered information concerning answers to the questions about Japan's 9th National Report to the Convention on Nuclear Safety and there is a risk that public disclosure of such information and deliberations may impede the maintenance of reliable relations with other countries.

*18 The 68th FY2022 NRA Commission Meeting was closed to the public because the Meeting addressed information on inspection and it could be difficult to ascertain accurate facts if such information and deliberations became public and indicated inspection details such as targets and policies. Additionally, it included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities.

*19 The 69th FY2022 NRA Commission Meeting was closed to the public because it dealt with answers to the questions about Japan's 9th National Report to the Convention on Nuclear Safety and information regarding agenda for the FY2023 International Advisors Meeting, and there is a risk that public disclosure of such information and deliberations may impede the maintenance of reliable relations with other countries.

*20 The 70th FY2022 NRA Commission Meeting was closed to the public because it dealt with information on deliberations, studies or consultations among or between national institutions, and if such information was made public, this may (1) unreasonably impair the frank exchange of opinions or the impartiality of decision-making, (2) unjustly cause confusion among the public, or (3) unfairly bring benefit or disadvantage to specific persons.

*21 The 76th FY2022 NRA Commission Meeting was closed to the public (1) because the first agenda item covered selection of candidates of the NRA Commissioners for the Advisory Committees and others and partially handled personal information and information related to human resources management, and there was an

obstacle to ensuring fair and smooth personnel affairs, (2) because the second agenda item addressed information on inspection and it could be difficult to ascertain accurate facts if such information and deliberations became public and indicated inspection details such as targets and policies, and also because the second agenda item included information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became known by those who plan to sabotage nuclear facilities, and (3) because the third and fourth agenda items covered information on the physical protection of nuclear materials which might endanger public safety if such information and deliberations became and known by those who plan to sabotage nuclear facilities.

*22 The 80th FY2022 NRA Commission Meeting was closed to the public because it selected candidates of the NRA Commissioners for the Advisory Committees and others and partially handled personal information and information related to human resources management, and there was an obstacle to ensuring fair and smooth personnel affairs.

9. Decisions by NRA Commission Meetings (April 1, 2022 - March 31, 2023)

Date of determination	Decision made in the Meetings
Apr. 6	・Public notice of the results of soliciting public comments on the draft revision of the NRA Guide for Emergency Preparedness and Response and partial revision of the Guide
Apr. 20	・Establishment of guideline for review for the category 2 waste disposal site
Apr. 27	・Application for permission of change in basic design of Takahama PS Units 1 to 4 of Kansai Electric Power Co., Inc. (change of storage location for reduced volume of spent burnable poison) (hearing of opinions) ・Application for permission of change in basic design of Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. (changes based on regulations concerning protection against toxic gases) (hearing of opinions) ・Appointment of review members of the Reactor Safety Examination Committee
May 25	・Action plans for Production and Use of Radioisotopes for Medical Purposes (answer) ・Determination and publication of the Annual Report of the NRA in FY2021
Jun. 1	・Application for permission of change in basic design of Takahama PS Units 1 to 4 of Kansai Electric Power Co., Inc. (change of storage location for reduced volume of spent burnable poison) (permission) ・Application for permission of change in basic design of Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. (changes based on regulations concerning protection against toxic gases) (permission)
Jun. 8	・Revisions of the Review Guide for Design Basis Ground Motion and Seismic Design Policy (public notice of results of soliciting public comments and decisions on the revision)
Jun. 8	・Approval of appointment of executives of the designated organization implementing safeguards inspections
Jun. 29	・Pre-evaluation document and summary of the draft Cabinet Order on the partial revision of the Enforcement Order of the Radioisotope Regulation Act (elimination of double regulation of unapproved radiopharmaceuticals, etc.)
Jul. 6	・Appointment of review committees of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee ・Public notice of the results of soliciting public comments on the draft revision of the NRA Guide for Emergency Preparedness and Response and partial revision of the NRA EPR Guide
Jul. 13	・Application for permission of change in basic design of Kashiwazaki-Kariwa NPS of TEPCO (change of power reactor facilities for Units 6 and 7) (installation of Special Facility for Severe Accident Management) (hearing of opinions) ・Hearing opinions of permission for change in basic design of JAEA's Nuclear Science Research Institute, etc. (change of disposal facilities, etc. for radioactive waste)
Jul. 22	・Approval to change in implementation plans at Fukushima Daiichi NPS (facilities for discharging ALPS-treated water into the sea and others)
Jul. 27	・Japan's 9th National Report to the Convention on Nuclear Safety
Aug. 17	・Application for permission of change in basic design of Kashiwazaki-Kariwa NPS of TEPCO (change of power reactor facilities for Units 6 and 7) (installation of Special Facility for Severe Accident Management) (permission) ・Determination of policy assessment report on policies implemented in FY2022, a pre-analysis table to evaluate policies implemented in FY2022, and an ex-post-assessment report of regulations regarding policies for the purpose of establishing or revising or abolishing regulations
Aug. 24	・Determination of considerations to ensure nuclear safety in site selection for the final

	disposal of specified radioactive waste ・Approval of change in the operational safety program for power reactor facilities related to technical assessment of ageing management of Ohi PS Unit 4 of Kansai Electric Power Co., Inc. ・Assessment of the operational performance of the National Institutes for Quantum and Radiological Science and Technology at the end of FY2021 and the 1st medium to long-term goals' period, and the review of the National Institutes (joint jurisdiction portion with the NRA) ・Assessment of the operational performance of the JAEA in FY2021, and during the 3rd medium to long-term goals' period (joint jurisdiction portion with the NRA)
Aug. 31	・Hearing opinions concerning permission to change facility operations of reprocessing at the Reprocessing Plant of Japan Nuclear Fuel Ltd.((Issuance No. 65 dated April 28, 2021 (changes and others in light of regulations concerning toxic gas protection)) ・Hearing opinions concerning permission to change facility operations of waste management at the Reprocessing Plant of Japan Nuclear Fuel Ltd. (Issuance No. 66 dated April 28, 2021 (storage facilities for Low Level Waste and related facilities for shared use))
Sep. 7	・Application for permission of change in basic design of Kashiwazaki-Kariwa NPS of TEPCO (change of power reactor facilities for Units 6 and 7) (installation of permanent DC power supply (3rd system) in the station) (hearing of opinions)
Sep. 14	・Revisions to the interpretation and other aspects of the Regulations Concerning the Installment, Operation, etc. of commercial power reactors and their annexed facilities (determination of the revision and public notice of results on soliciting public comments)
Sep. 28	・Hearing opinions on the FY2022 Nuclear Energy Disaster Prevention Drill (answer) ・Confirmation of designation requirements for Nuclear Emergency Medical Support Center and Advanced Radiation Emergency Medical Support Center (including Core Advanced Radiation Emergency Medical Support Center)
Oct. 5	・Application for permission of change in basic design of Kashiwazaki-Kariwa NPS of TEPCO (change of power reactor facilities for Units 6 and 7) (installation of permanent DC power supply (3rd system) in the station) (permission)
Oct. 19	・Appointment of review committees of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee (related to Subcommittee on Earthquake and Tsunami Hazards and Subcommittee on Volcanic Hazards)
Oct. 26	・Draft Cabinet Order on the partial revision of the Enforcement Order of the Radioisotope Regulation Act (petition)
Nov. 2	・Application for permission of change in basic design of Takahama PS of Kansai Electric Power Co., Inc. (change of power reactor facilities for Units 1 and 2) - abolition of neutron absorber for Spent Fuel Pit, etc.) (hearing of opinions)
Nov. 22	・Matters of study and deliberation at the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee
Nov. 30	・Basic concept of backfitting
Dec. 7	・Establishment of the notifications on items designated by the NRA that the Radioisotope Regulation Act shall not apply pursuant to the provision of Article 1, item (ii) of the Enforcement Order of the Act.
Dec. 14	・Application for permission of change in basic design of Tokai Daini PS of Japan Atomic Power Co., Inc. (change of power reactor facilities) (changes based on regulations concerning protection against toxic gases) (hearing of opinions) ・Revision of "Concept of New Regulatory Requirements for Commercial Power Reactors"
Dec. 21	・Application for permission of change in basic design of Takahama PS of Kansai

	Electric Power Co., Inc. (change of power reactor facilities for Units 1 and 2) - abolition of neutron absorber for Spent Fuel Pit, etc.) (permission)
Dec. 28	・Application for permission of change in basic design of Ikata NPS of Shikoku Electric Power Co., Inc. (change of power reactor facilities for Unit 3) (expansion of spent resin storage tanks) (hearing of opinions)
Jan. 11	・Hearing opinions of permission for modification of the spent fuel storage facility of Recyclable-Fuel Storage Center, Recyclable-Fuel Storage Company, etc. (RFS Issuance 3, No. 20 dated January 20, 2022 (changes in consideration of standard response spectrum, etc.))
Jan. 18	・Revision of the Guide for the Review of Approval of Design and Construction Plan for Earthquake Resistance (determination of the revision and public notice of results on soliciting public comments) ・Formulation of the next medium to long-term goals of the National Institutes for Quantum and Radiological Science and Technology (consultation with the Minister of Finance)
Jan. 25	・Application for permission of change in basic design of Tokai Daini PS of Japan Atomic Power Co., Inc. (change of power reactor facilities) (changes based on regulations concerning protection against toxic gases) (permission) ・Revision of Policy on Ensuring Operational Transparency of the NRA ・Determination and publication of revision of the NRA 2nd mid-term goals
Feb. 8	・Application for permission of change in basic design of Ikata PS of Shikoku Electric Power Co., Inc. (change of power reactor facilities for Unit 3) (expansion of spent resin storage tanks) (permission) ・Permission for modification of the spent fuel fabrication facility of Recyclable Fuel Storage Center, Recyclable-Fuel Storage Company (RFS Issuance 3, No. 20 dated January 20, 2022 (changes in consideration of standard response spectrum, etc.))
Feb. 13	・Overview of study of safety regulations of ageing power reactors
Feb. 15	・Response to inquiry from the Atomic Energy Commission regarding the revision of the "Basic Policy for Nuclear Energy" ・Pre-evaluation and summary of the Reactor Regulation Act ・Hearing opinions, etc. to the Minister of Economy, Trade and Industry concerning approval of demerger of Mitsubishi Nuclear Fuel Company, Limited, a fabricator, into Mitsubishi Heavy Industries (MHI) Nuclear Fuel Corporation (MNF No. 22-0521, dated January 10, 2023)
Feb. 22	・Partial revisions to the interpretation and other aspects of the Regulations Concerning the Installment, Operation, etc. of commercial power reactors and their annexed facilities (determination of the revision and public notice of results on soliciting public comments) ・Issuance of guidance documents regarding the occurrence of all lights out at the installation place of the inspection equipment at the reprocessing plant of Japan Nuclear Fuel Ltd. ・Partial revision of Basic Policy on Human Resource Development for NRA Staff
Mar. 1	・Determination and publication of the "NRA's initiatives” ・Enactment of regulations concerning special measures for the form of identification cards to be carried by officials during on-site inspections, etc. pursuant to the provisions of Acts under the jurisdiction of the NRA (decision of enactment and notification of the public comment results)
Mar. 8	・Approval of the next medium to long-term goals of the National Institutes for Quantum and Radiological Science and Technology ・Approval of demerger of Mitsubishi Nuclear Fuel Company, Limited, a fabricator, into

	Mitsubishi Heavy Industries (MHI) Nuclear Fuel Corporation (MNF No. 22-0521, dated January 10, 2023) ・New designation of Advanced Radiation Emergency Medical Support Center
Mar. 15	・Hearing opinions of permission to change facility operations of waste management at the Oarai Research and Development Institute of the JAEA (modification of tornado countermeasures etc.) ・Regulations of partial revisions to the NRA Organization Regulation
Mar. 22	・Determination of the NRA Annual Operational Plan for FY2023 ・Determination of policy assessment implementation plan in FY2023 and the status of their reflection in the policy of the policy assessment results (published in FY2021)
Mar. 29	・Result of solicitation of public comments and the establishment of the drafts of (1) the guideline for review and the guideline for on-site inspection regarding the Radioisotope Regulation Act, and (2) a revision of the implementation guideline for on-site inspections ・Determination of partial revision of the "operational guide for safety improvement assessment at fuel fabrication facilities (excluding uranium fuel fabrication facilities) and reprocessing facilities" in conjunction with public announcement of public comments

10. Overview of Safety Regulations of Ageing Power Reactors

February 13, 2023
NRA

On July 29, 2020, the NRA clarified its view that "a decision on how long nuclear power reactor facilities should be allowed to be used is none other than a policy decision concerning how nuclear power should be utilized, and is not a matter for the NRA to express its opinion on." At the 52nd Strategic Policy Committee of the Advisory Committee for Natural Resources and Energy held on December 16, 2022, it was indicated that the policy regarding the operational period should be revised in terms of the policy for utilization. In response to this, the legal framework that needs to be established in the Nuclear Reactor Regulation Act is as follows so that the necessary safety regulations regarding ageing power reactors can continue to be strictly enforced.

1. When a power reactor is to be operated for more than 30 years after the start of its operation, a plan for managing the deterioration of the power reactor facilities for a period not exceeding 10 years (long-term facility management plan (tentative name)) shall be established and require the NRA's approval.

2. In case of operating a power reactor more than the period of the long-term facility management plan approved in 1. As above, in the same manner as in 1., the long-term facility management plan for a period not exceeding 10 years shall be formulated and obtain the NRA's approval. The same shall apply thereafter.

3. In case of a change in the long-term facility management plan approved under 1. or 2. during the period set in the plan, the change shall be approved by the NRA. If the change is minor, the operators shall notify the NRA of the change.

4. In case of formulating or changing the long-term facility management plan, a technical assessment of the deterioration status of the power reactor facilities (deterioration assessment) shall be carried out, except for the case where the change is minor.

5. In the long-term facility management plan, the period of the plan, the method and results of the degradation assessment, measures to manage the degradation of the power reactor facilities and other information shall be described.

6. The criteria for approval of the long-term facility management plan are that the plan conforms to all of the following: (1) degradation assessments have been conducted properly, (2) the measures taken to control degradation of the power reactor facilities do not interfere with disaster prevention, and (3) the plan conforms to technical standards even if degradation that will occur during the period of the plan is taken into account.

7. The power reactor installer shall take necessary measures to manage the deterioration of the power reactor facilities in accordance with the long-term facility management plan approved in 1. or 2. The implementation status of such measures shall be subject to nuclear regulatory inspections conducted by the NRA.

8. In cases where the NRA finds that the approved long-term facility management plan does not conform to the criteria in 6. above or that the power reactor installer is in violation of 7. above, the NRA can order the power reactor installer to implement degradation assessment, change the long-term facility management plan, and take other measures necessary to manage the degradation of the power reactor facilities.

9. In cases where the power reactor installer has operated the power reactor in violation of 1. or 2. above or has violated the NRA's orders as described in 8. above, the NRA can revoke the permission for basic design for the power reactor or order the suspension of its operation for a period not exceeding one year.

10. Penalties shall be established for cases where the power reactor installer has operated the power reactor in violation of 1. or 2. above or has violated the NRA's orders as described in 8. above in conjunction with provisions for fees to implement 1. through 9. above and other necessary provisions.

11. In order to ensure a smooth transition to the new system, the following preparatory acts and other necessary transitional measures shall be established.

    (a) During a certain period of time before the new system comes into effect, the application for and approval of a long-term facility management plan should be made in advance.

    (b) If the application is approved before the new system comes into effect, it shall be deemed to be approved under the new system on the date the new system comes into effect.

    (c) If the application is not approved before the new system comes into effect, it shall be considered as an application under the new system on the date the new system comes into effect.

12. For power reactors that have been in operation for more than 30 years but are not planned to be operated further, this framework does not apply. Instead, it requires that deterioration management be conducted within the existing framework for power reactors that have been

shut down for a long period, in other words, within the special measures for facility management stipulated in the operational safety program.

(End)

11. Exchange of Opinions with Operators

(1) Exchange of Opinions between the NRA and Operators (CEOs)

Dates	Nuclear Operators
April 12, 2022	Hokkaido Electric Power Co., Inc.
August 17, 2022	Tohoku Electric Power Co., Inc.
August 24, 2022	Electric Power Development Co., Ltd.
September 2, 2022	Chubu Electric Power Co., Inc.
September 5, 2022	Hokuriku Electric Power Company
October 24, 2022	Chugoku Electric Power Co., Inc.
December 19, 2022	The Japan Atomic Power Company
February 15, 2023	Japan Atomic Energy Agency
February 24, 2023	Kyushu Electric Power Company, Inc.
March 1, 2023	Kansai Electric Power Company, Inc.

(2) Exchange of Opinions with Chief Nuclear Officers (CNOs) of Major Nuclear Power Facilities Installers

Dates	Nuclear Operators	Main Issues of Discussions
April 19, 2022	Tokyo Electric Power Company Holdings, Inc., Kansai Electric Power Company, Inc., Chubu Electric Power Co., Inc. and Atomic Energy Association (ATENA)	・Measures to introduce new BWR fuels ・Making further safety improvements using the Safety Improvement Evaluation Report System ・Measures of ageing deterioration management to ensure its long-term safety operations (consideration of aging assessment on design) ・Improvement of Limiting Condition for Operation (LCO), etc. in the operational safety program
July 20, 2022	Tohoku Electric Power Co., Inc., Tokyo Electric Power Company Holdings, Inc., Chubu Electric Power Co., Inc., Hokuriku Electric Power Company, Chugoku Electric Power Co., Inc., Japan Atomic Power Co., Electric Power Development Co., Ltd. and Atomic Energy Association (ATENA)	・Study on hydrogen protection measures
December12, 2022	Tokyo Electric Power Company Holdings, Inc., Kansai Electric Power Co., Inc., Chubu Electric Power Co., Inc., Kyushu Electric Power Company, Inc. and Atomic Energy Association (ATENA)	・Response to the introduction of Accident Tolerant Fuel (ATF) ・Response to the introduction of 10×10 fuel

(3) Visits to Nuclear Facilities by NRA Commissioners

	Dates	Purposes	Places of Visit (NPP, etc.)	Visiting Commissioner
1	April 8, 2022	On-site investigation	Fukushima Daiichi Nuclear Power Station, TEPCO	Commissioner ISHIWATARI
2	April 14 - 15, 2022	On-site investigation	Fukushima Daiichi Nuclear Power Station, TEPCO	Commissioner YAMANAKA
3	May 12 - 13, 2022	On-site investigation	Fukushima Daiichi Nuclear Power Station, TEPCO	Commissioner YAMANAKA
4	May 31, 2022	On-site inspection	Nuclear Fuel Cycle Engineering Laboratories and Experimental Fast Reactor Joyo at the Oarai Research and Development Institute of the JAEA	Commissioner YAMANAKA
5	June 7, 2022	On-site inspection	Tomari Nuclear Power Plant of Hokkaido Electric Power Co., Inc.	Commissioner YAMANAKA
6	June 16 - 17, 2022	On-site investigation	Fukushima Daiichi Nuclear Power Station, TEPCO	Commissioner YAMANAKA
7	July 7, 2022	On-site inspection	Shika Nuclear Power Station, Hokuriku Electric Power Company	Commissioner YAMANAKA
8	July 14, 2022	On-site inspection	Training building of Radiation Disaster Medicine, Hiroshima University	Commissioner BAN
9	August 25 - 26, 2022	On-site investigation	Fukushima Daiichi Nuclear Power Station, TEPCO	Chairman FUKETA
10	August 29, 2022	On-site inspection	Hamaoka Nuclear Power Station, Chubu Electric Power Co., Inc.	Commissioner YAMANAKA
11	October 13 - 14, 2022	On-site investigation	Shika Nuclear Power Station, Hokuriku Electric Power Company	Commissioner ISHIWATARI
12	November 10 - 11, 2022	On-site inspection	Fukushima Daiichi Nuclear Power Station, TEPCO	Commissioner TANAKA
13	November 17 - 18,2022	On-site investigation	Onagawa Nuclear Power Station, Tohoku Electric Power Co., Inc.	Commissioner SUGIYAMA
14	December 2, 2022	On-site investigation	Kashiwazaki-Kariwa Nuclear Power Station, TEPCO	Commissioner SUGIYAMA & Commissioner BAN
15	December 22 - 23,2022	On-site investigation	Fukushima Daiichi Nuclear Power Station, TEPCO	Chairman YAMANAKA & Commissioner SUGIYAMA
16	January 6, 2023	On-site inspection	Institute for Radiological Science, Quantum Life and Medical Science Directorate, National Institutes for Quantum Science and Technology	Chairman YAMANAKA & Commissioner BAN
17	January 12 - 13, 2023	On-site inspection	Prototype Fast Breeder Reactor Monju and Prototype Advanced Thermal Reactor Fugen, JAEA	Commissioner TANAKA

			Mihama Nuclear Power Station, Kansai Electric Power Co., Inc.	
18	January 26 - 27, 2023	On-site investigation	Shimane Nuclear Power Station, Chugoku Electric Power Co., Inc.	Commissioner SUGIYAMA
19	January 28, 2023	On-site investigation	Kashiwazaki-Kariwa Nuclear Power Station, TEPCO	Chairman YAMANAKA
20	January 30, 2023	On-site inspection	Fukushima Daiichi Nuclear Power Station, TEPCO	Commissioner BAN
21	February 9 - 10, 2023	On-site investigation	Tomari Nuclear Power Plant of Hokkaido Electric Power Co., Inc.	Commissioner SUGIYAMA
22	February 17, 2023	On-site investigation	Kashiwazaki-Kariwa Nuclear Power Station, TEPCO	Commissioner TANAKA & Commissioner ISHIWATARI
23	March 3, 2023	On-site investigation	Experimental Fast Reactor Facility Joyo at the Oarai Research and Development Institute of the JAEA	Commissioner SUGIYAMA

12. Meetings and Opinion Exchange with Local Parties

(1) Meetings with Local Parties

Dates	Meeting with	NRA Representatives
April 6, 2022	Governor of Tottori Prefecture	Secretary-General
May 17, 2022	Deputy Governor of Shiga Prefecture	Deputy Secretary-General
May 17, 2022	Mayor of Tsuruga City, 23 mayors of municipalities, 18 chairpersons of municipal councils (including deputies)	Deputy Secretary-General
May 24, 2022	Governor of Shimane Prefecture	Secretary-General
June 3, 2022	Governor of Ehime Prefecture	Secretary-General
June 15, 2022	Governor of Shimane Prefecture	Secretary-General
August 19, 2022	Governor of Shimane Prefecture (Chairperson of the Special Committee for Measures for Nuclear Power Generation of National Governors' Association)	Secretary-General
November 14, 2022	Chairpersons of the prefectural assembly of Kagoshima, Shimane, Ibaraki Prefectures, Hokkaido, Aomori and Shizuoka Prefectures	Secretary-General
November 14, 2022	Governor of Shimane Prefecture	Secretary-General
November 25, 2022	Governor of Kanagawa Prefecture	Secretary-General

(2) Exchange of Opinions with Local Stakeholders by Committee Members

Coordination is underway with Prefectures in which nuclear power plants are located in order that the NRA Commissioners can exchange opinions with local stakeholders to a greater extent than before.

(3) Results of On-site Exchange of Opinions with Local Stakeholders by Officials of the Nuclear Regulation Authority

Dates	Venues	Names of meeting/ session	Main attendees

May 19, 2022 - February 16, 2023 (4 times in total)	Hokkaido	Briefing on the nuclear regulatory inspection results	Local governments
June 14 - August 18, 2022 (3 times in total)	Hokkaido	Exchange of opinions on fire protection	Iwanai and Suttsu District Firefighting Unions and Chief of Fire Department Tomari Branch, etc.
May 17, 2022 - February 10, 2023 (4 times in total)	Aomori Prefecture	Opinion exchange on nuclear regulatory inspections, etc.	Rokkasho Village
May 18, 2022 - February 15, 2023 (23 times in total)	Aomori Prefecture	Explanation and opinion exchange regarding the nuclear regulation inspection results	Aomori Prefectural Press Association, Prefectural government, Higashidori Village, Rokkasho Village
June 30, 2022 - March 23, 2023 (4 times in total)	Aomori Prefecture	Explanation and opinion exchange regarding the nuclear regulation inspection results	Higashidori Village
July 12, 2022	Aomori Prefecture	Aomori Prefecture, Meeting of Municipal Persons in Charge of Nuclear Disaster Prevention	Relevant local governments
July 27, 2022	Aomori Prefecture	Consultation on FY2022 Prefectural Nuclear Emergency Preparedness Drills Policy	Relevant local governments, etc.
October 20 - November 9, 2022 (6 times in total)	Aomori Prefecture	Opinion exchange meeting on nuclear power	Local residents, etc. (Tsugaru City, Ooma Town, Yomogita Village, Shingo Village, Towada City)
October 31, 2022	Aomori Prefecture	Meeting of FY2022 Aomori Prefecture's nuclear emergency drill (field training)	Relevant local governments, etc.
November 9, 202	Aomori Prefecture	Opinion exchange on the revised draft of the Rokkasho Village Nuclear Disaster Evacuation Planning	Rokkasho Village
November 10, 2022	Aomori Prefecture	Aomori Prefecture Nuclear Policy Committee	Organization representatives, experts, local residents, etc.
November 17, 2022	Aomori Prefecture	Aomori Prefecture's nuclear emergency drill (field training)	Relevant local governments
January 16, 2023	Aomori Prefecture	Aomori Prefecture Disaster Management Council Nuclear Energy Subcommittee (meeting on regional disaster management planning)	Relevant local governments, etc.
May 22, 2022	Miyagi Prefecture	Nuclear energy administration section managers meeting	Local governments

May 12 - July 19, 2022 (twice in total)	Miyagi Prefecture	Nuclear emergency system reinforcing working group meeting	Local governments
May 23, 2022 - February 27, 2023 (4 times in total)	Miyagi Prefecture	Explanation and opinion exchange regarding the nuclear regulation inspection results	Local governments
August 1, 2022	Miyagi Prefecture	Miyagi Prefecture nuclear emergency drill working group meeting	Local governments
August 23 - September 28, 2022 (twice in total)	Miyagi Prefecture	General meeting for nuclear emergency by concerned institutions	Local governments, etc.
January 30, 2023	Miyagi Prefecture	Miyagi Prefecture nuclear emergency drill	Local governments
June 3, 2022 - February 16, 2023 (twice in total, including web conference)	Fukushima Prefecture	Labor Safety and Health Subcommittee	Local governments, experts
July 28, 2022	Fukushima Prefecture	Plenary meeting, Okuma Town Council	Mayor, chairperson, assembly members
July 29, 2022	Fukushima Prefecture	Plenary meeting, Futaba Town Council	Mayor, chairperson, assembly members
September 2, 2022 - February 3, 2023 (3 times in total)	Fukushima Prefecture	Prefectural Council for Ensuring the Safety of Reactor Decommissioning	Local residents, various organizations, experts
January 16, 2023	Fukushima Prefecture	Naraha Nuclear Facility Monitoring Committee	Experts
April 13, 2022 - March 1, 2023 (11 times in total)	Niigata Prefecture	Regional Panel for Ensuring Transparency of Kashiwazaki-Kariwa NPS	Experts, local governments, operator, related ministries and agencies
April 26, 2022 - February 7, 2023 (5 times in total)	Niigata Prefecture	Municipal Study Group on Nuclear Safety Measures	Experts, local governments, operator, related ministries and agencies
April 27 - April 28, 2022 (twice in total)	Niigata Prefecture	Interim report explanation on supplemental inspection	Relevant local governments
May 18, 2022 - February 21, 2023 (4 times in total)	Niigata Prefecture	Explanation regarding the nuclear regulation inspection results	Relevant local governments

May 20, 2022	Niigata Prefecture	Technology Committee Meeting on Safety Management of NPP in Niigata Prefecture	Experts, local governments
October 24, 2022	Niigata Prefecture	Niigata Prefecture Nuclear Disaster Prevention Drill	Local governments, operators
November 2, 2022	Niigata Prefecture	Association Communities for Ensuring Transparency of Kashiwazaki-Kariwa NPS-information sharing meeting	Heads of local governments, experts, local governments, operators, related ministries and agencies
February 8 - 9, 2023 (twice in total)	Niigata Prefecture	Activity drills for emergency monitoring centers	Local governments, operators
February 15, 2023	Niigata Prefecture	Fire prevention and safety liaison committee	Local governments, public fire department, operators
March 23, 2023	Niigata Prefecture	Nagaoka City disaster prevention conference	Heads of local governments, experts
May 25, 2022 - February 16, 2023 (4 times in total)	Ibaraki Prefecture	Explanation regarding the nuclear regulation inspection results	Relevant local governments
October 18, 2022	Ibaraki Prefecture	Tokai Village wide-area evacuation drill	Tokai Village
March 8, 2023	Ibaraki Prefecture	Tokai Village disaster prevention conference	Tokai Village, related ministries and agencies, operators
March 25, 2023	Ibaraki Prefecture	Nuclear emergency preparedness drills	Hitachinaka City
May 11, 2022	Kanagawa Prefecture	Opinion exchange with Yokosuka labour standards inspection office	Directors of Yokohama labor standards inspection office, etc.
May 12, 2022 - February 20, 2023 (4 times in total)	Kanagawa Prefecture	Explanation and opinion exchange regarding the nuclear regulation	Relevant local governments
August 19, 2022	Kanagawa Prefecture	Exchange information on fire prevention measures of operators	Vice Chief of Yokosuka City Minami Fire Station, etc.
October 20, 2022	Kanagawa Prefecture	Kawasaki Nuclear Facility Safety Committee (Secretariat meeting)	Local governments, operators, etc.
November 25, 2022	Kanagawa Prefecture	Kawasaki Nuclear Facility Safety Committee (plenary meeting)	Local governments, operators, etc.
June 21, 2022	Shizuoka Prefecture	Omaezaki City Special Committee on Nuclear Countermeasures	Members of municipal assemblies, etc.

September 16, 2022	Shizuoka Prefecture	Information liaison committee on nuclear disaster wide-area evacuation planning	Relevant local governments
December 12, 2022 - January 23, 2023 (twice in total, web conference)	Shizuoka Prefecture	Shizuoka Prefecture Nuclear Emergency Preparedness Drills Preliminary Coordination Conference	Relevant local governments
April 19 - November 18, 2022 (twice in total)	Ishikawa Prefecture	Shika Town "Nuclear Power Station" Safety Promotion Committee	Heads of local governments, representatives of residents, etc.
April 19, 1992 - February 10, 2023 (4 times in total)	Ishikawa Prefecture	Joint Meeting of Akasumi Area Committee and Safety Promotion Liaison Committee	Heads of local governments, representatives of residents, etc.
May 18, 2022 - February 15, 2023 (4 times in total)	Ishikawa Prefecture	Explanation regarding the nuclear regulation inspection results	Relevant local governments
May 18, 2022 - February 15, 2023 (4 times in total)	Fukui Prefecture	Fukui Prefecture NPP liaison meeting	Relevant local governments
May 20, 2022	Gifu Prefecture	Explanation of nuclear regulations, etc.	Local governments
June 20, 2022	Fukui Prefecture	Explanation of nuclear regulations, etc.	Mihama Town
June 24, 2022	Fukui Prefecture	On-site confirmation regarding alternative off-site centers (exchange of opinions, etc.)	Local governments
October 6, 2022	Fukui Prefecture	Meeting of the Working Group on Effective Implementation of the Inspection System of the Atomic Energy Society of Japan	Academic members, students and citizens
October 18, 2022 - January 31, 2023 (twice in total)	Fukui Prefecture	Fukui Prefecture Nuclear Safety Expert Council	Experts, local governments
November 10, 2022	Fukui Prefecture	Firefighting information liaison committee of Fukui Prefecture nuclear power plants, etc.	Local governments, Tsuruga Mikata Fire Department officials
January 18, 2023	Fukui Prefecture	Explanation of the draft outline of safety regulations for aging power reactors	Deputy Governor
January 18, 2023	Fukui Prefecture	Explanation of the draft outline of safety regulations for power reactors	Prefectural assembly members

February 20, 2023	Fukui Prefecture	Tsuruga City disaster prevention conference	Heads of local governments, experts
March 10, 2023	Fukui Prefecture	Wakasa Nuclear Power Station Environmental Safety Council	Mayor of Town, town council members, representatives of organizations, residents, etc.
May 16, 2022	Osaka Prefecture	Nuclear facilities liaison conference	Higashiosaka City, Higashiosaka fire department, operators
May 24 - 26, 2022 (4 times in total)	Osaka Prefecture	Explanation regarding the nuclear regulation inspection results	Relevant local governments
July 19, 2022 - March 17, 2023 (twice in total)	Osaka Prefecture	Nuclear Problems Countermeasures Council	Mayor, Kumatori Town Council members, experts
July 27, 2022	Osaka Prefecture	Nuclear Problems Countermeasures Council	Mayor, Izumisano City Council members, experts
August 23, 2022 - February 21, 2023 (12 times in total)	Osaka Prefecture	Explanation regarding the nuclear regulation inspection results	Relevant local governments
November 4, 2022 - January 13, 2023 (twice in total)	Osaka Prefecture	Izumisano City disaster prevention conference	Mayor, Izumisano City Council members, experts
May 24, 2022 - February 21, 2023 (4 times in total, web conference)	Okayama Prefecture	Briefing on the nuclear regulatory inspection results	Relevant local governments
November 8, 2022	Okayama Prefecture	Meeting with Tsuyama labour standards inspection office regarding cooperation	Tsuyama labour standards inspection office
November 14, 2022	Okayama Prefecture	Discussions on the content of field training for nuclear emergency drill	Local governments, Tsuyama Area Firefighting Union
May 18, 2022 - February 15, 2023 (4 times in total)	Shimane Prefecture	Briefing on the nuclear regulatory inspection results	Local governments
April 12, 2022 - January 27, 2023 (4 times in total)	Saga Prefecture	Explanation regarding the nuclear regulation inspection results	Relevant local governments
February 14, 2023	Saga Prefecture	Regional liaison committee on nuclear emergency management	Concerned institutions, relevant local governments
May 27, 2022 - February 28, 2023 (4 times in total)	Kagoshima Prefecture	Satsuma Sendai City Nuclear Safety Measures Liaison Council	Heads of local governments, Members of Municipal Assemblies, representatives of residents, etc.

April 12, 2022 - January 25, 2023 (4 times in total)	Kagoshima Prefecture	Nuclear power generation-related cities manager meeting	Local governments, concerned institutions, operators
August 8, 2022 - February 16, 2023 (twice in total, including web conference)	Kagoshima Prefecture	Nuclear Safety Measures Liaison Council	Heads of local governments, assembly members, operator, etc.
November 14, 2022	Kagoshima Prefecture	Kagoshima Prefecture Nuclear Safety - Special Committee on Disaster Prevention including Evacuation Planning, etc.	Experts, governor, local governments, operators

*In addition to those stated in the table, meetings of working groups of local nuclear preparedness councils and committees on radiation oversight or monitoring are occasionally held in related prefectures, and the personnel of the NRA Secretariat attend.

(4) Major Explanations on Results of Review of Nuclear Facilities

Dates	Venues	Names of meeting/ session	Contents
May 20, 2022	Niigata Prefecture	Technology Committee Meeting on Safety Management of NPP in Niigata Prefecture	Interim report on supplemental inspection of Kashiwazaki-Kariwa NPS of TEPCO
May 24, 2022	Fukushima Prefecture	Safety Oversight Council for Decommissioning of Fukushima Nuclear Power Plants	Overview of review for installation of facilities related to the offshore discharge of ALPS-Treated Water, etc.
July 26, 2022	Fukushima Prefecture	Safety Oversight Council for Decommissioning of Fukushima Nuclear Power Plants	Application form for installation of facilities related to the offshore discharge of ALPS-Treated Water, etc.
August 19, 2022	Shizuoka Prefecture	Omaezaki City plenary meeting of city assembly	Status review of licensing conformity to the New Regulatory Requirements for Unit 4 of Hamaoka Nuclear Power Station
August 19, 2022	Shizuoka Prefecture	Council for Safety and Other Measures at Hamaoka Nuclear Power Station	Status review of licensing conformity to the New Regulatory Requirements for Unit 4 of Hamaoka Nuclear Power Station
September 2, 2022	Fukushima Prefecture	Prefectural Council for Ensuring the Safety for Decommissioning of Fukushima Nuclear Power Plants	Overview of review for installation of facilities related to the offshore discharge of ALPS-Treated Water, etc.
January 18, 2023	Fukui Prefecture	Explanation to the Deputy Governor of Fukui Prefecture, Fukui Prefecture Plenary Meeting of Prefectural Assembly	Overview of safety regulations of ageing power reactors

January 24, 2023	Fukui Prefecture	Fukui Prefecture Nuclear Environmental Safety Control Council	Status of review on Tsuruga NPS Unit 2, overview of safety regulations of ageing power reactors
January 31, 2023	Fukui Prefecture	Fukui Prefecture Nuclear Safety Expert Council	Overview of safety regulations of ageing power reactors
March 10, 2023	Fukui Prefecture	Wakasa Nuclear Power Station Environmental Safety Council	Overview of safety regulations of ageing power reactors
March 29, 2023	Ibaraki Prefecture	Working Team for Studying Safety at Tokai No.2 Power Station of Ibaraki Prefecture Nuclear Safety Task Force Committee	Effect of rewriting of borehole map data at Tsuruga NPS Unit 2 on Tokai No.2 Power Station

13. Record of Opinion Exchange with Foreign Experts, etc.

(1) Opinion Exchange with Foreign Experts

Dates	Attendees	Attendance of Commissioners
May 16, 2022	Richard A. Meserve, External Advisor Dana Drábová, External Advisor Philippe Jamet, External Advisor	Chairman FUKETA Commissioner TANAKA Commissioner YAMANAKA Commissioner BAN Commissioner ISHIWATARI

(2) Opinion Exchange with Foreign Regulatory Authorities

Dates	Participants, Meetings Attended	Attendance of Commissioners
May 3 - 4, 2022	International Nuclear Regulators Association (INRA) (nuclear regulators from the United States, United Kingdom, France, Germany, Canada, Spain, Sweden, and Republic of Korea)	Chairman FUKETA
September 27, 2022	International Nuclear Regulators Association (INRA) (nuclear regulators from the United States, United Kingdom, France, Germany, Canada, Spain, Sweden, and Republic of Korea)	Chairman YAMANAKA
November 28, 2022	Director-General Kenzelmann of Swiss Federal Nuclear Safety Inspectorate (ENSI)	Chairman YAMANAKA
November 28, 2022	Chairman Hanson of US Nuclear Regulatory Commission (NRC)	Chairman YAMANAKA
November 28, 2022	Director General Cromnier of Swedish Radiation Safety Authority (SSM)	Chairman YAMANAKA
November 28, 2022	President Velshi of Canadian Nuclear Safety Commission (CNSC)	Chairman YAMANAKA
December 1, 2022	Director General Tiippana of Radiation and	Chairman YAMANAKA

	Nuclear Safety Authority in Finland (STUK)	
December 2, 2022	Director General NIEL of the Institute for Radiation Protection and Nuclear Safety (IRSN)	Chairman YAMANAKA

14. Continuous Improvement of Management

(1) Internal Audit of Management System

In FY2022, in the following six divisions:

- Emergency Preparedness and Response Office (June 20 and 21, 2022)
- Rokkasho Safeguards Center (September 14, 2022)
- Rokkasho NRA Regional Office (September 15, 2022)
- Division of Nuclear Security (September 27 and 29, 2022)
- Personnel Division (November 30 and December 1, 2022)
- Fukushima Daini NRA Regional Office (December 7 and December 15, 2022)

Overall, no items required improvement, with two items classified as desirable for issues recommended improvement and two good practices.

