**FY 2019**

# 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 2019

## (1) Rigorous and Proper Implementation of Regulations on Nuclear Facilities and Continuous Improvement of Regulatory Systems

The NRA granted the permission of change in reactor installation in relation to the conformity to the new regulatory requirements at Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc., approved the change in operational safety programs in relation to new regulatory requirements at Mihama Power Station of Kansai Electric Power Co., Inc., and granted the permission of change in reactor installation in relation to the installation of the Specialized Safety Facilities at Genkai NPS Units 3 and 4 of Kyushu Electric Power Co., Inc. and Ohi Power Station Unit 3 of Kansai Electric Power Co., Inc. As an overall improvement of the examination of nuclear facilities, measures were taken to prevent omissions in applications and examinations, and a system was established to monitor the overall progress of the examination.

Improvements in regulatory systems were continued including the revision of rules on the clarification of required performance of facilities for pit/trench disposal and radioactive waste, establishment of an examination standard for the rational confirmation method related to clearance, revision of rules to streamline the standards of storage in a nuclear power station using Dual Purpose Dry Cask for both Transportation and Storage. Regulations on the security of specified radioisotopes was enforced on September 1 of FY2019.

(For details, see Sections 1, 2 and 5 of Chapter 2, and Section 1 of Chapter 4)

## (2) Development of Laws and Regulations and Implementation of Trial Operation for Full-scale Operation of the New Inspection Program

The NRA developed and revised government ordinances, related regulations and internal regulations, etc. for legal integration toward implementing the new inspection program in FY2020. Regarding the trial operation of the new inspection program that started in October 2018, the NRA proceeded to final preparations for the full implementation of the program by scrutinizing the overall program at all nuclear facilities starting October 2019, while the NRA and licensees shared the idea of placing emphasis on risk in judging significance of findings and evaluating comprehensively performance of plants in addition to inspection activities.

(For details, see Section 3 of Chapter 2)

## (3) Oversight of Efforts to Decommission Reactors of TEPCO's Fukushima Daiichi NPS

As a regulatory body, the NRA is actively conducting oversight and providing guidance on implementing early and safe decommissioning of the plants and disposition of the contaminated water at TEPCO's Fukushima Daiichi NPS.

In FY2019, as on-site investigations, required for continuous analysis of the accident at

TEPCO's Fukushima Daiichi NPS (hereinafter referred to as "accident analysis"), became possible with improvements in the on-site environment and progress in decommissioning work, the NRA developed a more detailed implementation policy and system of accident analysis, conducted investigations inside the building of Unit 3, and held the Accident Analysis Committee Meeting.

(For details, see Section 2 of Chapter 3)

**(4) Enhancement of Nuclear Emergency Preparedness**

To facilitate the smooth implementation of protective measures in the event of a nuclear disaster, the NRA revised the NRA Guide for Emergency Preparedness and Response (NRA EPR Guide) and the guide for "Distribution and Administration of Stable Iodine" to clarify who should be given priority in taking stable iodine and pre-disaster distribution method of stable iodine on July 3, 2019. The NRA EPR Guide was revised again on February 5, 2020 to deal with the issues related to the emergency activity level (EAL[1]) identified in the disaster prevention drills for nuclear operators and to clarify the roles of the national government to ensure smooth implementation of disaster prevention measures for the transportation of nuclear fuel materials, etc.

(For details, see Section 1 of Chapter 6)

**(5) Follow-up Mission for IRRS**

From January 14 to 21, 2020, the NRA was reviewed by the follow-up mission of the Integrated Regulatory Review Service (IRRS[2]) in 2016 by the International Atomic Energy Agency (IAEA), for the confirmation of the state of efforts for achieving the recommendations and suggestions made in the first mission in 2016, and the evaluation of the rules on the land transportation of radioactive materials.

In the follow-up mission, significant progress was confirmed -- the NRA had accomplished 10 recommendations and 12 suggestions out of the 13 recommendations and 13 suggestions made in the 2016 IRRS mission, through the introduction of a new inspection program, etc. Continuous efforts for implementing an integrated management system, etc. were also recommended. The NRA will continue to work on issues that need to be addressed and that were identified through the follow-up mission, and make efforts for implementing them.

(For details, see Section 2 of Chapter 1)

[1] Emergency Action Level
[2] Integrated Regulatory Review Service

# TABLE OF CONTENTS

# Chapter 1 Ensuring Trust in Nuclear Regulatory Administration

**Summary of Chapter 1**

(Ensuring Independence, Impartiality, and Transparency of the Nuclear Regulatory Administration)

Based on its organizational philosophy, the NRA has continued to strive to ensure transparency, including thorough public discussions, and made its decisions in an impartial, neutral and independent manner from the scientific and technological viewpoints.

In order to further improve transparency, the NRA conducted a trial operation of publishing the results of automatic transcription of interviews with nuclear operators from April 2019 based on the discussions on the basic considerations for publicizing meetings and interviews with licensees at the NRA Commission Meeting in 2018, and started the full-scale operation from February, 2020 by expanding the scale of interviews, etc. subject to disclosure.

Furthermore, the NRA held three meetings with the heads of the nuclear section of the major licensees of nuclear power facilities for exchanging views (exchange of views with CNOs) in FY2019 to promote communication with the outside parties. The NRA discussed the ways of communication with the Atomic Energy Association (ATENA[3]), and decided to exchange technical views about the aging deterioration management at the working level. The exchange of views with ATENA on this subject was started in March 2020.

(Continuous Improvement of Organizational Structure and Management)

The NRA revised the NRA Management Rules in response to the recommendations by the Integrated Regulatory Review Service (IRRS) of the International Atomic Energy Agency (IAEA) that the NRA invited in 2016 about the management system of the NRA, and decided the midterm goals for the second term of the NRA (from April 2020 to March 2025) based on the NRA Management Rules.

The NRA invited the IRRS follow-up mission from January 14 to 21, 2020 for the confirmation of the status of efforts for achieving the recommendations and suggestions made in the IRRS mission in 2016, and evaluation of the rules on the land transportation of radioactive materials. As a result, significant progress was confirmed-- the NRA had accomplished 10 recommendations and 12 suggestions out of the 13 recommendations and 13 suggestions made in the IRRS mission in 2016. It was recommended to continue efforts to achieve the integrated management system, etc.