(2) List of Items Requiring Improvement Confirmed in FY2021

	Date of Confirmation	Items Requiring Improvement
1	May 17, 2022	Lack of documents and procedures in permissions and approvals related to the revision of Article 3
2	May 24, 2022	Errors in questioning on the 54th Chief Engineer of Nuclear Fuel examination
3	May 24, 2022	Clerical errors in e-mail address on the examination notification letter for the oral examination portions of the 63rd examination for chief engineer of reactors
4	May 24, 2022	Clerical errors in the examination schedule on the examination admission ticket for the written examination portions of the 64th examination for chief engineer of reactors
5	June 3, 2022	Inappropriate management of the disposal operation for inspector's certificates under revocation and disposal administrative procedures
6	June 10, 2022	Failure to send a copy of the notification on the application for permission of change in basic design of the first nuclear ship (MUTSU)
7	June 28, 2022	Improper paperwork in the preparation of specifications for contract
8	June 30, 2022	Errors in the draft resolution (comparative table of the current and the former items) discovered at the time of the revision of the NRA Guide for Emergency Preparedness and Response
9	July 1, 2022	Error in publication in the Official Gazette
10	August 12, 2022	Delay in posting interview summaries and documents related to disposition of regulatory laws and regulations on the NRA website
11	August 17, 2022	Loss of emergency vehicle designation form for nuclear emergency response vehicles
12	August 19, 2022	Loss of emergency vehicle designation form for monitoring vehicles
13	August 19, 2022	Errors and delays in procedures related to changes in enforcement of joint research agreements
14	August 22, 2022	Failure to attend seal exchange operations at uranium enrichment facilities
15	September 29, 2022	Nuclear inspectors not carrying inspectors' certificates due to non-issuance
16	October 17, 2022	Failure to carry nuclear inspector's certificates (physical protection of nuclear material) due to their non-issuance
17	October 21, 2022	Failure to carry identification cards for inspection due to omission of

		issuance
18	December 15, 2022	False entry into radiation-controlled areas during nuclear regulatory inspections
19	January 12, 2023	Delay in reporting to Commissioners and Executives concerning errors in technical assessment of ageing management of the Kashiwazaki-Kariwa NPS Unit 3
20	February 27, 2023	Regarding the backlog of processing related to the "Semi-Annual Operation - Inspection Plan"
21	March 28, 2023	Improvement of data survey method on aircraft fall accident
22	March 31, 2023	Failure to mask non-disclosed information in materials released on the NRA website and others (Mihama PS Unit 3)
23	March 31, 2023	Clerical errors in the review report of the permission for change in basic design of the Takahama PS Units 1 and 2 (abolition of neutron absorber for Spent Fuel Pit, etc.)
24	March 31, 2023	Omission of writing review results concerning change in design and construction plan of Tokai Daini PS

Reference 2 Relevant Materials related to Implementation of Various International Treaties on Nuclear Safety (related to Section 2 in Chapter 1)

The NRA is promoting cooperation with international organizations and overseas regulatory agencies through treaties and participation in the development and reviews of the IAEA's safety standards and in joint research to continuously improve nuclear regulation in Japan and contribute to nuclear safety in the international society.

1. Implementation of Various International Treaties on Nuclear Safety

(1) Convention on Nuclear Safety (Nuclear Safety Convention)

This convention applies to nuclear power plants and intends to globally achieve and maintain a high-level of nuclear safety. It is aimed to establish and maintain radiation protection at nuclear power plants, to prevent an accident with radiological consequences, and to mitigate its consequences in the event of an accident. According to the Convention, the NRA has been implementing activities (so-called "review process") every three years such as (1) developing a national report, (2) conducting a peer review among contracting parties and (3) participating in the meeting of contracting parties (review meeting).

(Record of Major Activities under the Convention on Nuclear Safety)

Periods	Overviews
August, 2013	Submission of Japan's 6th National Report
March 24 - April 4, 2014	The 6th Review Meeting under the Convention on Nuclear Safety (participated by Commissioner Oshima and others)
August, 2016	Submission of Japan's 7th National Report
March 27 - April 7, 2017	The 7th Review Meeting under the Convention on Nuclear Safety (participated by Commissioner Ban and others)
August, 2019	Submission of Japan's 8th National Report
August, 2022	Submission of Japan's 9th National Report
March 20 - 31, 2023	The 8th and 9th Joint Review Meeting under the Convention on Nuclear Safety (participated by Commissioner Tanaka and others)

(2) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention on Nuclear Waste)

This convention applies to the safety of the management of spent fuel and radioactive waste generated from facilities including nuclear power plants, research reactors and other nuclear facilities such as reprocessing plants and rad-waste storage facilities, etc. It is aimed to achieve and maintain a high level of safety worldwide in spent fuel and radioactive waste management, and to ensure radiation protection during all stages of spent fuel and radioactive waste management, to prevent an accident with radiological consequences and to mitigate its consequences in the event of an accident. According to the Convention, the NRA has been implementing activities (so called "review processes") every three years such as (1) preparing a national report, (2) conducting a peer review among contracting parties and (3) participating in the meeting of contracting parties (review meeting).

(Record of Major Activities under the Joint Convention on Nuclear Waste)

Periods	Overviews
October, 2014	Submission of Japan's 5th National Report for the 5th Review Meeting
May 11 - 22, 2015	The 5th Review Meeting under the Joint Convention on Nuclear Waste (participated by Commissioner TANAKA and others)
October, 2017	Submission of Japan's 6th National Report
May 21 - June 1, 2018	The 6th Review Meeting under the Joint Convention on Nuclear Waste (participated by Commissioner TANAKA and others)
October, 2020	Submission of Japan's 7th National Report
June 27 - July 8, 2022	The 7th Review Meeting under the Joint Convention on Nuclear Waste (participated by Commissioner TANAKA and others)

(3) Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

The Early Notification Convention is a framework for providing "information on an accident causing a transborder radiation impact" to countries that may be affected and the IAEA, whereas the Assistance Convention is a framework for providing assistance in case of a nuclear accident or a radiological emergency.

The meetings of the competent authorities of the contracting parties under the Early Notification Convention and the Assistance Convention are held every two years. The most recent meeting of the countries was held from June 13 to 17 in 2022, in which the NRA staff participated along with the Ministry of Foreign Affairs and the Cabinet Office.

(4) The Convention on the Physical Protection of Nuclear Material and its Amendments

The Physical Protection Convention obligates the contracting countries to take protective measures for nuclear materials during their international transportation, and requires them to protect nuclear materials against their illegal acquisition and uses. The amendment of the Physical Protection Convention took effect in Japan on May 8, 2016 and the targets of protection based on the convention were expanded to domestic peaceful uses of nuclear materials, storage and transportation, and nuclear facilities.

2. Cooperation under International Organizations

(1) International Atomic Energy Agency (IAEA)

The IAEA is an international organization established in 1957 under the leadership of the UN with the aim of promoting peaceful uses of nuclear energy, and consists of 176 member states, as of March, 2023. Its secretariat is located in Vienna and the director-general is Rafael Mariano Grossi.

The IAEA's activities in the field of nuclear safety range widely, such as the development or review of its safety standards, activities relating to emergency arrangements, radiation protection and physical protection, and international cooperation for improving nuclear regulation.

The Commission on Safety Standards (CSS), which is a standing committee, reviews the safety standard documents. The NRA also is actively participating in the activities of CSS and its subcommittees.

Through the IAEA, NRA has been contributing internationally as an international, professional organization by joining the IAEA's standing advisory groups such as the International Nuclear Safety Advisory Group (INSAG), Advisory Groupon Nuclear Security (AdSec, of which NRA Commissioner Tanaka is a member), and others.

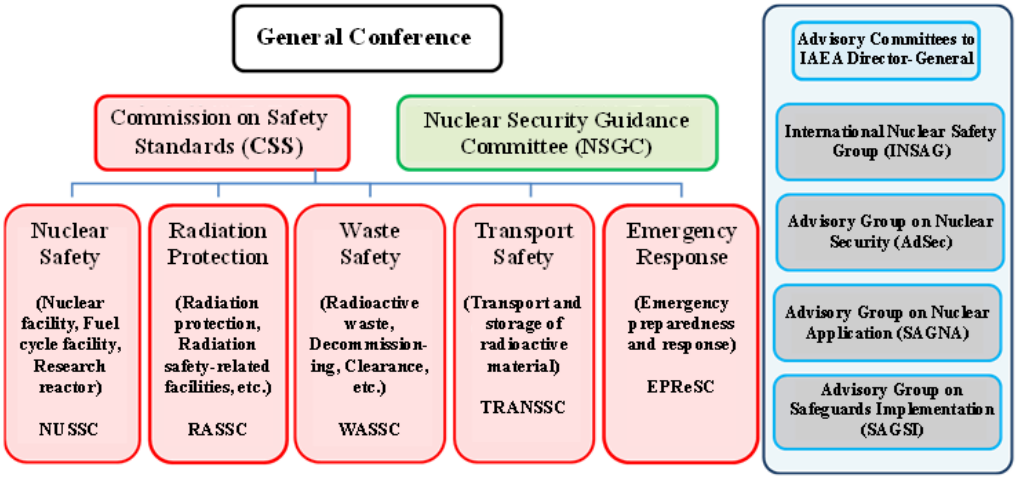


Figure iii Major IAEA Committees in which the NRA Participates

In response to requests from member states, the IAEA has been conducting peer reviews such as the Integrated Regulatory Review Service (IRRS), which comprehensively reviews nuclear regulation legal systems and regulatory organizations. The NRA invited an IRRS mission from January 10 to 22 in 2016, an IRRS follow-up mission from January 14 to 21 in 2020, an International Physical Protection Advisory Service (IPPAS) mission (for reviewing the situation of nuclear security measures) from February 16 to 27 in 2015 and an IPPAS follow-up mission from November 26 to December 7 in 2018.

In addition, through the IAEA's projects, the NRA actively participates in and contributes to efforts to improve nuclear safety worldwide, as well as collects and shares technical information and knowledge.

(IAEA's Major Cooperative Projects in which the NRA Participates)

Projects	Overviews
RCF: Regulatory Cooperation Forum	The forum is designed to promote and improve cooperation and coordination among regulatory bodies and international organizations in Member States that have already established nuclear power generation and those that plan to introduce or expand it. Japan is serving as Steering Committee Member.
ANSN: Asian Nuclear Safety Network	A cooperative framework for improving the safety of nuclear facilities in the Asia region, and Japan serves as the Chair of the Steering Committee and the Chair and Vice Chair of the Self-Assessment Coordination Group (SACG).
EESS-EBP	Develops detailed guides to the IAEA safety standards for external events.
IGALL	Formulates technological and practical guidelines for the ageing deterioration management of systems, structures and components important for the safety of light-water and heavy-

	water reactors to ensure their long-term operations.
The joint project between the IAEA and Japan with regard to marine monitoring	In marine-monitoring activities joined by the IAEA at the coastal sea area of Fukushima Prefecture, the project takes samples to evaluate the method and mutual comparison of the analytical results.

(2) Organization for Economic Co-operation and Development/Nuclear Energy Agency (OECD/NEA)

Established in 1958, the OECD Nuclear Energy Agency (headed by Director General Magwood, with 34 member states as of March, 2023) is headquartered in Paris and its activities are deliberated in steering committee meetings held twice a year. Benefiting from its characteristic of sharing the latest knowledge among advanced nuclear energy countries, the OECD/NEA discusses the prevention and mitigation of a possible nuclear accident and carries out related activities (including the sharing of OECD/NEA member countries' situations of regulatory efforts and joint safety research based on lessons learned from the accident at the Fukushima Daiichi Nuclear Power Station).

Among the standing committees, the Committee on Nuclear Regulatory Activities (CNRA), the Committee on the Safety of Nuclear Installations (CSNI), the Committee on Radiation Protection and Public Health (CRPPH), the Radioactive Waste Management Committee (RWMC) and working groups operating under them are studying various issues concerning nuclear safety, and also the NRA is actively participating in these activities.

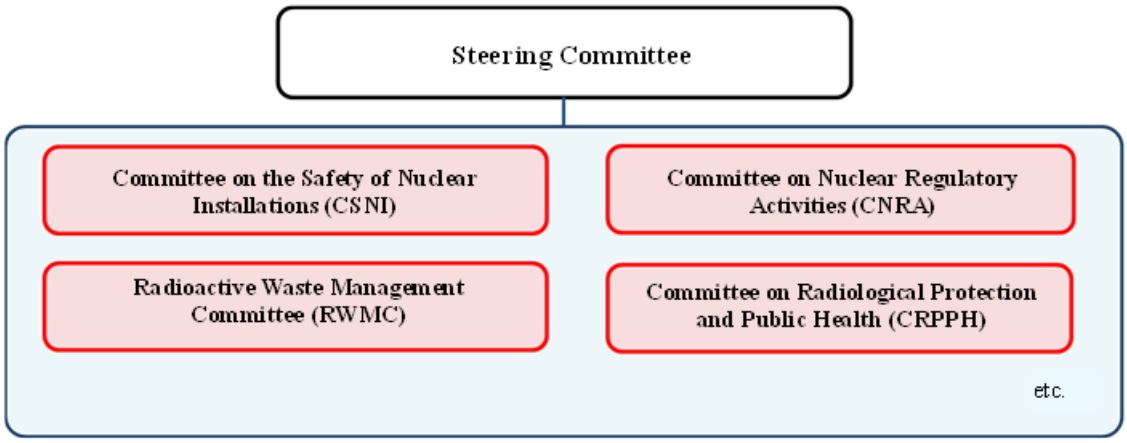


Figure iv Major OECD/NEA Committees in which the NRA Participates

In addition, the NRA has been joining various joint projects under the OECD/NEA, and contributing to the gathering of the latest technological information of advanced countries in order to make technological advancement.

(Major OECD/NEA Joint Projects in which the NRA Participates)

Project Names	Overviews
FACE	(1) Analyze information on the accident at TEPCO's Fukushima Daiichi NPS to improve reactor safety and (2) share data and knowledge to enhance analysis techniques facing severe accidents. In addition, (3) share methods to establish analytical

	techniques on fuel debris for decommissioning.
SMILE	Conduct various tests focusing on ageing events with high priority that may affect long-term operation, and obtain technical knowledge on ageing events.

(3) Record of NRA Chairperson and Committee Members' Participation in Meetings Held by International Organizations, etc.

Dates	Meetings Held by International Organizations	Participants of the NRA
April 5-7, 2022	OECD/NEA/CNRA[1] Working Group on Safety Culture (WGSC) (online meeting)	Commissioner BAN
May 9-12, 2022	IAEA Advisory Group on Nuclear Security (AdSec) (Austria)	Commissioner TANAKA
June 20-21, 2022	European Nuclear Safety Regulators Group (ENSREG) Conference (Belgium)	Commissioner FUKETA
June 22, 2022	OECD/NEA Meeting on Multilateral Physical Security Initiative (France)	Commissioner FUKETA
June 23-24, 2022	IAEA Kickoff Meeting on Nuclear Harmonization and Standardization Initiative (NHSI) concerning SMR (Austria)	Commissioner FUKETA
October 18-20, 2022	OECD/NEA/CNRA Working Group on Safety Culture (WGSC) (France)	Commissioner BAN
November 6-12, 2022	International Commission on Radiological Protection (ICRP) (Canada)	Commissioner BAN
November 21-24, 2022	IAEA Advisory Group on Nuclear Security (AdSec) (Austria)	Commissioner TANAKA
November 28-29, 2022	International Conference on Regulators' Views and Priorities on Nuclear Safety and Radiation Protection 10 Years After TEPCO Fukushima Daiichi NPS Accident, jointly hosted by the NRA and OECD/ NEA (Tokyo)	Chairman YAMANAKA Commissioner SUGIYAMA Commissioner ISHIWATARI
January 30, 2023	Summary Workshop of IAEA-Fukushima Cooperation Project (Fukushima)	Commissioner BAN

(4) Record of Participation in International Nuclear Regulators Association (INRA)

*Since FY2019

Periods	Main participants from the NRA
May 21-22, 2019	Secretary-General YASUI
September 17, 2019	Chairman FUKETA
September 22, 2020	Chairman FUKETA
May 10, 2021	Chairman FUKETA
September 21, 2021	Chairman FUKETA
May 3-4, 2-2022	Chairman FUKETA
September 27, 2022	Chairman YAMANAKA

(5) Record of Participation in Western European Nuclear Regulators Association

[1] Committee on Nuclear Regulatory Activities

(WENRA) Meetings

*Since FY2019

Periods	Main Participants from the NRA
April 9-11, 2019	Director of Nuclear Regulation Policy Planning Division, ICHIMURA
October 14-16, 2019	Director-General KANEKO
November 4-5, 2020	Director-General KANEKO
April 13-14, 2021	Director-General KANEKO
October 14-15, 2021	Director-General for Emergency Response, KANEKO
April 5-6, 2022	Director-General for Emergency Response, KANEKO
November 9-10, 2022	Deputy Secretary-General KANEKO

(6) Record of Participation in the Top Regulators Meeting on Nuclear Safety (TRM)

* Since FY2019

Periods	Main Participants from the NRA
November 28, 2019	Commissioner BAN
November 30-December 1, 2021	Commissioner BAN
December 9, 2022	Commissioner BAN

3. Bilateral Cooperation

(Organizations Having Signed a Bilateral Cooperation Document (As of the End of March, 2023))

Countries	Organizations
U.S.	Nuclear Regulatory Commission (NRC) Department of Energy (DOE)
France	Nuclear Safety Authority (ASN) Institute for Radiation Protection and Nuclear Safety (IRSN)
UK	Office for Nuclear Regulation (ONR)
Russian Federation (Russia)	Federal Environmental, Industrial and Nuclear Supervision Service of Russia (Rostechnadzor)
Sweden	Swedish Radiation Safety Authority (SSM)
Germany	Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)
Spain	Spanish Nuclear Safety Council (CSN)
Finland	Finnish Radiation and Nuclear Safety Authority (STUK)
Canada	Canadian Nuclear Safety Commission (CNSC)

4. Overseas External Advisors

External Advisors and their careers

(As of the Opinion Exchange on May 16, 2022)

Richard Meserve	Former chairman of the U.S. Nuclear Regulatory Commission (NRC) Chairperson of International Nuclear Safety Advisory Group (INSAG), IAEA
Dana Drabova	Director-General of the Czech Republic (Czech) State

	Office for Nuclear Safety (SUJB) Former chairperson of IAEA Commission on Safety Standards (CSS)
Andy Hall	Former Chief Nuclear Inspector of the UK Office for Nuclear Regulation (ONR) Former chairperson of European Nuclear Safety Regulators Group (ENSREG)
Philippe Jamet	Former commissioner of the Nuclear Safety Authority (ASN), France Former director of the Division of Nuclear Installation Safety, IAEA
Randall Gauntt	Former director of the Severe Accident Analysis Department, Sandia National Laboratories, the USA

Reference 3 Materials related to Implementation of Regulations pertaining to the Reactor Regulation Act (related to Section 1 in Chapter 2)

1. Status of Applications, Permissions or Approvals, and so on, related to Conformity of Commercial Power Reactors to New Regulatory Requirements

(1) Main Facility and Special Facility for Severe Accident Management

Applicant	Targeted power reactor	Application type	Application date	Review Meeting (times)	Documentary review (times)	On-site investigation (times)	Date of permission or approval
Hokkaido Electric Power Co., Inc.	Tomari PS (Units 1, 2)	Change in basic design Change in design and construction plan Change in operational safety program	July 8, 2013	–	–	–	–
	Tomari PS (Unit 3)	Change in basic design Change in design and construction plan Change in operational safety program	July 8, 2013	20	–	1	–
	♦Tomari PS (Unit 3)	Change in basic design	December 18, 2015	–	–	–	–
Tohoku Electric Power Co., Inc.	Onagawa NPS (Unit 2)	Change in basic design Change in design and construction plan Change in operational safety program	December 27, 2013	2	–	–	February 26, 2020 December 23, 2021 February 15, 2023
	◆Onagawa NPS (Unit 2)	Change in basic design	January 6, 2022	11	–	1	–
	Higashidori NPS (Unit 1)	Change in basic design Change in design and construction plan Change in operational safety program	June 10, 2014	7	–	–	–
Tokyo Electric Power Company Holdings, Inc.	Kashiwazaki-Kariwa NPS (Units 6, 7)	Change in basic design Change in design and construction plan Change in operational safety program	September 27, 2013	–	–	–	December 27, 2017 October 14, 2020 (Unit 7) October 30, 2020 (Unit 7)
		Change in basic design	December 15, 2014	3	–	–	August 17, 2022

Applicant	Targeted power reactor	Application type	Application date	Review Meeting (times)	Documentary review (times)	On-site investigation (times)	Date of permission or approval
	◆Kashiwazaki-Kariwa NPS (Units 6, 7)	Change in design and construction plan*3	January 30, 2023 (Unit 7)				–
Chubu Electric Power Co., Inc.	Hamaoka NPS (Unit 3)	Change in basic design	June 16, 2015	11	–	–	–
	Hamaoka NPS (Unit 4)	Change in basic design	February 14, 2014 January 26, 2015 *1	11	–	–	–
		Change in design and construction plan					
		Change in operational safety program					
Hokuriku Electric Power Company	Shika NPS (Unit 2)	Change in basic design	August 12, 2014	6	–	1	–
		Change in design and construction plan					
		Change in operational safety program					
Kansai Electric Power Co., Inc.	Ohi PS (Units 3, 4)	Change in basic design	July 8, 2013	–	–	–	May 24, 2017
		Change in design and construction plan					August 25, 2017
		Change in operational safety program					September 1, 2017
	◆Ohi PS (Units 3, 4)	Change in basic design	March 8, 2019	–	–	–	February 26, 2020
		Change in design and construction plan*3	March 6, 2020 August 26, 2020				December 22, 2020 August 24, 2021
		Change in operational safety program	September 17, 2021				March 24, 2022
	Takahama PS (Units 3, 4)	Change in basic design	July 8, 2013	–	–	–	February 12, 2015
		Change in design and construction plan					August 4, 2015 (Unit 3) October 9, 2015 (Unit 4)

References

Applicant	Targeted power reactor	Application type	Application date	Review Meeting (times)	Docum-entary review (times)	On-site investi-ngation (times)	Date of permission or approval
		Change in operational safety program					October 9, 2015
	◆Takahama PS (Units 3, 4)	Change in basic design	December 25, 2014	–	–	–	September 21, 2016
		Change in design and construction plan	April 26, 2017				August 7, 2019
		Change in operational safety program	April 17, 2020				October 7, 2020
	Takahama PS (Units 1 and 2)	Change in basic design	March 17, 2015	–	–	–	April 20, 2016
		Change in design and construction plan	July 3, 2015				June 10, 2016 (Units 1, 2)
		Change in operational safety program	July 31, 2019				February 15, 2021
	◆Takahama PS (Units 1 and 2)	Change in basic design	December 22, 2016	–	–	–	March 7, 2018
		Change in design and construction plan*3	March 8, 2018 November 16, 2018 March 15, 2019 May 31, 2019				April 25, 2019 September 13, 2019 October 24, 2019 February 20, 2020
		Change in operational safety program	May 23, 2022	3	–	–	January 13, 2023
	Mihama PS (Unit 3)	Change in basic design	March 17, 2015	–	–	–	October 5, 2016
		Change in design and construction plan	November 26, 2015				October 26, 2016
		Change in operational safety program	March 17, 2015				February 27, 2020
	◆Mihama PS (Unit 3)	Change in basic design	April 20, 2018	–	–	–	July 8, 2020
		Change in design and construction plan	July 10, 2020				April 6, 2021
		Change in operational safety program	September 17, 2021				March 25, 2022
Chugoku Electric	Shimane NPS (Unit 2)	Change in basic design	December 25, 2013	6	–	1	September 15, 2021

Applicant	Targeted power reactor	Application type	Application date	Review Meeting (times)	Docum-entary review (times)	On-site investi-ngation (times)	Date of permission or approval
Power Company		Change in design and construction plan					–
		Change in operational safety program					–
	◆Shimane NPS (Unit 2)	Change in basic design	July 4, 2016	12	–		–
	Shimane NPS (Unit 3)	Change in basic design	August 10, 2018	3	–		–
Shikoku Electric Power Company	Ikata PS (Unit 3)	Change in basic design	July 8, 2013	–	–	–	July 15, 2015
		Change in design and construction plan					March 23, 2016
		Change in operational safety program					April 19, 2016
	◆Ikata PS (Unit 3)	Change in basic design	January 14, 2016	–	–	–	October 4, 2017
		Change in design and construction plan*[3]	December 7, 2017 March 16, 2018 May 11, 2018 August 13, 2018 July 11, 2019				March 25, 2019 December 24, 2019 March 27, 2020 October 10, 2019 March 27, 2020
		Change in operational safety program	November 27, 2020				April 28, 2021
Kyushu Electric Power Company	Genkai NPS (Units 3, 4)	Change in basic design	July 12, 2013	–	–	–	January 18, 2017
		Change in design and construction plan					August 25, 2017 (Unit 3) September 14, 2017 (Unit 4)
		Change in operational safety program					September 14, 2017
	Sendai NPS (Units 1,2)	Change in basic design	July 8, 2013	–	–	–	September 10, 2014
		Change in design and construction plan					March 18, 2015 (Unit 1) May 22, 2015 (Unit 2)

Applicant	Targeted power reactor	Application type	Application date	Review Meeting (times)	Docum-entary review (times)	On-site investi-ngation (times)	Date of permission or approval
		Change in operational safety program					May 27, 2015
	◆Genkai NPS (Units 3, 4)	Change in basic design	December 20, 2017	–	–	–	April 3, 2019
		Change in design and construction plan*3 (Unit 3)	May 16, 2019 September 19, 2019 January 17, 2020				November 28, 2019 March 4, 2020 August 26, 2020
		Change in design and construction plan*3 (Unit 4)	June 18, 2019 September 19, 2019 January 17, 2020				November 28, 2019 March 4, 2020 August 26, 2020
		Change in operational safety program	August 10, 2021				March 24, 2022
	◆Sendai NPS (Units 1, 2)	Change in basic design	December 17, 2015	–	–	–	April 5, 2017
		Change in design and construction plan*3 (Unit 1)	May 24, 2017 August 8, 2017 March 9, 2018				May 15, 2018 July 26, 2018 February 18, 2019
		Change in design and construction plan*3 (Unit 2)	July 10, 2017 August 8, 2017 March 9, 2018				August 10, 2018 August 31, 2018 April 12, 2019
		Change in operational safety program	August 2, 2019				March 25, 2020
Japan Atomic Power Company	Tokai Daini PS	Change in basic design	May 20, 2014	–	–	–	September 26, 2018
		Change in design and construction plan					October 18, 2018
		Change in operational safety program					–
	◆Tokai Daini PS	Change in basic design	September 24, 2019	7	–	–	December 22, 2021
		Change in design and construction plan*3	February 28, 2022 April 28, 2022 October 19, 2022				November 16, 2022 – –

Applicant	Targeted power reactor	Application type	Application date	Review Meeting (times)	Docum-entary review (times)	On-site investi-ngation (times)	Date of permission or approval
	Tsuruga PS (Unit 2)	Change in basic design Change in operational safety program	November 5, 2015	3	–	–	–
Electric Power Developm ent Co., Ltd	Oma NPS*2	Change in basic design Change in design and construction plan	December 16, 2014	5	–	–	–

・Several applications may be reviewed at one session of the review meeting.
・The number of review meetings mainly attended by Commissioners of the NRA is mentioned as a rule.
・The number of on-site investigations implemented by the Commissioners of the NRA is mentioned, and that implemented only by the staff of the secretariat of the NRA is excluded.
・The numbers of reviews, meetings and on-site investigations represent the number of times held in FY2022.

◆：Application for Special Facility for Severe Accident Management
*1：Application for reactor installation permit change of nuclear power reactor dated February 14, 2014, was withdrawn on January 26, 2015, and submitted again in order to add a dry storage facility for spent fuel.
*2：This application includes contents regarding Special Facility for Severe Accident Management.
*3：The design and construction plan is divided into several phases and separate applications are submitted.

(2) Others

1. Review for Toxic Gas Protection

Applicant	Targeted power reactor	Application type	Application date	Date of permission or approval
Tohoku Electric Power Co., Inc.	Onagawa NPS (Unit 2)	Change in basic design	December 16, 2021	June 1, 2022
		Change in design and construction plan	June 30, 2022	September 28, 2022
		Change in operational safety program	December 25, 2013	February 15, 2023
	◆Onagawa NPS (Unit 2)	Change in basic design	January 6, 2022	-
Tokyo Electric Power Company Holdings, Inc.	Kashiwazaki-Kariwa NPS (Units 6, 7)	Change in basic design	October 31, 2019	May 13, 2020
		Change in design and construction plan (Unit 7)	September 27, 2013	October 14, 2020
		Change in operational		October 30, 2020

Applicant	Targeted power reactor	Application type	Application date	Date of permission or approval
		safety program (Unit 7)		
	◆Kashiwazaki-Kariwa NPS (Units 6, 7)	Change in basic design	December 15, 2014	August 17, 2022
Kansai Electric Power Company, Inc.	Ohi PS (Units 3, 4)	Change in basic design	February 8, 2019	January 29, 2020
		Change in design and construction plan	January 30, 2020	May 14, 2020
		Change in operational safety program	January 30, 2020	June 11, 2020
	◆Ohi PS (Units 3, 4)	Change in basic design	July 17, 2020	December 23, 2020
		Change in design and construction plan*3	September 8, 2021	January 31, 2022
		Change in operational safety program	September 17, 2021	March 24, 2022
	Takahama PS (Units 3, 4)	Change in basic design	February 8, 2019	January 29, 2020
		Change in design and construction plan	December 20, 2019	March 30, 2020
		Change in operational safety program	December 26, 2019	March 30, 2020
	◆Takahama PS (Units 3, 4)	Change in basic design	February 8, 2019	January 29, 2020
		Change in design and construction plan	January 30, 2020	March 30, 2020
		Change in operational safety program	April 17, 2020	October 7, 2020
	Takahama PS (Units 1, 2 (3, 4))	Change in basic design	February 8, 2019	January 29, 2020
		Change in design and	January 30, 2020	March 30, 2020

Applicant	Targeted power reactor	Application type	Application date	Date of permission or approval
		construction plan		
		Change in operational safety program	June 12, 2020	February 15, 2021
	◆Takahama PS (Units 1, 2 (3, 4))	Change in basic design	February 8, 2019	January 29, 2020
		Change in design and construction plan*3	June 3, 2021	January 31, 2022
		Change in operational safety program	May 23, 2022	January 13, 2023
	Mihama PS (Unit 3)	Change in basic design	February 8, 2019	January 29, 2020
		Change in design and construction plan	January 30, 2020	March 23, 2021
		Change in operational safety program	June 26, 2020	October 7, 2020
	◆Mihama PS (Unit 3)	Change in basic design	July 17, 2020	December 23, 2020
		Change in design and construction plan	June 3, 2021	January 31, 2022
		Change in operational safety program	September 17, 2021	March 25, 2022
Chugoku Electric Power Company	Shimane NPS (Unit 2)	Change in basic design	December 25, 2013	September 15, 2021
		Change in design and construction plan	December 25, 2013	–
		Change in operational safety program	December 25, 2013	–
	◆Shimane NPS (Unit 2)	Change in basic design	July 4, 2016 (Amended on February 28)	–
Shikoku Electric	Ikata PS (Unit 3)	Change in basic design	February 7, 2019	January 29, 2020

Applicant	Targeted power reactor	Application type	Application date	Date of permission or approval
Power Company		Change in design and construction plan	December 20, 2019	March 9, 2020
		Change in operational safety program	December 20, 2019	March 31, 2020
	◆Ikata PS (Unit 3)	Change in basic design	February 7, 2019	January 29, 2020
		Change in design and construction plan	August 19, 2020	February 12, 2021
		Change in operational safety program	November 27, 2020	April 28, 2021
Kyushu Electric Power Company	Genkai NPS (Units 3, 4)	Change in basic design	February 7, 2019	January 29, 2020
		Change in design and construction plan	January 30, 2020 September 10, 2020*1	March 30, 2020 April 23, 2021*1
		Change in operational safety program	August 31, 2020	November 4, 2020
	Sendai NPS (Units 1, 2)	Change in basic design	February 7, 2019	January 29, 2020
		Change in design and construction plan	January 30, 2020 June 18, 2020*1	March 30, 2020 September 3, 2020*1
		Change in operational safety program	August 31, 2020 June 8, 2021*1	October 23, 2020 October 27, 2021*1
	◆Genkai NPS (Units 3, 4)	Change in basic design	February 7, 2019	January 29, 2020
		Change in design and construction plan	November 27, 2020	March 10, 2021
		Change in operational safety program	August 10, 2021	March 24, 2022
		Change in basic design	February 7, 2019	January 29, 2020

Applicant	Targeted power reactor	Application type	Application date	Date of permission or approval
	◆Sendai NPS (Units 1, 2)	Change in design and construction plan	June 4, 2020	September 2, 2020
		Change in operational safety program	August 31, 2020	October 23, 2020
Japan Atomic Power Company	Tokai Daini PS	Change in basic design	April 27, 2022	January 25, 2023
	◆Tokai Daini PS	Change in basic design	April 27, 2022	January 25, 2023

◆: Application for Special Facility for Severe Accident Management
*1: Those pertaining to an application for design and construction plan to establish new station for emergency measures

2. Review for Incorporation of Standard Response Spectra into Regulations

Applicant	Targeted power reactor	Application type	Application date	Date of approval
Shikoku Electric Power Company	Ikata PS (Unit 3)	Change in basic design	July 15, 2021	–
Kyushu Electric Power Company	Sendai NPS (Unit 1)	Change in basic design	April 26, 2020	–
	Sendai NPS (Unit 2)	Change in basic design		
	Genkai NPS (Unit 3)	Change in basic design	August 23, 2021	–
	Genkai NPS (Unit 4)	Change in basic design		
Japan Atomic Power Company	Tokai Daini PS	Change in basic design	June 25, 2021	–

・Plants not requiring application: Kashiwazaki-Kariwa NPS Units 6 and 7 of TEPCO, Ohi PS Units 3 and 4 of Kansai Electric Power Co., Inc., Takahama PS Units 1-4 and Mihama PS Unit 3 of Kansai Electric Power Co., Inc., Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. and Shimane NPS Unit 2 of Chugoku Electric Power Company
・Plants applied for in conjunction with the main facility: Tomari Nuclear PS Unit 3 of Hokkaido Electric Power Co., Inc. and Oma NPS of Electric Power Development Co., Ltd