(Collaborating with the International Community)

The NRA has continued to share the findings and lessons learned from the accident at TEPCO's Fukushima Daiichi NPS with the international community, and collaborated with international organizations and nuclear regulatory bodies in other countries through collecting information and exchanging opinions for improving international nuclear safety and related matters.

[3] Atomic Energy Association

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

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

#### (1) Ensuring Independence

Independent decision-making is vital for effective regulation and is also emphasized by many global nuclear regulatory organizations as one of the most significant factors of their own organizational philosophy. The NRA, which was established as a highly independent, Article 3-based commission, states that "we shall make decisions independently, based on the latest scientific and technological information, free from any outside pressure or bias" in "NRA's Core Values and 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 scientific and technological viewpoints. Independence of nuclear regulatory administration was ensured through thorough discussion and decision making from the scientific and technical point of view at 75 NRA Commission Meetings (a total of 292 subjects) throughout the year in FY2019.

#### (2) Ensuring Impartiality

The NRA defined the "Code of Conduct related to Ethics for NRA Chairman and Commissioners" at the 1st FY2012 NRA Commission Meeting (September 19, 2012). The Code stipulates that the Chairman and the Commissioners must not receive donations from nuclear operators during their term of office and that they must disclose information on any donations which they received in the 3 years prior to assuming office. Further, they must disclose any situation involving their students finding jobs with nuclear operators. Information on 5 members appointed as of the end FY2019 has also been fully disclosed on the NRA website.

At the 4th FY2012 NRA Commission Meeting (October 10, 2012), the "Requirements for Ensuring Transparency and Impartiality when the NRA Takes Advice from External Experts as a Reference in Making a Decision on Nuclear Safety Regulations, etc. for Electric Utilities" were defined. These requirements stipulate thorough disclosure on the relationship between external experts and electric utilities when the NRA asks views from external experts regarding nuclear regulations on electric utilities and other issues. Furthermore, when asking external experts to review the safety of individual facilities or re-review early assessments of individual facilities, the NRA requires to confirm that they have not served as executives of the relevant electric utilities 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 utilities, and that they have not been involved in earlier examinations of said facilities. The same requirements were established for the appointment of members of the Reactor Safety Examination Committee (RSEC), the Nuclear Fuel Safety Examination Committee (NFSEC), and the Radiation Council.

In FY2019, based on these requirements, the self-enumerated information from external experts belonging to various study groups was made public on the NRA website.

**(3) Ensuring Transparency**

In accordance with the "Policy on Ensuring Operational Transparency of the NRA" established at the 1st FY2012 NRA Commission Meeting (September 19, 2012), and with the (i) building of an information disclosure system eliminating the need for disclosure requests, (ii) thorough public discussions, and (iii) thorough document-based administrative actions as basic policies, the NRA decided to open the Commission Meetings, Councils, and examination and study group meetings to the public, publicly disclose the minutes of meetings and the materials used in these meetings, and broadcast the meetings live via internet video sites[4].

In accordance with the above policies, the NRA has to prepare summaries of all meetings regarding regulations which are attended by three or more Commissioners or interviews of nuclear operators by the NRA Chairman, Commissioners, or staff of the Secretariat of the NRA, and make them public together with the names of the participants and the reference materials used. In addition, the NRA has to make briefings about the important meetings at the NRA Commission Meetings. In FY2019, the NRA steadily implemented the efforts to ensure transparency such as the above, and made the materials used for these meetings available on its website simultaneously with the start of live broadcasting of those meetings on internet video sites, for the convenience of viewers of those meetings.

As in the previous fiscal year, the regular press conferences by the NRA Chairman were held once a week as a rule, and the regular briefings by the Secretariat of the NRA twice a week (a total of 143 press conferences were held in FY2019). Press conferences were also broadcast live and recorded on videos which are released in the same manner as for the NRA Commission Meetings and other study meetings. The minutes were posted on the NRA website within the next day whenever possible. The Chairman and committee members also conduct interviews when conducting field surveys, field inspections, and field visits. In FY2019, 24 cases were handled.

Continued from the previous fiscal year, the NRA also worked to improve the transparency of examinations. Based on discussions about the basic concept of publishing the results of meetings, etc. with nuclear operators at the 38th and 45th FY2018 NRA Commission Meetings (October 31 and December 5, 2018), the results of automatic transcription of interviews with nuclear operators were published from April 2019 on a trial basis. The interviews subject to publication were expanded from February, 2020 to start full-scale operation. In FY2019, the 486 minutes were automatically transcribed and posted on the NRA website.

In addition, it was decided to hold liaison and coordination meetings as needed with the Agency of Natural Resources and Energy, the Nuclear Damage Compensation and Decommissioning Facilitation Corporation and Tokyo Electric Power Company Holdings ("TEPCO") to carry out

[4] "YouTube" and "Niconico Channel"

coordination, etc. required for proper work relating to accident analysis and decommissioning at the TEPCO's Fukushima Daiichi NPS while improving transparency in decision of orders transferred to TEPCO in relation to the decommissioning work. In FY2019, the liaison and coordination meetings were held three times in relation to the decommissioning and accident investigation at TEPCO's Fukushima Daiichi NPS.

## 2. Enhancing External Communication

### (1) Enhancing Efforts on Diverse Communication Both in Japan and Overseas

The NRA has held visits of nuclear facilities by NRA Commissioners and exchanges of opinions with local parties in accordance with the "Policy on Commissioners' Visits of Nuclear Facilities and Exchanges of Opinions with Local Parties" decided at the 49th FY2017 NRA Commission Meeting (November 15, 2017). As part of this initiative, Chairman Fuketa and Commissioner Ban visited the Offsite Center in Aichi Prefecture in April 2019, exchanged views with local parties including the Governor of Aichi Prefecture, Mayor of Ikata Town, Mayor of Hachiman City, and visited Ikata Power Station of Shikoku Electric Power Co., Inc. In February 2020, Chairman Fuketa and Commissioner Ishiwatari visited the Nuclear Disaster Control Center in Kagoshima Prefecture, exchanged views with local parties including the Governor of Kagoshima Prefecture, Mayor of Satsumagawa City, Mayor of Akune City, Mayor of Hioki City, and visited Sendai NPS of Kyushu Electric Power Co., Inc.

Since October 2014, the NRA has been holding exchanges of opinions with chief executive officers (CEOs) of major nuclear power facilities to promote efforts fostering safety culture and enhancing safety and to hear nuclear operators' basic policy for safety improvement activities and perspectives on the current regulatory system. In FY2019, the NRA exchanged opinions with 11 nuclear operators mainly on the activities and further improvements related to the safety of their facilities.

In addition, the NRA has been holding exchanges of opinions with chief nuclear officers (CNOs) since January 2017 to contribute to the smooth introduction of regulation and improvement and clarification of regulatory requirements and reviews for the purpose of enhancement of its predictability. In FY2019, the meeting for the exchange of views was held three times to discuss issues surrounding nuclear power including efforts for aging deterioration management to ensure long-term safe operation. At the 8th Forum with CNOs in April 2019, the outline and future role of ATENA were presented by licensees, resulting in discussions at the 5th FY2019 NRA Commission Meeting (April 24, 2019) about the ways of communication between the NRA and ATENA. After that, ATENA participated in the 9th meeting with CNOs held in July 2019, in addition to licensees, and this started the exchange of views with ATENA on a trial basis through the meeting with CNOs. Furthermore, ATENA made a request to discuss technical matters with the regulatory body at the 10th meeting with CNOs in December 2019. At the 46th FY2019 NRA Commission Meeting (December 4, 2019), the NRA decided to hold the forum for exchange technical views with ATENA at the working level about the aging deterioration management in the future. A forum for exchanging technical views with ATEN

at the working level for aging deterioration management was determined at the 57th FY2019 NRA Commission Meeting (January 29, 2020), and the first meeting was held on March 6. The NRA is striving to enhance communication with nuclear operators through these activities.

In addition to the public comment procedures based on the Administrative Procedures Act (Act No. 88 of 1993) (public comments designated by law), the NRA conducted similar but not legally designated procedures to collect public comments at the NRA's own discretion (optional public comments) for the development of related laws and regulations. In FY2019, the NRA carried out the public and optional comment gathering procedures 45 times to proactively call for public opinions, and responded to the received comments with respect.

**Table 1-1 Major Public Comments Asked for in FY2019**

| Designated by Law | Optional |
|---|---|
| · Proposal for development of laws and regulations for the implementation of nuclear regulatory inspections (Stage 2) (Rules and regulations and their interpretations related to commercial power reactor facilities)<br>· Proposal for revision of regulations concerning change in dose limit for the lens of the eye<br>etc.<br>(Number of public comment requests: 26)<br>(Number of public notices of the results: 27) | · Proposal for revision of the Guidelines for Evaluating the Impacts of Volcanoes on Nuclear Power Stations<br>· Draft review document regarding application documents for permit of change in reactor installation of Unit 2 at Onagawa Power Station of Tohoku Electric Power Co.<br>etc.<br>(Number of public comment requests: 19)<br>(Number of public notices of the results: 19) |

**(2) Efforts for Developing the Information Management System**

For the purpose of archiving important information over the next few decades and widely making available for citizens, the information management system is developed to retain important data out of the information resources publicized on the NRA website, such as the record of the meetings held at the NRA, the processes of examinations carried out with the nuclear operators, and the record of discussions relating to the regulations.

In FY2019, after selecting the contractor for building the information management system, the NRA built the system and developed the operation and maintenance systems for the commencement of operation in the next fiscal year.

**(3) Reinforcing the Transmission of Information on Activities of the NRA**

Efforts were made to reinforce the prompt and detailed information transmission to the public in response to the high levels of societal interest in nuclear regulations.

The NRA continued efforts for distributing summaries of discussions at the NRA Commission Meetings that could be of high social interest through Twitter, in addition to continued activities to warn about the violations of law such as the transfer of uranium and other radioactive materials on the internet, and efforts to post summary results of each agenda item on the NRA website.

The Committee on Accident Analysis of Fukushima Daiichi Nuclear Power Station (hereinafter referred to as the "Accident Analysis Study Meeting") published a view of the 3rd floor of the TEPCO's Fukushima Daiichi NPS Unit 3 Reactor Building.

Planning for redesigning of the NRA website has been in progress for higher searchability and easier to use.

## Section 2 Continuous Improvement of Organizational Structure and Management

### 1. Operation and Improvement of Management System

The NRA has been continuously improving its own management system, as a nuclear regulatory body, in line with the "Roadmap for Improvement of the NRA Management System" (adopted at the 45th FY2016 NRA Commission Meeting on November 22, 2016) formulated on the basis of the recommendations of the IRRS in 2016, and received a report on the status of the achievement from the Secretariat of the NRA at the 69th NRA Commission Meeting (March 11, 2020).

As a new initiative in FY2019, the NRA revised the all parts of the NRA Management Rules including adding regulations to review rules and guidelines on a regular basis in line with the IRRS recommendations, incorporating the latest IAEA standard elements, and clarifying the relationship between management and administrative general rules, laws and regulations. (adopted at the 49th FY2019 NRA Commission Meeting (December 18, 2019)). Regarding the mid-term goals to be formulated based on the NRA Management Rules, the NRA decided the mid-term goals for the second term of NRA containing the goals relating to the new efforts and preparation in five years from the next fiscal year for continuing to accomplish its mission by taking into account perspectives in 10 to 20 years' time in addition to the goals of secure and continued activities based on the efforts in the mid-term goals for the first term of NRA (from April 2015 to March 2020) at the 61st FY2019 NRA Commission Meeting (February 5, 2020).

The NRA carried out its assignments based on the NRA Management Rules, the "Statement on Nuclear Safety Culture," and the "Regulatory Guides for Activity on Nuclear Security Culture," and in line with the mid-term goals for the first term of the NRA and Annual Strategic Plan for FY2019, etc. Inspections by section and by theme were performed during the internal audits of the management system, and recommendations and suggestions for improving managerial work, etc. were given to those sections which undertook a large volume of work. At the 69th and 72nd NRA Commission Meetings (March 11, and 18, 2020), the progress of the Annual Strategic Plan for FY2019 was evaluated and the principle of efforts for the next fiscal year was discussed. Based on the discussion at these meetings, NRA determined the "Annual Strategic Plan for FY2020" at the 75th NRA Commission Meeting (March 30, 2020).

In addition, the NRA organizes the "Expert Meeting on the Notification from the NRA Staff, etc." composed of third-party experts in response to the notification from the NRA staff, etc. to reinforce the internal audit function. For the record, there were no notifications from the NRA staff in FY2019.