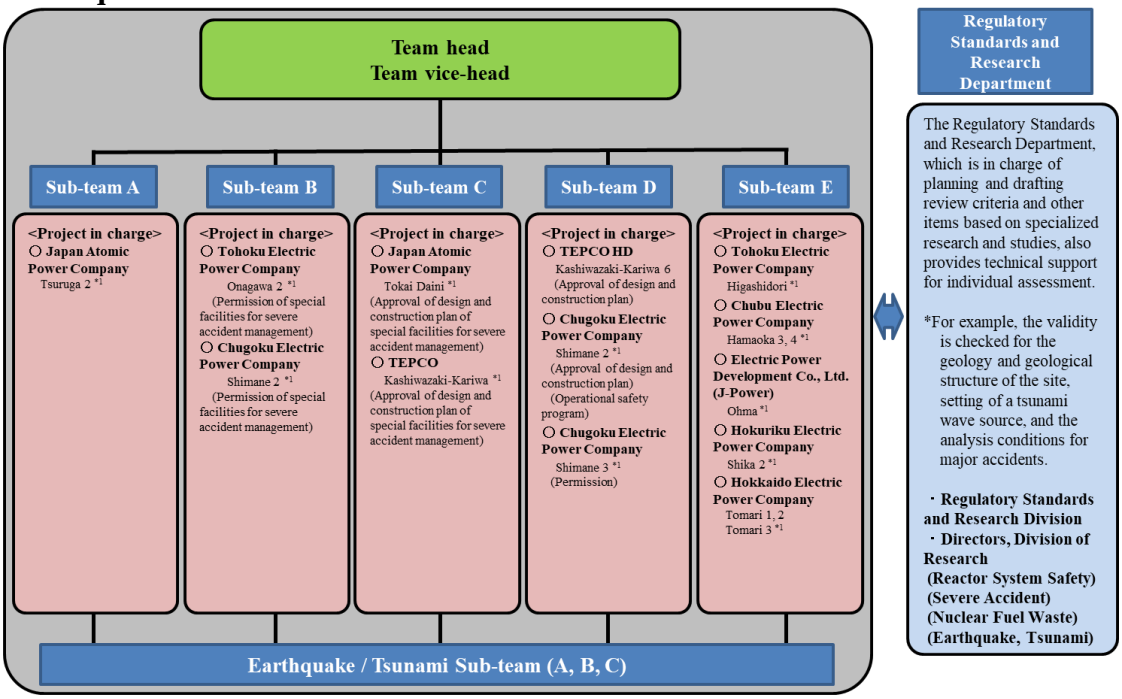
3. Review for Clarification of Installation Requirements of Fire Detector (Approval of Design and Construction Plan)

Applicant	Targeted power reactor	Application date	Date of approval
Kansai Electric Power	Ohi PS (Units 3, 4)	June 26, 2020	November 2, 2022
	◆Ohi PS (Units 3, 4)	December 9, 2022	–

Applicant	Targeted power reactor	Application date	Date of approval
Company, Inc.	Takahama PS (Units 1-4)	April 28, 2022	–
	◆Takahama PS (Units 1-4)	December 9, 2022	–
	Mihama PS (Unit 3)	April 28, 2022	–
	◆Mihama PS (Unit 3)	December 9, 2022	–
Shikoku Electric Power Company	Ikata PS (Unit 3) ◆*1	June 30, 2022	–
Kyushu Electric Power Company	Genkai NPS (Units 3, 4)	February 10, 2022	–
	Sendai NPS (Units 1, 2)	February 10, 2022	–
	◆Genkai NPS (Units 3, 4)	January 24, 2023	–
	◆Sendai NPS (Units 1, 2)	January 24, 2023	–

◆: Application for Special Facility for Severe Accident Management
*1: Those pertaining to an application for design and construction plan to establish new station for emergency measures

2. Review System of Conformity of Nuclear Power Stations to New Regulatory Requirements



*1: Projects reviewed in FY2022

3. Status of Inspection of Major Nuclear Facilities

(1) Inspection Findings in the 4th Quarter of FY2021
(Nuclear Facility Safety and Radiation Safety)

		Subject	Overview	Significance and Severity Levels
The 4th Quarter	1	Tomari Nuclear PS: Inadequate inspection of the emergency circulation filter unit at the alternative emergency station	When the nuclear inspector checked the inspection status of the emergency circulation filter unit at the alternative emergency station established in Tomari Nuclear PS, it turned out that the operator had not stipulated an inspection plan for iodine filters and had not conducted inspections to check the removal efficiency of iodine filters for 15 years and 9 months. This was until February of 2022, when the iodine filters were replaced.	Green SL IV
	2	Kashiwazaki-Kariwa NPS: Inadequate design control over data transmission of low range measurements values during monitoring post replacement construction	When the operator was checking the trends of measurement values at the monitoring post (hereinafter referred to as "MP") on the monitoring panel in the central control room of Unit 1, it was observed that the low range readings of MP7, 8 and 9, which should show the same behavior, remained at low values despite the fact that the low range measurements of MP1-6 were elevated due to rainfall. As a result of the operator's investigation on the cause, it was confirmed that the low range detectors and measuring instruments for MP7, 8 and 9 had	Green SL IV

			recently been replaced, and at this point, that the pulse transmission frequency to the telemetry observation station equipment had been changed to cause the counting loss of the measurement values.	
	3	Kashiwazaki-Kariwa NPS Unit 5: Inadequate confirmation that the emergency gas treatment system is operable	When the operator opened and controlled the inlet isolation valve of the emergency gas treatment facility (A) by means of an actuator in the central control room, it was confirmed that the valve did not open or move. As a result of the operator's investigation, it was found that the relay in circuit for operating the inlet isolation valve (A) had been malfunctioning. After the operation test of the relay was conducted in April of 2012, it was not conducted until February of 2022. Therefore, there was a possibility that one of the two emergency gas treatment systems (System A) would not start automatically during the operations related to spent fuel that were conducted during that period.	Green SL IV
	4	Tsuruga NPS Unit 2: Out of service due to improper maintenance of the A diesel generator	During the load test of the A diesel generator, the operator observed water dripping from the piping flange part at the cooling water pump outlet of the A cylinder (hereinafter referred to as the "piping flange part"). The operator tightened the piping flange part again, but there was no improvement in the leakage situation. In addition, by considering the safety risk in case the leakage should proceed, the A diesel generator in question was put out of service, and it was determined that the operational limitations were not satisfied. As a result of the investigation by the operator, it was determined that the cause of the leakage arose from the fact that a gasket with incorrect specifications was installed on the piping flange part experiencing leakage in February of 2021.	Green SL IV
	5	Mihama PS Unit 3: Automatic shutdown of diesel generator for emergency A- during periodic testing due to inadequate procurement management	Two diesel generators ("D/G") for emergencies were installed as part of a periodic test. When A-D/G of the two was started, an alarm of "A D/G trip" was sent to the central control room, and it automatically stopped. Therefore, the operator determined that the operational restrictions had not been satisfied. As a result of the inspection by the operator, the automatic synchronous merging device was activated even though the D/G was stopped due to the synchronization test "in" of the transformer system associated with switching the safety system power supply busbar, and the speed setting value of the speed control device was observed to increase. Since the A-D/G was started in this condition, it	Green SL IV

			turned out that the rotation speed of the D/G exceeded the trip setting. The cause of this increase in the speed setpoint was that the upstream design requirements, which were related to the operating logic of the automatic synchronous mergers, were not reflected in the sequence diagram.	

(Physical Protection of Nuclear Material)

		Subject	Overview	Significance and Severity Levels
The 4th Quarter	6	Physical protection of nuclear material case at Ohi PS of Kansai Electric Power Co., Inc. (physical protection)	Functions necessary for an uninterruptible power supply system associated with equipment for nuclear material protection was not maintained.	Green SL IV
	7	Physical protection of nuclear material cases at Fukushima Daini NPS, TEPCO (entry approval)	The permission form for the vehicle to enter the area was in a form that could easily mislead guards.	Green SL IV

(Evaluation of Severity Level Only)
* No evaluation for severity level solely in the 4th quarter of FY2021.

(2) Results of FY2021

(Routine Inspection (Power Reactor))

No.	Guide No.	Inspection guide name	Sendai Units 1, 2: In operation	Genkai Units 1, 2: Decommissioning A Units 3, 4: In operation	Ikata Unit 1: Decommissioning B Unit 2: Decommissioning A Unit 3: In operation	Takahama Units 1, 2: Longterm shutdown Units 3, 4: In operation	Ohi Units 1, 2: Decommissioning A Units 3, 4: In operation	Mihama Units 1, 2: Decommissioning A Unit 3: Long-term shutdown
1	BM0020	Oversight of operator's periodic inspection *	13	13	14	20	12	10
2	BM1040	Heat sink performance	2	3	2	5	6	2
3	BM0060	Maintenance effectiveness assessments	5	5	5	11	7	5
4	BM0100	Design control	6	7	6	9	10	6
5	BM0110	Work control	7	6	6	11	8	9
6	BO0010	Surveillance testing	22	25	35	25	24	18
7	BO1020	Systemconfiguration of equipment	18	22	20	22	24	18
8	BO1030	Reactor start-up and shutdown	2	1	1	2	2	1
9	BO1040	Operability determinations and functionality assessments	20	24	20	27	25	20
10	BO0060	Nuclear fuel control (Transportation and storage)	3	6	4	6	5	3
11	BO1070	Capability of operating personnel	4	4	13	4	5	6
12	BE0010	Protection against natural disaster	8	5	5	7	4	4
13	BE0020	Fire protection	14	13	17	18	16	14
14	BE0030	Internal flood protection	3	4	3	7	4	3
15	BE0040	Maintaining of emergency response organization	4	1	7	4	2	1
16	BE0050	Emergency preparedness and maintenance	4	1	6	2	1	1
17	BE0060	Maintaining personal capacity to respond to severe accidents, etc.	10	12	17	10	10	14
18	BE0090	Seismic protection	4	4	4	5	4	4
19	BE0100	Tsunami protection	4	5	4	5	4	4
20	BR0010	Radiation exposure control	6	7	8	7	6	6
21	BR0070	Radioactive solid waste management	3	7	7	5	3	3
22	BQ0010	Operation of Quality Management System(Routine)	1	1	1	1	1	1
23		Operation of Quality Management System(Semiannual)	2	2	2	5	2	2
24	BQ0040	Performance Indicator Verification	1	1	2	1	1	1
25	BQ0050	Initial response to occurrence of an event	0	1	0	1	2	9
		Total	166	180	209	220	188	165

References

No.	Guide No.	Inspection guide name	Tomari	Higashidori	Onagawa	Kashiwazaki	Fukushima Dairi	Tokai
			Units 1-3: Long-term shut down	Unit 1: Long-term shut down	Unit 1: Decommissioning A Units 2-3: Long-term shut down	Units 1-7: Long-term shut down	Units 1-4: Decommissioning review	Unit 1: Decommissioning B Unit 2: Long-term shutdown
1	BM0020	Oversight of operator's periodic inspection*	0	1	4	2	4	2
2	BM1040	Heat sink performance	1	1	1	2	1	1
3	BM0060	Maintenance effectiveness assessments	1	1	2	1	1	7
4	BM0100	Design control	1	2	2	2	1	5
5	BM0110	Work control	6	4	5	7	2	8
6	BO0010	Surveillance testing	7	3	6	8	6	3
7	BO1020	Systemconfiguration of equipment	6	3	6	8	6	4
8	BO1030	Reactor start-up and shutdown	0	0	0	0	0	0
9	BO1040	Operability determinations and functionality assessments	6	3	6	9	6	4
10	BO0060	Nuclear fuel control (Transportation and storage)	1	1	2	2	1	1
11	BO1070	Capability of operating personnel	1	1	1	1	3	1
12	BE0010	Protection against natural disaster	2	3	3	1	5	5
13	BE0020	Fire protection	9	8	8	7	7	8
14	BE0030	Internal flood protection	1	1	1	2	3	1
15	BE0040	Maintaining of emergency response organization	1	1	2	1	1	5
16	BE0050	Emergency preparedness and maintenance	3	3	2	1	2	3
17	BE0060	Maintaining personal capacity to respond to severe accidents, etc.	0	0	0	2	0	0
18	BE0090	Seismic protection	1	1	1	1	2	1
19	BE0100	Tsunami protection	2	1	1	1	1	1
20	BR0010	Radiation exposure control	6	5	5	6	5	5
21	BR0070	Radioactive solid waste management	3	3	3	3	4	3
22	BQ0010	Operation of Quality Management System(Routine)	1	1	1	1	1	1
23		Operation of Quality Management System(Semiannual)	2	2	2	2	2	2
24	BQ0040	Performance Indicator Verification	1	1	1	1	1	2
25	BQ0050	Initial response to occurrence of an event	0	0	3	0	0	0
		Total	62	50	68	71	65	73

No.	Guide No.	Inspection guide name	Hamaoka Units 1, 2: Decommissioning B Units 3-5: Long-term shutdown	Shika Units 1,2: Long-term shutdown	Tsuruga Unit 1: Decommissioning A Unit 2: Long-term shutdown	Shimane Unit 1: Decommissioning A Unit 2: Long-term shutdown Unit 3: Construction B	Ohma Unit 1: Construction A	(TEPCO) Higashidori Unit 1: Construction A
1	BM0020	Oversight of operator's periodic inspection*	2	0	4	3		
2	BM1040	Heat sink performance	1	2	1	1		
3	BM0060	Maintenance effectiveness assessments	1	3	3	1		
4	BM0100	Design control	1	1	2	2		
5	BM0110	Work control	3	7	20	3		
6	BO0010	Surveillance testing	6	5	4	7		
7	BO1020	Systemconfiguration of equipment	5	4	5	6		
8	BO1030	Reactor start-up and shutdown	0	0	0	0		
9	BO1040	Operability determinations and functionality assessments	8	8	11	5		
10	BO0060	Nuclear fuel control (Transportation and storage)	1	1	2	1		
11	BO1070	Capability of operating personnel	1	3	5	1		
12	BE0010	Protection against natural disaster	2	2	3	2		
13	BE0020	Fire protection	6	10	7	7		
14	BE0030	Internal flood protection	1	1	2	1		
15	BE0040	Maintaining of emergency response organization	0	1	1	0		
16	BE0050	Emergency preparedness and maintenance	0	3	3	1		
17	BE0060	Maintaining personal capacity to respond to severe accidents, etc.	0	0	0	0		
18	BE0090	Seismic protection	1	2	1	1		
19	BE0100	Tsunami protection	1	1	1	1		
20	BR0010	Radiation exposure control	5	6	6	5		
21	BR0070	Radioactive solid waste management	3	3	3	3		
22	BQ0010	Operation of Quality Management System(Routine)	1	1	1	1		
23		Operation of Quality Management System(Semiannual)	2	2	4	2		
24	BQ0040	Performance Indicator Verification	1	1	1	1		
25	BQ0050	Initial response to occurrence of an event	0	0	5	1		
		Total	52	67	95	56	0	0

(Routine Inspection (Nuclear Fuel Cycle Facilities, etc.))

No.	Guide No.	Inspection guide name	Repro-cessing	Fabrication						Mana-gement and burial
										JNFL
			JNFL Reprocessing Facility	Global Nuclear Fuel Japan	Kumatori Works, Nuclear Fuel Industries	Tokai Works, Nuclear Fuel Industries	Mitsubishi Nuclear Fuel	JNFL Fabrication Facility	JNFL MOX Fabrication Facility	Waste management facility
1	BM0020	Oversight of operator's periodic inspection	7	6	4	4	4	6		4
2	BM1040	Heat sink performance								
3	BM0060	Maintenance effectiveness assessments	7	6	3	3	3	3		5
4	BM0100	Design control	8	0	0	0	0	3		1
5	BM0110	Work control	15	2	4	4	4	4	3	2
6	BO0010	Surveillance testing	14	4	4	4	4	7		2
7	BO1020	Systemconfiguration of equipment								
8	BO1030	Reactor start-up and shutdown								
9	BO1040	Operability determinations and functionality assessments								
10	BO0060	Nuclear fuel control (Transportation and storage)	2	0	0	0	0			
11	BO1070	Capability of operating personnel								
12	BO2010	Operation management	13	4	4	4	4	9		6
13	BO2020	Criticalsafety management	11	4	2	2	2	4		
14	BO2030	Experiment								
15	BE0010	Protection against natural disaster	4	2	2	2	2	2		2
16	BE0020	Fire protection	16	4	4	5	6	5		3
17	BE0030	Internal flood protection	5	1	1	1	1	1		1
18	BE0040	Maintaining of emergency response organization	3	1	1	1	1	1		2
19	BE0050	Emergency preparedness and maintenance	2	1	1	1	1	1		2
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.	7	5	5	5	5	4		
21	BE0090	Seismic protection	5	1	2	2	2	2		2
22	BE0100	Tsunami protection								
23	BR0010	Radiation exposure control	10	4	4	4	4	10		4
24	BR0070	Radioactive solid waste management	9	2	2	2	2	2		1
25	BQ0010	Operation of Quality Management System(Routine)	1	1	1	1	1	1	1	1
26		Operation of Quality Management System(Semiannual)	2	2	1	2	2	2	3	1
27	BQ0040	Performance Indicator Verification	1	3	1	1	1	1	0	1
28	BQ0050	Initial response to occurrence of an event	0	0	0	0	0	0	0	0
		Total	142	53	46	48	49	68	7	40

No.	Guide No.	Inspection guide name	Management and burial			Storage	Use			
			JNFL	Japan Atomic Energy Agency						
			Waste Disposal Facility	Nuclear Science Research Institute (Waste Disposal Facility)	Oarai Research and Development Institute (Specified Radioactive Waste Interim Storage Facility)	Recyclable-Fuel Storage Center	Rokkasho Safeguards Center	Tokai Safeguards Center	Nippon Nuclear Fuel Development (NFD)	MHI Nuclear Development Corporation
1	BM0020	Oversight of operator's periodic inspection			3	0				
2	BM1040	Heat sink performance				0				
3	BM0060	Maintenance effectiveness assessments	2	0	1	0	1	1	1	1
4	BM0100	Design control	1	0	1	0	1	1	1	1
5	BM0110	Work control	9	3	1	0	1	1	1	2
6	BO0010	Surveillance testing			1		1	2	1	1
7	BO1020	Systemconfiguration of equipment								
8	BO1030	Reactor start-up and shutdown								
9	BO1040	Operability determinations and functionality assessments								
10	BO0060	Nuclear fuel control (Transportation and storage)				0			1	1
11	BO1070	Capability of operating personnel								
12	BO2010	Operation management	3	0	3		2	3	2	2
13	BO2020	Criticalsafety management			1		1	1	1	1
14	BO2030	Experiment								
15	BE0010	Protection against natural disaster	1	0	1	0	1	1	1	1
16	BE0020	Fire protection	2	0	1	0	1	1	3	1
17	BE0030	Internal flood protection	1	0	1	0	1	1	1	1
18	BE0040	Maintaining of emergency response organization	1	0	1	0	1	1	3	1
19	BE0050	Emergency preparedness and maintenance	2	0	1	0	2	1	1	1
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.								
21	BE0090	Seismic protection	1	0	1	0	1	1	1	1
22	BE0100	Tsunami protection								
23	BR0010	Radiation exposure control	3		2	0	2	2	3	2
24	BR0070	Radioactive solid waste management	1	0	1	0	1	1	1	1
25	BQ0010	Operation of Quality Management System(Routine)	1	0	1	1	1	1	1	1
26		Operation of Quality Management System(Semiannual)	2	0	1	1	2	3	2	1
27	BQ0040	Performance Indicator Verification	1	0	1	0	1	1	1	1
28	BQ0050	Initial response to occurrence of an event	0	0	0	0	0	0	0	0
		Total	31	3	23	2	21	23	26	21

No.	Guide No.	Inspection guide name	Use							Research reactor
			Nuclear Fuel Cycle Engineering Laboratories, JAEA	Nuclear Science Research Institute, JAEA	Oarai Research and Development Institute, JAEA (south)	Oarai Research and Development Institute, JAEA (north)	Toshiba Nuclear Engineering Laboratory	Special Nuclear Fuel Storage Room, Institute for Integrated Radiation and Nuclear Science, Kyoto University	Ningyo-toge Environmental Engineering Center, JAEA	Toshiba Nuclear Critical Assembly (NCA) (decommissioning planned)
1	BM0020	Oversight of operator's periodic inspection								5
2	BM1040	Heat sink performance								
3	BM0060	Maintenance effectiveness assessments	1	1	1	1	1		1	1
4	BM0100	Design control	1	1	1	1	0		0	3
5	BM0110	Work control	1	1	8	2	2	1	2	3
6	BO0010	Surveillance testing	1	1	1	1	0	0	1	2
7	BO1020	Systemconfiguration of equipment								
8	BO1030	Reactor start-up and shutdown								
9	BO1040	Operability determinations and functionality assessments								
10	BO0060	Nuclear fuel control (Transportation and storage)	1	1	1	1	3	1	1	2
11	BO1070	Capability of operating personnel								
12	BO2010	Operation management	2	2	4	2	2		2	2
13	BO2020	Criticalsafety management	1	1	1	1	0	1	1	1
14	BO2030	Experiment								0
15	BE0010	Protection against natural disaster	1	1	1	1	1		2	1
16	BE0020	Fire protection	1	1	3	3	1		2	2
17	BE0030	Internal flood protection	1	1	1	1	0		2	1
18	BE0040	Maintaining of emergency response organization	1	1	1	1	2		1	2
19	BE0050	Emergency preparedness and maintenance	1	1	2	1	2		1	2
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.								
21	BE0090	Seismic protection	1	1	1	1	1	1	2	1
22	BE0100	Tsunami protection	0							
23	BR0010	Radiation exposure control	2	2	4	3	1	2	2	2
24	BR0070	Radioactive solid waste management	1	1	1	1	2	0	4	1
25	BQ0010	Operation of Quality Management System(Routine)	1	1	1	1	2		1	2
26		Operation of Quality Management System(Semiannual)	1	1	2	1	2		1	2
27	BQ0040	Performance Indicator Verification	1	1	1	1	2	1	1	2
28	BQ0050	Initial response to occurrence of an event	0	0	0	0	0	0	0	0
		Total	20	20	35	24	24	7	27	37

No.	Guide No.	Inspection guide name	Research reactor							
			Kyoto University		Atomic Energy Research Institute, Kindai University (UTR)	Nuclear Science Research Institute				Oarai R&D Institute (south
			Kyoto University Critical Assembly (KUCA), Institute for Integrated Radiation and Nuclear Science	Institute for Integrated Radiation and Nuclear Science (KUR)		Fast Critical Assembly (FCA)	JRR-3 (including radioactive waste processing site)	Static Experiment Critical Facility (STACY)	Nuclear Safety Research Reactor (NSRR)	Experimental Fast Reactor (Joyo)
1	BM0020	Oversight of operator's periodic inspection	4	4	4	1	8	7	7	5
2	BM1040	Heat sink performance								
3	BM0060	Maintenance effectiveness assessments	2	3	1	2	4	2	2	2
4	BM0100	Design control	1	1	0	0	2	2	0	1
5	BM0110	Work control	2	2	1	2	6	6	6	4
6	BO0010	Surveillance testing	1	4	1	0	3	1	1	4
7	BO1020	Systemconfiguration of equipment								
8	BO1030	Reactor start-up and shutdown								
9	BO1040	Operability determinations and functionality assessments								
10	BO0060	Nuclear fuel control (Transportation and storage)	4	2	1	1	1	1	1	1
11	BO1070	Capability of operating personnel								
12	BO2010	Operation management	5	10	2	0	11	0	3	5
13	BO2020	Criticalsafety management								
14	BO2030	Experiment	3	6	2	0	2	0	2	0
15	BE0010	Protection against natural disaster	1	1	1	1	1	1	1	1
16	BE0020	Fire protection	3	5	1	2	4	2	2	3
17	BE0030	Internal flood protection	0	1	1	0	1	1	1	1
18	BE0040	Maintaining of emergency response organization	1	1	1	2	4	2	2	1
19	BE0050	Emergency preparedness and maintenance	1	1	2	2	4	2	2	1
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.								
21	BE0090	Seismic protection	1	1	1	1	2	1	1	1
22	BE0100	Tsunami protection								
23	BR0010	Radiation exposure control	2	6	2	1	5	2	2	5
24	BR0070	Radioactive solid waste management	2	2	1	1	2	1	1	2
25	BQ0010	Operation of Quality Management System (Routine)	2	2	1	1	1	1	1	1
26		Operation of Quality Management System (Semiannual)	1	1	1	1	2	1	1	1
27	BQ0040	Performance Indicator Verification	1	1	1	1	1	1	1	1
28	BQ0050	Initial response to occurrence of an event	0	0	0	0	0	0	0	0
		Total	37	54	25	19	64	34	37	40

No.	Guide No.	Inspection guide name	Research reactor	Decommissioning measure						
			Oarai R&D Institute						Nuclear Science Research Institute	
			High Temperature engineering Test Reactor (HTTR)	Tokai Reprocessing Plant, Nuclear Fuel Cycle Engineering Laboratories	Institute for Atomic Energy, Rikkyo University (no nuclear fuel materials in the plants, etc.)	Hitachi Training Reactor at Hitachi Ozenji Center (HTR) (no nuclear fuel materials in the plants, etc.)	Toshiba (TTR1) (no nuclear fuel materials in the plants, etc.)	Atomic Energy Research Laboratory, Tokyo City University (no nuclear fuel materials in the plants, etc.)	Transient Experiment Critical Facility (TRACY) (no nuclear fuel materials in the plants, etc.)	JRR-2 (no nuclear fuel materials in the plants, etc.)
1	BM0020	Oversight of operator's periodic inspection	9	5	2	1	5	4	1	1
2	BM1040	Heat sink performance								
3	BM0060	Maintenance effectiveness assessments	1	5	0	2	1	2	1	1
4	BM0100	Design control	1	6	0	1	0	0	0	0
5	BM0110	Work control	6	6		1	1			1
6	BO0010	Surveillance testing	7	10						0
7	BO1020	Systemconfiguration of equipment								
8	BO1030	Reactor start-up and shutdown								
9	BO1040	Operability determinations and functionality assessments								
10	BO0060	Nuclear fuel control (Transportation and storage)	1	1			1			
11	BO1070	Capability of operating personnel								
12	BO2010	Operation management	7	5			1			
13	BO2020	Criticalsafety management		5						
14	BO2030	Experiment	2							
15	BE0010	Protection against natural disaster	2	4			1			1
16	BE0020	Fire protection	3	13	1	1	1	1		2
17	BE0030	Internal flood protection	2	2						0
18	BE0040	Maintaining of emergency response organization	1	1			2			2
19	BE0050	Emergency preparedness and maintenance	1	1			2	1		2
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.		3						
21	BE0090	Seismic protection	2	4						1
22	BE0100	Tsunami protection		5						
23	BR0010	Radiation exposure control	5	6	0	3	2	3	1	1
24	BR0070	Radioactive solid waste management	2	3	1	1	1	2	1	1
25	BQ0010	Operation of Quality Management System (Routine)	1	1	1	0	2	1	1	1
26		Operation of Quality Management System (Semiannual)	2	2			2			1
27	BQ0040	Performance Indicator Verification	1	1	1	1	2	1	1	1
28	BQ0050	Initial response to occurrence of an event	0	0	0	0	0	0	0	0
		Total	56	89	6	11	24	15	6	16

No.	Guide No.	Inspection guide name	Decommissioning measure								
			Nuclear Science Research Institute		Oarai R&D Institute (south)	Oarai R&D Institute (north)					
			Tank-type critical assembly (TCA) (Contains nuclear fuel materials in the plants, etc.)	JRR-4 (no nuclear fuel materials in core)	Deuterium Critical Assembly (DCA) (no nuclear fuel materials in core)	Japan Materials Test Reactor (JMTR) (no nuclear fuel materials in core)	University of Tokyo Nuclear Reactor "Yayoi" (no nuclear fuel materials in core)	First Nuclear Ship's reactor (no nuclear fuel materials in the plants, etc.)	Ningyo-toge Environmental Engineering Center, JAEA (Contains nuclear fuel materials in the plants, etc.)	Prototype Advanced Converter Seactor (Fugen) (no nuclear fuel materials in core)	Prototype Fast Breeder (Monju) (Contains nuclear fuel materialsin core)
1	BM0020	Oversight of operator's periodic inspection	1	1	1	1	1	1	3	9	13
2	BM1040	Heat sink performance									2
3	BM0060	Maintenance effectiveness assessments	1	1	1	1	1		1	4	6
4	BM0100	Design control	0	0	0	0	0		2	1	3
5	BM0110	Work control	1	1	1	1	2	1	3	7	8
6	BO0010	Surveillance testing	0	0	1	1	1	0	3	2	13
7	BO1020	System configuration of equipment								2	5
8	BO1030	Reactor start-up and shutdown									
9	BO1040	Operability determinations and functionality assessments								2	2
10	BO0060	Nuclear fuel control (Transportation and storage)	1	1	1	1	2		1	1	11
11	BO1070	Capability of operating personnel									2
12	BO2010	Operation management	0			2	1		3		
13	BO2020	Criticalsafety management							1		
14	BO2030	Experiment	0			0					
15	BE0010	Protection against natural disaster	1	1	1	1	1	1	1	1	2
16	BE0020	Fire protection	2	2	2	2	2	5	3	5	9
17	BE0030	Internal flood protection	0	0	1	1	1	0	1	1	1
18	BE0040	Maintaining of emergency response organization	2	2	1	1	1		1	1	1
19	BE0050	Emergency preparedness and maintenance	2	2	1	1	1		1	1	1
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.									4
21	BE0090	Seismic protection	1	1	1	1	1	0	1	1	4
22	BE0100	Tsunami protection									0
23	BR0010	Radiation exposure control	1	1	2	4	2	1	2	4	6
24	BR0070	Radioactive solid waste management	1	1	1	2	1	1	2	5	3
25	BQ0010	Operation of Quality Management System (Routine)	1	1	1	1	1	1	1	1	1
26		Operation of Quality Management System (Semiannual)	1	1	1	1	1	2	1	8	2
27	BQ0040	Performance Indicator Verification	1	1	1	1	1	1	1	1	1
28	BQ0050	Initial response to occurrence of an event	0	0	0	0	0	0	0	3	0
		Total	17	17	18	23	21	14	32	60	100

(Team Inspection)

No.	Guide No.	Inspection guide name	FY2021 Results in the 1st quarter	case	Results in the 2nd quarter	case	Results in the 3rd quarter	case	Results in the 4th quarter	case
1	BM0010	Oversight of pre-service operator inspection	Takahama Ohi Kashiwazaki-Kariwa Mitsubishi Nuclear Fuel HTTR STACY Kyoto University Kumatori Office, NFI	8	Takahama Ohi Ikata Genkai Mitsubishi Nuclear Fuel Kumatori Office, NFI JAEA processing site HTTR STACY JRR-3	10	Mihama Takahama Ohi Ikata Genkai Sendai Kashiwazaki-Kariwa Mitsubishi Nuclear Fuel Kumatori Office, NFI JAEA processing site Nuclear Fuel Cycle Engineering Laboratories (Bld. J) Nuclear Fuel Cycle Engineering Laboratories (Pu3) NSRR STACY	15	Mihama Takahama Ohi Kashiwazaki-Kariwa Sendai Genkai NSRR STACY JRR-3 JAEA processing site Kashiwazaki-Kariwa Test facility on irradiated fuel assemblies	12
2	BM1050	Oversight of in-service inspection	Mihama Ohi Takahama (Ikata)	3	Ikata	1	Sendai	1	(Mihama) (Sendai)	0
3	BM0100	Design control	Ohi	1	Ikata	1	Shika Tsuruga JAEA reprocessing	3	Hamaoka Shimane	2
4	BO1050	Safety of replaced core	Mihama	1	Ikata	1	Sendai	1		0
5	BO1070	Capability of operating personnel		0		0	Ikata	1	All NPP except for Fukushima Daini	15
6	BE0021	Fire protection (Triennial)	Takahama	1		0	(Mihama)	0	(Mihama)	0
7	BE0070	Evaluation of training for personnel to respond to severe accidents, etc.	Takahama	1	Mihama Ikata Ohi	3	Sendai Ohi Takahama Mihama Ikata (Genkai)	5	Ikata Genkai	2
8	BE0080	Evaluation of scenario for drills for severe accidents, etc.	Takahama (Ohi)	1	Mihama Ikata Ohi	3	Sendai Ohi Takahama Genkai (Ikata)	4	Ikata Genkai	2
9	BR0020	Radiation exposure evaluation and personal monitoring	Onagawa JNFL reprocessing (Ikata) (Tokai, JAPC)	2	Tomari Ohi Takahama Ikata (Tokai, JAPC)	4	Mihama Shika Shimane Tokai, JAPC	4	Higashidori	1
10	BR0030	Radiation exposure ALARA activity	Onagawa JNFL reprocessing (Ikata) (Tokai, JAPC)	2	Tomari Ohi Takahama Ikata (Tokai, JAPC)	4	Mihama Shika Shimane Tokai, JAPC	4	Higashidori	1
11	BR0040	Management and reduction of radioactive material in air	Onagawa JNFL reprocessing (Tokai, JAPC)	2	Tomari (Tokai, JAPC)	1	Mihama Shika Shimane Tokai, JAPC	4	Higashidori	1
12	BR0050	Radioactive gas/liquid waste management	JNFL reprocessing (Kashiwazaki-Kariwa) (Tokai, JAPC)	1	Tomari Kashiwazaki-Kariwa (Tokai, JAPC)	2	Shika Shimane Tokai, JAPC	3	Higashidori	1
13	BR0080	Radiation environment monitoring program	JNFL reprocessing (Kashiwazaki-Kariwa) (Tokai, JAPC)	1	Tomari Kashiwazaki-Kariwa (Tokai, JAPC)	2	Shika Shimane Genkai Tokai, JAPC	4	Higashidori Sendai	2
14	BR0090	Radiation monitoring equipment	JNFL reprocessing (Kashiwazaki-Kariwa) (Tokai, JAPC)	1	Tomari Kashiwazaki-Kariwa (Tokai, JAPC)	2	Shika Shimane Genkai Tokai, JAPC	4	Higashidori Sendai	2
15	BQ0010	Operation of quality management system*	Ohi Ikata (JNFL reprocessing)	2	Onagawa JNFL reprocessing (Tomari)	2	Sendai Tomari (Genkai)	2	Mihama Genkai	2
16	Physical protection of nuclear material		Tomari Onagawa JNFL reprocessing JNFL concentration and burial Fukushima Daini Tokai Daini JAEA reprocessing Kashiwazaki-Kariwa Shika Ohi Mihama Fugen Hamaoka Shimane Iikata Genkai Sendai Tokai, NMCC Rokkasho, NMCC Toshiba University of Tokyo	21	Higashidori JNFL reprocessing JNFL Waste JNFL MOX JNFL concentration and burial RFS Onagawa Fukushima Daini JAEA reprocessing Mitsubishi Nuclear Fuel Oarai Waste Tokai Office, Nuclear FuelIndustries GNF-J Kashiwazaki Kariwa Tsuruga Takahama Monju Fugen Kumatori Office, NFI Ningyo-toge Shimane Ikata Genkai Sendai NDC Kyoto University Kindai University Mitsubishi Electric	28	Tomari Higashidori Oma JNFL reprocessing JNFL concentration and burial Onagawa Fukushima Daini Tokai Daini Mitsubishi Nuclear Fuel GNF-J Kashiwazaki-Kariwa Shika Tsuruga Ohi Takahama Mihama Hamaoka Shimane Ikata Sendai University of Tokyo Nuclear Science Research Institute NFD	23	Higashidori JNFL reprocessing Fukushima Daini JAEA reprocessing Tokai Office, Nuclear FuelIndustries Kashiwazaki-Kariwa Ohi Mihama Monju Fugen Hamaoka Kumatori Office, NFI Nuclear Fuel Cycle Engineering Laboratories Oarai north Oarai south	15
			Total	48	Total	64	Total	78	Total	58

*"Daily inspections" and "semiannual inspections" led by the NRA Regional Offices, including sites to be postponed, were to be conducted as usual.

・The site within ( ) shows where inspections were not compled in the quarter.

・The number of cases is the number for inspections to be completed (☆)

References

(Team Inspection based on Legal Requirements) Excluding Pre-use Inspection

[Results in the 1st quarter]: 5 cases

➢ Confirmation of off-site transportation (inspection of fuel body management (transportation and storage))

・Mitsubishi Nuclear Fuel Company, Limited

・Genkai NPS, Kyushu Electric Power Company, Inc.

・Nuclear Professional School, The University of Tokyo

➢ Confirmation of waste package (inspections of work management)

・Japan Nuclear Fuel Limited Waste Disposal Facility (at Ohi PS)

➢ Confirmation of radioactivity concentration (inspections of management of radioactive waste, etc.)

・Prototype Advanced Converter Reactor Fugen, JAEA

[Results in the 2nd quarter]: 5 cases

➢ Confirmation of off-site transportation (inspection of fuel body management (transportation and storage))

・Oarai Research and Development Institute (DCA), JAEA

・Institute for Integrated Radiation and Nuclear Science, Kyoto University

➢ Confirmation of waste package (inspections of work management)

・Japan Nuclear Fuel Limited, Waste Disposal Facility (at Shika NPS)

➢ Confirmation of radioactivity concentration (inspections of management of radioactive waste, etc.)

・Hamaoka Nuclear Power Station of Chubu Electric Power Co., Inc. (Units 1, 2)

・Ningyo-toge Environmental Engineering Center, JAEA

[Results of the 3rd quarter]: 6 cases

➢Confirmation of off-site transportation (inspections of fuel body management (transportation and storage))

・Nuclear Science Research Institute (JRR3), JAEA

・Nuclear Science Research Institute (JRR4), JAEA

・Oarai Research and Development Institute (JMTR), JAEA

・Mihama PS, Kansai Electric Power Co., Inc.

・Genkai NPS, Kyushu Electric Power Company, Inc.

➢ Confirmation of waste package (inspections of management of radioactive waste, etc.)

・Japan Nuclear Fuel Limited, Waste Disposal Facility (at Hamaoka NPS)

[Results of the 4th quarter]: 3 cases

➢ Confirmation of off-site transportation (inspections of management of radioactive waste, etc.)

・Institute for Integrated Radiation and Nuclear Science, Kyoto University

➢ Confirmation of radioactivity concentration (inspections of management of radioactive waste, etc.)

・Prototype Advanced Converter Reactor Fugen, JAEA

・Hamaoka NPS (Unit 4), Chubu Electric Power Co., Inc.

(Facilities, etc. Not Subject to Article 41 of the Enforcement Order of the Nuclear Reactor Regulation Law)

Site			Implementation period
No.	Location	Name	
1※1	Aomori	Aomori Prefecture Nuclear Power Safety Center in Aomori City	The 3rd quarter
2	Aomori	Aomori Research and Development Center, JAEA	The 4th quarter
3	Aomori	Enrichment and disposal sites, Japan Nuclear Fuel Ltd.	The 1st quarter
4	Akita	Mineral Industry Museum, Akita University (Nuclear source materials)	The 3rd quarter
5※1	Fukushima	Fukushima Branch, Fukushima Prefectural Centre for Environmental Creation	The 3rd quarter
6※1	Ibaraki	Isohara Works, JX Nippon Mining & Metals Corp.	The 3rd quarter
7	Ibaraki	Tokai Works, Nuclear Fuel Industries, Ltd.	The 2nd quarter
8	Ibaraki	Nuclear Professional School, The University of Tokyo	The 4th quarter
9	Saitama	JASDF 3rd Air DEPOT, Ministry of Defence	The 4th quarter
10	Tokyo	Nihon Box Industry (Nuclear source materials)	The 4th quarter
11	Kanagawa	Global Nuclear Fuel - Japan Co, Ltd.	The 3rd quarter
12	Niigata	Niigata Racecourse, Japan Racing Association (Nuclear source materials)	The 3rd quarter
13	Niigata	Individual (Nuclear source materials)	—
14	Ishikawa	Shika Nuclear Power Station, Hokuriku Electric Power Co., Inc.	The 3rd quarter
15	Yamanashi	Yamanashi Branch, Japan Thoron Development Association (Nuclear source materials)	The 4th quarter
16	Gifu	Tono Mine, JAEA (Nuclear raw materials)	The 2nd quarter
17	Gifu	Tono Geoscience Center, JAEA (Nuclear source materials)	The 2nd quarter
18	Gifu	Gifu Prefectural General Medical Center	The 2nd quarter
19	Gifu	National Institute for Fusion Science, NINS	The 2nd quarter
20※1	Gifu	COMPANY e-farm (Nuclear source materials)	The 4th quarter
21	Kyoto	Radiation Laboratory, Faculty of Engineering, Kyoto University	The 2nd quarter
22	Osaka	Kumatori Works, Japan Nuclear Fuel Ltd.	The 2nd quarter
23	Osaka	Time Capsule Burial Ground, Ministry of Education, Culture, Sports, Science and Technology	—
24	Nara	Isotope General Laboratory, Nara Women's University	The 3rd quarter
25	Okayama	Ningyo-toge Environmental Engineering Center, JAEA (Nuclear source materials)	The 4th quarter
26※1	Yamaguchi	Iwakuni R&D Center, TEIJIN LIMITED	The 2nd quarter
27	Ehime	National Institute of Technology (KOSEN), Niihama College	The 3rd quarter
28	Fukuoka	Miike Office, MITSUI MINING & SMELTING CO., LTD.	The 2nd quarter
29	Miyazaki	First District Office at Hososhima, Hyuga of Nobeoka Branch, Asahi Kasei Corp.	The 3rd quarter

*1 Inspections have been postponed since FY2020 to prevent the spread of COVID-19, in response to the declaration of a state of emergency.
(The total number of users of facilities, etc. not subject to Article 41 of the Enforcement Order of the Nuclear Reactor Regulation Law was 208. (as of April, 2022))

(3) Comprehensive Assessment in FY2021 and Inspection in FY2022

(a) Comprehensive Assessment in FY2021

Nuclear Facility			Comprehensive Assessment
Hokkaido Electric Power Co., Inc.	Tomari PS	Unit 1	(b)
		Unit 2	(b)
		Unit 3	(b)
Tohoku Electric Power Co., Inc.	Higashidori NPS	Unit 1	(a)
	Onagawa NPS	Unit 1	(b)
		Unit 2	(b)
		Unit 3	(b)
Tokyo Electric Power Company Holdings, Inc.	Fukushima Daini NPS	Unit 1	(b)
		Unit 2	(b)
		Unit 3	(b)
		Unit 4	(b)
	Kashiwazaki-Kariwa NPS	Unit 1	(c)
		Unit 2	(c)
		Unit 3	(c)
		Unit 4	(c)
		Unit 5	(c)
		Unit 6	(c)
		Unit 7	(c)
Japan Atomic Power Company	Tokai NPS	−	(b)
	Tokai Daini NPS	−	(b)
Chubu Electric Power Co., Inc.	Hamaoka NPS	Unit 1	(b)
		Unit 2	(b)
		Unit 3	(b)
		Unit 4	(b)
		Unit 5	(b)
Hokuriku Electric Power Company	Shika NPS	Unit 1	(a)
		Unit 2	(a)
Japan Atomic Power Company	Tsuruga NPS	Unit 1	(a)
		Unit 2	(b)
Kansai Electric Power Company, Inc.	Mihama PS	Unit 1	(a)
		Unit 2	(a)
		Unit 3	(b)
	Ohi PS	Unit 1	(b)
		Unit 2	(b)
		Unit 3	(b)
		Unit 4	(b)
	Takahama PS	Unit 1	(b)
		Unit 2	(b)
		Unit 3	(b)
		Unit 4	(b)
Chugoku Electric Power Co., Inc.	Shimane NPS	Unit 1	(a)
		Unit 2	(a)
		Unit 3	(a)
Shikoku Electric Power Co., Inc.	Ikata PS	Unit 1	(b)
		Unit 2	(b)
		Unit 3	(b)
Kyushu Electric Power Company, Inc.	Genkai NPS	Unit 1	(a)
		Unit 2	(a)
		Unit 3	(b)

		Unit 4	(a)
Kyushu Electric Power Company, Inc.	Sendai NPS	Unit 1	(b)
		Unit 2	(a)
Electric Power Development Co., Ltd	Oma NPS	–	(a)
Japan Nuclear Fuel Ltd.	Reprocessing facility of the reprocessing plant		(b)
	Waste storage facility of the reprocessing plant		(a)
	Fabrication facility of the enrichment and disposal plant		(a)
	Waste disposal facility of the enrichment and disposal plant		(a)
	MOX Fuel Fabrication Facility, Reprocessing Plant		(a)
Nuclear Material Control Center (NMCC)	Nuclear fuel material usage facilities, Rokkasho Safeguards Center		(b)
	Nuclear fuel material usage facilities, Tokai Safeguards Center		(a)
Japan Atomic Energy Agency	Nuclear fuel material usage facility, Oarai Research and Development Institute (South Area)		(a)
	Designated waste management facility, Oarai Research and Development Institute		(a)
	Nuclear fuel material usage facility, Nuclear Fuel Cycle Engineering Laboratories		(a)
	Waste disposal facility, Nuclear Science Research Institute		(a)
	Nuclear fuel material usage facility, Nuclear Science Research Institute		(a)
	Nuclear fuel material usage facility, Oarai Research and Development Institute (North Area)		(a)
	NSRR (Nuclear Safety Research Reactor), Nuclear Science Research Institute		(a)
	Experimental Fast Reactor Facility (Joyo), Oarai Research and Development Institute (South Area)		(a)
	HTTR (High Temperature Engineering Test Reactor), Oarai Research and Development Institute (North Area)		(a)
	TRACY (Transient Experiment Critical Facility), Nuclear Science Research Institute		(a)
	TCA (Tank-type Critical Assembly), Nuclear Science Research Institute		(a)
	JRR-3, Nuclear Science Research Institute		(a)
	FCA (Fast Critical Assembly), Nuclear Science Research Institute		(a)
	Reprocessing facility, Nuclear Fuel Cycle Engineering Laboratories		(a)
	STACY (Static Experiment Critical Facility), Nuclear Science Research Institute		(a)
	JMTR (Japan Materials Testing Reactor), Oarai Research and Development Institute (North Area)		(a)
	JRR-2, Nuclear Science Research Institute		(a)
	JRR-4 Nuclear Science Research Institute		(a)
	DCA (Deuterium Critical Assembly), Oarai Research and Development Institute (South Area)		(a)
	Prototype Advanced Converter Reactor Fugen		(a)
	Prototype Fast Breeder Monju		(a)
	Nuclear fuel material usage facility, Ningyo-toge Environmental Engineering Center		(a)
	Uranium fuel fabrication facility, Ningyo-toge Environmental Engineering Center		(a)
	The First Nuclear Ship Reactor Facilities, Aomori Research and Development Center		(a)
Nuclear fuel material usage facility, Nippon Nuclear Fuel Development Co. Ltd.			(b)

Fabrication facility, Mitsubishi Nuclear Fuel Co., Ltd.		(a)
Nuclear fuel material usage facility, MHI Mitsubishi Nuclear Fuel Co., Ltd.		(a)
University of Tokyo Reactor (Yayoi), Nuclear Professional School, The University of Tokyo		(a)
Atomic Energy Research Laboratory, Tokyo City University of Gotoh Educational Corporation		(a)
Ozenji Center HTR (Hitachi Training Reactor), Hitachi, Ltd.		(a)
Toshiba Energy Systems & Solutions Corporation	TTR-1	(a)
	Nuclear fuel material usage facility of N28-2, Nuclear Engineering Laboratory	(a)
	NCA (Toshiba Nuclear Critical Assembly), Nuclear Engineering Laboratory	(a)
Fabrication facility, Global Nuclear Fuel-Japan Co., Ltd.		(b)
Nuclear and Radiation Physics Laboratory, Rikkyo University		(a)
UTR (Uranium Thermal Reactor), Kindai University Atomic Energy Research Institute		(a)
Kyoto University	Kyoto University Critical Assembly (KUCA), Institute for Integrated Radiation and Nuclear Science	(a)
	Nuclear fuel material usage facility, Institute for Integrated Radiation and Nuclear Science	(a)
	KUR, Institute for Integrated Radiation and Nuclear Science	(a)
Nuclear Fuel Industries, Ltd.	Fabrication facility, Tokai Works	(a)
	Fabrication facility, Kumatori Works	(a)
Spent fuel storage facility of Recyclable Fuel Storage Center, Recyclable-Fuel Storage Company		(a)
Aomori Prefectural Nuclear Power Safety Center in Aomori City (nuclear fuel material usage facility)		(a)
Aomori Research and Development Center, JAEA (nuclear fuel material usage facility)		(a)
Enrichment and disposal plant, Japan Nuclear Fuel Ltd. (nuclear fuel material usage facility)		(a)
Mineral Industry Museum, Graduate School of International Resource Sciences of Akita University		(a)
Fukushima Branch, Fukushima Prefectural Centre for Environmental Creation		(a)
Isohara Works, JX Nippon Mining & Metals Corp.		(a)
Tokai Works, Nuclear Fuel Industries, Ltd. (nuclear fuel material usage facility)		(a)
Nuclear Professional School, The University of Tokyo (nuclear fuel material usage facility)		(a)
JASDF 3rd Air DEPOT, Ministry of Defence		(a)
Nihon Box Industry		(a)
Global Nuclear Fuel - Japan Co, Ltd.		(a)
Niigata Racecourse, Japan Racing Association		(a)
Shika Nuclear Power Station, Hokuriku Electric Power Co., Inc. (nuclear fuel material usage facility)		(a)
Yamanashi Branch, Japan Thoron Development Association		(a)
Tono Mine, JAEA		(a)
Tono Geoscience Center, JAEA		(a)
Gifu Prefectural General Medical Center		(a)
National Institute for Fusion Science, NINS		(a)
COMPANY e-farm		(a)
Radiation Laboratory, Faculty of Engineering, Kyoto University		(a)
Kumatori Works, Japan Nuclear Fuel Ltd. (nuclear fuel material usage facility)		(a)
Isotope General Laboratory, Nara Women's University		(a)
Ningyo-toge Environmental Engineering Center, JAEA (nuclear fuel material usage facility)		(a)
Iwakuni R&D Center, TEIJIN LIMITED		(a)
National Institute of Technology (KOSEN), Niihama College		(a)
Miike Office, MITSUI MINING & SMELTING CO., LTD.		(a)
First District Office at Hososhima, Hyuga of Nobeoka Branch, Asahi Kasei Corp.		(a)

*: Classification of (a), (b) and (c) is as follows.

(a) Facilities with no inspection findings confirmed

No inspection findings were confirmed and the safety performance indicator was “green” throughout the year. In addition, no particular problems were found in improvement activities aimed at achieving the activity target in each monitoring area.

Since the action matrix for this classification was Category 1 throughout the year and the purpose of the activity in each monitoring area was satisfied, it is assessed that autonomous improvement can be expected even if performance deteriorates.

(b) Facilities with significance level, "green," and severity level, "SL IV," confirmed in inspection findings

Inspection findings were confirmed, but the significance and severity levels were “green, SLIV,” and the safety performance indicator was “green” throughout the year.

In addition, no particular problems were found in improvement activities aimed at achieving the activity target in each monitoring area, including corrective activities for inspection findings.

Since the action matrix for this classification was Category 1 throughout the year and the purpose of the activity in each monitoring area was satisfied, it is assessed that autonomous improvement can be expected even if performance deteriorates.

(c) Kashiwazaki-Kariwa NPS of TEPCO

Inspection findings were identified, but the significance and severity levels were "green, SL IV" and the safety performance indicator was "green" throughout the year.

This NPS was classified as a Category 4 in FY2020, and supplemental inspections has been continued in FY2021 as well. Therefore, in FY2021, the action matrix for this classification is Category 4 throughout the year, and although the targets of the activities in each monitoring area are satisfied, it is assessed that there is a long-term or significant deterioration in the safety activities conducted by the operator.

(b) Inspection Plans in FY2022
(Routine Inspection (Power Reactor))

No.	Guide No.	Inspection guide name	Sendai	Genkai	Iikata	Takahama	Oi	Mihama
			Units 1, 2: In operation	Units 1, 2: Decommissioning A Units 3, 4: In operation	Unit 1: Decommissioning B Unit 2: Decommissioning A Unit 3: In operation	Units 1, 2: Longterm shutdown Units 3, 4: In operation	Units 1, 2: Decommissioning A Units 3, 4: In operation	Units 1, 2: Decommissioning A Unit 3: Long-term shutdown
1	BM0020	Oversight of operator's periodic inspection *	10	12	7	12	12	7
2	BM1040	Heat sink performance	2	3	2	3	3	2
3	BM0060	Maintenance effectiveness assessments	5	5	5	5	5	5
4	BM0100	Design control	6	6	6	6	6	6
5	BM0110	Work control	4	4	4	4	4	4
6	BO0010	Surveillance testing	18	22	17	22	22	18
7	BO1020	Systemconfiguration of equipment	18	22	18	22	22	18
8	BO1030	Reactor start-up and shutdown	2	2	1	2	2	1
9	BO1040	Operability determinations and functionality assessments	20	24	19	24	24	19
10	BO0060	Nuclear fuel control (Transportation and storage)	3	4	3	4	4	3
11	BO1070	Capability of operating personnel	5	5	5	5	5	5
12	BE0010	Protection against natural disaster	4	4	4	4	4	4
13	BE0020	Fire protection	13	13	13	13	13	13
14	BE0030	Internal flood protection	3	4	3	4	4	3
15	BE0040	Maintaining of emergency response organization	1	1	1	1	1	1
16	BE0050	Emergency preparedness and maintenance	1	1	1	1	1	1
17	BE0060	Maintaining personal capacity to respond to severe accidents, etc.	10	10	10	10	10	10
18	BE0090	Seismic protection	4	4	4	4	4	4
19	BE0100	Tsunami protection	4	4	4	4	4	4
20	BR0010	Radiation exposure control	6	6	6	6	6	6
21	BR0070	Radioactive solid waste management	3	3	3	3	3	3
22	BQ0010	Operation of Quality Management System (Routine)	1	1	1	1	1	1
23		Operation of Quality Management System (Semiannual)	2	2	2	2	2	2
24	BQ0040	Performance Indicator Verification	1	1	1	1	1	1
25	BQ0050	Initial response to occurrence of an event	*3	*3	*3	*3	*3	*3
		Total	146	163	140	163	163	141

No.	Guide No.	Inspection guide name	Tomari Units 1-3: Long-term shut down	Higashidori Unit 1: Long-term shut down	Onagawa Unit 1: Decommissioning A Units 2-3: Long-term shut down	Kashiwazaki Units 1-7: Long-term shut down	Fukushima Daini Units 1-4: Decommissioning review	Tokai Unit 1: Decommissioning B Unit 2: Long-term shutdown
1	BM0020	Oversight of operator's periodic inspection*	3	1	3	7	4	2
2	BM1040	Heat sink performance	1	1	1	2	1	1
3	BM0060	Maintenance effectiveness assessments	1	1	1	1	1	1
4	BM0100	Design control	2	2	2	2	1	2
5	BM0110	Work control	4	4	4	4	2	4
6	BO0010	Surveillance testing	5	3	5	8	6	3
7	BO1020	System configuration of equipment	5	3	5	8	6	4
8	BO1030	Reactor start-up and shutdown	0	0	0	0	0	0
9	BO1040	Operability determinations and functionality assessments	5	3	5	8	6	4
10	BO0060	Nuclear fuel control (Transportation and storage)	1	1	1	2	1	1
11	BO1070	Capability of operating personnel	*3	*3	*3	*3	1	*3
12	BE0010	Protection against natural disaster	2	2	2	2	2	2
13	BE0020	Fire protection	7	7	7	7	7	7
14	BE0030	Internal flood protection	1	1	1	2	2	1
15	BE0040	Maintaining of emergency response organization	1	1	1	1	1	1
16	BE0050	Emergency preparedness and maintenance	1	1	1	1	1	1
17	BE0060	Maintaining personal capacity to respond to severe accidents, etc.	0	0	0	0	0	0
18	BE0090	Seismic protection	1	1	1	1	1	1
19	BE0100	Tsunami protection	1	1	1	1	1	1
20	BR0010	Radiation exposure control	2	2	2	2	5	2
21	BR0070	Radioactive solid waste management	3	3	3	3	3	3
22	BQ0010	Operation of Quality Management System (Routine)	1	1	1	1	1	1
23		Operation of Quality Management System (Semiannual)	2	2	2	2	2	2
24	BQ0040	Performance Indicator Verification	1	1	1	1	1	1
25	BQ0050	Initial response to occurrence of an event	*3	*3	*3	*3	*3	*3
		Total	50	42	50	66	56	45

No.	Guide No.	Inspection guide name	Hamaoka	Shika	Tsuruga	Shimane	Ohma	(TEPCO) Higashidori
			Units 1, 2: Decommissioning B Units 3-5: Long-term shutdown	Units 1,2: Long-term shutdown	Unit 1: Decommissioning A Unit 2: Long-term shutdown	Unit 1: Decommissioning A Unit 2: Long-term shutdown Unit 3: Construction B	Unit 1: Construction A	Unit 1: Construction A
1	BM0020	Oversight of operator's periodic inspection*	5	2	2	3		
2	BM1040	Heat sink performance	1	1	1	1		
3	BM0060	Maintenance effectiveness assessments	1	1	1	1		
4	BM0100	Design control	2	2	2	2		
5	BM0110	Work control	4	4	4	4		
6	BO0010	Surveillance testing	5	4	4	5		
7	BO1020	Systemconfiguration of equipment	6	4	4	5		
8	BO1030	Reactor start-up and shutdown	0	0	0	0		
9	BO1040	Operability determinations and functionality assessments	6	4	4	5		
10	BO0060	Nuclear fuel control (Transportation and storage)	1	1	1	1		
11	BO1070	Capability of operating personnel	*3	*3	*3	*3		
12	BE0010	Protection against natural disaster	2	2	2	2		
13	BE0020	Fire protection	7	7	7	7		
14	BE0030	Internal flood protection	1	1	1	1		
15	BE0040	Maintaining of emergency response organization	1	1	1	1		
16	BE0050	Emergency preparedness and maintenance	1	1	1	1		
17	BE0060	Maintaining personal capacity to respond to severe accidents, etc.	0	0	0	0		
18	BE0090	Seismic protection	1	1	1	1		
19	BE0100	Tsunami protection	1	1	1	1		
20	BR0010	Radiation exposure control	2	2	2	2		
21	BR0070	Radioactive solid waste management	3	3	3	3		
22	BQ0010	Operation of Quality Management System (Routine)	1	1	1	1		
23		Operation of Quality Management System (Semiannual)	2	2	2	2		
24	BQ0040	Performance Indicator Verification	1	1	1	1		
25	BQ0050	Initial response to occurrence of an event	*3	*3	*3	*3		
		Total	54	46	46	50	0	0

(Routine Inspection (Nuclear Fuel Cycle Facilities, etc.))

No.	Guide No.	Inspection guide name	JNFL					Rokkasho Safeguards Center	[Decommissioning] First Nuclear Ship's reactor (no nuclear fuel materials in the plants, etc.)	Recyclable-Fuel Storage Center
			JNFL Reprocessing Facility	MOX Fabrication Facility	Fabrication Facility	Waste management facility	Waste Disposal Facility			
			Repro-cessing	Fabrication		Management and burial		Use	Testing reactor	Storage
1	BM0020	Oversight of operator's periodic inspection	5		4	3			1	
2	BM1040	Heat sink performance								
3	BM0060	Maintenance effectiveness assessments	5		3	1	1	1	-	
4	BM0100	Design control	6		2	1	1	1		
5	BM0110	Work control	4		3	1	1	1	1	
6	BO0010	Surveillance testing	14		4	1		1	-	
7	BO1020	Systemconfiguration of equipment								
8	BO1030	Reactor start-up and shutdown								
9	BO1040	Operability determinations and functionality assessments								
10	BO0060	Nuclear fuel control (Transportation and storage)	2							
11	BO1070	Capability of operating personnel								
12	BO2010	Operation management	10		4	4	3	2		
13	BO2020	Criticalsafety management	10		2			1		
14	BO2030	Experiment								
15	BE0010	Protection against natural disaster	4		2	1	1	1	1	
16	BE0020	Fire protection	13		4	1	1	1	1	
17	BE0030	Internal flood protection	2		1	1	1	1	-	
18	BE0040	Maintaining of emergency response organization	1		-	1	1	1		
19	BE0050	Emergency preparedness and maintenance	1		1	1	1	1		
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.	5		2					
21	BE0090	Seismic protection	4		2	1	1	1	-	
22	BE0100	Tsunami protection								
23	BR0010	Radiation exposure control	6		4	2	1	2	1	
24	BR0070	Radioactive solid waste management	3		2	1	1	1	1	
25	BQ0010	Operation of Quality Management System (Routine)	1	1	1	1	1	1	1	1
26		Operation of Quality Management System (Semiannual)	2	1	2	1	1	1	1	1
27	BQ0040	Performance Indicator Verification	1	-	1	1	1	1	1	-
28	BQ0050	Initial response to occurrence of an event	-	-	-	-	-	-	-	-
		Total	99	2	44	23	17	19	9	2

No.	Guide No.	Inspection guide name	Mitsubishi Nuclear Fuel	Tokai Works, Nuclear Fuel Industries	Nuclear Science Research Institute, JAEA					
					Nuclear Science Research Institute, JAEA	Waste Disposal Facility	JRR-3 (including radioactive waste processing site)	Static Experiment Critical Facility (STACY)	Nuclear Safety Research Reactor (NSRR)	[Decommissioning] Fast Critical Assembly (FCA)
			Reprocessing		Use	Management and burial	Testing reactor			
1	BM0020	Oversight of operator's periodic inspection	4	4			6	4	4	1
2	BM1040	Heat sink performance								
3	BM0060	Maintenance effectiveness assessments	3	3	1	-	2	1	1	1
4	BM0100	Design control	-	-	1	-	1	1	-	-
5	BM0110	Work control	4	4	1	3	6	2	2	-
6	BO0010	Surveillance testing	4	4	1		4	1	1	-
7	BO1020	Systemconfiguration of equipment								
8	BO1030	Reactor start-up and shutdown								
9	BO1040	Operability determinations and functionality assessments								
10	BO0060	Nuclear fuel control (Transportation and storage)	-	-	1		1	1	1	1
11	BO1070	Capability of operating personnel								
12	BO2010	Operation management	4	4	2	-	7	-	2	
13	BO2020	Criticalsafety management	2	2	1					
14	BO2030	Experiment					2	-	2	
15	BE0010	Protection against natural disaster	1	1	1	-	1	1	1	
16	BE0020	Fire protection	2	2	1	-	4	1	1	
17	BE0030	Internal flood protection	1	1	1	-	1	1	1	
18	BE0040	Maintaining of emergency response organization	1	1	1	-	1	1	1	
19	BE0050	Emergency preparedness and maintenance	1	1	1	-	1	1	-	
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.	2	2						
21	BE0090	Seismic protection	2	2	1	-	2	1	1	
22	BE0100	Tsunami protection			-					
23	BR0010	Radiation exposure control	4	4	2		5	2	2	1
24	BR0070	Radioactive solid waste management	2	2	1	-	2	1	1	1
25	BQ0010	Operation of Quality Management System (Routine)	1	1	1	-	1	1	1	1
26		Operation of Quality Management System (Semiannual)	2	2	1	-	2	1	1	-
27	BQ0040	Performance Indicator Verification	1	1	1	-	1	1	1	1
28	BQ0050	Initial response to occurrence of an event	-	-	-	-	-	-	-	-
		Total	41	41	20	3	50	22	24	7

No.	Guide No.	Inspection guide name	Nuclear Science Research Institute, JAEA				Oarai R&D Institute, JAEA			
			[Decommissioning] Transient Experiment Critical Facility (TRACY) (no nuclear fuel materials in the plants, etc.)	[Decommissioning] JRR-2 (no nuclear fuel materials in the plants, etc.)	[Decommissioning] Tank-type critical assembly (TCA) (Contains nuclear fuel materials in the plants, etc.)	[Decommissioning] JRR-4 (no nuclear fuel materials in core)	High Temperature engineering Test Reactor (HTTR)	Experimental Fast Reactor (Joyo)	[Decommissioning] Deuterium Critical Assembly (DCA) (no nuclear fuel materials in core)	[Decommissioning] Japan Materials Test Reactor (JMTR) (no nuclear fuel materials in core)
			Testing reactor				Testing reactor			
1	BM0020	Oversight of operator's periodic inspection	1	1	1	1	4	4	1	1
2	BM1040	Heat sink performance								
3	BM0060	Maintenance effectiveness assessments	1	1	1	1	1	1	1	1
4	BM0100	Design control	-	-	-	-	1	1	-	-
5	BM0110	Work control		-	-	-	1	1	-	-
6	BO0010	Surveillance testing		-	-	-	4	4	1	1
7	BO1020	Systemconfiguration of equipment								
8	BO1030	Reactor start-up and shutdown								
9	BO1040	Operability determinations and functionality assessments								
10	BO0060	Nuclear fuel control (Transportation and storage)			1	-	1	1	1	1
11	BO1070	Capability of operating personnel								
12	BO2010	Operation management					5	5		
13	BO2020	Criticalsafety management								
14	BO2030	Experiment					-	-		
15	BE0010	Protection against natural disaster					1	1		
16	BE0020	Fire protection					3	3	1	1
17	BE0030	Internal flood protection					1	1		
18	BE0040	Maintaining of emergency response organization					1	1		
19	BE0050	Emergency preparedness and maintenance					1	1		
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.								
21	BE0090	Seismic protection					1	1		
22	BE0100	Tsunami protection								
23	BR0010	Radiation exposure control	1	1	1	1	5	5	1	2
24	BR0070	Radioactive solid waste management	1	1	1	1	2	2	1	2
25	BQ0010	Operation of Quality Management System (Routine)	1	1	1	1	1	1	1	1
26		Operation of Quality Management System (Semiannual)		-	-	-	1	1	-	-
27	BQ0040	Performance Indicator Verification	1	1	1	1	1	1	1	1
28	BQ0050	Initial response to occurrence of an event	-	-	-	-	-	-	-	-
		Total	6	6	7	6	35	35	9	11

No.	Guide No.	Inspection guide name	Oarai R&D Institute, JAEA			Nuclear Science Research Institute				
			Oarai Research and Development Institute, JAEA (north)	Oarai Research and Development Institute, JAEA (south)	Specified Radioactive Waste Interim Storage Facility	[Decommissioning]Tokai Reprocessing Facility	Nuclear Fuel Cycle Engineering Laboratories	[Decommissioning]Japan Materials Test Reactor (JMTR) (no nuclear fuel materials in core)	MHI Nuclear Development Corporation	Nippon Nuclear Fuel Development (NFD)
			Use		Management and burial	Reproce-ssing	Use	Testing reactor	Use	
1	BM0020	Oversight of operator's periodic inspection			3	5		1		
2	BM1040	Heat sink performance								
3	BM0060	Maintenance effectiveness assessments	1	1	1	5	1	1	1	1
4	BM0100	Design control	1	1	1	4	1	-	1	1
5	BM0110	Work control	1	1	1	6	1	-	1	1
6	BO0010	Surveillance testing	1	1	1	8	1	1	1	1
7	BO1020	Systemconfiguration of equipment								
8	BO1030	Reactor start-up and shutdown								
9	BO1040	Operability determinations and functionality assessments								
10	BO0060	Nuclear fuel control (Transportation and storage)	1	1		1	1	-	1	1
11	BO1070	Capability of operating personnel								
12	BO2010	Operation management	2	2	3	5	2		2	2
13	BO2020	Criticalsafety management	1	1	1	5	1		1	1
14	BO2030	Experiment								
15	BE0010	Protection against natural disaster	1	1	1	4	1		1	1
16	BE0020	Fire protection	1	1	1	7	1	1	1	1
17	BE0030	Internal flood protection	1	1	1	2	1		1	1
18	BE0040	Maintaining of emergency response organization	1	1	1	1	1		1	1
19	BE0050	Emergency preparedness and maintenance	1	1	1	1	1		1	1
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.				3				
21	BE0090	Seismic protection	1	1	1	4	1		1	1
22	BE0100	Tsunami protection				4	-			
23	BR0010	Radiation exposure control	2	2	2	6	2	2	2	2
24	BR0070	Radioactive solid waste management	1	1	1	3	1	1	1	1
25	BQ0010	Operation of Quality Management System (Routine)	1	1	1	1	1	1	1	1
26		Operation of Quality Management System (Semiannual)	1	1	1	2	1	1	1	1
27	BQ0040	Performance Indicator Verification	1	1	1	1	1	1	1	1
28	BQ0050	Initial response to occurrence of an event	-	-	-	-	-	-	-	-
		Total	20	20	23	78	20	10	20	20

No.	Guide No.	Inspection guide name	Tokai Safeguards Center	Toshiba Nuclear Engineering Laboratory	[Decommissioning] Toshiba Nuclear Critical Assembly (NCA)	[Decommissioning] Toshiba (TTR1) (no nuclear fuel materials in the plants, etc.)	[Decommissioning] Atomic Energy Research Laboratory, Tokyo City University (no nuclear fuel materials in the plants, etc.)	[Decommissioning] Hitachi Training Reactor at Hitachi Ozenji Center (HTR) (no nuclear fuel materials in the plants, etc.)	[Decommissioning] Institute for Atomic Energy, Rikkyo University (no nuclear fuel materials in the plants, etc.)	Global Nuclear Fuel Japan
			Use		Testing reactor					Reprocessing
1	BM0020	Oversight of operator's periodic inspection			4	1	1	1	2	6
2	BM1040	Heat sink performance								
3	BM0060	Maintenance effectiveness assessments	1	1	1	1	1	1	-	2
4	BM0100	Design control	1	-	1	-			-	-
5	BM0110	Work control	1	1	1	-		2		4
6	BO0010	Surveillance testing	1	1	-					4
7	BO1020	Systemconfiguration of equipment								
8	BO1030	Reactor start-up and shutdown								
9	BO1040	Operability determinations and functionality assessments								
10	BO0060	Nuclear fuel control (Transportation and storage)		1	1					-
11	BO1070	Capability of operating personnel								
12	BO2010	Operation management	2	1						4
13	BO2020	Criticalsafety management	1	1	-					2
14	BO2030	Experiment								
15	BE0010	Protection against natural disaster	1	1	1	-	-	-		2
16	BE0020	Fire protection	1	1	1	-	-	-	1	4
17	BE0030	Internal flood protection	1	1	1					1
18	BE0040	Maintaining of emergency response organization	1	1	1	-	-	-		1
19	BE0050	Emergency preparedness and maintenance	1	1	1	-				1
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.								2
21	BE0090	Seismic protection	1	1	1	-	-	-		1
22	BE0100	Tsunami protection								
23	BR0010	Radiation exposure control	2	2	2	1	1	1	-	4
24	BR0070	Radioactive solid waste management	1	1	1	1	1	1	1	2
25	BQ0010	Operation of Quality Management System (Routine)	1	1	1	1	1	1	1	1
26		Operation of Quality Management System (Semiannual)	1	1	1	1	1	1		2
27	BQ0040	Performance Indicator Verification	1	1	1	1	1	1	1	1
28	BQ0050	Initial response to occurrence of an event	-	-	-	-	-	-	-	-
		Total	19	18	20	7	7	9	6	44

No.	Guide No.	Inspection guide name	[Decommissioning] Prototype Advanced Converter Seactor (Fugen) (no nuclear fuel materials in core)	[Decommissioning] Prototype Fast Breeder (Monju) (Contains nuclear fuel materialsin core)	Kumatori Works, Nuclear Fuel Industries	Kyoto University			Atomic Energy Research Institute, Kindai University (UTR)	Ningyo-toge Environmental Engineering Center, JAEA	[Decommissioning] Ningyo-toge Environmental Engineering Center, JAEA (Contains nuclear fuel materialsin the plants, etc.)
			Research reactor		Processing	Testing reactor		Use	Testing reactor	Use	Processing
1	BM0020	Oversight of operator's periodic inspection	4	7	4	4	4		4		2
2	BM1040	Heat sink performance		1							
3	BM0060	Maintenance effectiveness assessments	2	2	3	1	2		1	1	1
4	BM0100	Design control	1	2	-	1	1		1	-	-
5	BM0110	Work control	4	4	4	1	8	1	1	2	2
6	BO0010	Surveillance testing	1	13	4	1	4	-	1	2	2
7	BO1020	Systemconfiguration of equipment	2	2							
8	BO1030	Reactor start-up and shutdown									
9	BO1040	Operability determinations and functionality assessments	1	1							
10	BO0060	Nuclear fuel control (Transportation and storage)	1	8	-	-	2	-	1	1	1
11	BO1070	Capability of operating personnel		1							
12	BO2010	Operation management			4	-	8		2	1	1
13	BO2020	Criticalsafety management			2			-		1	1
14	BO2030	Experiment				-	2		2		
15	BE0010	Protection against natural disaster	1	2	2	1	1		1	1	1
16	BE0020	Fire protection	2	9	4	2	2		1	1	1
17	BE0030	Internal flood protection	1	1	1	1	1		-	1	1
18	BE0040	Maintaining of emergency response organization	1	1	1	1	1		1	1	1
19	BE0050	Emergency preparedness and maintenance	1	1	1	1	1		1	1	1
20	BE0060	Maintaining personal capacity to respond to severe accidents, etc.		3	2						
21	BE0090	Seismic protection	1	2	2	1	1	1	1	1	1
22	BE0100	Tsunami protection		-							
23	BR0010	Radiation exposure control	4	4	4	2	4	-	2	1	1
24	BR0070	Radioactive solid waste management	2	3	2	1	2	-	1	1	1
25	BQ0010	Operation of Quality Management System (Routine)	1	1	1	1	1		1	1	1
26		Operation of Quality Management System (Semiannual)	2	2	2	1	2		1	1	1
27	BQ0040	Performance Indicator Verification	1	1	1	1	1	1	1	1	1
28	BQ0050	Initial response to occurrence of an event	-	-	-	-	-	-	-	-	-
		Total	33	71	44	21	48	3	24	19	21

(Team Inspection)