To promote efforts for evidence-based policy making (EBPM[5]), use of logic models was extensively recommended in the Administrative Project Review.

**2. Addressing Issues Identified through the IRRS Mission**

The IAEA offers the Integrated Regulatory Review Service (IRRS) in response to requests from Member States. The IRRS provides a peer review by experts invited from Member States' regulatory bodies to strengthen and enhance the effectiveness of their infrastructure for nuclear, radiation, radioactive waste and transport safety based on the IAEA's safety standards.

The NRA was reviewed by the IRRS mission in January 2016, and since then, continues efforts to fulfill the recommendations and suggestions from the IRRS mission. Upon request by the NRA for the evaluation of these efforts to the IAEA, the IRRS follow-up mission visited the NRA in January 2020.

In the follow-up mission, an additional evaluation of the land transportation of radioactive materials was decided. The NRA had conducted self-evaluation of the efforts for satisfying the recommendations and suggestions in the initial mission and conformity with the IAEA Safety Standards for the land transportation of radioactive materials, and submitted the self-evaluation document finalized after several commission meetings to the IAEA secretariat prior to the follow-up mission. As the NRA Commissioners had designated the RSEC and the NFSEC to assess and advise the NRA's responses to the issues identified in the initial mission, the self-evaluation documents had been examined at both committees.

As a result, significant progress was confirmed -- the NRA had accomplished 10 recommendations and 12 suggestions out of the 13 recommendations and 13 suggestions made in the 2016 IRRS mission, through the introduction of a new inspection program, etc. Continuous efforts for implementing an integrated management system, etc. were also recommended.

**3. Other Improvements of Organizational Structure and Management**

In addition to the activities described above, the NRA carried out the following initiatives as cross-ministerial efforts: (i) development of the Digital Government Medium-to-Long Term Plan in the Ministry of the Environment (decided by the Ministry of the Environment Information Management Committee on June 18, 2018) in accordance with the "Digital Government" Implementation Plan (decided by e-Government Ministerial Conference on January 16, 2018); (ii) optimization of budget request/execution by implementing new administrative project review with an EBPM perspective, in accordance with the "Viewpoint for Reviewing Projects in the

[5] Evidence Based Policy Making

Administrative Project Review" (Decision of Administrative Reform Promotion Council on August 6, 2013, partial revision on April 5, 2018, Cabinet Secretariat Administrative Office); (iii) correction of long working hours (not more than 45 hours/month or 360 hours/year in principle) and promotion of work-life balance in accordance with the "The Action Plan for the Realization of Work Style Reform" (decided by the meeting of the Council for the Realization of Work Style Reform on March 28, 2017); and (iv) document management under the "Approach for Ensuring Appropriate Management of Official Documents" (decision by Ministerial Conference in July 2018) including the reinforcement of organizational structure by specifying the Chief Record Officer (CRO) and installing the Office for Public Record Management and Information Technology.

### 4. Efforts of the NRA against COVID-19 Transmission

The NRA set up a task force to cope with COVID-19 transmission on March 2, 2020 to provide countermeasures against this COVID-19.

The NRA decided on a policy and system to prevent coronavirus transmission such as telework (working from home) for all employees in principle from March 30 to April 12, 2020, and scrutinized the work to restrict jobs to those which were indispensable such as budget execution and inspection/review, and at the same time, employees obliged to work at the office were divided into two groups, group A and group B, and these two groups were assigned to alternately work at home and at the office in principle, with off-peak commuting when they worked at the office. These measures were extended over April 12 and reinforced depending on the situation. Consequently, the ratio of employees going to the office was 41.5% as of March 31, 2020.

The NRA also took measures for employees at local offices, including conducting meetings through web conferencing systems instead of traveling to the main office.

The NRA further took measures to restrict infection spread, such as designation of web conferencing systems for review and study team meetings, etc., and ban on general audience at the NRA Commission Meetings (switching to video distribution on its website) to avoid close spaces, crowded places and close-contact setting ("three Cs").

## Section 3 Collaborating with the International Community

### 1. Cooperation with International Organizations and Contribution to the International Community

#### (1) Cooperation with International Organizations

In collaborating with international organizations, the NRA continued to share findings and lessons learned from the accident at TEPCO's Fukushima Daiichi NPS with the international community and improved international nuclear safety through information dissemination and opinion exchange by attending meetings of and dispatching experts to the IAEA and the OECD/NEA[6].

In particular, the NRA held an information exchange meeting and a visit to TEPCO's Fukushima

[6] Organisation for Economic Co-operation and Development / Nuclear Energy Agency

Daiichi NPS, in collaboration with the IAEA in October 2019 (with 8 nations) and in collaboration with the OECD/NEA in February 2020 (with 7 nations) respectively, for the aim of disseminating information on the regulatory activities at and current status of TEPCO's Fukushima Daiichi NPS.

As a part of its international communication efforts, the NRA has continued to regularly release the sea area monitoring results including those in the surrounding areas of TEPCO's Fukushima Daiichi NPS. In collaboration with the IAEA, the NRA also conducted interlaboratory comparisons and proficiency tests for analytical institutions in charge of marine monitoring.

The NRA entered into an agreement with the IAEA in August 2019 to exchange radiation monitoring data through the International Radiation Monitoring Information System (IRMIS[7]), established by the IAEA as a framework for collecting and sharing environmental radiation monitoring information in a given country, and started distributing data to the IRMIS in February 2020.

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

Together with the relevant ministries and agencies, the NRA is participating in various international initiatives under the frameworks of the Convention on Nuclear Safety, the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management **(**Joint Convention), 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 (CPPNM), the Amendment to the Convention on the Physical Protection of Nuclear Material (A/CPPNM), and the International Convention for the Suppression of Acts of Nuclear Terrorism.