No.	Guide No.	Inspection guide name	FY2022 The 1st quarter	FY2022 The 2nd quarter	FY2022 The 3rd quarter	FY2022 The 4th quarter	FY2023 The 1st quarter	FY2023 The 2nd quarter	Remark
1	BM0010	Oversight of pre-service operator inspection	(Inspection is carried out according to the pre-service operator inspection plan.)						
2	BM1050	Oversight of in-service inspection	(Inspection is carries out according to the regular operator inspection plan.)						
3	BM0100	Design control	Mihama					Takahama, JNFL reprocessing	
4	BO1050	Safety of replaced core	(Inspection is carried out according to the regular operator inspection plan.)						
5	BO1070	Capability of operating personnel	(Inspection is carried out according to the operator training plan.)						
6	BE0021	Fire protection (triennial)	Mihama		Ohi				
7	BE0070	Evaluation of training for personnel to respond to severe accidents, etc.	(Inspection is carried out according to the operator training plan)						
8	BE0080	Evaluation of scenario for drills for major accidents, etc.	(Inspection is carried out according to the operator training plan)						
9	BR0020	Radiation exposure evaluation and personal monitoring	Tokai Daini	Fukushima Daini, Genkai, JAEA reprocessing	Sendai	Tsuruga, Shimane	JNFL reprocessing, Ikata, Onagawa	Tohoku Higashidori, Takahama, Ohi, Tomari	Japan Atomic Power Company carried out inspections at both Tokai NPS and Tokai Dainі NPS.
10	BR0030	Radiation exposure ALARA activity	Tokai Daini	Fukushima Daini, Genkai, JAEA reprocessing	Sendai	Tsuruga, Shimane	JNFL reprocessing, Ikata, Onagawa	Tohoku Higashidori, Takahama, Ohi, Tomari	Japan Atomic Power Company carried out inspections at both Tokai NPS and Tokai Dainі NPS.
11	BR0040	Management and reduction of radioactive material in air	Tokai Daini	Fukushima Daini, Genkai, JAEA reprocessing	Sendai	Tsuruga, Shimane	JNFL reprocessing, Ikata, Onagawa	Tohoku Higashidori, Takahama, Ohi, Tomari	Japan Atomic Power Company carried out inspections at both Tokai NPS and Tokai Dainі NPS.
12	BR0050	Radioactive gas/liquid waste management	Ikata, Takahama	Mihama, Fukushima Daini, JAEA reprocessing	Onagawa, Ohi	Tsuruga, Tokai Dainі	JNFL reprocessing	Tohoku Higashidori, Tomari	Japan Atomic Power Company carried out inspections at both Tokai NPS and Tokai Dainі NPS.
13	BR0080	Radiation environment monitoring program	Ikata, Takahama	Mihama, Fukushima Daini, JAEA reprocessing	Onagawa, Ohi	Tsuruga, Tokai Dainі	JNFL reprocessing	Tohoku Higashidori, Tomari	Japan Atomic Power Company carried out inspections at both Tokai NPS and Tokai Dainі NPS.
14	BR0090	Radiation monitoring equipment	Ikata, Takahama	Mihama, Fukushima Daini, JAEA reprocessing	Onagawa, Ohi	Tsuruga, Tokai Dainі	JNFL reprocessing	Tohoku Higashidori, Tomari	Japan Atomic Power Company carried out inspections at both Tokai NPS and Tokai Dainі NPS.
15	BQ0010	Operation of quality management system	Ohi	Ikata, Takahama	Sendai, Genkai	Mihama	Ohi, Takahama	Ikata, Sendai	
16	Physical protection of nuclear material		Tomari, Tohoku Higashidori, JNFL Waste, JNFL MOX, JNFL concentration and burial, Fukushima Daini, Mitsubishi Nuclear Fuel, Oarai waste, JAEA reprocessing, Tokai Office of Nuclear Fuel Industries, Kashiwazaki-Kariwa, Shika, Tsuruga, Ohi, Takahama, Fugen, Hamaoka, Kumatori Office of Nuclear Fuel Industries, Rokkasho of NMCC, MHI, Toshiba	Tomari, Tohoku Higashidori, JNFL reprocessing, Okma, RFS, Onagawa, Fukushima Daini, Tokai Daini, Oarai waste, GNF-J, Kashiwazaki-Kariwa, Shika, Mihama, Takahama, Monju, Ningyo-toge, Shimane, Ikata, Genkai, Sendai, NSRI, Oarai north, Oarai south, Kyoto Univ., NFD, KINDAI Univ., Mitsubishi Electric	JNFL reprocessing, JNFL Waste, JNFL MOX, JNFL concentration and burial, Okma, RFS, Tokai Dainі, JAEA reprocessing, Tokai Office of Nuclear Fuel Industries, GNF-J, Kashiwazaki-Kariwa, Tsuruga, Ohi, Fugen, Hamaoka, Ningyo-toge, Shimane, Ikata, Genkai, Sendai, NCL, Oarai north, Oarai south, The Univ. of Tokyo, Tokai of NMCC	Onagawa, Mitsubishi Nuclear Fuel, Kashiwazaki-Kariwa, Mihama, Kumatori Office of Nuclear Fuel Industries			

(Facilities, etc. Not Subject to Article 41 of the Cabinet Order of the Reactor Regulation Act)

Site			Type of approval / notification			On-site inspection (usage survey) FY	Implementation period (Note 1)	Date of approval (nuclear fuel) / notification (nuclear fuel)
No.	Location	Name	Use	Storage	Disposal			
1	Aomori	Aomori Prefecture Nuclear Energy Center in Aomori City	○	○	○	-	The 3rd quarter	Jun. 2, 2003
2	Aomori	Institute for Environmental Sciences	○	○	○	FY2004	The 3rd quarter	Nov. 29, 2000
3	Iwate	Hanawa Mining Company, Ltd.	○	○	-	FY2010	The 2nd quarter	Mar. 23, 1977
4	Miyagi	Institute of Public Health, Sendai City	-	○	-	FY2009	The 2nd quarter	May 10, 2001
5	Miyagi	Technology and Social Systems, Graduate School of Engineering, Tohoku University	○	○	○	FY2014	The 1st quarter	Oct. 12, 1965
6	Akita	Center for Radioisotopes, Akita University	-	○	-	FY2008	The 2nd quarter	Jun. 7, 2005
7	Ibaraki	The Core Research Site No.7 in Tsukuba (nuclear raw materials), National Institute of Advanced Industrial Science and Technology	○	-	-	FY2009	The 1st quarter	Oct. 25, 2007
8	Ibaraki	The Institute for Agro-Environmental Sciences, National Agriculture and Food Research Organization	○	○	○	FY2010	The 1st quarter	Mar. 8, 2000
9	Ibaraki	Energy Innovation Center, Hitachi Research Laboratory (Hitachi Annex), Hitachi, Ltd.	○	○	○	FY2018	The 1st quarter	Aug. 29, 1958
10	Ibaraki	Mitsubishi Nuclear Fuel Company, Limited	○	○	○	FY2004	The 4th quarter	Jan. 5, 1983
11	Ibaraki	Tsukuba Factory, KAGAMI CRYSTAL Co., Ltd.	-	○	-	FY2010	The 2nd quarter	Mar. 24, 2010
12	Gunma	R&D center, TAIYO YUDEN Co., Ltd.	-	○	-	FY2010	The 3rd quarter	Dec. 22, 2000
13	Saitama	Omiya Management Office, Safety Management Department, MHI Nuclear Development Corporation	-	○	○	FY2007	The 3rd quarter	Oct. 28, 1998
14	Chiba	Chiba Factory, FUJIFILM Toyama Chemical Co., Ltd. (Currently: Chiba Factory, PDRadiopharma Inc.)	○	○	-	FY2010	The 2nd quarter	Nov. 29, 1983
15	Tokyo	Ground Systems Research Center, Acquisition, Technology & Logistics Agency	○	○	-	FY2009	The 2nd quarter	Sep. 26, 1972
16	Tokyo	Tokyo Factory, Rigaku Corporation	-	-	○	FY2010	The 1st quarter	Feb.19, 1970
17	Tokyo	Hydrographic and Oceanographic Department, Japan Coast Guard	○	○	○	FY2001	The 3rd quarter	Mar. 1, 2011
18	Kanagawa	Yokohama Government Office, Fisheries Resources Institute, Japan Fisheries Research and Education Agency	○	○	○	FY2010	The 2nd quarter	Apr. 19, 1995
19	Kanagawa	Toshiba Materials Co., Ltd.	○	○	○	FY2015	The 1st quarter	May 21, 1971
20	Kanagawa	Central Research Institute of Tobacco, Japan Tobacco Inc.	-	○	○	FY2010	The 4th quarter	Apr. 1, 1985
21	Kanagawa	Kawasaki Plant, Nippon Yakin Kogyo Co., Ltd.	-	○	-	FY2010	The 2nd quarter	Apr. 28, 1975
22	Kanagawa	Kanagawa Office, Functional Materials Manufacturing Headquarters, FUJIFILM Corporation	-	-	○	FY2010	The 3rd quarter	Apr. 6, 1959
23	Kanagawa	Information Technology R&D Center, Mitsubishi Electric Corporation	-	○	○	FY2009	The 2nd quarter	Mar. 14, 1974
24	Kanagawa	Atomic Energy Research Laboratory, Tokyo City University	○	○	○	FY2010	The 3rd quarter	Jan. 5, 1962
25	Niigata	Niigata Prefectural Education Center	-	○	-	FY2010	The 4th quarter	Dec. 8, 2006
26※1	Niigata	Individual (nuclear raw materials)	○	○	-	-	The 4th quarter	Dec. 19, 2019
27	Fukui	Fukui Prefectural Environmental Radiation Research and Monitoring Center	○	○	○	FY2001	The 3rd quarter	Jan. 13, 1977
28	Fukui	Fukui Factory, TAIYO KOKO Co.,Ltd.	-	-	○	FY2010	The 3rd quarter	Mar. 10, 2005
29	Nagano	Obuse Office, COSINA Co., Ltd.	-	-	○	FY2010	The 2nd quarter	May 21, 1970
30	Nagano	Division of Gene Research, Field of Life Sciences, Research Center for Advanced Science and Technology, Shinshu University	-	○	-	FY2010	The 2nd quarter	Nov. 28, 2002
31	Shizuoka	Shimizu Factory, Nippon Light Metal Co.,Ltd.	-	○	-	FY2010	The 1st quarter	Jul. 13, 2005
32	Shizuoka	University of Shizuoka	-	○	-	FY2010	The 1st quarter	Jul. 13, 2005
33	Aichi	Chubu Center, National Institute of Advanced Industrial Science and Technology	-	○	○	FY2001	The 4th quarter	May. 16, 1974
34※1	Osaka	Time Capsule Burial Ground, Ministry of Education, Culture, Sports, Science and Technology	○	-	-	-	The 4th quarter	Sep. 11, 1971

(4) Inspection Findings in FY2022 (up to the 3rd Quarter)
(Nuclear Facility Safety and Radiation Safety)

		Subject	Overview	Significance and Severity Levels
The 1st Quarter	1	Tomari PS: Improper installation of fire detectors	The operators voluntarily conducted a comprehensive inspection from October to December in 2021 concerning places where fire detectors had been installed, and it turned out that there had been a total of 9 fire detectors in the fire compartment where critical equipment of the nuclear facility for safety was installed. These fire detectors did not satisfy the "installation conditions stipulated in Article 23, Paragraph 4 of the Enforcement Regulation of the Fire Service Act" specified in the "application form for permission for reactor installation at Tomari PS (Units 1 and 2) (Attachment 8)" and the "application form for approval of the 8th construction plan for Unit 3 at Tomari PS."	Green SL IV
	2	Mihama PS Unit 3: Inadequate fire protection measures for supplemental water supply function due to lack of evaluation and construction according to the construction plan	The nuclear inspector confirmed that fire protection for some equipment related to the supplemental water supply function was inadequate in areas with electric supplemental water supply pumps during the team inspection on the fire protection for the 3rd quarter (3 years) at Mihama PS Unit 3 of Kansai Electric Power Co., Inc., which was conducted from October 18, 2021. The on-site panel of the supplemental water supply pumps with turbine drive and the start-up panel of the electric supplemental water supply pumps at Systems A and B (hereinafter referred to as the "control panel") might not be operable or controllable in case of a fire in these control panels. Nevertheless, without assessment of the fact, fire detection and automatic fire extinguishing systems were not installed inside the control panels, which were installed side by side in a row at intervals of approximately 0.6 m. In addition, the conduit that contained the power cable of the electric supplemental water supply pumps at the System B passed approximately 1.4 m above those at the System A, and there was a possibility that the power cable in the conduit at the System B could be burned and broken in case of a fire at the electric motor of the System A. However, the conduit in question was not covered with a fireproof sheet and other means for one hour, and there was no system separation from the Systems A and B.	Green SL IV
	3	Takahama PS Unit 3: Damage event to heat transfer tube of steam generator due to scale caused by inadequate maintenance	During the 25th periodic inspection of the Takahama PS Unit 3 (from March 1, 2022), the operator conducted eddy current testing of all heat transfer tubes in the steam generator (hereafter referred to as "SG"), and in two A-SG heat transfer tubes and one B-SG heat transfer tube, wall thinning from the outer surface was observed near the tube support plate (the ratio of wall thinning is about 57% for A-SG and less than the criterion respectively, and about 41% for B-SG).	Green SL IV

	4	Toshiba Materials Co., Ltd.: Leakage of nuclear fuel materials outside the controlled area at nuclear material utilization facility (not applicable to Article 41 of the Enforcement Order) (incidents under obligation to report)	According to the report submitted by Toshiba Materials Co., Ltd. (hereinafter referred to as "Toshiba Materials") on October 12, 2021 based on the Nuclear Reactor Regulation Law, it was confirmed that workers (those who were not in charge of radiation work) may have been exposed to radiation due to nuclear fuel material leaking outside the controlled area when the Yokohama Complex of Toshiba Corporation, which is adjacent, conducted renewal work of hydrogen recovery and circulation facilities in March, 2014. This nuclear material utilization facility was originally under the jurisdiction of Tokyo Shibaura Denki Kabushiki Kaisha (permitted for utilization on May 21, 1971). However, Subsequently, in October, 2003, the company was divided, and Toshiba Materials took over the utilization permission for the portion of the controlled area at the utilization facility, while Yokohama Complex of Toshiba Corporation succeeded the portion outside the controlled area, which was not covered by the utilization permission, without regulation (see note below). Although, in this case, it was evaluated that thorium could be completely removed by the bubbler installed inside the boundary of the controlled area by the operator under the utilization permission, the thorium that could not be removed by the bubbler was consequently adhered to equipment installed outside the controlled area under the jurisdiction of Yokohama Complex of Toshiba Corporation, which led to the possibility of workers' exposure (0.011 mSv in the operator's assessment) during the above renewal work. (Note) Toshiba Materials managed facilities including a reduction furnace for handling thorium and a bubbler for removing thorium, which were installed in the controlled area, and Yokohama Complex of Toshiba Corporation (operation site without regulation) managed a hydrogen recovery and circulation system, which was a post-process from the bubbler.	No additional action
The 2nd Quarter	5	Kashiwazaki-Kariwa NPS Unit 6: Multiple failures to restore emergency diesel generator (A) due to inadequate and non-compliant treatment	Since the event of lubricant splashing from the shaft seal of the engine bearing (the generator side) occurred when the emergency diesel generator (A) at Kashiwazaki-Kariwa NPS Unit 6 was in continuous operation for 24 hours on March 17, 2022, repairs and non-compliant occurrences were repeated multiple times due to the failure to implement appropriate treatment against non-compliance for restoration.	Green SL IV
	6	Mihama PS Unit 3: Leakage from the filter cover flange part of the A-sealing water injection due to inadequate procurement management	On August 1, 2022, during the 26th periodic inspection at Mihama PS Unit 3, an alarm of "low flow volume for sealing water injection" was issued when the primary coolant system was pressurized in preparation for a leak inspection of the primary coolant system. In light of this, the operator checked the site and found a puddle of water near the sealing water injection filter room in the building assisting the nuclear reactor. Furthermore, it was confirmed that there had been a rise in the water level in the sump of the building assisting the nuclear reactor through verification of the relevant parameters. (The amount of leakage is estimated to be approximately 7.5 m^3, or 2.2 x 10^6 Bq.) As a result of the inspection by the operator, it was	Green SL IV

			determined that the leakage occurred due to insufficient tightening because the bolts on the filter cover flange part of the A-sealing water injection were not tightened to the specified torque value described in the construction plan.	
	7	Mihama PS Unit 3: Malfunction of A-accumulator relief valve due to inadequate operational control	On August 21, 2022, during the 26th periodic inspection at Mihama PS Unit 3, Power Station Unit 3, an alarm of "low pressure for A-accumulator" was issued when the primary coolant system was heating up and boosting pressure. Since the operator confirmed that the pressure of the A-accumulator had dropped below the limit value of 4.04 MPa specified in the operational safety program, it was concluded that the operational restrictions in the operational safety program (Article 51: Accumulators, Article 85: Facility for Severe Accident Management) were not satisfied. According to the results of the inspection by the operator, it was estimated that some impact may have been given to the bonnet part of the accumulator relief valve during the assembly and disassembly of scaffolding near the relief valve at the time of the 26th periodic inspection. It was also estimated that the impact caused a change in the contact surface of the valve seat section, which caused the valve in question to malfunction at a lower value than the pressure to be set and the pressure in the accumulator to drop.	Green SL IV
	8	Takahama PS Unit 3: Deviation from operational restrictions of the supplemental water supply pumps with turbine drive due to inadequate work instruction	On July 21, 2022, during the 25th periodic inspection at the Takahama PS Unit 3, the worker confirmed an oil leakage (approx. 8 liters) from the cover of an oil filter (hereinafter referred to as "the filter") in the control oil system of the supplemental water supply pumps with turbine drive. Therefore, in order to stop the oil leakage, the worker shut down the pumps in the control oil system, which rendered the supplemental water supply pumps with turbine drive inoperable, and the operator determined that the operational restrictions in the operational safety program were not satisfied. As a result of the inspection by the operator, it was estimated that the oil leakage occurred because there were no specific instructions in the work manual on how to care for the seat surface of the filter and how to install the packing and because there were deficiencies in the restoration work after the disassembling inspection on the filter conducted during this 25th periodic inspection.	Green SL IV
	9	Takahama PS Unit 4: Damage event to heat transfer tube of steam generator due to scale caused by inadequate maintenance	During the 24th periodic inspection of the Takahama PS Unit 4 (from June 8, 2022), the operator conducted eddy current testing of all heat transfer tubes in the steam generator (hereafter referred to as "SG"), and in five A-SG heat transfer tubes, two B-SG heat transfer tubes and five C-SG heat transfer tubes, wall thinning from the outer surface was observed near the tube support plate (the maximum ratio of wall thinning is approximately 49%). The operator estimated that, as in the previous periodic inspection, the dense scale which had been formed on the tube surface remained on the underside of the tube support plate during plant operation, and that repeated contact of the transfer tubes with the scale was likely to have caused wear and thinning.	Green SL IV

	10	Takahama PS Unit 1: Failure to secure outdoor access route due to inadequate office regulations	On September 6, 2022, the nuclear inspector conducted a site walkdown at the Takahama PS Unit 1, which is currently out of service, to check the portable facility for severe accident management (hereinafter referred to as the "SA vehicle") and other centers, and it was confirmed that the width of the outdoor access route from the emergency preparedness station to the north gate had gotten narrower. In the presence of the operator, the relationship between the width of the outdoor access route and the bulldozer (blade width of approximately 3.7 m), which is the widest of the SA vehicles and other vehicles that would pass in the event of an emergency, was actually measured, and it was confirmed that the outdoor access route was too narrow for the bulldozer.	Green SL IV
	11	Reprocessing facility, Japan Nuclear Fuel Ltd.: Temporary loss of the safety cooling function of the supplied liquid tank B due to inadequate operational management in the Vitrification Facility	On July 2, 2022, the safety cooling function of the supplied liquid tank B was temporarily lost due to mishandling of a valve caused by inadequate operational management in the Vitrification Facility of Japan Nuclear Fuel Ltd.	No additional action SL IV
The 3rd Quarter	12	Ohi PS Units 3 and 4: Installation of smoke detectors, which are fire detection devices for sprinkler systems in seawater pipe tunnels, in inappropriate locations	In the team inspection for fire protection (3 years) conducted from September 12, 2022, the nuclear inspector confirmed that two smoke detectors, which are fire detection devices for sprinkler systems in seawater pipe tunnels, were installed in inappropriate locations. The nuclear inspectors confirmed with the operator that, as a preventative measure based on the inspection finding at other power plants, a survey on all smoke detectors installed in the fire zones and fire compartments of Ohi PS Units 3 and 4 had been conducted. It was recorded that there had been 47 smoke detectors installed in inappropriate locations and that the relocation of these detectors had been completed by September 5, 2022. When the operator checked again after the nuclear inspector pointed out this fact, it was revealed that the scope of the survey had not covered the seawater pipe tunnels, and that two of the 19 smoke detectors installed in the tunnels had been installed in inappropriate locations.	Green SL IV
	13	Takahama PS Unit 4: Rise in temperature at outlet of pressurizer relief valve due to inadequate prevention of foreign matter inclusion	On October 21, 2022, the operator determined that the operational restrictions of the operational safety program were not satisfied, following a result where a seat leak of the B-pressurizer relief valve (hereinafter referred to as "the valve") caused an alarm of "high temperature at outlet of pressurizer relief valve" at Takahama PS Unit 4 during the 24th periodic inspection. As a result of the cause investigation by the operator, there were no specific descriptions in the operator's internal manuals regarding disassembling inspection of the valves in question to prevent foreign matter from being included in the valves during assembly work. In the disassembling inspection of the valves in question, which were conducted during the 24th periodic inspection this time, it was presumed that the seat leak occurred because the parts (valve plug, valve seat, etc.) had not been wiped	Green SL IV

			immediately prior to the valve assembly, which allowed small foreign matter to be mixed inside the valve and become entangled in the valve seat part.	
	14	Oarai Research and Development Institute, JAEA: Improper operation of local sampling systems in hot laboratory	On June 6, 2022, the nuclear inspector conducted a site walkdown at the hot laboratory (North district: a facility not applicable to Article 41 of the Cabinet Order) to check the operational status of the equipment , and it was confirmed that the collection portion of radioactive materials in the air under the local sampling system (hereinafter referred to as "local sampling end") was partially shut down (8 out of 23 parts in total). The nuclear inspector asked the operator about this fact, and was told that the local sampling end had been partially shut down at the hot laboratory for a long period of time since at least March, 1983 without examining the appropriateness of the indoor air sampling. This did not satisfy the requirements set forth in the operational safety program.	No additional action SL IV

(Physical Protection of Nuclear Material)

		Subject	Overview	Significance and Severity Levels
The 1st Quarter	15	Case of physical protection of nuclear material at Shimane NPS of Chugoku Electric Power Co., Inc. (physical protection)	Entry permits for surrounding protected areas and other zones were issued without being aware of falsified documents to prove identity, nor verifying them reliably.	Green SL IV
The 2nd Quarter	16	Case of physical protection of nuclear material at Kashiwazaki-Kariwa NPS of TEPCO (physical protection)	Emergency power supply equipment etc., were not connected to some lighting equipment, and measures were not taken to sufficiently ensure the required functions.	Green SL IV
	17	Case of physical protection of nuclear material at Onagawa NPS of Tohoku Electric Power Co., Inc. (management of in and out of zones)	Vehicle permits for restricted entry zones were issued without following the official procedures.	Green SL IV
	18	Case of physical protection of nuclear material at Fukushima Daini NPS of TEPCO (physical protection)	Two or more persons were not patrolling the critical facilities to be protected at the same time. .	Green SL IV
	19	Case of physical protection of nuclear material at reprocessing facility of reprocessing plant of Japan Nuclear Fuel Ltd. (approval of entry)	Necessary measures were not taken to bring in photographic equipment into protected areas and other zones.	No additional action SL IV
	20	Case of physical protection of nuclear material at Tsuruga NPS of Japan Atomic Power	Necessary measures, such as inspection of goods, were not taken at entrances and exits of the protected areas.	Green SL IV

The 3rd Quarter		Co. (approval of entry, management of in and out of zones)		
	21	Case of physical protection of nuclear material at enrichment and disposal sites of Japan Nuclear Fuel Ltd. (management of information on physical protection of nuclear material)	The method to manage the secrets of physical protection of nuclear materials was not appropriate.	No additional action SL IV
	22	Case of physical protection of nuclear material at reprocessing facility of reprocessing plant of Japan Nuclear Fuel Ltd. (physical protection)	There were opening parts that were not controlled at the boundary of the protected areas.	No additional action SL IV

(Evaluation of Only Severity Level)

		Subject	Severity Level
The 1st Quarter	1	Takahama PS Unit 3: Changes in the content of reports for periodic inspections by the operator due to partial failure to conduct inspections during the in-service period.	SL IV
The 2nd Quarter	2	Tsuruga NPS Unit 2 of Japan Atomic Power Company: Rewriting of borehole columnar map data due to inappropriate change management of review documents on application for permission of change in basic design.	SL III

4. Status of Application and Approval/Permission for Review of Nuclear Fuel Cycle Facilities, etc.

(April 1, 2022 – March 31, 2023)

Applicant	Facility	Application Date	Review Meeting (times)	On-site Invest-igation (times)	Date of Permission or Approval
Japan Nuclear Fuel Ltd.	Reprocessing facility	Change in operation April 28, 2021 January 12, 2022 Design and construction plan December 26, 2022※1 Change in design and construction plan December 24, 2020※2 December 26, 2022※3 December 26, 2022※4 December 26, 2022※5 Change in operational safety program April 15, 2022	10	–	Permission of change in operation September 29, 2022 Approval of change in design and construction plan December 21, 2022 Approval of change in operational safety program June 22, 2022
	MOX fuel fabrication facility	Change in operation January 12, 2022 Design and construction plan February 28, 2023 Change in design and construction plan December 24, 2020※6 February 28, 2023 Change in operational safety program April 15, 2022	3	–	Approval of change in design and construction plan September 14, 2022 Approval of change in operational safety program June 22, 2022
	Uranium enrichment facility	Design and construction plan April 5, 2022 Change in operational safety program April 15, 2022	1	–	Approval of change in design and construction plan June 14, 2022 Approval of change in operational safety program June 22, 2022
	Waste management facility	Change in operation April 28, 2021 January 12, 2022 Design and construction plan December 26, 2022 Change in operational safety program April 15, 2022	5	–	Permission of change in operation September 29, 2022 Approval of change in operational safety program June 22, 2022
	Waste disposal facility	Change in operational safety program April 15, 2022	1	–	Approval of change in operational safety program June 22, 2022
Recyclable Fuel Storage	Spent fuel storage facility	Change in operation January 20, 2022	4	–	Permission of change in operation February 8, 2023

Company		Change in design and construction plan November 12, 2021 March 28, 2023 Change in operational safety program December 21, 2022			Approval of change in design and construction plan August 16, 2022
Mitsubishi Nuclear Fuel	Uranium fuel fabrication facility	Change in operational safety program July 26, 2021 Separation January 10, 2023	1	–	Approval of change in operational safety program May 30, 2022 Approval of separation March 8, 2023
Japan Atomic Energy Agency	Waste disposal facility	Change in operation April 28, 2022 Design and construction plan February 28, 2018 April 28, 2022 Change in operational safety program March 14, 2014	2	–	Approval of design and construction plan April 18, 2022
	HTTR (High Temperature Engineering Test Reactor)	Change in basic design November 15, 2021 Design and construction plan April 25, 2022	3	–	Approval of design and construction plan October 31, 2022
	Radioactive waste treatment facility of Nuclear Science Research Institute	Change in basic design December 10, 2021 Design and construction plan November 17, 2022 March 24, 2023	–	–	Approval of change in basic design August 29, 2022
	Waste disposal facility of Nuclear Science Research Institute	Change in operational safety program March 31, 2022	1	–	Approval of change in operational safety program August 23, 2022
	Nuclear reactor facility of Nuclear Science Research Institute	Change in operational safety program August 31, 2022	–	–	Approval of change in operational safety program October 24, 2022
	STACY (Static Experiment Critical Facility)	Design and construction plan November 8, 2022 Change in operational safety program March 31, 2022 April 26, 2022	4	–	Approval of change in operational safety program August 5, 2022 December 23, 2022
	Experimental Fast Reactor Facility	Change in basic design March 30, 2017 Change in operational safety program March 30, 2017	23	2	–
Nuclear Fuel Industries, Ltd.	Uranium fuel fabrication facility (Tokai Works)	–	–	–	–
	Uranium fuel fabrication facility	Design and construction plan February 15, 2021	1	–	Approval of design and construction plan November 16, 2022

	(Kumatori Works)	Change in operational safety program February 15, 2023			
Global Nuclear Fuel Japan	Uranium fuel fabrication facility	–	–	–	–
Kyoto University	KUR (Kyoto University Research Reactor)	Change in basic design December 14, 2021 Design and construction plan March 18, 2022※7	6	–	Approval of design and construction plan January 25, 2023
	KUCA (Kyoto University Critical Assembly)	Change in basic design May 31, 2019 Design and construction plan April 28, 2022 May 23, 2022	3	–	Approval of change in basic design April 28, 2022
Japan Atomic Power Company	Tokai storage facility for low level waste	Permission of operation July 16, 2015	5	–	–

・There is no facility that received designation or approval of operation of refining facility or Category 1 waste disposal facility as of March 31, 2023.

・The numbers of review meetings and on-site investigations represent the number held in FY2022.

・Several applications may be reviewed at one session of the review meeting.

・The number of on-site investigations implemented by the Commissioners of the NRA is written, and those implemented only by the staff of the NRA Secretariat are excluded.

※1 The application for design and construction plan based on the enforcement of the new regulatory requirements. This is under the current status of the in-service phase, when it is after the design and construction plan has been approved prior to the enforcement of the new regulatory requirements.

※2 The application for approval to change in design and construction plan that had been submitted was withdrawn on December 24, 2020 and reapplied for on the same date. The application for change in design and construction plan was based on the enforcement of the new regulatory requirements. This is under the current status of the inspection phase, when it is after the design and construction plan has been approved prior to the enforcement of the new regulatory requirements (safety cooling water; B cooling tower).

※3 The application for change in design and construction plan based on the enforcement of the new regulatory requirements. This is under the current status of the inspection phase, when it is after design and construction plan have been approved prior to the enforcement of the new regulatory requirements (*except for facilities related to the safety cooling water; B cooling tower, utility building No. 2, and construction to separate the offshore discharge pipes).

※4The application for change in design and construction plan based on the enforcement of the new regulatory requirements. This is under the current status of the inspection phase, when it is after the design and construction plan has been approved prior to the enforcement of the new regulatory requirements (facilities related to the utility building No. 2).

※5The application for change in design and construction plan based on the enforcement of the new regulatory requirements. This is under the current status of the inspection phase, when it is after the design and construction plan has been approved prior to the enforcement of the new regulatory requirements (construction to separate the offshore discharge pipes).

※6 The application for approval to change design and construction plan that had been submitted was withdrawn on December 24, 2020 and reapplied for on the same date.

※7 The application to approve design and construction plan filed on February 28, 2022 was withdrawn on March 11, 2022 and reapplication was made on March 18, 2022.

5. Numbers of Reviews and Checks of Nuclear Facilities

(April 1, 2022 – March 31, 2023)

(1) Status of Reviews and Checks of Commercial Power Reactors

Type of Facility		No. of Cases
Commercial power reactors (60 plants) (Under decommissioning procedures: 18 plants) (Specified nuclear facility: 6 plants)	Permission of change in basic design	7
	Notification of change in basic design	7
	Approval of design and construction plan	22
	Approval of change in design and construction plan	5
	Notification of design and construction plan	23
	Extension of review period concerning the notification of design and construction plan	0
	Pass in pre-service inspection	7
	Approval of operational safety program or approval of their change	26
	Pre-service check	35
	Notification of evaluation, etc. for safety improvement	7
	Approval of extension of the operation period	0
	Approval of change in decommissioning plan	8
	Check of method and implementation system for determining assignment of responsible facility operator	0
	Approval of trial use of reactor	1
	Approval of partial use	4
	Instruction of omission of pre-service inspection	2
	Approval of type certification or changes in design of specific dual-use cask	1
Commercial power reactors in the research and development phase (Under decommissioning procedures: 2 facilities)	Permission of change in basic design	0
	Notification of change in basic design	2
	Approval of operational safety program or approval of their change	2
	Approval of change in decommissioning plan	2
	Notification of minor change in decommissioning plan	3

(2) Status of Reviews and Checks of Nuclear Fuel Cycle Facilities, etc.

Type of Facility		No. of Cases
Processing facility (7 facilities) (Under construction: 1 facility) (Under decommissioning procedures: 1 facility)	Permission of change in operation	0
	Approval of design and construction plan or approval of their change	3
	Pass in pre-service inspection	1
	Issuance of pre-use confirmation certificate	1
	Permission of partial use	1
	Approval of change in operational safety program	3
	Approval of decommissioning plan	0
Research reactor facility (22 facilities) (Under decommissioning procedures: 10 facilities)	Approval of change in basic design	2
	Approval of design and construction plan or approval of their change	2
	Pass in pre-service inspection	1
	Issuance of pre-use confirmation certificate	1
	Permission of partial use	0
	Approval of operational safety program or approval of their change	5
	Approval of decommissioning plan	0

Type of Facility		No. of Cases
	Approval of change in decommissioning plan	0
Spent fuel interim storage facility (1 facility) (Under construction: 1 facility)	Permission of change in operation	1
	Approval of design and construction plan or approval of their change	1
	Approval of change in operational safety program	0
	Permission of type certificate or its change	0
	Permission of type designation or its change	0
Reprocessing facility (2 facilities) (Under decommissioning procedures: 1 facilities)	Permission of change in operation	1
	Approval of design and construction plan or approval of their change	1
	Pass in pre-service inspection	0
	Approval of change in decommissioning plan	2
	Approval of change in operational safety program	2
Category 2 waste disposal facility (2 facilities)	Permission of change in operation	0
	Confirmation of waste disposal facilities	2
	Confirmation of waste package	14
	Approval of change in operational safety program	1
Waste management facility (2 facilities)	Permission of change in operation	1
	Approval of design and construction plan or approval of their change	1
	Approval of change in operational safety program	1
Facility where nuclear fuel materials are used (10 facilities※1)	Approval of change in use	11
	Pass in facility inspection	0
	Issuance of pre-use confirmation certificate	5
	Approval of operational safety program or approval of their change	11
	Approval of decommissioning plan	0
	Confirmation of completion with decommissioning measures	4
Off-site disposal and transportation of nuclear fuel material, etc.	Confirmation of off-site disposal	0
	Approval of nuclear fuel deliveries' design	13
	Approval of transportation containers	10
	Renewal of period to approve design	0
	Renewal of period to approve containers	0
	Confirmation of off-site transportation	8
	Confirmation of radioactive concentration	4

・There is no facility that received designation or approval of the business of refining facility or Category 1 waste disposal facility as of March 31, 2023.

*1: The Institute for Integrated Radiation and Nuclear Science, Kyoto University was changed to a facility not subject to Article 41 of the Cabinet Order of the Nuclear Reactor Regulation Law by the approval of change in use of nuclear fuel materials dated August 23, 2022.

6. Status of Application and Approval of Operation Period Extension

Applicant	Targeted Power Reactor	Date of Application	Date of Approval	Date at which 40 Years Have Elapsed after Operation Started
Kansai Electric Power Co., Inc.	Takahama PS Unit 1	April 30, 2015	June 20, 2016	November 13, 2014※1
	Takahama PS Unit 1	April 30, 2015	June 20, 2016	November 13, 2015※1
	Mihama PS Unit 3	November 26, 2015	November 16, 2016	November 30, 2016

Applicant	Targeted Power Reactor	Date of Application	Date of Approval	Date at which 40 Years Have Elapsed after Operation Started
Japan Atomic Power Company	Tokai Daini PS	November 24, 2017	November 7, 2018	November 27, 2018
Kyushu Electric Power Company, Inc.	Sendai NPS Unit 1	October 12, 2022	−	July 3, 2024
Kyushu Electric Power Company, Inc.	Sendai NPS Unit 2	October 12, 2022	−	November 27, 2025

*1: For commercial power reactors to which Paragraph 2 of Article 25 of Supplementary Provision of the Act for Establishment of the NRA are applied, the application period is from April 8 to July 8, 2015.

7. Status of Application and Approval of Change in Operational Safety Program concerning Aging Management

7-1. Plants Which Are Evaluated on Assumption That They Will Be Operated

Applicant	Targeted Power Reactor	Date of Application	Date of Approval	Date at Which 30 Years or 40 Years Elapse after Operation Started
Kansai Electric Power Co., Inc.	Takahama PS Unit 3 (30 years)	January 15, 2014	November 18, 2015	January 16, 2015
	Takahama PS Unit 4 (30 years)	June 3, 2014	November 18, 2015	June 4, 2015
	Takahama PS Unit 1 (40 years)	April 30, 2015	June 20, 2016	November 13, 2014※1
	Takahama PS Unit 2 (40 years)	April 30, 2015	June 20, 2016	November 13, 2015※1
	Mihama PS Unit 3 (40 years)	November 26, 2015	November 16, 2016	November 30, 2016
	Ohi PS Unit 3 (30 years)	December 2, 2020	November 24, 2021	December 17, 2021
	Ohi PS Unit 4 (30 years)	December 3, 2021	August 24, 2022	February 1, 2023
Chugoku Electric Power Co., Inc.	Shimane NPS Unit 2 (30 years)	February 7, 2018	−	February 10, 2019
Kyushu Electric Power Company, Inc.	Genkai NPS Unit 3 (30 years)	March 13, 2023	−	March 17, 2024
	Sendai NPS Unit 1 (30 years)	December 18, 2013	August 5, 2015	July 3, 2014
	Sendai NPS Unit 2 (30 years)	November 21, 2014	November 18, 2015	November 27, 2015
	Sendai NPS Unit 1 (40 years)	October 12, 2022	−	July 3, 2024
	Sendai NPS Unit 2 (40 years)	October 12, 2022	−	November 27, 2025
Japan Atomic Power Company	Tokai Daini PS (40 years)	November 24, 2017	November 7, 2018	November 27, 2018

*1: For commercial power reactors to which Paragraph 2 of Article 25 of Supplementary Provision of the Act for Establishment of the NRA are applied, the application period is until July 8, 2016.