**(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[8]), consisting of the heads of regulatory bodies in major countries having nuclear power stations, is a framework to exchange opinions twice a year on a wide range of issues of nuclear safety regulations. 9 countries are participating, Japan, the United States of America (U.S.A.), French Republic (France), the United Kingdom of Great Britain and Northern Ireland (U.K.), Federal Republic of Germany (Germany), Canada, Kingdom of Sweden (Sweden), Kingdom of Spain (Spain), and the Republic of Korea (Korea). In May 2019, the 44th INRA meeting, hosted by the nuclear regulatory body, Office for Nuclear Regulation (ONR[9]) of the U.K., was held in Bath, the U.K. Secretary-General Yasui of the Secretariat of the NRA attended the meeting on behalf of the NRA Chairman and reported the status of conformity reviews to the new regulatory requirements, the latest information on the Specialized Safety Facilities, and

[7] International Radiation Monitoring Information Systems
[8] The International Nuclear Regulators Association
[9] Office for Nuclear Regulation

the current status of TEPCO's Fukushima Daiichi NPS. The 45th INRA meeting was held in Vienna, Republic of Austria (Austria) during the IAEA General Conference, also hosted by the ONR in September 2019. The NRA Chairman Fuketa attended the INRA meeting for discussions concerning a wide range of issues on nuclear regulations.

The Western European Nuclear Regulators Association (WENRA[10]) is a framework comprising of the heads of nuclear regulatory bodies from mainly European countries and holds the plenary meeting twice a year. The NRA participates in WENRA as an observer and attended the spring and autumn plenary meetings held in Budapest, Hungary in April and in Basel, Swiss Confederation (Switzerland) in October 2019.

The Top Regulators' Meeting on Nuclear Safety among the People's Republic of China, Japan, and the Republic of Korea (TRM[11]) has been annually held since 2008 as a framework among the three countries with a view to promoting periodic information exchanges on regulatory issues and improving technologies related to nuclear safety.

In 2019, China hosted the 12th TRM in Beijing, China in November. NRA Commissioner Ban attended the Meeting. At the Meeting, the participants updated nuclear safety activities in each country, reviewed the achievements of two working groups which were established under the TRM (WGHRD: Working Group on Human Resources Development, and WGEPR: Working Group on Emergency Preparedness and Responses) and the results of the Joint Emergency Drill (JED) conducted in China were reported. Recognizing the need for cooperation in an emergency, the working group was instructed to complete an emergency response manual as early as possible.

In addition, at the 7th TRM Plus a technical communication platform on nuclear safety among the three countries was held back-to-back with the TRM. The working-level participants exchanged practical experiences on topics such as the feedback of operational experience, adoption of IAEA Safety Standards, application of private-sector standards in regulations, and monitoring for emergency.

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

The NRA has cooperation arrangements with 9 countries (10 nuclear regulatory organizations), and in FY2019, exchanged information and views on nuclear regulations with foreign nuclear regulatory bodies through these bilateral cooperation frameworks.

The Japan–US Steering Committee Meeting was held in Tokyo in November 2019 under the cooperation implementation arrangement with the US NRC[12]. Opinions were exchanged at the meeting on such topics as the review of the inspection system in the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (Act No. 166 of 1957; hereinafter referred to as the "Reactor Regulation Act"), and the latest status of TEPCO's Fukushima Daiichi NPS.

[10] Western European Nuclear Regulators Association
[11] Top Regulators' Meeting on Nuclear Safety among China, Japan, and Korea
[12] Nuclear Regulatory Commission

In cooperation with France, the 7th Japan–France Regulatory Authority Meeting was held in Montjour, France in September 2019, with the attendance of Commissioner Tanaka and others from the NRA, and the Chairman Doroszczuk and commissioners from the ASN[13]. At this meeting, discussions were held on the current status of regulations in both countries. In addition, the NRA Chairman Fuketa visited Cadarache in September in the same year, and exchanged views on the way of international cooperation with Institut de radioprotection et de sûreté nucléaire (IRSN[14]), with which the NRA has cooperated in safety research, and other organizations.

In June 2019, the NRA also had a bilateral meeting of working level technical experts at the Radiation and Nuclear Safety Authority of Republic of Finland (Finland) (STUK[15]) for exchanging regulatory information such as the latest status of regulations with radioactive waste which was the main theme. In November 2019, the NRA had a meeting for exchanging regulatory information with such themes as the clearance system, regulation system for the disposal of low-level radioactive waste, inspections related to the safety culture of licensees, and nuclear regulatory inspections in Japan at the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUM[16]).

In October 2019, the President of Republic of Armenia (Armenia) visited the NRA Chairman Fuketa to share the information on the current status and concerns of nuclear regulations both in Japan and Armenia, and exchanged opinions about the possible cooperation between the two countries in the future.

**(5) Opinion Exchange with External Advisors**

The NRA, with the aim of proactively incorporating the latest overseas knowledge concerning the safety of the use of nuclear energy, commissions foreign experts with abundant experience and advanced knowledge in nuclear regulation as external advisors in order to exchange opinions on issues such as expectations for nuclear regulatory systems and the organization of the NRA. In FY2019, the NRA held opinion exchange meetings in April and in November.

In October 2019, the NRA invited Mr. Randall Gantt as an external advisor on nuclear regulations with the aim of obtaining his advice on specialized matters in the research and study on safety in the use of nuclear energy. He is an expert working on the analysis of the TEPCO's Fukushima Daiichi NPS accident using MELCOR (a computer code for analyzing the progression of a severe accident; used by the NRA for regulation).

**2. Efforts Concerning Development and Securing of Global Human Resources**

The NRA is making efforts for the acquisition of staff having sufficient international experience; improving staff competence for international activities through education, training, research, and

[13] Autorité de Sûreté de Nucléaire
[14] Institute for Radiological Protection and Nuclear Safety
[15] Säteilyturvakeskus
[16] Bundesministerium fur Umwelt, Naturschutz und nukleare Sicherheit

international cooperation; building up young staff members' experience in international activities; improving the working environment to encourage participation in international activities; and improving staff training regarding international cooperation. As of the end of FY2019, 8 staff members were posted to international organizations such as IAEA and OECD/NEA, and an official was dispatched to the NRC for about one year from July 2018 to promote personnel exchange in the safety research area. At the same time, the NRA accepted trainees from the Swiss Federal Nuclear Safety Inspectorate (ENSI[17]) of Switzerland. Through these exchanges, the NRA promoted cooperation with international organizations and with various foreign regulatory bodies. The NRA has also provided its young and middle-aged staff members opportunities to have international experiences, for example, the participation in the 8th Review Meeting of the Nuclear Safety Convention as reviewers, and has grown international human resources through the long-standing and continuous policy.

## Section 4 Steady Response to Litigation Affairs and Legal Support

### 1. Steady Response to Litigation Affairs and Administrative Appeal

The NRA responded to the litigation affairs and provided legal support for the affairs under its jurisdiction in cooperation with relevant authorities. Specifically, the NRA has rapidly and appropriately taken actions, preparing briefs and responding to examinations of witnesses in collaboration with the Ministry of Justice and relating agencies with respect to 47 pending cases and 6 cases for which a judgment was made in FY2019 regarding the affairs under the jurisdiction of the NRA.

With respect to formal appeals of the dispositions of changes in reactor installation permit, 5 cases were examined, and 1 case was rejected and 4 cases were dismissed.

### 2. Continuous Review and Improvement of Laws and Regulations

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

To implement the provisions of the Reactor Regulation Act after the revision 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; hereafter referred to as the "Revised Act in 2017"), the NRA revised the Enforcement Ordinance of the Reactor Regulation Act and other related government ordinances to set charges for nuclear regulatory inspections, to integrate present inspectors into the nuclear inspectors, and to review the current charges for existing inspections, etc.

[17] Swiss Federal Nuclear Safety Inspectorate

## Section 5 Allegation System Concerning Information on Safety of Nuclear Facilities

In order to appear to be the illegal activities by nuclear operators at an early stage and prevent nuclear accidents, the Reactor Regulation Act provides for the “allegation system concerning safety information of nuclear facilities.” Under this system, the NRA investigates allegation cases responding to information provided by employees and any others on potential the illegal activities committed by nuclear operators and, if necessary, issues directives to the relevant nuclear operators or takes other corrective measures.

To ensure the impartiality and transparency of investigations by the NRA, the Nuclear Facility Safety Information Allegation Committee consisting of external experts was set up. Under the supervision of the Committee, the NRA will process allegations as promptly as possible while paying attention to privacy protection of the informant (whistleblower), and disclose the operational status of the allegation system. In FY2019, 5 cases were completed while none were pending.

# Chapter 2 Rigorous and Proper Implementation of Regulations on Nuclear Facilities

**Summary of Chapter 2**

(Rigorous and proper implementation of reviews relating to the Reactor Regulation Act)

The NRA is conducting scientifically and technically rigorous review and inspection of nuclear licensees' applications for permission of change in reactor installation in light of the new regulatory requirements established based on the lessons learned from the accident at TEPCO's Fukushima Daiichi NPS.

As for commercial power reactors, in FY2019, the NRA granted permission of change in reactor installation to comply with the new regulatory requirements in relation to Onagawa NSP Unit 2 of Tohoku Electric Power Co., Inc.; granted permission of change in operational safety programs in relation to conformity to the new regulatory requirements at Mihama Power Station of Kansai Electric Power Co., Inc.; granted permission of change in reactor installation in relation to the installation of the Specialized Safety Facilities at Genkai NPS Units 3 and 4 of Kyushu Electric Power Co., Inc., and Ohi Power Station Units 3 and 4 of Kansai Electric Power Co., Inc.; granted permission for the construction plan in relation to the installation of the Specialized Safety Facilities at Takahama Power Station Units 3 and 4 of Kansai Electric Power Co., Inc.; granted permission of change in operational safety program in relation to the installation of the Specialized Safety Facilities at Sendai NPS of Kyushu Electric Power Co., Inc. All applications for permission of change in reactor installation relating to the confinement function of fuel cladding under seismic conditions were approved. Decommissioning plans for Onagawa NPS Unit 1 of Tohoku Electric Power Co., Inc., Ohi Power Station Units 1 and 2 of Kansai Electric Power Co., Inc. and Genkai NPS Unit 2 of Kyushu Electric Power Co., Inc. were approved.

As for nuclear fuel facilities, etc.[18], in response to the omissions of application and examination for the fire extinguishing equipment in the approval of design and construction methods in conformity to the new regulatory requirements in relation to the Nuclear Safety Research Reactor (NSRR[19]) at the Nuclear Science Research Institute of JAEA, reported at the NRA Commission Meeting on August 21, 2019, the NRA examined the measures for preventing such omissions and streamlining of examination for the approval of design and construction methods, etc. of research reactor facilities, and agreed on the measures for improving the examination for nuclear power facilities as a whole at the NRA Commission Meeting on February 19, 2020.

Discussions also included, among others, measures for the decommissioning of JAEA's prototype fast-breeder reactor Monju and of Tokai Reprocessing Facility.

(Rigorous and proper implementation of inspections relating to the Reactor Regulation Act)

The NRA steadily carried out pre-service inspections, periodic facility inspections, operational safety inspections, and confirmation of the causes of accidents and failures experienced at nuclear facilities and the recurrence prevention measures for those accidents and failures.

20 Pre-service inspection and 15 periodic facility inspections were carried out in FY2019. Quarterly operational safety inspections were carried out for commercial power reactors and facilities for handling radioisotopes. In this fiscal year, there were three incidents reported in relation to commercial nuclear reactors, and one in relation to nuclear fuel facilities, etc.

[18] Refers to research reactors facilities and nuclear fuel fabrication facilities in this document, not for commercial power reactors.
[19] Nuclear Safety Research Reactor

In addition, the NRA proceeded with the final preparations for full-scale operation of the new inspection program for its introduction in April 2020, including the trial operation of the new system continued from the previous fiscal year.

(Review Based on the Latest Knowledge)

The NRA conducted the revision and development of government ordinances, related rules and internal regulations for the introduction of the new inspection program. Discussions on continuous improvements of regulations included the study on monitoring of volcanic activities, study on ground motions without identification of seismic sources, actions in response to re-evaluation of eruptive volume of Daisen-Namatake tephra from Daisen Volcano, countermeasures for tsunamis that may not be accompanied by tsunami warning, integration of procedures in the case of failure to complete the Specialized Safety Facilities within the time limit, revision of the Guideline for Assessment of Impacts of Volcanoes, and Limiting Conditions for Operation (LCO[20]) as well as the study on the seismic isolation of buildings and other structures.

(Continuous Improvement of the Regulation System pertaining to the Act on Regulation of Radioisotopes, etc.)

Of the 2017 amendments of Act, the Act on the Regulation of Radioisotopes, etc. (hereinafter referred to as the "Radioisotope Regulation Act") was amended based on Article 5 of the 2017 amendments of Act, including strengthening for security of specified radioisotopes. The relevant government ordinance was promulgated on November 21 and regulations and notifications on November 26. 2018, and they were enforced on September 1, 2019.