7-2. Plants Which are Evaluated on Assumption That Cooling Shutdown Condition Will Be Maintained

Applicant	Targeted Power Reactor	Date of Application	Date of Approval	Date at Which 30 Years or 40 Years Elapse after Operation Started
Hokkaido Electric Power Co., Inc.	Tomari PS Unit 1 (30years)	June 18, 2018	May 27, 2019	June 22, 2019
	Tomari PS Unit 2 (30 years)	March 19, 2020	December 8, 2020	April 12, 2021
Tohoku Electric Power Co., Inc.	Onagawa NPS Unit 1 (30 years)	November 6, 2013	May 21, 2014	June 1, 2014
Tokyo Electric Power Company Holdings, Inc.	Fukushima Daini NPS Unit 2 (30 years)	July 31, 2013	January 22, 2014	February 3, 2014
	Fukushima Daini NPS Unit 2 (30 years)	October 31, 2018	January 30, 2019	– ※1
	Fukushima Daini NPS Unit 3 (30 years)	June 20, 2014	June 10, 2015	June 21, 2015
	Fukushima Daini NPS Unit 4 (30 years)	August 23, 2016	August 16, 2017	August 25, 2017
	Kashiwazaki-Kariwa NPS Unit 1 (30 years)	September 16, 2014	September 14, 2015	September 18, 2015
	Kashiwazaki-Kariwa NPS Unit 2 (30 years)	September 26, 2019	August 28, 2020	September 28, 2020
	Kashiwazaki-Kariwa NPS Unit 5 (30 years)	April 5, 2019	February 27, 2020	April 10, 2020
	Kashiwazaki-Kariwa NPS Unit 3 (30 years)	August 9, 2022	–	August 11, 2023
Chubu Electric Power Co., Inc.	Hamaoka NPS Unit 3 (30 years)	August 25, 2016	August 16, 2017	August 28, 2017
	Hamaoka NPS Unit 4 (30 years)	July 29, 2022	–	September 3, 2023
Hokuriku Electric Power Company	Shika NPS Unit 1 (30 years)	July 25, 2022	–	July 30, 2023
Kansai Electric Power Co., Inc.	Takahama PS Unit 1 (40 years)	November 12, 2013	November 12, 2014	November 14, 2014
	Takahama PS Unit 2 (40 years)	November 11, 2014	April 8, 2015	November 14, 2015
	Mihama PS Unit 1	September 29, 2015	November 17, 2015	– ※1
Chugoku Electric Power Co., Inc.	Shimane NPS Unit 1 (40 years)	September 27, 2013	February 26, 2014	March 29, 2014
Kyushu Electric Power Company, Inc.	Genkai NPS Unit 1 (40 years)	October 10, 2014	June 10, 2015	October 15, 2015
Japan Atomic Power Company	Tsuruga PS Unit 2 (30 years)	February 15, 2016	February 2, 2017	February 17, 2017

*1: The change of the long-term maintenance management policy due to the review of technical assessment concerning the aging degradation of reactor facilities.

8. Status of Application and Approval of Decommissioning Plan

Type of Facility	Applicant	Facility	Date of Application	Date of Approval
Commercial power reactors (Under decommissioning procedures: 18 facilities)	Japan Atomic Power Company	Tokai NPS	March 10, 2006	June 30, 2006
		Tsuruga PS No. 1	February 12, 2016	April 19, 2017
	Tohoku Electric Power Co., Inc.	Onagawa NPS Unit 1	July 29, 2019	March 18, 2020
	Tokyo Electric Power	Fukushima Daini NPS Units 1-4	May 29, 2020	April 28, 2021

Type of Facility	Applicant	Facility	Date of Application	Date of Approval
	Company Holdings, Inc.			
	Chubu Electric Power Co., Inc.	Hamaoka NPS Units 1-2	June 1, 2009	November 18, 2009
	Kansai Electric Power Co., Inc.	Mihama PS Units 1-2	February 12, 2016	April 19, 2017
		Ohi PS Units 1-2	November 22, 2018	December 11, 2019
	Chugoku Electric Power Co., Inc.	Shimane NPS Unit 1	July 4, 2016	April 19, 2017
	Shikoku Electric Power Co., Inc.	Ikata PS Unit 1	December 26, 2016	June 28,2017
		Ikata PS Unit 2	October 10, 2018	October 7, 2020
	Kyushu Electric Power Company, Inc.	Genkai NPS Unit 1	December 22, 2015	April 19, 2017
		Genkai NPS Unit 2	September 3, 2019	March 18, 2020
Processing facility (1 facility)	Japan Atomic Energy Agency	Ningyo-toge Environmental Engineering Center	September 28, 2018	January 20, 2021
Research reactor facility (Under decommissioning procedures: 14 facilities)	Japan Atomic Energy Agency	Nuclear Science Research Institute JRR-2	May 12, 2006	November 6, 2006
		Nuclear Science Research Institute JRR-4	December 25, 2015	June 7, 2017
		Transient Experiment Critical Facility (TRACY), Nuclear Science Research Institute	March 31, 2015	June 7, 2017
		Tank-type critical assembly (TCA), Nuclear Science Research Institute	April 26, 2019	March 17, 2021
		Fast Critical Assembly (FCA), Nuclear Science Research Institute	March 31, 2021	September 29, 2021
		Deuterium Critical Assembly (DCA), Oarai Science Institute	May 12, 2006	October 20, 2006
		Japan Materials Test Reactor (JMTR), Oarai Science Institute	September 18, 2019	March 17, 2021
		First Nuclear Ship “Mutsu,” Aomori Research and Development Center	March 31, 2006	October 20, 2006
	University of Tokyo	University of Tokyo Reactor (Yayoi), Nuclear Professional Graduate School, The University of Tokyo	June 29, 2012	August 24, 2012
	Rikkyo University	Rikkyo University Reactor, Institute for Atomic Energy, Rikkyo University	May 30, 2006	June 1, 2007
	Goto Educational Corporation	TCU Reactor, Atomic Energy Research Laboratory, Tokyo City University	May 30, 2006	June 5, 2007

Type of Facility	Applicant	Facility	Date of Application	Date of Approval
	Hitachi Ozenji Center	Hitachi Training Reactor (HTR)	May 31, 2006	April 20, 2007
	Toshiba Nuclear Engineering Laboratory	Toshiba Nuclear Critical Assembly (NCA)	December 23, 2019	April 28, 2021
		Toshiba Training Reactor (TTR-1)	March 31, 2006	May 22, 2007
Commercial power reactors in the research and development phase (Under decommissioning procedures: 2 facilities)	Japan Atomic Energy Agency	Prototype Advanced Converter Reactor Fugen	November 7, 2006	February 12, 2008
		Prototype Fast Breeder Reactor Monju	December 6, 2017	March 28, 2018
Reprocessing facility		Reprocessing Facility, Nuclear Fuel Cycle Engineering Laboratories	June 30, 2017	June 13, 2018

Reference 4 Materials related to Promotion of Safety Research and Continuous Improvement of Regulatory Requirements (related to Section 2 in Chapter 2)

1. FY2022 Safety Research

No.	Research Area	Project	Period
1	External events	Study on the advancement of seismic hazard assessment methods near the epicentre	FY2020 - FY2023
2		Research on Tsunami evaluation methods and source estimation of past Tsunamis	FY2021 - FY2024
3		Study on evaluating the activity of faults	FY2020 - FY2023
4		Research on accumulation of knowledge on large-scale eruption processes	FY2019 - FY2023
5		Research on sophistication of fragility evaluation methods for facilities and equipment related to external events	FY2021 - FY2024
6	Fire protection	Research on impact assessment for fire protection (Phase 2)	FY2021 - FY2024
7	Risk assessment	Research on Level 1 PRA for Nuclear Regulatory Inspection	FY2022 - FY2026
8	Severe accident	Experimental research for reducing uncertainties in important physicochemical phenomena during severe accidents	FY2020 - FY2025
9		Development of simulation codes for physical and chemical phenomena including large uncertainties under severe accident of LWR	FY2017 - FY2022
10		Development of analysis methods for the containment failure and probabilistic assessment of risks associated with severe accidents involving light water reactors	FY2017 - FY2022
11	Thermal hydraulics nuclear properties	Study on best estimate thermal-hydraulic evaluation for nuclear power plants	FY2019 - FY2022
12		Research on optimal evaluation methods and uncertainty evaluation methods for nuclear characteristic analysis	FY2021 - FY2024
13	Nuclear fuel	Research on evaluation of fuel failure effects on core cool-ability during accidents	FY2019 - FY2023
14	Materials and structures	Research on evaluation and verification of ageing degradation using actual materials	FY2020 - FY2024
15	Specified nuclear facility	Development of criticality evaluation methods for fuel debris of Fukushima Daiichi Nuclear Power Plant	FY2014 - FY2024
16	Nuclear fuel cycle facilities	Research on the development of events such as major accidents in reprocessing facilities and MOX fuel fabrication facilities	FY2021 - FY2025
17		Research on evaluation methods for the latest analytical methods in the field of transportation and storage of spent fuel	FY2020 - FY2023
18	Radioactive waste burial facility	Research on evaluation of long-term performance of waste burial	FY2021 - FY2024
19	Decommissioning and clearance	Research on quantitative evaluation techniques for radioactivity concentration of radioactive waste	FY2021 - FY2024
20	Nuclear Disaster Preparedness	Research on the review of Emergency Action Level (EAL) considering special facilities for severe accident management s, etc.	FY2021 - FY2025
21	Radiation protection	Research on improving the accuracy of dose and health risk assessment for radiation protection	FY2022 - FY2026

2. Publication in Journals and List of Publications

No.	Category	Paper Titles, etc.
1	Publication in journals	Matsu'ura, T., Ueno, T., “Late Quaternary tephrostratigraphy and pollen stratigraphy of Uwa Formation, Shikoku Island, SW Japan: Reconsidering the MIS 11 super-interglacial horizon”, Quaternary Geochronology, Vol. 73, 101383, 2022.
2		Sugino, H., Abe, Y., "Effects of Modeling Uncertainties Regarding Tsunami Generation/ Propagation in Probabilistic Tsunami Hazard Analysis", Journal of Japan Association for Earthquake Engineering, Vol. 22, No. 4, pp.1-22, 2022.
3		Teragaki, T., Hirano, M., Mori, K., Mukae, T."Seismic Risk Assessment Using Initiating Event Matrix Method", Transactions of the Atomic Energy Society of Japan (in Japanese), Vol.21, No. 4, pp.201-205 (2022)
4		Azuma, K., Li, Y., “Closed-Form Stress Intensity Factor Solutions for Circumferential and Axial Surface Cracks With Large Aspect Ratios in Pipes.”, Journal of Pressure Vessel Technology, Vol. 144, No. 6, 061303, 2022.
5		Sakai, H., Yoshii, T., Yunoki, A., "Evaluation of the probability distribution of radioactivity estimated by inverse problem solution using Monte Carlo Method", Applied Radiation and Isotopes, Vol. 187, 110338, 2022.
6		Yamaguchi, A., Yokotsuka, M., Furuta, M., Kubota, K., Fujine, S., Mori, K., Yoshida, N., Amano, Y., Abe, H., “Overview of Event Progression of Evaporation to Dryness Caused by Boiling of High-Level Liquid Waste in Reprocessing Facilities”, Transactions of the Atomic Energy Society of Japan (in Japanese), Vol.21, No. 4, pp.173-182 (2022)
7		Michiguchi, Y., Sugino, H., Mitobe, Y., Tanaka, H., “Comparison between Slip Distributions in the 2011 Tohoku Earthquake Tsunami Evaluated by Different Methods for Considering Tsunami Generation by Horizontal Crustal Displacement”, Journal of Japan Association for Earthquake Engineering, Vol. 22, No. 5, pp.25-42, 2022.
8		Hibino, K., Hashimoto, N., Fujiwara, K. and Takamatsu, N., “Three-Dimensional Nonlinear Finite Element Method Analysis of Partition-Type Steel Plate Concrete Foundation Subject to Horizontal Force", Proceedings of the Japan Concrete Institute, 44 (2), pp.655-660, 2022.
9		Goko, S., Niita, K., “Development of a Hybrid Connecting Calculational Function for Skyshine Doses in PHITS”, Transactions of the Atomic Energy Society of Japan (in Japanese), Vol.21, No. 3, pp.144-154 (2022)
10		Kurihara, K., Horikoshi, K., Nakazato, M., Takahashi, H., Hirata, T., “Chemical analysis of individual fine particles using a Time-of-Flight based ICP-MS”, BUNSEKI KAGAKU, Vol. 71, No. 4･5, pp. 277-282, 2022.
11		Yoshii, H., Uwatoko, T., Takahashi, H., Sakai, Y., “Determination of trace levels of uranium in waste solutions by energy dispersive X-ray fluorescence following adsorption on graphene oxide”, X-Ray Spectrometry, Vol. 51, Issue 5-6, pp. 454-463, 2022.
12		Kitano, K., Akiyama, H., “Research on the properties of high-burnup and high plutonium content mixed-oxide fuels”, Journal of Nuclear Materials, Vol. 572, 154075, 2022.
13		Okawa, T., Shiba, S., “A numerical investigation into Metallic-Melt continuous drainage in the core support plate region of a BWR for the initial phase of core melt progression”, Annals of Nuclear Energy, Vol. 175, 109178, 2022.
14		Kijima, T., Sasagawa, T., Sawaguchi, T., Yamada, N., “A model for estimating the hydraulic conductivity of bentonite under various density conditions”, Hydrology Research, Vol. 53, No. 10, pp. 1256-1270, 2022.
15		Watanabe, A., Haga, A., Minakawa, T., Ikeda, M., Hirai, N., Ohki, Y., “Insulation Performance of a Cable Insulated with Flame-retardant Ethylene-propylene-diene Rubber Removed from a Nuclear Power Plant under Severe Accident Conditions”, IEEJ Transactions on Fundamentals and Materials, Vol.142, No. 9, pp.368-374 (2022)
16		Hirota, A., Ito, K., “Study on tectonic uplift and surface erosion within the scope of intermediate depth disposal”, Journal of Nuclear Fuel Cycle and Environment, Vol.29, No.2, pp.119-129, 2022.

No.	Category	Paper Titles, etc.
17		Yoshii, T., Sakai, H., Tagawa, H., Kawarabayashi, J., “Study on the effects of heterogeneity of objects placed in storage containers on simple radioactivity evaluation”, Annals of Nuclear Energy, Vol. 177, 109313, 2022.
18		Hidaka, S, Azuma, K, Shoji, G, Fujimoto, S "Study on Seismic Evaluation of PWR-CV Based on Proving Test on Seismic Reliability (Clarification of Conservatism to Be Considered in Buckling Design Methods)", Transactions of the JSME (in Japanese), Vol.88, No. 913 (2022)
19		Murota, K., Saito, T., “Pore size effects on surface charges and interfacial electrostatics of mesoporous silicas”, Physical Chemistry Chemical Physics, Vol. 24, pp. 18073–18082, 2022.
20		Higashihara, T., Ichiki, T., Irie, M., Osada, M., “Concept of evaluation of groundwater flow considering mechanical and hydraulic characteristics in excavation of bedrocks for radioactive waste disposal”, Proceedings of the 49th JSCE Symposium on Rock Mechanics, pp.247-252, 2023.
21		Ichiki, T., Higashihara, T., Irie, M., Osada, M., “Development and performance test of an experimental setup to evaluate the relationship between mechanical and hydraulic characteristics of excavation disturbed zone for radioactive waste disposal”, Proceedings of the 49th JSCE Symposium on Rock Mechanics, pp.253-258, 2023.
22		Villanueva W., Hoseyni S. M., Bechta S., Hotta, A., “Experimental investigation of melt infiltration and solidification in a preheated particle bed”, Physics of Fluids, Vol. 34, Issue 12, 123326, 2022.
23		Ishizu, T., Sonoda, H., Fujita, S., “THEFIS test simulation to validate a freezing model of ASTERIA-SFR core disruptive accident analysis code”, Journal of Nuclear Engineering, Vol. 4, Issue 1, pp. 154–164, 2023.
24		Sekine, M., Furuya, M., “Development of measurement method for temperature and velocity field with optical fiber sensor”, Sensors, Vol. 23, Issue 3, 1627, 2023.
25		Haga, A., Watanabe, A., Minakawa, T., Ikeda, M., Hirai, N., Ohki, Y., “Influence of Oxygen on Insulation Performance of Safety-related Low-voltage Cables for Nuclear Power Plants under Severe Accident Conditions”, IEEJ Transactions on Fundamentals and Materials, Vol.143, No. 3, pp.83-90 (2023)
26		Coules, H., Probert, M., Azuma, K., Truman, C., Seow, C., Pirling, T., Cabeza, S., “Subsurface fatigue crack tip strains in 7475-T7351 aluminium alloy measured using stroboscopic neutron diffraction”, Fatigue & Fracture of Engineering Materials & Structures, Vol. 46, Issue 5, pp. 1735–1749, 2023.
1	Publication of papers at international conferences	Fujita, T., “An influence of manufacturing tolerances on pin-cell k-infinity of MOX fuel using data from the FUBILA experiment program”, Proceedings of PHYSOR2022, 2022.
2		Nishiono, K., Ramos M., Hamaguchi, Y., Mosleh A., “Dependency Analysis within Human Failure Events for Nuclear Power Plant: Comparison between Phoenix and SPAR-H”, Proceedings of PSAM 16, 2022.
3		Kubo, K., Fujiwara, K., Tanaka, Y., Hakuta, Y., Arake, D., Uchiyama, T., Muramatsu, K., “A Scoping study on the use of direct quantification of fault tree using monte carlo simulation in seismic probabilistic risk assessments”, 29th International Conference on Nuclear Engineering (ICONE 29), 2022.
4		Kakiuchi, K., Yamauchi, A., Amaya, M., Udagawa, Y., Kitano, K., “Mechanical property evaluation with nanoindentation method on Zircaloy-4 cladding tube after LOCA-simulated experiment”, Proceedings of TopFuel2022, 2022.

・List of "academic award received by the Atomic Energy Society of Japan for producing outstanding academic results in safety research (one Award for Technology from the 55th Atomic Energy Society of Japan)"

No.	Name of Award	Award Winner
1	The 55th Atomic Energy Society of Japan Award for Technology (FY2022)	TSUKAMOTO Naofumi, Senior Researcher, and KANEKO Junichi, Senior Researcher, Division of Research for Severe Accident, Regulatory Standard and Research Department

3. Matters That Should Be Considered for Safety Assurance in Case of Selecting an Outline Inspection Area and Other Sites for the Final Disposal of Specified Radioactive Waste

(Enacted: August 24, 2022, No. 2208241, Decision of the Nuclear Regulation Authority)

August 24, 2022
Nuclear Regulation Authority

In response to the Basic Policy on the Final Disposal of Specific Radioactive Waste (decided by the Cabinet on May 22, 2015), the NRA has deliberated seven times since January, 2022 on "matters that should be considered for safety assurance in case of selecting an outline inspection area and other sites*[2] (hereinafter referred to as "matters to be considered"). Amidst the deliberations, the NRA conducted interviews with volcano experts from the viewpoint of confirming the latest scientific knowledge on the mechanism of volcanic eruptions in Japan.

As a result of the deliberations, the NRA determined the following items from 1. to 4. as "matters to be considered" in order to address matters by avoiding the establishment of a final disposal facility because of difficulties in designing it in case of selecting a site for its establishment.

The "matters to be considered" should be appropriately taken into account based on the information available at each phase in case of selecting the outline inspection area and other sites.

In addition, borings and other surveys conducted at each stage are activities to collect important geological information, such as the presence or absence of faults and groundwater flow, while at the same time involving disturbance of natural barriers, and are expected to affect the geological environment, such as the formation of fields that promote the movement of radioactive materials and changes in groundwater flow characteristics. Therefore, both aspects should be taken into account when conducting borings and other surveys. Furthermore, the information obtained from the borings and other surveys conducted at each stage for the final disposal facility's construction site should be preserved for the duration of burial projects over a long time period.

1. Faults, etc.

Avoid the following faults, etc.

(1) Active faults that are considered the epicenter among faults and other features whose activity after the Late Pleistocene (about 120,000 to 130,000 years ago or later) cannot be denied.

(2) Areas damaged by the activity of the active faults in (1) as above.

[2]* Covering the outline inspection areas, the precise inspection areas, and the final disposal facility's construction sites.

(3) Landslide surfaces with displacement as well as faults where permanent displacement occurs in association with seismic activity among faults that cannot be denied to have been active since the Late Pleistocene (about 120,000 to 130,000 years ago or later).
(4) Major faults other than those listed in (1) and (3) as above.

In case where activity after the Late Pleistocene (about 120,000 to 130,000 years ago or later) cannot be clearly determined due to lack of topography surfaces or strata at the Late Pleistocene (about 120,000 to 130,000 years ago), the activity should be evaluated after comprehensively examining topography, geology, geological structure, stress field and other factors dating back to the Middle Pleistocene (about 400,000 years ago or later). If it is difficult to confirm the activity at the installation surface*[3], the evaluation should be made along with a broad standard based on the properties of the fault and other factors which are confirmed in the extended area of the fault.

2. Volcanic phenomena

Avoid the following places.

(1) Places where there is a history of volcanic activity such as volcanic passages and veins during the Quaternary period (from the present to about 2.58 million years ago) that may result in the destruction of man-made barriers due to magma intrusion.
(2) Places within about 15 kilometers from the active center of volcanoes active during the Quaternary period.
(3) Places where no active volcanoes existed during the Quaternary period but where new volcanoes may occur. Here, the possibility of new volcanoes should be considered in light of the fact that it is difficult to assume that the trend of magma generation, which is closely related to plate characteristics and movement, will change significantly in the next 100,000 years or so.

3. Erosion

Ensure deeper depths than medium depth disposal*[4]. In this case, the reduction in depth due to erosion should be taken into account, which reflects changes in sea level to be generated by uplift, subsidence, and changes in the volume of continental ice sheets due to climatic changes.

4. Mining of mineral resources, etc.

Ensure (1) that there are no records indicating the presence of mineral deposits of mineral resources*[5] whose quantity and grade are sufficient to permit drilling for resource utilization, and (2) that the geothermal gradient is not significantly high.

[3]* In this consideration, "installation surface" refers to the location where the artificial barrier is to be installed.
[4]* Radioactive waste (i.e., relatively highly radioactive waste generated from decommissioning, etc.) shall be finally disposed of by means of burial in waste burial sites located at depth of 70 meters or more below the surface of the earth. The term is defined in Article 1-2, Paragraph 2, Item 3 of the Regulations Concerning the Business of Burying Category 2 Waste of Nuclear Fuel Material or Material Contaminated by Nuclear Fuel Material (Prime Minister's Office Ordinance No. 1, 1988).
[5]* The term is defined in Article 3, Paragraph 1 of the Mining Act (Act No. 289 of 1950).

Reference 5 Materials related to Promotion of Nuclear Security (related to Section 1 in Chapter 3)

1. Numbers of Approvals and Inspection of Regulations for the Security Plan

(April 1, 2022 – March 31, 2023)

Approvals of changes in regulations for the Security Plan	67 (breakdown) Fuel fabrication facility: 1 Research and test reactor: 8 Commercial power reactor: 38 Power reactor in research and development phase: 2 Spent fuel storage facility: 0 Reprocessing facility: 4 Waste storage facility: 2 Nuclear material utilization facility : 12
Approval of change in implementation plan	Specified nuclear facility: 4
Inspection of compliance with regulations for the Security Plan (Nuclear regulatory inspection (physical protection of nuclear material))	127 (breakdown) Processing facility: 15 Research and test reactor: 10 Commercial power reactor: 66 Power reactor in research and development phase: 4 Spent fuel storage facility: 2 Reprocessing facility: 8 Waste storage facility: 4 Nuclear material utilization facility: 18
Inspection of compliance with the implementation plan	Specified nuclear facility: 6

Reference 6 Materials related to Oversight of Efforts toward the Decommissioning of Reactors at TEPCO's Fukushima Daiichi NPS (related to Section 1 in Chapter 4)

1. Approval and Inspection of the Implementation Plan for Specified Nuclear Facilities (TEPCO Fukushima Daiichi NPS)

(April 1, 2021 – March 31, 2022)

Type of Approval/ Inspection	No. of cases
Approval of changes in implementation plans	13
Completion with pre-service inspection	12
Approval of test use	0
Approval of partial use	1
Instruction of omission of pre-service inspection	0
Completion with welding inspection	14
Completion with welding inspection for imports	0
Completion with periodic facility inspection	1
Operational safety inspection	4

Reference 7 Materials related to Implementation and Continuous Improvement of Regulations relating to the Radioisotope Regulation Act (related to Section 2 in Chapter 5)

1. Status of Reviews and Inspections under the Radioisotope Regulation Act

(April 1, 2022 – March 31, 2023)

(1) Review

Operator	Type of Applications and Notifications	No. of Cases
Permitted users (Number of offices: 2072)	Application for permission (approval) of use	14
	Application for permission (approval) of changes in permission use	271
	Notification of discontinuation	43
Notification users (Number of offices: 413)	Notification of use	20
	Notification of changes in notification of use	39
	Notification of discontinuation	10
Notification users of approved devices with certification label (Number of offices: 5070)	Notification of use of approved devices with certification label	653
	Notification of changes in use of approved devices with certification label	789
	Notification of discontinuation	645
Notification sellers (Number of offices: 329)	Notification of selling business	4
	Notification of changes in notification of selling business	48
	Notification of discontinuation	5
Notification lessors (Number of offices: 167)	Notification of leasing business	2
	Notification of changes in notification of leasing business	25
	Notification of discontinuation	2
Permitted waste management operators (Number of offices: 7)	Permission (approval) of managing waste business	0
	Permission of changes in managing waste business	2
	Notification of discontinuation	0
Transportation of radioisotopes and other materials outside of plant or business site	Application for approval of containers to be transported	2
Registered organizations (Number of registered organizations 19)	Application for registration	0
	Application for renewal of registrations	3
	Application for approval and notification of operational rules	0
	Application for approval and notification of changes in operational rules	18

(2) Inspection

Permitted users/ notification users	On-site inspection for safety	90
	On-site inspection for security of specific radioisotopes	137
Registered organizations	On-site inspection relating to implementation status of registered organization’s operation	13

Reference 8 Activities of Committees, Councils, Review Meetings, Study Teams, etc.

* Meeting records as of the end of FY2022

1. Committees and Councils
   (1) Reactor Safety Examination Committee
   (2) Nuclear Fuel Safety Examination Committee
   (3) Joint Review Meetings of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee, etc.
   (4) Radiation Council
   (5) National Research and Development Agency Council

2. Review Meetings
   (1) Review Meeting on Conformity to the New Regulatory Requirements
   (2) Review Meeting on Decommissioning of Nuclear Facilities
   (3) Review Meeting on Clearance
   (4) Review Meeting on Container for Transportation and Specified Container for Spent Fuel Storage Facilities
   (5) Review Meeting on Type Certification, etc. of Specific Dual-Use Cask Design
   (6) Review meeting on the Implementation Plan for Discharge of Treated Water from Advanced Liquid Processing System (ALPS), etc. at Fukushima Daiichi NPS of TEPCO

3. Study Teams
   (1) Technical Study Team on Environmental Radiation Monitoring
   (2) Safety Oversight Team for the Tokai Reprocessing Plant
   (3) Safety Oversight Team for Prototype Fast Breeder Reactor Monju Decommission
   (4) Study Team for Countermeasures against Common Cause Failures of Digital Safety Protection Systems in Power Reactor Facilities
   (5) Study Team for Technical Evaluation of Atomic Energy Society of Japan Standards on the Method to Determine Radioactivity Concentration of Waste subject to Mid-depth Disposal
   (6) Study Team for Technical Evaluation of Japan Electric Association Standards for Digital Safety Protection Systems
   (7) Study Team on Technical Evaluation of JSME (the Japan Society of Mechanical Engineers) Standards for Design and Construction, Materials and Welding

4. Committees for Specific Research and Study
   (1) Committee on Oversight and Evaluation of Specified Nuclear Facilities
   (2) Technical Meeting for Review of Implementation Plans for Specific Nuclear Facilities
   (3) Committee on Accident Analysis of the Fukushima Daiichi Nuclear Power Station
   (4) Fukushima Daiichi NPS Decommissioning and Accident Investigation Liaison and Coordination Meeting
   (5) Technical Information Committee
   (6) Technical Evaluation Committees

5. Others
   (1) NRA Policy Evaluation Meeting
   (2) Meeting on NRA's Administrative Project Review
   (3) Meeting on Hearing Opinions of Operators regarding New Regulatory Requirements
   (4) Meeting on Continuous Improvement of Safety Evaluation of Commercial Power Reactors
   (5) Technical Opinion Exchange on the Response of Domestic NPPs to Open Phase Condition (OPC)
   (6) Public Meeting to Investigate and Analyze the Cause of the Rewriting of Borehole Map Data at Tsuruga NPS Unit 2
   (7) Research Evaluation Committee and Research Results Report Meeting (Strategic Program for Promoting Regulatory Radiation Safety Research)
   (8) Debriefing Session of Emergency Drills by Nuclear Operators
   (9) Opinion Hearing Meeting on Volcanic Formation Mechanisms, etc.
   (10) Exchange of Opinions on the Way of Training and Regulatory Involvement in Emergency Response by Nuclear Operators

(11) Meetings on Responses to the Review of Emergency Action Levels
(12) Public Meeting on the Response to Accidents and Failures at Nuclear Facilities
(13) Information Exchange Meeting on the Inspection Program
(14) Public Meeting on Improvement of Legal Reports based on the Reactor Regulation Act

1. Committees and Councils

(1) Reactor Safety Examination Committee

Overview

The Reactor Safety Examination Committee (RSEC) was established to investigate and deliberate matters related to reactor safety based upon instructions of the NRA in accordance with the Act for Establishment of the Nuclear Regulation Authority. Taking into account the House of Councilors' resolution added to the Act for Establishment of the Nuclear Regulation Authority, the RSEC's investigations are intended to provide objective advice for the NRA's decisions, but without substitutions for such decisions. The RSEC is also expected to check the effectiveness of the regulatory activities by the NRA and advise on the activities from a scientific and technical point of view while maintaining independence from the NRA.

At the 41st FY2013 NRA Commission Meeting (February 5, 2014), the NRA adopted RSEC establishment policies based on the Act for Establishment of NRA. Based on the policy, RSEC held its first examination meeting on May 12, 2014. It has been holding RSEC meetings regularly since then.

At the 53rd FY2022 NRA Commission Meeting (November 22, 2022), the Committee decided to revise the matters to be deliberated.

In FY2022, the Reactor Safety Examination Committee was held once, the Subcommittee on Reactor Safety twice, the Subcommittee on Earthquake and Tsunami Hazards once, and the Subcommittee on Volcanic Hazards once. In addition, the NRA received reports on the deliberations status from the 10th Subcommittee on Reactor Safety Meeting (March 15, 2022) at the 3rd FY2022 NRA Commission Meeting (April 13, 2022), from the 11th Subcommittee on Reactor Safety Meeting (June 10, 2022) and the 2nd Subcommittee on Earthquake and Tsunami Hazards Meeting (June 23, 2022) at the 25th FY2022 NRA Commission Meeting (July 22, 2022), and from the 11th Subcommittee on Volcanic Hazards Meeting (November 18, 2022) and the 12th Subcommittee on Reactor Safety Meeting (December 8, 2022) at the 64th FY2022 NRA Commission Meeting (January 18, 2023).

Members of the Committee

Review Commissioners	UCHIYAMA Mayuki	Professor, Department of Radiology, Jikei University School of Medicine
	OHIGAWA Hiroyuki	Director, Japan Atomic Energy Agency Director, Nuclear Science Research Division and Director of Safety Research and Disaster Prevention Support Division
	OGAWA Yasuo	Professor, Director of the Center, Volcanic Fluid Research Center, Tokyo Institute of Technology
	KATSUTA Tadahiro	Professor, School of Law, Meiji University
	KANDA Reiko	Deputy Director, Institute of Radiological Sciences, Quantum Life and Medicine, National Institutes for Quantum Science and Technology
	KUMASAKI Mieko	Associate Professor, Faculty of Environment and Information Sciences, Yokohama National University

	KOSUGA Atsuko	Associate Professor, Osaka Prefecture University Graduate School of Science
	SEKIMURA Naoto ◎	Vice-President, The University of Tokyo Professor, Nuclear Engineering and Management, Graduate School of Engineering, The University of Tokyo
	TAKADA Tsuyoshi	Professor Emeritus, The University of Tokyo Head, Office for Promotion of Risk-informed Applications, Sector of Nuclear Safety Research and Emergency Preparedness Japan Atomic Energy Agency
	TAKAHASHI Hiroaki	Professor, Institute of Seismology and Volcanology, Faculty of Science, Hokkaido University
	TAKAHASHI Makoto	Professor, Technology and Social Systems, Graduate School of Engineering, Tohoku University
	NAGAI Yasuyoshi	Professor, Institute for Materials Research, Tohoku University Director of the affiliated International Research Center for Nuclear Materials Science
	NAKAGAWA Toshiko	Professor Emeritus, Tokyo City University
	NAKAJIMA Ken	Director and Professor, Institute for Integrated Radiation and Nuclear Science, Kyoto University
	NAKAMURA Izumi	Professor, Department of Nuclear Safety Engineering, Faculty of Science and Engineering, Tokyo City University
	NISHIYAMA Yutaka	Director, Nuclear Research Safety Center, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency
	HISADA Yoshiaki	Professor, Department of Urban Design and Planning, School of Architecture, Kogakuin University
	HOUHARA Shinya	Associate Professor, Atomic Energy Research Institute, Kindai University
	MATSUO Akiko	Professor, Faculty of Science and Technology, Keio University
	MARUYAMA Yu	Deputy Director, Nuclear Research Safety Center, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency
	MIYAKE Hiroe	Associate Professor, Earthquake Research Institute, The University of Tokyo
	MUTA Hitoshi	Associate Professor, Graduate School of Science and Engineering, Tokyo City University
	MOGI Toshio	Associate Professor, School of Engineering, The University of Tokyo
	YAMAOKA Kosyun	Professor, Graduate School of Environmental Studies, Nagoya University, Tokai National Higher Education and Research System
	YAMAJI Akifumi	Professor, School of Advanced Science and Engineering, Faculty of Science and Engineering, Waseda University
	YOSHIDA Hiroko	Professor, Cyclotron and Radioisotope Center (CYRIC), Tohoku University
	YOSHIHASHI Sachiko	Associate Professor, Facility for Nuclear Materials, Nagoya University, Tokai National Higher Education and Research System
	YONEOKA Yuko	Director, Japan Center for Engagement and Remedy on Business and Human Rights
Temporary Commissioners	OHBA Tsukasa	Professor, Graduate School of International Resource Sciences, Akita University
	OKUNO Mitsuru	Professor, Graduate School of Science, Osaka Metropolitan University
	TAKAHASHI Tomoyuki	Vice President, Kansai University Professor, Faculty of Societal Safety Sciences, Kansai University
	TANIOKA Yuichiro	Professor, Institute of Seismology and Volcanology, Faculty of Science, Hokkaido University
	TOHDA Shinji	Professor, International Research Institute of Disaster Science, Tohoku University
	NAKAMICHI Haruhisa	Associate Professor, Disaster Prevention Research Institute

		Kyoto University
	HASEGAWA Takeshi	Associate Professor, Graduate School of Science and Engineering, Ibaraki University
	BAN Masao	Professor in charge of Graduate School of Science as Academic Research Center, Yamagata University
	MIURA Satoshi	Professor, Research Center for Prediction of Earthquakes and Volcanic Eruptions, Graduate School of Science, Tohoku University
Expert Commissioners	AZUMA Takashi	Senior Researcher, Active Fault Research Group, Research Institute of Earthquake and Volcano Geology, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology
	UEDA Hideki	Senior Researcher, National Research Institute for Earth Science and Disaster Resilience Head, Volcano Observation Network Laboratory, Network Center for Earthquake, Tsunami and Volcano, National Research Institute for Earth Science and Disaster Resilience
	TANAKA Akiko	Director, Magmatic Activity Research Group, Research Institute of Earthquake and Volcano Geology, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology

* Double circle (◎) indicates a chairperson.