(Rigorous and Proper Implementation of Regulations on radioisotopes and other sources of radiation)

Based on the Radioisotope Regulation Act, the NRA reviews applications for permission and accepts notifications submitted by those planning to use radioisotopes and radiation-generating apparatuses. And the NRA conducts on-site inspections of the entities which hold permission or submitted notifications for utilization, and of the entities such as NRA-registered certification organizations. According to the FY2018 Radiation Control Status Report, for all users having been granted permission or who have given utilization notifications, the radiation doses for radiation workers were lower than the annual dose limit specified by laws and regulations. There were a total of five incidents under obligation to report in FY2019 as of March 31, 2020.

[20] Limiting Conditions for Operation

## Section 1 Rigorous and Proper Implementation of Review on Reactor Regulation Act

### 1. Implementation of Conformity Review to New Regulatory Requirements and Inspection of Commercial Power Reactors

### (1) Implementation of Conformity Review to New Regulatory Requirements and Inspection of Commercial Power Reactors

As for commercial power reactors, after the NRA enforced the New Regulatory Requirements on July 8, 2013, 11 nuclear operators have submitted applications for permission for change of reactor installation concerning conformity to the New Regulatory Requirements of 27 plants of 16 nuclear power stations so far. These applications are now reviewed strictly based on the policies approved by the NRA. In FY2019, review meetings were held 158 times. Many discussions centered on issues such as design basis ground motion and design basis tsunami, basis preventive design against tornadoes, internal overflows and internal fire, the evaluation of effectiveness of measures for severe accidents such as preventing core damage and preventing breakage of containment vessels, and the preparation of procedures for serious accidents.

The application for permission of change in installation at Onagawa NPS Unit 2 of Tohoku Electric Power Co., Inc. was examined for conformity to the new regulatory requirements. Then scientific and technical views concerning the review draft addressing the technical capability of the licensee and the structure and equipment of the reactor were collected as reference for comparison. Views of the AEC commissioners and Minister of METI were also collected pursuant to the provisions of the Reactor Regulation Act. Based on these, the permission of change in installation was granted at the 67th FY2019 NRA Commission Meeting (February 26, 2020).

The application for permission of change in operational safety programs for conformity to the new regulatory requirements at Mihama Power Station of Kansai Electric Power Co., Inc. was examined and the permission for changes was granted on February 27, 2020.

### (2) Review of Specialized Safety Facilities

Applications for permission of change in reactor installation related to Specialized Safety Facilities were submitted by 8 nuclear operators for 18 plants of 11 nuclear power stations. In the review of these applications, the NRA has checked whether measures have been taken to ensure that necessary functions are not impaired in the event of large-scale incidents due to intentional large-aircraft crashes and other acts of terrorism. As for the applications for permission of change in installation in relation to Specialized Safety Facilities at Genkai NPS Units 3 and 4 of Kyushu Electric Power Co., Inc. and Ohi Power Station Units 3 and 4 of Kansai Electric Power Co., Inc., the review results were compiled, views of the AEC commissioners and Minster of METI were collected, and with further review based on these, the permission of the change at Genkai NPS Units 3 and 4 was granted at the 1st FY2019 NRA Commission Meeting (April 3, 2019), and for the permission of the change at Ohi Power Station Units 3 and 4 was granted at the 67th FY2019 NRA Commission Meeting (February 26, 2020).

Regarding the construction plan for the installation of the Specialized Safety Facilities, applications have been submitted from 3 licensees for 5 nuclear power stations and 11 plants so far. Permissions were granted for the 3rd application for Sendai NPS Unit 2 of Kyushu Electric Power Co., Inc. on April 12, 2019; for the 1st, 2nd, 3rd and 4th applications for Takahama Power Station Units 1 and 2 of Kansai Electric Power Co., Inc. on April 25, September 13, October 24, 2019 and February 20, 2020, respectively, and for the application for Units 3 and 4 on August 7, 2019; for the 4th and 2nd applications for Ikata Power Station Unit 3 of Shikoku Electric Power Co., Inc. on October 10 and December 24, 2019, respectively and for the 3rd and 5th applications on March 27, 2020; and for the 1st and 2nd applications for Genkai NPS Units 3 and 4 of Kyushu Electric Power Co., Inc. on November 28, 2019 and March 4, 2020, respectively.

**(3) Status of Review on Permission of Change in Reactor Installation for Backfitting**

With respect to backfitting, the NRA received applications for permission of change in reactor installation to incorporate protection against noxious gases for 7 nuclear power stations of 4 nuclear operators so far, and in FY2019, granted permission to 6 nuclear power stations of 3 nuclear operators with 1 nuclear power station of 1 nuclear operator under review.

Applications for permission of change in reactor installation relating to the confinement function of fuel cladding under seismic conditions have been received for 8 nuclear power stations of 5 nuclear operators so far. The permissions were granted to 3 nuclear power stations of 3 nuclear operators in FY2019. All applications including those permitted by FY2018 were examined and processed accordingly.

Applications for permission of change in reactor installation relating to prevention measures for leakages to the outside of controlled areas due to internal overflow have been received for 7 nuclear power stations of 4 nuclear operators so far, and permissions were granted to 1 nuclear power station of 1 nuclear operator in FY2019, and all applications including those permitted by FY2018 were examined and processed accordingly (backfitting for earthquakes, tsunamis and volcanoes are described later in Section 3-2 of Chapter 2).

**(4) Status of Review Concerning Approval of Decommissioning Plans**

Applications for decommissioning plans were submitted from 6 licensees for 7 nuclear power stations and 11 plants from the launch of the NRA in 2011 up until now, and permissions were granted to 3 licensees for 3 nuclear power stations and 4 plants as of FY2019. In other words, decommissioning plans of 6 licensees for 7 nuclear power stations and 10 plants were approved.

## Table 2-1 Status of the Reviews and Inspections 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 inspection, etc. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Permission of change in reactor installation | Approval of construction plan | Approval of operational safety program | |
| 1 | Japan Atomic Power Company | Tokai Daini NPS | | BWR | Completed | Completed | Under review | |
| 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** | Under review | Under review | |
| 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 | Under review | |
| 17 | | | Unit 7 | BWR | **Completed** | Under review | Under review | |
| 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 Company | Sika 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** | Under review |
| 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** | **Under review** | Under review |
| 27 | | | Unit 2 | PWR | **Completed** | **Completed** | **Under review** | Under review |
| 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 | Under review | 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** |

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

Nuclear power stations whose status changed in FY2019.