Members of the Subcommittee on Earthquake and Tsunami Hazards

Review Commissioners	HISADA Yoshiaki	Professor, Department of Urban Design and Planning, School of Architecture, Kogakuin University
	MIYAKE Hiroe	Associate Professor, Earthquake Research Institute, The University of Tokyo
	YAMAOKA Koshun◎	Professor, Graduate School of Environmental Studies, Nagoya University, Tokai National Higher Education and Research System
Temporary Commissioners	TAKAHASHI Tomoyuki	Vice President, Kansai University Professor, Faculty of Societal Safety Sciences, Kansai University
	TANIOKA Yuichiro	Professor, Institute of Seismology and Volcanology, Faculty of Science, Hokkaido University
	TOHDA Shinji	Professor, International Research Institute of Disaster Science, Tohoku University
Expert Commissioners	AZUMA Takashi	Senior Researcher, Active Fault Research Group, Research Institute of Earthquake and Volcano Geology, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology

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Members of the Subcommittee on Volcanic Hazards

Review Commissioners	OGAWA Yasuo◎	Professor and Center Director, Volcanic Fluid Research Center, Tokyo Institute of Technology
	TAKAHASHI Hiroaki	Professor, Institute of Seismology and Volcanology, Faculty of Science, Hokkaido University
Temporary Commissioners	OHBA Tsukasa	Professor, Graduate School of International Resource Sciences, Akita University
	OKUNO Mitsuru	Professor, Graduate School of Science, Osaka Metropolitan University
	NAKAMICHI Haruhisa	Associate Professor, Disaster Prevention Research Institute Kyoto University
	HASEGAWA Takeshi	Associate Professor, Graduate School of Science and Engineering, Ibaraki University
	BAN Masao	Professor in charge of Graduate School of Science as Academic Research Center, Yamagata University
	MIURA Satoshi	Professor, Research Center for Prediction of Earthquakes and

		Volcanic Eruptions, Graduate School of Science, Tohoku University
Expert Commissioners	UEDA Hideki	Senior Researcher, National Research Institute for Earth Science and Disaster Resilience Head, Volcano Observation Network Laboratory, Network Center for Earthquake, Tsunami and Volcano, National Research Institute for Earth Science and Disaster Resilience
	TANAKA Akiko	Director, Magmatic Activity Research Group, Research Institute of Earthquake and Volcano Geology, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology

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Members of the Subcommittee on Reactor Safety

Review Commissioners	UCHIYAMA Mayuki	Professor, Department of Radiology, Jikei University School of Medicine
	OHIKAWA Hiroyuki	Director, Japan Atomic Energy Agency Director, Nuclear Science Research Division and Director of Safety Research and Disaster Prevention Support Division
	KATSUTA Tadahiro	Professor, School of Law, Meiji University
	KANDA Reiko	Deputy Director, Institute of Radiological Sciences, Quantum Life and Medicine, National Institutes for Quantum Science and Technology
	KUMASAKI Mieko	Associate Professor, Faculty of Environment and Information Sciences, Yokohama National University
	KOSUGA Atsuko	Associate Professor, Osaka Prefecture University Graduate School of Science
	SEKIMURA Naoto◎	Vice-President, The University of Tokyo Professor, Nuclear Engineering and Management, Graduate School of Engineering, The University of Tokyo
	TAKADA Tsuyoshi	Professor Emeritus, The University of Tokyo Head, Office for Promotion of Risk-informed Applications, Sector of Nuclear Safety Research and Emergency Preparedness Japan Atomic Energy Agency
	TAKAHASHI Makoto	Professor, Technology and Social Systems, Graduate School of Engineering, Tohoku University
	NAGAI Yasuyoshi	Professor, Institute for Materials Research, Tohoku University Director of the affiliated International Research Center for Nuclear Materials Science
	NAKAGAWA Toshiko	Professor Emeritus, Tokyo City University
	NAKAJIMA Ken	Professor, Institute for Integrated Radiation and Nuclear Science, Kyoto University
	NAKAMURA Izumi	Professor, Department of Nuclear Safety Engineering, Faculty of Science and Engineering, Tokyo City University
	NISHIYAMA Yutaka	Director, Nuclear Research Safety Center, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency
	HISADA Yoshiaki	Professor, Department of Urban Design and Planning, School of Architecture, Kogakuin University
	HOUHARA Shinya	Associate Professor, Atomic Energy Research Institute, Kindai University
	MATSUO Akiko	Professor, Faculty of Science and Technology, Keio University
	MARUYAMA Yu	Deputy Director, Nuclear Research Safety Center, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency
	MUTA Hitoshi	Associate Professor, Graduate School of Science and Engineering, Tokyo City University
	MOGI Toshio	Associate Professor, School of Engineering, The University of Tokyo
	YAMAJI Akifumi	Professor, School of Advanced Science and Engineering, Faculty of Science and Engineering, Waseda University

	YOSHIDA Hiroko	Professor, Cyclotron and Radioisotope Center (CYRIC), Tohoku University
	YOSHIHASHI Sachiko	Associate Professor, Facility for Nuclear Materials, Nagoya University, Tokai National Higher Education and Research System
	YONEOKA Yuko	Director, Japan Center for Engagement and Remedy on Business and Human Rights

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(2) Nuclear Fuel Safety Examination Committee

Overview

The Nuclear Fuel Safety Examination Committee (NFSEC) was established to investigate and deliberate matters related to nuclear fuel safety based upon instructions of the NRA in accordance with the Act for Establishment of the Nuclear Regulation Authority. Taking into account the House of Councilors' resolution added to the Act for Establishment of the Nuclear Regulation Authority, the NFSEC's investigations and deliberations are intended to provide objective advice for the NRA's decisions, but without substitutions for such decisions. The NFSEC is also expected to check the effectiveness of the regulatory activities by the NRA and advise on the activities from a scientific and technical point of view while maintaining independence from the NRA.

At the 41st FY2013 NRA Commission Meeting on February 5, 2014, the NRA adopted NFSEC establishment policies based on the Act for Establishment of NRA. Based on the policy, NFSEC held its first examination meeting on May 12, 2014, and has been holding its meetings regularly since then.

At the 53rd FY2022 NRA Commission Meeting (November 22, 2022), the Committee decided to revise the matters to be deliberated.

In FY2022, the Nuclear Fuel Safety Examination Committee was held once, the Subcommittee on Nuclear Fuel Safety twice, the Subcommittee on Earthquake and Tsunami Hazards once, and the Subcommittee on Volcanic Hazards once. In addition, the NRA received reports on the deliberations status from the 4th Subcommittee on Nuclear Fuel Safety Meeting (March 15, 2022) at the 3rd FY2022 NRA Commission Meeting (April 13, 2022), from the 5th Subcommittee on Nuclear Fuel Safety Meeting (June 10, 2022) and the 2nd Subcommittee on Earthquake and Tsunami Hazards Meeting (June 23, 2022) at the 25th FY2022 NRA Commission Meeting (July 22, 2022), and from the 11th Subcommittee on Volcanic Hazards Meeting (November 18, 2022) and the 6th Subcommittee on Nuclear Fuel Safety Meeting (December 8, 2022) at the 64th FY2022 NRA Commission Meeting (January 18, 2023).

Members of the Committee

Review Commissioners	UNESAKI Hironobu	Professor, Institute for Integrated Radiation and Nuclear Science, Kyoto University Professor, Socio-Environmental Energy Science Dept., Graduate School of Energy Science, Kyoto University
	ENOKIDA Youichi	Professor, Graduate School of Engineering, Nagoya University, Tokai National Higher Education and Research System
	OGAWA Yasuo	Professor and Center Director, Volcanic Fluid Research Center, Tokyo Institute of Technology
	KATSUTA Tadahiro	Professor, School of Law, Meiji University

	KIRISHIMA Akira	Professor, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University
	KUROSAKI Ken	Professor, Institute for Integrated Radiation and Nuclear Science, Kyoto University
	KOSUGA Atsuko	Associate Professor, Osaka Prefecture University Graduate School of Science
	SAITO Takumi	Professor, Nuclear Professional School, The University of Tokyo
	SUMI Minako	Head, Radiation Oncology Department, Tokyo Metropolitan Geriatric Medical Center
	TAKAGI Ikuji	Professor, Graduate School of Engineering, Kyoto University
	TAKADA Tsuyoshi	Professor Emeritus, The University of Tokyo Head, Office for Promotion of Risk-informed Applications, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency
	TAKAHASHI Hiroaki	Professor, Institute of Seismology and Volcanology Faculty of Science, Hokkaido University
	NAKAMURA Takehiko	Vice Division Director, Nuclear Research Safety Center, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency
	HISADA Yoshiaki	Professor, Department of Urban Design and Planning, School of Architecture, Kogakuin University
	MATSUO Akiko	Professor, Faculty of Science and Technology, Keio University
	MIYAKE Hiroe	Associate Professor, Earthquake Research Institute, The University of Tokyo
	YAMAOKA Koushun	Professor, Graduate School of Environmental Studies, Nagoya University, Tokai National Higher Education and Research System
	YAMAMOTO Akio◎	Professor, Graduate School of Engineering, Nagoya University, Tokai National Higher Education and Research System
	YOSHIDA Hiroko	Professor, Cyclotron and Radioisotope Center (CYRIC), Tohoku University
	YOSHIHASHI Sachiko	Associate Professor, Facility for Nuclear Materials, Nagoya University, Tokai National Higher Education and Research System
Temporary Commissioners	OHBA Tsukasa	Professor, Graduate School of International Resource Sciences, Akita University
	OKUNO Mitsuru	Professor, Graduate School of Science, Osaka Metropolitan University
	TAKAHASHI Tomoyuki	Vice President, Kansai University Professor, Faculty of Societal Safety Sciences, Kansai University
	TANIOKA Yuichiro	Professor, Institute of Seismology and Volcanology, Faculty of Science, Hokkaido University
	TOHDA Shinji	Professor, International Research Institute of Disaster Science, Tohoku University
	NAKAMICHI Haruhisa	Associate Professor, Disaster Prevention Research Institute Kyoto University
	HASEGAWA Takeshi	Associate Professor, Graduate School of Science and Engineering, Ibaraki University
	BAN Masao	Professor in charge of Graduate School of Science as Academic Research Center, Yamagata University
	MIURA Satoshi	Professor, Research Center for Prediction of Earthquakes and Volcanic Eruptions, Graduate School of Science, Tohoku University
Expert Commissioners	AZUMA Takashi	Senior Researcher, Active Fault Research Group, Research Institute of Earthquake and Volcano Geology, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology
	UEDA Hideki	Senior Researcher, National Research Institute for Earth Science and Disaster Resilience Head, Volcano Observation Network Laboratory, Network

		Center for Earthquake, Tsunami and Volcano, National Research Institute for Earth Science and Disaster Resilience
	TANAKA Akiko	Director, Magmatic Activity Research Group, Research Institute of Earthquake and Volcano Geology, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology

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Members of the Subcommittee on Earthquake and Tsunami Hazards

Review Commissioners	HISADA Yoshiaki	Professor, Department of Urban Design and Planning, School of Architecture, Kogakuin University
	MIYAKE Hiroe	Associate Professor, Earthquake Research Institute, The University of Tokyo
	YAMAOKA Koshun◎	Professor, Graduate School of Environmental Studies, Nagoya University, Tokai National Higher Education and Research System
Temporary Commissioners	TAKAHASHI Tomoyuki	Vice President, Kansai University Professor, Faculty of Societal Safety Sciences, Kansai University
	TANIOKA Yuichiro	Professor, Institute of Seismology and Volcanology, Faculty of Science, Hokkaido University
	TOHDA Shinji	Professor, International Research Institute of Disaster Science, Tohoku University
Expert Commissioners	AZUMA Takashi	Senior Researcher, Active Fault Research Group, Research Institute of Earthquake and Volcano Geology, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology

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Members of the Subcommittee on Volcanic Hazards

Review Commissioners	OGAWA Yasuo◎	Professor and Center Director, Volcanic Fluid Research Center, Tokyo Institute of Technology
	TAKAHASHI Hiroaki	Professor, Institute of Seismology and Volcanology, Faculty of Science, Hokkaido University
Temporary Commissioners	OHBA Tsukasa	Professor, Graduate School of International Resource Sciences, Akita University
	OKUNO Mitsuru	Professor, Graduate School of Science, Osaka Metropolitan University
	NAKAMICHI Haruhisa	Associate Professor, Disaster Prevention Research Institute Kyoto University
	HASEGAWA Takeshi	Associate Professor, Graduate School of Science and Engineering, Ibaraki University
	BAN Masao	Professor in charge of Graduate School of Science as Academic Research Center, Yamagata University
	MIURA Satoshi	Professor, Research Center for Prediction of Earthquakes and Volcanic Eruptions, Graduate School of Science, Tohoku University
Expert Commissioners	UEDA Hideki	Senior Researcher, National Research Institute for Earth Science and Disaster Resilience Head, Volcano Observation Network Laboratory, Network Center for Earthquake, Tsunami and Volcano, National Research Institute for Earth Science and Disaster Resilience
	TANAKA Akiko	Director, Magmatic Activity Research Group, Research Institute of Earthquake and Volcano Geology, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology

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Members of the Subcommittee on Nuclear Fuel Safety

Review Commissioners	UNESAKI Hironobu	Professor, Institute for Integrated Radiation and Nuclear Science, Kyoto University Professor, Socio-Environmental Energy Science Dept., Graduate School of Energy Science, Kyoto University
	ENOKIDA Yoichi	Professor, Graduate School of Engineering, Nagoya University, Tokai National Higher Education and Research System
	KATSUTA Tadahiro	Professor, School of Law, Meiji University
	KIRISHIMA Akira	Professor, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University
	KUROSAKI Ken	Professor, Institute for Integrated Radiation and Nuclear Science, Kyoto University
	KOSUGA Atsuko	Associate Professor, Osaka Prefecture University Graduate School of Science
	SAITO Takumi	Professor, Nuclear Professional School, The University of Tokyo
	SUMI Minako	Head, Radiation Oncology Department, Tokyo Metropolitan Geriatric Medical Center
	TAKAGI Ikuji	Professor, Graduate School of Engineering, Kyoto University
	TAKADA Tsuyoshi	Professor Emeritus, The University of Tokyo Head, Office for Promotion of Risk-informed Applications, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency
	NAKAMURA Takehiko	Vice Division Director, Nuclear Research Safety Center, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency
	HISADA Yoshiaki	Professor, Department of Urban Design and Planning, School of Architecture, Kogakuin University
	MATSUO Akiko	Professor, Faculty of Science and Technology, Keio University
	YAMAMOTO Akio◎	Professor, Graduate School of Engineering, Nagoya University, Tokai National University Corporation
	YOSHIDA Hiroko	Professor, Cyclotron and Radioisotope Center (CYRIC), Tohoku University
	YOSHIHASHI Sachiko	Professor, Graduate School of Environmental Studies, Nagoya University, Tokai National Higher Education and Research System

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(3) Joint Review Meetings of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee, etc.

Achievements to Hold the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee

RSEC Times	NFSEC Times	Date	Agenda
22 Joint	28 Joint	Oct. 3-5 (On paper)	・Mutual election of Chairperson of the RSEC ・Mutual election of Chairperson of the NFSEC

Achievements to Hold the Subcommittee on Reactor Safety and the Subcommittee on Nuclear Fuel Safety

SRS Times	SNFS Times	Date	Agenda
11 Joint	5 Joint	Jun. 10	・About nuclear regulatory inspections ・Response based on the collection and analysis of information related to accidents and troubles that have occurred in Japan and abroad and to regulatory trends in other countries ・Others

SRS Times	SNFS Times	Date	Agenda
12 Joint	6 Joint	Dec. 8	・Appointment and other matters concerning the selection of the Chairperson of the SRS ・Appointment and other matters concerning the selection of the Chairperson of the SNFS ・Matters for deliberations at the SRS and the SNFS ・Assessment of safety improvements for power reactor facilities ・About nuclear regulatory inspections ・Response based on the collection and analysis of information related to accidents and troubles that have occurred in Japan and abroad and to regulatory trends in other countries ・Others

Achievements to Hold the Subcommittee on Earthquake and Tsunami Hazards

Times	Date	Agenda
2	Jun. 23	・Analysis of findings on earthquakes, tsunamis and other disasters collected by the NRA Secretariat ・Others

Achievements to Hold the Subcommittee on Volcanic Hazards

Times	Date	Agenda
11	Nov. 18	・Results of collection and analysis of information related to findings on volcanic events ・Evaluation by the NRA on the results of volcano monitoring by power reactor installers and nuclear fuel facility operators ・Others ・Site visit to the Sendai NPS of Kyushu Electric Power Company, Inc. (report)

Investigation and Deliberations Delegated by the NRA to the Reactor Safety Examination Committee (RSEC) and the Nuclear Fuel Safety Examination Committee (NFSEC)

Items for Investigation and Deliberation	Subcommittee Assigned
1. Collect and analyze worldwide information on accidents, problems and regulatory trends, deliberate on the necessity of the NRA's actions in response to such information, and provide advice. [Instruction to the RSEC/NFSEC in November, 2021]	Subcommittee on Reactor Safety of RSEC Subcommittee on Nuclear Fuel Safety of NFSEC
2. Evaluate and advise on the status of NRA's response to the conclusions of the follow-up mission of the IRRS (IAEA's Integrated Regulatory Review Service) conducted in January, 2020. [Instruction to the RSEC/NFSEC in November, 2021]	Subcommittee on Reactor Safety of RSEC Subcommittee on Nuclear Fuel Safety of NFSEC
3. Study and deliberate on the implementation status of the new nuclear regulatory inspection system, which came into effect in April 2020, by regulatory bodies and operators, and provide advice. [Instruction to the RSEC/NFSEC in November, 2021]	Subcommittee on Reactor Safety of RSEC Subcommittee on Nuclear Fuel Safety of NFSEC
4. Provide advice on how the system should work and how to review the operation regarding evaluations for improving the safety of reactor facilities for power generation conducted by the establishers of reactors for power generation under Article 43-3-29 of the Act on Regulation of Nuclear Source Materials, Nuclear Fuel Materials and Reactors. First, report on the operational improvements based on the framework of the current system. [Instruction to the RSEC/NFSEC in November, 2021]	Subcommittee on Reactor Safety of RSEC Subcommittee on Nuclear Fuel Safety of NFSEC
5. Study and deliberate on NRA evaluation of commercial power reactor establishers' volcano monitoring results, and provide advice. [Instruction to the RSEC in November, 2021]	Subcommittee on Volcanic Hazards of RSEC
6. Study and deliberate on NRA evaluation of nuclear fuel cycle facility operator' volcano monitoring results, and provide advice. [Instruction to the NFSEC in November, 2021]	Subcommittee on Volcanic Hazards of NFSEC
7. Investigate and deliberate on the necessity of regulatory responses based on the results of collecting and analyzing information related to disasters that have occurred in Japan and abroad and findings announced by government agencies, etc., concerning events such as earthquakes and tsunamis, and provide advice. [Instruction to the RSEC/NFSEC in November, 2021]	Subcommittee on Earthquake and Tsunami Hazards of RSEC Subcommittee on Earthquake and Tsunami Hazards of NFSEC
8. Investigate and deliberate on the necessity of regulatory responses based on the results of collecting and analyzing information related to disasters that have occurred in Japan and abroad and findings announced by government agencies, etc., concerning events such as volcanoes, and provide advice. [Instruction to the RSEC/NFSEC in November, 2021]	Subcommittee on Volcanic Hazards of RSEC Subcommittee on Volcanic Hazards of NFSEC

(4) Radiation Council

Overview

In the NRA, the Radiation Council is established in accordance with the Act on Technical Standards for Prevention of Radiation Hazards (Act No. 162 of 1958) to ensure uniformity of technical standards for prevention of radiation hazards.

In FY2022, the Radiation Council held three general meetings. In those meetings, the Radiation Council followed up the operation under amended the "Regulation on Prevention of Ionizing Radiation Hazards" and the like, which has been identified as matters to be taken into consideration in the reports on reviews of the equivalent dose limit for the lens of the eye. The Radiation Council was informed by the NRA Secretariat of the international trends in radiation protection as well.

The Radiation Council also deliberated on the future policy for incorporating the ICRP 2007 Recommendations into domestic systems and other measures after confirming the measures taken to date and the progress.

In addition, the Radiation Council received reports from external experts and the NRA Secretariat on knowledge obtained abroad and in Japan, and discussed how to proceed with the study of radiation protection from natural radionuclides contained in rocks and other materials.

Members of the Committee

Commissioners	ISHII Tetsuro	Special Administrative personnel, J-PARC Center, Japan Atomic Energy Agency
	OHNO Kazuko	Professor, Department of Radiological Technology, Faculty of Medical Science, Kyoto College of Medical Science
	ODA Keiji○	Director, Electron Science Institute Professor Emeritus, Kobe University
	KAI Michiaki◎	Professor, New Faculty Establishment Preparation Office, Nippon Bunri University
	KANDA Reiko	Deputy Director-General, National Institute of Radiological Sciences, National Institutes for Quantum Science and Technology Chief, Department of Radiation Effects Research
	KISHIMOTO Atsuo	Professor, Osaka University Institute for Datability Science Director, Research Center on Ethical, Legal and Social Issues
	TAKATA Ayako	Professor, Department of Preventive Medicine, St. Marianna University School of Medicine
	TAKADA Chie	Deputy Director, Radiation Dosimetry and Instrumentation Section, Nuclear Fuel Cycle Engineering Laboratories, Sector of Nuclear Fuel, Decommissioning and Waste Management Technology Development, Japan Atomic Energy Agency
	TANIKAWA Koichi	Director of Futaba Medical Center, Fukushima Prefecture and Director of Affiliated Hospital Specially Appointed Professor, Fukushima Medical University Professor Emeritus, Hiroshima University
	NAKAMURA Nobutaka	Director of Pharmaceutical Department, Japan Radioisotope Association
	HOSONO Makoto	Professor, Department of Radiology, Kindai University Faculty of Medicine
	MATSUDA Naoki	Specially Appointed Professor, Center for Radiation Research and Education, Nagasaki University
	YOKOYAMA Sumi	Associate Professor, Open Facility Center, Support Center for Collaborative Research Facilities, Research Support Promotion Headquarters, Fujita Health University
	YOSHIDA Hiroko	Professor, Cyclotron and Radioisotope Center (CYRIC), Tohoku University

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Meetings of the Radiation Council

No.	Date	Agenda
156	Jul. 11	・Selection of chairperson and nomination of deputy chairperson ・Revision of the Operating Rules of the Radiation Council ・Status of incorporation of the ICRP 2007 Recommendations into domestic systems, etc. ・International trend of technical standards for prevention of radiation hazards ・Current status of naturally occurring radioactive materials ・Others

No.	Date	Agenda
157	Nov. 1	・Follow-up on the revision of equivalent dose limit for the lens of the eye -measures toward thorough dose control of medical workers and reduction of radiation exposure- ・Current status of naturally occurring radioactive materials ・Others
158	Mar. 20	・The way forward is effective dose coefficients, etc. (incorporating the ICRP 2007 Recommendations) and practical quantities for the future ・Current status of naturally occurring radioactive materials ・Status of responses by relevant administrative agencies on the revision of equivalent dose limit for the lens of the eye ・Others

(5) National Research and Development Agency Council

Overview

Based on the Act on General Rules for Incorporated Administrative Agencies (Act No. 103, 1999), the NRA, a competent administrator is required to hear R&D-related council's opinions regarding part of work by the National Institutes for Quantum Science and Technology (QST) and the Japan Atomic Energy Agency (JAEA) before providing them with instructions regarding their medium to long-term goals and evaluate their performance. Therefore, the NRA established the National Research and Development Agency Council on April 10, 2015 as the council for R&D.

In FY2022, subcommittee meetings of the QST were held three times to hear opinions including performance evaluation of the QST, medium to long-term goals for the next period (the 2nd period).

Furthermore, the Japan Atomic Energy Agency (JAEA) subcommittee meeting was held twice in total to hear opinions on the evaluation of the operational performance by the JAEA in FY2021 and during the 3rd medium to long-term goal period (from FY2015 to FY2021).

Members of the Committee

Commissioners	KAI Michiaki○	Professor, New Faculty Establishment Preparation Office, Nippon Bunri University
	ASARI Yasushi	Vice-President, Dean of School of Medicine, Kitasato University
	KOSHIZUKA Seiichi◎	Professor, School of Engineering, The University of Tokyo
	YAMANISHI Hirokuni	Director, Atomic Energy Research Institute, Kindai University
	YAMAMOTO Akio	Professor, Graduate School of Engineering, Nagoya University, Tokai National University Corporation
	OHBA Mie	Professor, Faculty of Law, Graduate School of Law, Kanagawa University

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Members of the Subcommittees

・Subcommittee of the National Institutes for Quantum Science and Technology

Commissioners	KAI Michiaki	Professor, New Faculty Establishment Preparation Office, Nippon Bunri University
	ASARI Yasushi	Vice-President, Dean of School of Medicine, Kitasato University
	YAMANISHI Hirokuni	Director, Atomic Energy Research Institute, Kindai University

・Subcommittee of the Japan Atomic Energy Agency

Commissioners	KOSHIZUKA Seiichi	Professor, School of Engineering, The University of Tokyo
	YAMAMOTO Akio	Professor, Graduate School of Engineering, Nagoya University, Tokai National University Corporation
	OHBA Mie	Professor, Faculty of Law, Graduate School of Law, Kanagawa University

Meetings of the Subcommittees

・Subcommittee of the National Institutes for Quantum Science and Technology

No.	Date	Agenda
14	Jul. 5	・Evaluation of the operational performance in FY2021 by the National Institutes for Quantum Science and Technology ・Evaluation of the operational performance expected at the end of the 1st period of the medium to long-term goals by the National Institutes for Quantum Science and Technology (these are the hearings from the National Institute of Quantum Science and Technology) ・Others
15	Aug. 9	・Compilation of opinions on the evaluation (draft) of operational performance by the National Institutes for Quantum Science and Technology in FY2021 (co-jurisdictional part of the NRA) ・Compilation of opinions on the evaluation (draft) of operational performance by the National Institutes for Quantum Science and Technology expected at the end of the 1st period of the medium to long-term goals (co-jurisdictional part of the NRA) ・Review (draft) of the operations and the organization as a whole of the National Institutes for Quantum Science and Technology (co-jurisdictional part of the NRA) ・Others
16	Dec. 16	・The medium to long-term goals, their axes of the evaluation and other items (drafts) of the National Institutes for Quantum Science and Technology (co-jurisdictional part of the NRA, respectively) ・Others

・Subcommittee of the Japan Atomic Energy Agency

No.	Date	Agenda
18	Jul. 22	・Evaluation of the operational performance in FY2021 ・Evaluation of the operational performance during the 3rd period of the medium to long-term target period ・Technical support for nuclear safety regulatory administration along with budget, personnel and other items for safety research thereof ・Others
19	Aug. 1-2	・Evaluation of the operational performance in FY2021 ・Compilation of opinions on the operational performance during the 3rd period of the medium to long-term target period (documentary review)

2. Review Meetings

(1) Review Meeting on Conformity to the New Regulatory Requirements

Overview

Based on the new regulatory requirements for nuclear power plants that took effect on July 8, 2013 and the new regulatory requirements for nuclear fuel cycle facilities, etc. that took effect on December 18, 2013, applications for permission for change in basic design submitted by the nuclear operators were examined. The examinations were conducted by NRA Commissioners and a study team organized by the Secretariat of the NRA. In FY2022, 93 review meetings were held for nuclear power plants including a document review and 45 meetings were held for nuclear fuel cycle facilities, etc. Also in FY2022, 4 review meetings were held to apply for changing the operational safety program relating to the aging management countermeasures to be submitted by the nuclear operators.

Members of Review Meetings

・**Review Meeting on Conformity to the New Regulatory Requirements for Nuclear Power Plants**

NRA	YAMANAKA Shinsuke	NRA Commissioner (attended until the 1072nd meeting)
	SUGIYAMA Tomoyuki	NRA Commissioner (attending since the 1074th meeting)
	ISHIWATARI Akira	NRA Commissioner
Secretariat of the NRA	ICHIMURA Tomoya	Director-General, Nuclear Regulation Department (attended until the 1056th meeting)
	OHSHIMA Toshiyuki	Director-General, Nuclear Regulation Department (attending since the 1057th meeting)
	ONO Yuji	Director-General for Nuclear Regulation, Director-General's Secretariats
	TAGUCHI Tatsuya	Director for Nuclear Regulation (in charge of reviewing commercial power reactors) (attended until the 1055th meeting)
	WATANABE Keiichi	Director for Nuclear Regulation (in charge of reviewing commercial power reactors) (attending since the 1058th meeting)
	NAITO Hiroyuki	Director for Nuclear Regulation (in charge of reviewing measures against earthquake and tsunami)
	TOGASAKI Kou	Director for Regulation of Nuclear Facilities
	IWASAWA Masaru	Director for Regulation of Nuclear Facilities
	SAITO Tetsuya	Director for Regulation of Nuclear Facilities
	NAGURA Shigeki	Director for Regulation of Nuclear Facilities
	TADAUCHI Itsuo	Director for Regulation of Nuclear Facilities
	SHINO Tomohiro	Director for Regulation of Nuclear Facilities
	AMANO Naoki	Director for Regulation of Nuclear Facilities
	IWATA Junichi	Director for Regulation of Nuclear Facilities
	MITSUI Katsuhito	Director for Regulation of Nuclear Facilities (attending since the 1113th meeting)
	SEKI Masayuki	Planning and Research Officer (attended until the 1059th meeting)
	OKU Hirotaka	Planning and Research Officer (attending since the 1059th meeting)
	NODA Tomoki	Planning and Research Officer (attending since the 1090th meeting)
	EZAKI Junichi	Planning and Research Officer

・**Review Meeting on Conformity to New Regulatory Requirements for Nuclear Fuel Cycle Facilities, etc.**

NRA	TANAKA Satoru	NRA Commissioner
	YAMANAKA Shinsuke	NRA Commissioner (attended until 456th meeting)
	SUGIYAMA Tomoyuki	NRA Commissioner (attending since the 458th meeting)
	ISHIWATARI Akira	NRA Commissioner
Secretariat of the NRA	ONO Yuji	Director-General for Nuclear Regulation, Director-General's Secretariats
	ICHIMURA Tomoya	Director-General, Nuclear Regulation Department (attended until the 446th meeting)
	OHSHIMA Toshiyuki	Director-General, Nuclear Regulation Department (attending since the 452th meeting)
	SHIMA Masakazu	Director for Nuclear Regulation (in charge of reviewing research reactors)
	HASEGAWA Kiyomitsu	Director for Nuclear Regulation (in charge of reviewing nuclear fuel facilities)
	NAITO Hiroyuki	Director for Nuclear Regulation (in charge of examining measures against earthquake and tsunami)
	KANEKO Masayuki	Deputy-Director for Nuclear Regulation (attending since the 456th meeting)
	ARAKAWA Ichiro	Deputy-Director for Safety Management
	FUJIMORI Akihiro	Deputy-Director for Safety Management (attended until the 447th meeting)
	HOSONO Yukio	Deputy-Director for Safety Management
	OZAWA Takahiro	Deputy-Director for Safety Management
	IEATA Junichi	Deputy-Director for Safety Management
	MITSUI Katsuhito	Deputy-Director for Safety Management (attending since the 447th meeting)
	ISHII Toshimitsu	Planning and Research Officer (attended until the 438th meeting)
	KOSAKU Yasuo	Planning and Research Officer
	MATSUMOTO Hisashi	Planning and Research Officer (attending since the 469th meeting)
	EZAKI Junichi	Planning and Research Officer

(2) Review Meeting on Decommissioning of Nuclear Facilities

Overview

Review Meetings on Decommissioning of Nuclear Facilities are held with the attendance of NRA Commissioners and NRA Secretariat staff to review the decommissioning plans of the nuclear facilities. In FY2022, the Review Meetings were held 6 times on nuclear power plants and 3 times on nuclear fuel cycle facilities, etc.

Members of Review Meetings

・**Review Meeting on Decommissioning Plan for Nuclear Power Reactor Facilities**

NRA	YAMANAKA Shinsuke	NRA Commissioner (attended until the 28th meeting)
	TANAKA Satoru	NRA Commissioner (attending since the 29th meeting)
Secretariat of the NRA	ONO Yuji	Director-General for Nuclear Regulation, Director-General's Secretariats
	TAGUCHI Tatsuya	Director for Nuclear Regulation (in charge of reviewing commercial power reactors) (attended until the 26th meeting)
	WATANABE Keiichi	Director for Nuclear Regulation (in charge of reviewing commercial power reactors) (attending since the 27th meeting)
	TOGASAKI Kou	Director for Regulation of Nuclear Facilities

・**Review Meeting on Decommissioning Plan for Nuclear Fuel Cycle Facilities, etc.**

NRA	YAMANAKA Shinsuke	NRA Commissioner (attended until the 28th meeting)
	TANAKA Satoru	NRA Commissioner (attending since the 29th meeting)
Secretariat of the NRA	ONO Yuji	Director-General for Nuclear Regulation, Director-General's Secretariats
	SHIMA Masakazu	Director for Nuclear Regulation (in charge of reviewing research reactors)
	HOSONO Yukio	Deputy-Director for Safety Management

(3) Review Meeting on Clearance

Overview

Review Meeting on the methods of measuring, and evaluating radioactive concentration in materials used in nuclear facilities is held with the attendance of a study team consisting of the NRA Secretariat staff. One review meeting for clearance was held in FY2022.

Members of the Review Meeting on Clearance

Secretariat of the NRA	ONO Yuji	Director-General for Nuclear Regulation, Director-General's Secretariats
	SHIMA Masakazu	Director for Nuclear Regulation (in charge of reviewing research reactors)

(4) Review Meeting on Container for Transportation and Specified Container for Spent Fuel Facilities

Overview

Review Meeting on Container for Transportation and Specified Container for Spent Fuel Facilities are held with the attendance of a study team consisting of the NRA Secretariat staff. In FY2022, 3 review meetings were held.

Members of the Review Meeting on Container for Transportation and Specified Container for Spent Fuel Facilities

Secretariat of the NRA	ONO Yuji	Director-General for Nuclear Regulation, Director-General's Secretariats
	HASEGAWA Kiyomitsu	Director for Nuclear Regulation (in charge of reviewing nuclear fuel facilities)
	ISHII Toshimitsu	Planning and Research Officer (attended until the 13th meeting)

(5) Review Meeting on Type Certification, etc. of Specific Dual-Use Cask Design

Overview

A system consisting of staff from NRA has been established and is holding a Review Meeting on Type Certification, etc. of Specific Dual-Use Cask Design. In FY2022, 9 review meetings and 1 documentary review were held.

Members of the Review Meeting on Type Certification, etc. of Specific Dual-Use Cask Design

Secretariat of the NRA	ONO Yuji	Director-General for Nuclear Regulation, Director-General's Secretariats
	TAGUCHI Tatsuya	Director for Nuclear Regulation (in charge of reviewing

		commercial power reactors) (attended until the 16th meeting)
	WATANABE Keiichi	Director for Nuclear Regulation (in charge of reviewing commercial power reactors) (attending since the 17th meeting)
	TOGASAKI Kou	Deputy-Director for Nuclear Regulation

(6) Review Meeting on the Implementation Plan for Discharge of Treated Water from Advanced Liquid Processing System (ALPS), etc. at Fukushima Daiichi NPS of TEPCO

Overview

The review meeting on the Implementation Plan for discharge of treated water from Advanced Liquid Processing System (ALPS), etc. at the Fukushima Daiichi NPS of TEPCO was held by creating a framework consisting of the NRA commissioners and the NRA Secretariat staff. In FY2022, the review meeting was held twice.

At the 44th FY2022 NRA Commission Meeting (October 12, 2022), it was approved that the "Technical Meeting for Review and Other Measures for the Implementation Plan of Specified Nuclear Facilities" would be held as a new meeting, by incorporating this Review Meeting.

Members of the Review Meeting for Implementation Plan for Discharge of Treated Water from Advanced Liquid Processing System (ALPS), etc. at Fukushima Daiichi NPS of TEPCO

NRA	BAN Nobuhiko	NRA Commissioner
Secretariat of the NRA	KANEKO Shuichi	Director-General for Emergency Response
	TAKEUCHI Jun	Director, Office for Accident Measures of Fukushima Daiichi NPS
	SHIBUTANI Tomoki	Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi NPS
	IWANAGA Kohei	Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi NPS

3. Study Teams

(1) Technical Study Team on Environmental Radiation Monitoring

Overview

In order to conduct appropriate radiation monitoring during emergencies as well as during normal times, it is important to establish a technological base for monitoring, reviewing monitoring methods, and maintaining monitoring skills. In order to continuously study monitoring technology, the Technical Study Team on Environmental Radiation Monitoring consisting of Commissioner BAN Nobuhiko and external experts was formed, under which two meetings were held in FY2022 (for more details, see Chapter 5, Section 5-6).

Members of the Study Team

NRA	BAN Nobuhiko	NRA Commissioner
External experts	IIMOTO Takeshi	Professor, Environment, Health and Safety, The University of Tokyo
	INOMATA Yayoi	Associate Professor, Institute of Nature and Environmental Technology, Kanazawa University
	UEDA Shinji	Director, Department of Radioecology, Institute for Environmental Sciences
	KUNII Yoshihiko	Director, Survey and Analysis Department, the Centre for Environmental Creation
	SHIMADA Asako	Senior Chief Researcher, Waste and Environmental Safety Research Group, Fuel Cycle Safety Research Division, Nuclear Safety Research Center, Sector of Safety Research and Emergency Preparedness, Japan Atomic Energy Agency
	TAKADA Hyoue	Associate Professor, Institute of Environmental Radioactivity, Fukushima University
	TAKEISHI Minoru	Technical Advisor, Emergency Assistance and Training Division, Nuclear Emergency Assistance and Training Center, Sector of Safety Research and Emergency Preparedness, Japan Atomic Energy Agency
	YAMAZAWA Hiromi	Professor, Graduate School of Engineering and School of Engineering Nagoya University
	YAMADA Takahiro	Associate Professor, Kindai University Atomic Energy Research Institute
Secretariat of the NRA	SATO Gyou	Director-General for Emergency Response
	IMAI Toshihiro	Director, Radiation Monitoring Division
	NITTA Akira	Director, Radiation Protection Policy Planning Division
	TAKEMOTO Akira	Director, Environmental Radioactivity Office, Radiation Monitoring Division
	SASAKI Jun	Planning Officer, Radiation Monitoring Division
	TAKAHASHI Tomoyuki	Chief Officer of Technical Research and Investigation, Division of Research for Radiation Protection and Radioactive Waste Management

(2) Safety Oversight Team for the Tokai Reprocessing Plant

Overview

Six meetings of this Oversight Team, which consists of an NRA Commissioner, the NRA Secretariat staff and others, were held in FY2022 to continuously check the state of implementing measures for risk reduction such as vitrification, safety measures and decommissioning at the Tokai reprocessing plant, Nuclear Fuel Cycle Engineering Laboratories, Japan Atomic Energy Agency.

Members of the Study Team

NRA	TANAKA Satoru	NRA Commissioner
Secretariat of the NRA	ONO Yuji	Director-General for Nuclear Regulation, Director-General's Secretariats (attended until the 65th meeting)
	OHSHIMA Toshiyuki	Director-General, Nuclear Regulation Department (attending since the 66th meeting)
	MORISHITA Yasushi	Director-General for Nuclear Regulation, Director-General's Secretariats
	SHIMA Masakazu	Director for Nuclear Regulation (in charge of reviewing research reactors)
	HOSONO Yukio	Nuclear Regulation Research Officer, Examining Research Reactors Division

(3) Safety Oversight Team for Prototype Fast Breeder Reactor Monju Decommission

Overview

The Safety Oversight Team, which consists of NRA Commissioners, the NRA Secretariat staff and others, was formed in January 2017 in order to continuously check the state of decommissioning of the JAEA's Prototype Fast Breeder Reactor Monju and its activities. In FY2022, three meetings were held under the team.

Members of the Study Team

NRA	YAMANAKA Shinsuke	NRA Commissioner (attended until the 41 meeting)
	TANAKA Satoru	NRA Commissioner (attending since the 42nd meeting)
Secretariat of the NRA	OHSHIMA Toshiyuki	Director-General, Nuclear Regulation Department
	SHIMA Masakazu	Director for Nuclear Regulation (in charge of reviewing research reactors)
	HOSONO Yukio	Nuclear Regulation Research Officer, Examining Research Reactors Division

(4) Study Team for Countermeasures against Common Cause Failures of Digital Safety Protection Systems in Power Reactor Facilities

Overview

The Study Team, which consists of NRA Commissioners, the NRA Secretariat staff and, was held twice in FY2022 in order to promote specific studies on the countermeasures against common cause failures of digital safety protection systems in power reactor facilities.

Members of the Study Team

NRA	SUGIYAMA Tomoyuki	NRA Commissioner
Secretariat of the NRA	OHSHIMA Toshiyuki	Director-General, Nuclear Regulation Department
	MORISHITA Yasushi	Director-General for Policy Planning and Coordination
	TOHYAMA Makoto	Director, Regulatory Standard and Research Division
	SASAKI Haruko	Planning and Coordinating Officer, Regulatory Standard and Research Division
	IMASE Masahiro	Nuclear Regulation Specialist, Regulatory Standard and Research Division
	SEKINE Masashi	Chief Researcher, Division of Research for Severe Accident
	MURAKAMI Tsuneo	Assistant of Director, Oversight Planning and Coordination Division
	KIKUKAWA Atsuhiro	Assistant of Director, Division of Licensing for Nuclear Power Plants

	UEDA Hiroshi	Planning and Research Officer, Division of Specified Oversight

(5) Study Team for Technical Evaluation of Atomic Energy Society of Japan Standards on the Method to Determine Radioactivity Concentration of Waste subject to Mid-depth Disposal

Overview

The study team, which consists of the NRA Commissioner, NRA Secretariat staff and external experts, etc., held its meeting twice in FY2022 for technical assessment of the Atomic Energy Society of Japan standards on the method to determine radioactivity concentration of waste subject to mid-depth disposal.

Members of the Study Team

NRA	TANAKA Satoru	NRA Commissioner
External experts	WATANABE Naoko	Associate Professor, Department of Applied Quantum Science, Faculty of Engineering, Hokkaido University
	TOMITA Hideki	Associate Professor, Department of Energy Science and Engineering, Graduate School of Engineering, Nagoya University
Safety Research Center, JAEA	TAKEDA Seiji	Group Leader, Waste and Environmental Safety Study Group, Fuel Cycle Safety Research Division
	SHIMADA Taro	Senior Scientist, Waste and Environmental Safety Study Group, Fuel Cycle Safety Research Division
	SHIMADA Asako	Senior Scientist, Waste and Environmental Safety Study Group, Fuel Cycle Safety Research Division
Secretariat of the NRA	SATO Gyou	Director, Regulatory Standard and Research Department
	TOHYAMA Makoto	Director, Regulatory Standard and Research Division
	SASAKI Haruko	Planning and Coordinating Officer, Regulatory Standard and Research Division
	OHTSUKA Ichiro	Senior Officer of Technical Research and Investigation, Division of Research for Radiation Protection and Radioactive Waste Management
	SATO Yuko	Technical Research and Investigation Officer, Division of Research for Radiation Protection and Radioactive Waste Management
	FURUTA Yoshinori	Technical Research and Investigation Officer, Division of Research for Radiation Protection and Radioactive Waste Management
	FUJISAWA Hiromi	Technical Consultant
	KAWASAKI Satoru	Technical Consultant

(6) Study Team for Technical Evaluation of Japan Electric Association Standards for Digital Safety Protection Systems

Overview

The Study Team, which consists of the NRA Commissioner and the NRA Secretariat staff, held its meeting twice in FY2022 for technical assessment of the Atomic Energy Society of Japan standards on digital safety protection systems.

Members of the Study Team

NRA	TANAKA Satoru	NRA Commissioner
Secretariat of the NRA	SATO Gyou	Director, Regulatory Standard and Research Department
	TOHYAMA Makoto	Director, Regulatory Standard and Research Division
	SASAKI Haruko	Planning and Coordinating Officer, Regulatory Standard and Research Division
	IMASE Masahiro	Senior Expert on Nuclear Regulation, Regulatory Standard and Research Division

	HAMAGUCHI Yoshikane	Chief Researcher, Division of Research for Severe Accident, Regulatory Standard and Research Department
	MINAKAWA Takefumi	Safety Technology Expert, Division of Research for Reactor System Safety, Regulatory Standard and Research Department
	SAKAI Hirotaka	Senior Executive Officer of Technical Research and Investigation, Division of Research for Reactor System Safety, Regulatory Standard and Research Department
	TAKITA Masami	Technical Consultant
	FUJISAWA Hiromi	Technical Consultant

(7) Study Team on Technical Evaluation of JSME (the Japan Society of Mechanical Engineers) Standards for Design and Construction, Materials and Welding

Overview

The Study Team, which consists of the NRA Commissioner, the NRA Secretariat staff, external experts and others, held its meetings once in FY2022 for the technical evaluation of JSME Standards for design and construction, materials and welding.

Members of the Study Team

NRA	TANAKA Satoru	NRA Commissioner
External experts	OHTSUKA Yuichi	Associate Professor, Graduate School of Technology, Nagaoka University of Technology
	FUKAZAWA Tsuyoshi	Associate Professor, Department of Mechanical Engineering, Graduate School of Engineering, Tokyo Denki University
	FURUKAWA Takashi	Director, Nondestructive Evaluation Center, Japan Power Engineering and Inspection Corporation
Safety Research Center, JAEA	CHIMI Yasuhiro	Leader of Aging and Deterioration Research Group
	YAMAGUCHI Yoshihito	Deputy Director of Research, Seismic and Structural Integrity Evaluation Research Group
Secretariat of the NRA	SATO Gyou	Director, Regulatory Standard and Research Department
	TOHYAMA Makoto	Director, Regulatory Standard and Research Division
	SASAKI Haruko	Planning and Coordinating Officer, Regulatory Standard and Research Division
	KOJIMA Masayoshi	Senior Executive Officer of Technical Research and Investigation, Division of Research for Reactor System Safety, Regulatory Standard and Research Department
	MIZUTA Kouhei	Safety Technology Expert, Division of Research for Reactor System Safety, Regulatory Standard and Research Department
	AZUMA Kisaburou	Technical Research and Investigation Officer, Division of Research for Earthquake and Tsunami
	MIYAZAKI Tsuyoshi	Planning and Research Officer, Division of Specified Oversight
	MINAMIKAWA Satoshi	Senior Executive Specialist for Nuclear Inspection, Division of Specified Oversight
	KIKUCHI Masaaki	Technical Consultant
	TAKAKURA Kenichi	Technical Consultant
	FUJISAWA Hiromi	Technical Consultant

4. Committees for Specific Research and Study

(1) Committee on Oversight and Evaluation of Specified Nuclear Facilities

Overview

Meetings of the Committee on Oversight and Evaluation of the Specified Nuclear Facilities, consisting of NRA Commissioners, the NRA Secretariat staff, and external experts, were held to evaluate the schedule management and safety measures for decommissioning work of TEPCO's Fukushima Daiichi NPS and to give necessary advice. In FY2022, a total of 8 meetings were held.

Members of the Committee

NRA	BAN Nobuhiko	NRA Commissioner
	TANAKA Satoru	NRA Commissioner
External experts	IGUCHI Tetsuo	Professor Emeritus, Nagoya University
	KITTAKA Yoshinori	Professor, Department of Architecture, Faculty of Urban Environmental Sciences, Tokyo Metropolitan University
	TANAKA Seiichiro	President, Futaba Town Reconstruction Promotion Council
	TOKUNAGA Tomochika	Professor, Department of Environment Systems, Graduate School of Frontier Sciences, The University of Tokyo
	HACHISUKA Reiko	Society President of Okuma Town Society of Commerce and Industry
	YAMAMOTO Akio	Professor, Department of Applied Energy Science, Graduate School of Engineering, Nagoya University
Secretariat of the NRA	SAKURADA Michio	Deputy Secretary-General for Technical Affairs (attended until the 100th meeting)
	ICHIMURA Tomoya	Deputy Secretary-General for Technical Affairs (attending since the 101th meeting)
	KANEKO Shuichi	Director-General for Emergency Response (attended until the 100th meeting)
	MORISHITA Yasushi	Director-General for Nuclear Regulation, Director-General's Secretariats (attending since the 101th meeting)
	MINAMIYAMA Rikio	Regional Administrator (in charge of Fukushima)
	TAKEUCHI Jun	Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	IWANAGA Kohei	Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	SHIBUTANI Tomoki	Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	MASAOKA Hideaki	Deputy Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station (Until the 102nd meeting) Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station (Since the 103rd meeting)
	OHTSUJI Ayako	Deputy Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station (Since the 103rd meeting)
	KOBAYASHI Ryusuke	Director, NRA Regional Office for Fukushima Daiichi Nuclear Power Station
	AOKI Hiroomi	Chief Researcher, Division of Research for Radiation Protection and Radioactive Waste Management
	YASUI Masaya	Special International Negotiator for Nuclear Regulation (Until the 102nd meeting)

(2) Technical Meeting for Review of Implementation Plans for Specific Nuclear Facilities

Overview

The Technical Meeting for Review of Implementation Plans for Specific Nuclear Facilities, which consists of the NRA Secretariat staff, is held to discuss major technical issues, and to exchange opinions on other technical issues related to

regulatory requirements and the like since prompt reviews are necessary to ensure the steady and immediate progress with decommissioning work and other tasks with regard to the examination of the Implementation Plan with Regards to Fukushima Daiichi NPS's Specified Nuclear Facilities. In FY2022, the meeting was held 8 times.

Members of the Committee

Secretariat of the NRA	MORISHITA Yasushi	Director-General for Nuclear Regulation, Director-General's Secretariats
	TAKEUCHI Jun	Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	IWANAGA Kohei	Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	SHIBUTANI Tomoki	Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	MASAOKA Hideaki	Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	OHTSUJI Ayako	Deputy Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station

(3) Committee on Accident Analysis of the Fukushima Daiichi Nuclear Power Station

Overview

Meetings of the Committee on Accident Analysis of the Fukushima Daiichi Nuclear Power Station, which consists of NRA Commissioners, the NRA Secretariat staff, and external experts and researchers of Japan Atomic Energy Agency were held to examine TEPCO's Fukushima Daiichi NPS accident analysis issues from a technical aspect based on the information obtained from on-site investigation. In FY2022, 8 meetings were held.

Members of the Meeting

NRA	FUKETA Toyoshi	NRA Chairman (until the 31st meeting)
	YAMANAKA Shinsuke	NRA Commissioner (until the 31st meeting) NRA Chairman (since the 32nd meeting)
	SUGIYAMA Tomoyuki	NRA Commissioner (since the 32nd meeting)
External experts	ICHINO Hiroyoshi	Associate Professor, National Defense Academy of Japan
	KADOWAKI Satoshi	Professor, Nagaoka University of Technology
	NINOKATA Hisashi	Professor Emeritus, Tokyo Institute of Technology
	MAEKAWA Osamu	Senior Technical Advisor, Nuclear Damage Compensation and Decommissioning Facilitation Corporation
	MIYATA Koichi	Director-General, Atomic Energy Association
	MUTA Hitoshi	Associate Professor, Department of Nuclear Safety Engineering, Faculty of Engineering, Tokyo City University
	OHISHI Yuji	Associate Professor, Graduate School, Osaka University (attending since the 30th meeting)
	YAMAJI Akifumi	Professor, Faculty of Science and Engineering, Waseda University (attending since the 31st meeting)
	URATA Shigeru	General Manager, Mitsubishi Heavy Industries, Ltd. (attending since the 31st meeting)
Secretariat of the NRA	SAKURADA Michio	Deputy Secretary-General for Technical Affairs (attended until the 30th meeting)
	ICHIMURA Tomoya	Deputy Secretary-General for Technical Affairs (attending since the 31st meeting)
	KANEKO Shuichi	Director-General for Emergency Response (attended until the 30th meeting)
	MORISHITA Yasushi	Director-General for Nuclear Regulation, Director-General's Secretariats (attending since the 31st meeting)

	YASUI Masaya	Special International Negotiator for Nuclear Regulation
	TOHYAMA Makoto	Director, Regulatory Standard and Research Division, Regulatory Standard and Research Department
	HIRANO Masashi	Technical Consultant, Regulatory Standard and Research Division, Regulatory Standard and Research Department
	ABE Yutaka	General Technical Researcher, Division of Research for Severe Accident
	TAKEUCHI Jun	Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	IWANAGA Kohei	Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	HOSHI Harutaka	Chief Officer for Technical Research and Examination, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	KADOYA Yutaka	Deputy Director, Division of Licensing for Nuclear Power Plants (attending since the 30th meeting)
	TATEBE Yasumasa	Chief Safety Examiner, Division of Licensing for Nuclear Power Plants (attending since the 31st meeting)
	KAMINOUCHI Hisamitsu	Lecturer, Reactor Technology Training Division, NRA Human Resource Development Center
JAEA	MARUYAMA Yu	Vice Director, Nuclear Safety Research Center
	YONOMOTO Taisuke	Special Expert, Nuclear Safety Research Center
	SUGIYAMA Tomoyuki	Vice Director, Nuclear Safety Research Center (attended until the 31st meeting)
	AMAYA Masaki	Vice Director, Nuclear Safety Research Center (attending since the 32nd meeting)

(4) Fukushima Daiichi NPS Decommissioning and Accident Investigation Liaison and Coordination Meeting

Overview

Meetings of the Fukushima Daiichi NPS Decommissioning and Accident Investigation Liaison and Coordination Meeting consists of the Secretariat of the NRA, which has been conducting related technical research and analysis, as well as the Agency for Natural Resources and Energy, the Nuclear Damage Compensation and Decommissioning Facilitation Corporation and TEPCO, which are responsible for the decommissioning work. The Meetings were held to coordinate the works relating to accident analysis and decommissioning work. In FY2022, a total of two Meetings were held.

Members of the Meeting

Ministry of Economy, Trade and Industry	YUMOTO Keiichi	Director-General for Nuclear Accident Disaster Response
Agency for Natural Resources and Energy	FUKUDA Mitsunori	Director, Nuclear Accident Response Office
	TSUTSUMI Makoto	Planning Officer, Nuclear Accident Response Office
	MINAGAWA Shigeharu	Director, Office for Nuclear Safety Improvement, Nuclear Energy Policy Planning Division
Secretariat of the NRA	KANEKO Shuichi	Director-General for Emergency Response (attended until the 9th meeting)
	MORISHITA Yasushi	Director-General for Nuclear Regulation, Director-General's Secretariats (attending since the 10th meeting)
	TAKEUCHI Jun	Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	IWANAGA Kohei	Planning and Research Officer, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
	MASAOKA Hideaki	Deputy Director, Office for Accident Measures of Fukushima

		Daiichi Nuclear Power Station (attended until the 9th meeting)
	OHTSUJI Ayako	Daiichi Nuclear Power Station (attending since the 10th meeting)
	KIHARA Shoji	Deputy Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station
Nuclear Damage Compensation and Decommissioning Facilitation Corporation	FUKUDA Mitsunori	Senior Managing Director
	NAKANO Junichi	Councilor
Tokyo Electric Power Company Holdings, Inc.	TAMINAMI Tatsuya	Managing Director, Vice President, Fukushima Daiichi Decontamination and Decommissioning Engineering Company (attended until the 9th meeting)
	OHNO Kosuke	Managing Director, Vice President, Fukushima Daiichi Decontamination and Decommissioning Engineering Company (attending since the 10th meeting)
	ISHIKAWA Masumi	Executive Director in charge of Reactor Decommissioning Technology, Fukushima Daiichi Decontamination and Decommissioning Engineering Company (attended until the 9th meeting)
	IIDUKA Naoto	In charge of Reactor Decommissioning Technology, Fukushima Daiichi Decontamination and Decommissioning Engineering Company (attending since the 10th meeting)
	MIZOKAMI Shinya	Director, Fuel Debris Removal Program Division, Fukushima Daiichi NPS, Fukushima Daiichi Decontamination and Decommissioning Engineering Company

(5) Technical Information Committee

Overview

A meeting of the Technical Information Committee, consisting of an NRA Commissioner, NRA Secretariat division directors and others, is held approximately every two months with the purpose of organizing and sharing information on accidents and failures that occurred at nuclear power plants in Japan and abroad as well as the latest scientific and technological knowledge and judging the necessity of reflecting them in the regulations. Six meetings of the Committee were held in FY2022.

Members of the Meeting

NRA	NRA Commissioner
Secretariat of the NRA	Deputy Secretary-General for Technical Affairs
Director-General's Secretariats	Director-General for Emergency Response
	Director-General for Nuclear Regulation (in charge of the Regulatory Standard and Research Department)
	Director-General for Nuclear Regulation (in charge of inspections, international affairs and the Fukushima Daiichi NPS)
	Director-General for Nuclear Regulation (in charge of reviews)
	Director, Office for International Affairs, Policy Planning and Coordination Division
	Director of Emergency Preparedness and Response Office, Policy Planning and Coordination Division
Regulatory Standard and Research Department	Director, Regulatory Standard and Research Division
	Director, Division of Research (in charge of Reactor System Safety)
	Director, Division of Research (in charge of Severe Accidents)
	Director, Division of Research (in charge of Nuclear Fuel Cycle and Radioactive Waste)
	Director, Division of Research (in charge of Earthquake and Tsunami)
Radiation Protection Department	Director, Radiation Protection Policy Planning Division

Nuclear Regulation Department	Director-General, Nuclear Regulation Department
	Director, Nuclear Regulation Policy Planning Division
	Director, Office for Accident Measures of the Fukushima-Daiichi NPS
Divisions of Licensing	Director, Division of Licensing for Nuclear Power Plants
	Director, Division of Licensing for Research Reactors, Use of Nuclear Material
	Director, Division of Licensing for Nuclear Fuel Facilities
	Director, Division of Licensing for Earthquake and Tsunami Measures
Division of Oversight	Director, Oversight Planning and Coordination Division
	Director, Division of Oversight of Nuclear Power Plants
	Director, Division of Specified Oversight
	Director, Division of Oversight of Nuclear Fuel Related Facilities and Research Reactors
Japan Atomic Energy Agency	Nuclear Safety Research Center

(6) Technical Evaluation Committees

Overview

In order to obtain technical opinions from external experts well versed in technological fields for the NRA's prior assessments, interim assessments and post assessments, 5 meetings of the following 3 Technical Evaluation Committees were held in FY2022.

Members of Technical Evaluation Committees

・Technical Evaluation Committee on Plant Safety

External experts	KITADA Takanori	Professor, Division of Sustainable Energy and Environment Engineering, School of Engineering, Osaka University
	GOFUKU Akio	Professor, Graduate School of Interdisciplinary Science and Engineering in Health Systems, Okayama University
	YAMAJI Akifumi	Professor, School of Advanced Science and Engineering, Faculty of Science and Engineering, Waseda University
Professional engineers	ARAI Kenji	General Manager, Nuclear Safety System Design Department, Isogo Engineering Center, Toshiba Energy Systems & Solutions Corporation
	UMEZAWA Shigemitsu	Chief Engineer, Reactor Control and Safety Engineering Department, MHI NS Engineering Co., Ltd.
	MIZOKAMI Shinya	General Manager, Department of Fuel Debris Extraction Program at Fukushima Daiichi Nuclear Power Station, Fukushima Daiichi Decommissioning Promotion Company, Tokyo Electric Power Company Holdings, Inc.

・Technical Evaluation Committee on Severe Accident

External experts	ITOI Tatsuya	Associate Professor, Graduate School of Engineering, The University of Tokyo
	MUTA Hitoshi	Associate Professor, School of Integrative Science and Engineering, Tokyo City University
	MORITA Koji	Professor, Department of Applied Quantum Physics & Nuclear Engineering Faculty of Engineering, Kyushu University
Professional engineers	KURAMOTO Takahiro	Deputy General Manager, Analysis Service Division, Nuclear Engineering, Ltd.
	TAKAHASHI Hiromichi	General Manager in charge of Risk Assessment, Core & Safety Engineering Department, Nuclear Energy Segment, Mitsubishi Heavy Industries, Ltd.
	TAHARA Mika	Fellow, Safety Systems Engineering Group 2, Nuclear Safety System Design Department, Isogo Engineering Center, Toshiba Energy Systems & Solutions Corporation

・Technical Evaluation Committee on Material Technology

External experts	KASAHARA Naoto	Professor, Nuclear Engineering and Management, School of Engineering, The University of Tokyo
	MATSUMOTO Satoshi	Professor Emeritus, Shibaura Institute of Technology
	MOCHIZUKI Masahito	Assistant of the President, Professor, Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
Professional engineers	KAMAYA Masayuki	Leader and Chief Researcher, Thermal Flow and Structure Group, Institute of Nuclear Safety System, Inc.
	SHIMONO Tetsuya	Manager, Conservation Planning Group, Nuclear Power Generation Division, Nuclear Energy Business Head Office, Kansai Electric Power Company, Inc.

5. Others

(1) NRA Policy Evaluation Meeting

Overview

It is a requirement to conduct hearing of opinions from external experts regarding policy evaluation (ex-post assessment) conducted by the NRA. The meeting was held once in FY2022 to hear opinions on policy evaluation.

Members of the Meeting

External experts	IIZUKA Yoshinori	President, Japan Accreditation Board Professor emeritus, The University of Tokyo
	OHYA Takehiro	Professor, Faculty of Law, Keio University
	KAMEI Zentaro	Chief Researcher, PHP Research Institute Specially appointed professor, Graduate School of Social Design Studies, Rikkyo University
	SHIROYAMA Hideaki	Professor, Graduate School of Public Policy, The University of Tokyo Professor, Graduate Schools for Law and Politics, The University of Tokyo
	FUJITA Yukiko	Professor, Faculty of Law, Gakushuin University
	MACHI Asei	Freelance journalist

(2) Meeting on NRA's Administrative Project Review

Overview

In the administrative project review, all ministries and government offices are required to clarify the status of implementation of all their projects, taking into account external opinions. Furthermore, as part of the review, an expert meeting shall be held for some of the projects for hearing external experts' opinions on problems and improvement. In FY2022, a total of 4 expert meetings were held.

Members of the Meeting

External experts	IIJIMA Hirokuni	Professor, Faculty of Economics, Chuo University
	NAJIMA Kazuhisa	Professor, Faculty of Policy Science, Ryukoku University
	YOSHIDA Takeshi	Certified Public Accountant, Partner, Avantia GP

(3) Meeting on Hearing Opinions of Operators regarding New Regulatory Requirements

Overview

This meeting is held on an irregular basis whenever a necessity arises to publicly hear operators' opinions on the new regulatory requirements. In FY2022, the meeting was held once to discuss the effect of debris passing through the sump screen on the core, once to discuss intergranular cracking of stainless steel piping in the primary system of PWR, and once to discuss actions for electromagnetic compatibility at

nuclear power plants.

Members of the Meetings

・Effect of debris passing through the sump screen on the core (June 16, 2022)

Secretariat of the NRA	TOHYAMA Makoto	Director, Regulatory Standard and Research Division
	SASAKI Haruko	Director for Policy Planning and Coordination, Regulatory Standard and Research Division
	TERUI Hiroyuki	Chief of Technical Information, Regulatory Standard and Research Division
	EGUCHI Hiroshi	Officer for Technical Research and Examination, Division of Research for Reactor System Safety
	TSUKAMOTO Naofumi	Chief Officer for Technical Research and Examination, Division of Research for Severe Accident
	KOBAYASHI Takaaki	Safety Examiner, Division of Licensing for Nuclear Power Plants
	HISAMITSU Jin	Senior Reactor Analysis Examiner, Division of Oversight of Nuclear Power Plants

・Intergranular cracking of stainless steel piping in the primary system of PWR (June 24, 2022)

Secretariat of the NRA	MORISHITA Yasushi	Director-General
	TOHYAMA Makoto	Director, Regulatory Standard and Research Division
	SASAKI Haruko	Director for Policy Planning and Coordination, Regulatory Standard and Research Division
	KOJIMA Masayoshi	Senior Researcher, Division of Research for Reactor System Safety
	KOUNO Katsumi	Chief Officer for Technical Research and Examination, Division of Research for Reactor System Safety
	MORITA Kenji	Senior Nuclear Professional Inspector, Division of Specified Oversight
	FUJISAWA Hiromi	Technical Consultant

・Actions for electromagnetic compatibility at nuclear power plants (September 12, 2022)

Secretariat of the NRA	TOHYAMA Makoto	Director, Regulatory Standard and Research Division
	SASAKI Haruko	Director for Policy Planning and Coordination, Regulatory Standard and Research Division
	IMASE Masahiro	Senior Expert on Nuclear Regulation, Division of Research for Reactor System Safety
	TERUI Hiroyuki	Deputy of Director, Regulatory Standard and Research Division
	IKEDA Masaaki	Officer for Technical Research and Examination, Division of Research for Reactor System Safety
	MINAKAWA Takefumi	Officer for Technical Research and Examination, Division of Research for Reactor System Safety
	SAKAI Hirotaka	Senior Researcher, Division of Research for Radiation Protection and Radioactive Waste Management
	TAKITA Masami	Technical Consultant

(4) Meeting on Continuous Improvement of Safety Evaluation of Commercial Power Reactors

Overview

With the confirmation of safety evaluation reports submitted by operators and feedback of results of discussion to other plants in mind, a meeting on continuous improvement of safety evaluation of commercial power reactors, which consists of NRA Secretariat staff, was held eight times by FY2020 to discuss continuous improvement of future safety evaluation. The meeting was not held in FY2022 because there were no opinions exchanged in the fiscal year.

Members of the Meeting

Secretariat of the NRA	ONO Yuji	Director-General for Nuclear Regulation, Director-General's Secretariats
	WATANABE Keiichi	Director for Nuclear Regulation (in charge of reviewing commercial power reactors)
	TOGASAKI Ko	Deputy-Director for Nuclear Regulation

(5) Technical Opinion Exchange on the Response of Domestic NPPs to Open Phase Condition (OPC)

Overview

The Meeting was held to gather information on the response of domestic nuclear power plants and other facilities to Open Phase Condition (OPC). In FY2022, the Meeting was held once.

Members of the Meeting

Secretariat of the NRA	TOHYAMA Makoto	Director, Regulatory Standard and Research Division
	SASAKI Haruko	Director for Policy Planning and Coordination, Regulatory Standard and Research Division
	KATAOKA Kazuyoshi	Senior Expert on Nuclear Regulation, Division of Research for Reactor System Safety
	IMASE Masahiro	Senior Expert on Nuclear Regulation, Division of Research for Reactor System Safety
	TERUI Hiroyuki	Deputy of Director, Regulatory Standard and Research Division
	NISHIUCHI Mikinori	Safety Examiner, Division of Licensing for Nuclear Power Plants
	KISHIOKA Kazuhiko	Senior Executive Officer of Inspection Monitoring, Risk Management Office, Oversight Planning and Coordination Division

(6) Public Meeting to Investigate and Analyze the Cause of the Rewriting of Borehole Map Data at Tsuruga NPS Unit 2

Overview

The Meeting was held once in FY2022 to confirm the validity concerning the investigation and analysis of causes of rewriting borehole map data at Tsuruga NPS Unit 2 which had been conducted by the operator.

Members of the Meeting

Secretariat of the NRA	SUGIMOTO Takanobu	Director for Nuclear Regulation (in charge of commercial power reactor oversight)

(7) Research Evaluation Committee and Research Results Report Meeting (Strategic Program for Promoting Regulatory Radiation Safety Research)

Overview

As part of the Strategic Program for Promoting Regulatory Radiation Safety Research in FY2022, the Research Evaluation Committee was held once to evaluate 9 research projects completed in FY2021.

Members of the Research Evaluation Committee

External experts	URABE Itsumasa	Professor Emeritus, Fukuyama University
	ODA Keiji	Executive Board Director, Electron Science Institute Professor Emeritus, Kobe University
	SUZUKI Gen	Professor and Director, International University of Health and Welfare Clinic

	FUTATSUGAWA Shoji	Radiation Safety Officer, Alpha Tau Medical
	YOSHIDA Hiroko	Professor, Cyclotron and Radioisotope Center (CYRIC), Tohoku University

(8) Debriefing Session of Emergency Drills by Nuclear Operators

Overview

Regarding nuclear emergency drills conducted by nuclear operators, the Debriefing Session was held once in FY2022, led by the Chairman FUKETA, the Commissioners TANAKA and YAMANAKA with the aim of strengthening information sharing between the NRA Secretariat and the operators and improving the emergency response capabilities. In addition, two working groups were held under the Debriefing Session to discuss scenarios related to training for enhancing on-site response ability in addition to improving the judging ability of the commanders of nuclear power plants' emergency response centers and central control rooms.

Members of the Debriefing Session

NRA	FUKETA Toyoshi	NRA Chairman
	TANAKA Satoru	NRA Commissioner
	YAMANAKA Shinsuke	NRA Commissioner
Secretariat of the NRA	KOGANEYA Toshiyuki	Director-General for Emergency Response
	OHSHIMA Toshiyuki	Director-General, Nuclear Regulation Department
	ONO Yuji	Director General for Nuclear Regulation
	SUGIMOTO Takanobu	Director, Emergency Preparedness and Response Office
	MURATA Shinichi	Director, Public Information Office
	YAMAGUCHI Michio	Director, Accidents Response Office
	TAKEUCHI Jun	Director, Office for Accident Measures of the Fukushima Daiichi NPS
	AMANO Naoki	Nuclear Regulation Officer, Division of Licensing for Nuclear Power Plants
	IWATA Junichi	Nuclear Regulation Research Officer, Division of Licensing for Earthquake and Tsunami Measures
	KAWASAKI Kenji	Director for Policy Planning and Coordination, Emergency Preparedness and Response Office

(9) Opinion Hearing Meeting on Volcanic Formation Mechanisms, etc.

Overview

At the 60th FY2021 NRA Commission Meeting (January 19, 2022), the policy for reviewing matters that should be considered at least for ensuring safety in geological disposal (hereinafter referred to as "matters to be considered") was agreed. It was also agreed to hear views of external experts for expanding scientific and technical knowledge on the characteristics of volcanic formation mechanisms in Japan and their regional characteristics before commencing discussions. The meeting was held once in FY2022.

Members of the Meeting

NRA	ISHIWATARI Akira	NRA Commissioner
	TANAKA Satoru	NRA Commissioner
External experts	OKUNO Mitsuru	Professor, Graduate School of Science, Osaka Metropolitan University
	NAKAMURA Michihiko	Professor, Graduate School of Science, Tohoku University
	YAMAMOTO Takahiro	Deputy Director, Research Institute of Earthquake and Volcano Geology, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology

Secretariat of the NRA	ICHIMURA Tomoya	Director-General, Nuclear Regulation Department
	SHIMA Masakazu	Director for Nuclear Regulation (in charge of reviewing research reactors)
	OHMURA Toshikatsu	Researcher, International Nuclear Safety Regulatory System

(10) Exchange of Opinions on the Way of Training and Regulatory Involvement in Emergency Response by Nuclear Operators

Overview

The Exchange of Opinions is being held to discuss with nuclear operators how to improve the effectiveness of the entire measures taken by the nuclear operators for emergency response, including nuclear operators' emergency drills based on the Act on Special Measures Concerning Nuclear Emergency Preparedness and education and drills based on the requirements under the Nuclear Reactor Regulation Law, and how to evaluate such measures in cooperation with the nuclear operators. In FY2022, the Exchange was held 7 times in total.

Members of the Meeting

Secretariat of the NRA	KANEKO Shuichi	Director-General for Emergency Response
	KOGANEYA Toshiyuki	Director, Division of Oversight of Nuclear Power Plants (concurrent position: Director, Emergency Preparedness and Response Office) (attended until the 2nd meeting) Director-General for Emergency Response (since the 3rd meeting)
	SUGIMOTO Takanobu	Director for Nuclear Regulation (attended until the 2nd meeting) Director, Emergency Preparedness and Response Office, Division of Specified Oversight (since the 3rd meeting)
	TAKASU Youji	Director for Nuclear Regulation, Division of Specified Oversight (since the 3rd meeting)
	NAKAMURA Shinichiro	Director for Nuclear Regulation, Division of Nuclear Security
	KAWASAKI Kenji	Planning and Coordinating Officer, Emergency Preparedness and Response Office
	SEKI Masayuki	Planning and Research Officer, Division of Specified Oversight (since the 3rd meeting)

(11) Meetings on Responses to the Review of Emergency Action Levels

Overview

In FY2022, the Meeting was held 4 times in total to exchange opinions on the revision of Emergency Action Levels (EAL) by taking into account the Special Facility for Severe Accident Management with nuclear operators who actually operate such facilities in consideration of the EAL at commercial power reactor facilities.

Members of the Meeting

NRA	YAMANAKA Shinsuke	NRA Commissioner (attending since the 8th meeting)
	SUGIYAMA Tomoyuki	NRA Commissioner (attending since the 9th meeting)
	KANEKO Shuichi	Director-General for Emergency Response (attended on only the 8th meeting)
	KOGANEYA Toshiyuki	Director, Emergency Preparedness and Response Office (attended on the 8th meeting) Director-General for Emergency Response (attending since the 9th meeting)
	SUGIMOTO Takanobu	Director, Emergency Preparedness and Response Office (attending since the 9th meeting)
	FUNAYAMA Kyoko	Director, Division of Research (in charge of Severe Accidents), Division of Research for Severe Accident, Regulatory Standard and Research Department
	TAGUCHI Tatsuya	Director for Nuclear Regulation (in charge of reviewing nuclear

Secretariat of the NRA		fuel facilities), Division of Licensing for Nuclear Power Plants, Nuclear Regulation Department (Licensing), Nuclear Regulation Department (attended on only the 8th meeting)
	YAMAGUCHI Michio	Deputy of Director, Emergency Preparedness and Response Office
	KAWASAKI Kenji	Planning and Coordinating Officer, Emergency Preparedness and Response Office
	SHIGEYAMA Masaru	Planning and Research Officer, Regulatory Standard and Research Division, Regulatory Standard and Research Department (attended until the 9th meeting)
	KATO Takayuki	Planning and Research Officer, Regulatory Standard and Research Division, Regulatory Standard and Research Department (attending since the 10th meeting)
	IWASAWA Masaru	Planning and Research Officer, Division of Licensing for Nuclear Power Plants, Nuclear Regulation Department (Licensing), Nuclear Regulation Department (attended on the 8th meeting) Deputy-Director for Nuclear Regulation, Division of Licensing for Nuclear Power Plants, Nuclear Regulation Department (Licensing), Nuclear Regulation Department (attended on the 9th meeting)

(12) Public Meeting on the Response to Accidents and Failures at Nuclear Facilities

Overview

The Public Meeting is held with the participation of the Commissioner YAMANAKA or the Commissioner TANAKA as necessary, in order to appropriately confirm the operator's response to accident trouble events at nuclear facilities and other centers, including investigation of causes and measures to prevent recurrence of such events. In FY2022, the Meeting was held 4 times in total.

Members of the Meeting

NRA	TANAKA Satoru	NRA Commissioner (the 18th meeting)
Secretariat of the NRA	MORISHITA Yasushi	Director-General for Nuclear Regulation (the 18th meeting)
	TAKEYAMA Shouji	Director for Nuclear Regulation (in charge of commercial power reactor oversight) (the 17th meeting)
	SUGIMOTO Takanobu	Director for Nuclear Regulation (in charge of commercial power reactor oversight) (the 19th and the 20th meeting)
	OHMUKAI Shigekatsu	Director for Nuclear Regulation (in charge of nuclear fuel facility oversight) (the 18th meeting)

(13) Information Exchange Meeting on the Inspection Program

Overview

The meeting was started in April 2020 to exchange information with external experts and nuclear operators for continuous improvement of nuclear regulatory inspections, and three meetings were held in FY2022.

Members of the Meeting

NRA	TANAKA Satoru	NRA Commissioner
	SUGIYAMA Tomoyuki	NRA Commissioner (the 10th, 11th)
Secretariat of the NRA	MORISHITA Yasushi	Director-General for Nuclear Regulation
	TAKEYAMA Shouji	Director, Division of Oversight of Nuclear Power Plants
	SUGIMOTO Takanobu	Director for Nuclear Regulation (in charge of commercial power reactor oversight)
	OHMUKAI Shigekatsu	Director for Nuclear Regulation (in charge of nuclear fuel facility oversight)

	TAKASU Youji	Director for Nuclear Regulation (in charge of special inspections)

(14) Public Meeting on Improvement of Legal Reports based on the Reactor Regulation Act

Overview

The meeting was held once in FY2022 to discuss continuous improvements including the consolidation of nuclear regulatory inspections that started operating in FY2020 as to the reports of accidents and troubles based on the Nuclear Reactor Regulation Act.

Members of the Meeting

Secretariat of the NRA	KOGANEYA Toshiyuki	Director-General for Nuclear Emergency Response
	SUGIMOTO Takanobu	Director for Nuclear Regulation, Division of Oversight of Nuclear Power Plant (Concurrent position: Director, Emergency Preparedness and Response Office)
	MURATA Shinichi	Supervisory Monitoring Coaching Officer, Division of Oversight of Nuclear Power Plant