## Table 2-2 Status of the Reviews and Inspections of Commercial Power Reactors Concerning Conformity to New Regulatory Requirements (Specialized Safety Facilities)

○ Commercial power reactors (Specialized Safety Facilities)

| No. | Applicant | Targeted power reactor | | | New Regulatory Requirements Conformity Review | | | Pre-service inspection, etc.. |
|---|---|---|---|---|---|---|---|---|
| | | | | | Permission of change in reactor installation | Approval of construction plan | Approval of operational safety | |
| 1 | Electric Power Development Co., Ltd. | Ohma NPS | | Specialized Safety Facilities | Under review | | | |
| 2 | Japan Atomic Power Company | Tokai Daini NPS | | Specialized Safety Facilities | **Under review** | | | |
| 3 | Hokkaido Electric Power Co., Inc | Tomari NPS | Unit 3 | Specialized Safety Facilities | Under review | | | |
| 4 | TEPCO Holdings | Kashiwazaki-Kariwa NPS | Unit 6 | Specialized Safety Facilities | Under review | | | |
| 5 | | | Unit 7 | Specialized Safety Facilities | Under review | | | |
| 6 | Kansai Electric Power Co., Inc. | Mihama NPS | Unit 3 | Specialized Safety Facilities | Under review | | | |
| 7 | | Ohi NPS | Unit 3 | Specialized Safety Facilities | **Completed** | **Under review** | | |
| 8 | | | Unit 4 | Specialized Safety Facilities | **Completed** | **Under review** | | |
| 9 | | Takahama NPS | Unit 1 | Specialized Safety Facilities | **Completed** | **Completed** | | **Under inspection** |
| 10 | | | Unit 2 | Specialized Safety Facilities | **Completed** | **Completed** | | **Under inspection** |
| 11 | | | Unit 3 | Specialized Safety Facilities | **Completed** | **Completed** | | **Under inspection** |
| 12 | | | Unit 4 | Specialized Safety Facilities | **Completed** | **Completed** | | **Under inspection** |
| 13 | Chugoku Electric Power Co., Inc | Shimane NPS | Unit 2 | Specialized Safety Facilities | Under review | 中 | | |
| 14 | Shikoku Electric Power Co., Inc. | Ikata NPS | Unit 3 | Specialized Safety Facilities | **Completed** | **Completed** | | **Under inspection** |
| 15 | Kyushu Electric Power Co., Inc. | Genkai NPS | Unit 3 | Specialized Safety Facilities | **Completed** | **1st: Completed 2nd: Completed 3rd: Under review** | | |
| 16 | | | Unit 4 | Specialized Safety Facilities | **Completed** | **1st: Completed 2nd: Completed 3rd: Under review** | | |
| 17 | | Sendai NPS | Unit 1 | Specialized Safety Facilities | **Completed** | **Completed** | **Completed** | **Under inspection** |
| 18 | | | Unit 2 | Specialized Safety Facilities | **Completed** | **Completed** | **Completed** | **Under inspection** |

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

Nuclear power stations whose status changed in FY2019.

## 2. Implementation of Conformity Review to New Regulatory Requirements and Inspections of Nuclear Fuel Facilities

As for nuclear fuel facilities, since the enactment of New Regulatory Requirements in December 2013, applications for permission of change in facility operations at 21 facilities were submitted by 9 nuclear operators so far. Reviews have been conducted based on "Conducting conformity reviews of facilities for handling nuclear fuel materials after the enactment of New Regulatory Requirements" (adopted on December 25, 2013, amended on June 1, 2016, and amended on April 25, 2018). In FY2019, a total of 79 review meetings attended in principle by the NRA Commissioners were held.

As for research reactor facilities, 65 review meetings were held to discuss the High Temperature Engineering Test Reactor (HTTR) at the JAEA's Oarai Research and Development Center (Kita Area). At the 74th FY2019 NRA Commission Meeting (March 25, 2020), the draft examination procedure was consolidated and public comment was called for from March 26 to April 24, 2020.

In addition, at the 23rd FY2019 NRA Commission Meeting (August 21, 2019), the NRA received reports from the Secretariat of the NRA about the omissions in the application and examination of fire extinguishing equipment in the approval of design and construction plans concerning conformity to the new regulatory requirements for Nuclear Safety Research Reactor (NSRR) of JAEA's Nuclear Science Research Institute, and at the 31st FY2019 NRA Commission Meeting (September 25, 2019), received reports of other omissions in the application and examination for the approval of design and construction methods concerning NSRR, and omissions in the application and examination for the approval of design and construction methods for the Kyoto University Research Reactor (KUR) of Kyoto University Critical Assembly (KUCA) and the reactor at Kinki University, which had already been confirmed for conformity to the new regulatory requirements. After that, JAEA, Kyoto University and Kinki University filed necessary applications as indicated in the report, and the NRA gave approval for these matters. In addition, detailed reports were submitted at the 50th FY2019 NRA Commission Meeting (December 25, 2019) for the measures to prevent the recurrence of omissions in the application and examination for the approval of design and construction methods and streamlining of the examination for the approval of design and construction methods, reported by the Secretary of the NRA at the 31st FY2019 NRA Commission Meeting. For the former, it was ensured that entries in the application for permission of change in installation be reflected in the latter stage regulations, and that decisions of the NRA for how to promote examinations and reports be completely observed by the personnel in charge of examination in the Secretariat of the NRA and applicants. For the latter, it was decided to streamline applications for the approval of design and construction methods concerning seismic class C buildings, systems and equipment.

Applications for approval of the decommissioning plan were submitted for decommissioning of the Tank-type Critical Assembly (TCA) at JAEA's Nuclear Science Research Institute on April 26, 2019, the Japan Materials Testing Reactor (JMTR) at JAEA's Oarai Research and Development Center on September 18, 2019, the engineering work at JAEA's Ningyo-toge Environmental

Engineering Center on September 28, 2018, and Toshiba Nuclear Critical Assembly (NCA) Facility at the Nuclear Engineering Laboratory of Toshiba Energy Systems & Solutions Corp. on December 23, 2019. All are under review at present.

Based on discussions at the 67th FY2018 NRA Commission Meeting (March 20, 2019) concerning the reprocessing facility of the Japan Nuclear Fuel Limited, policies for examining reprocessing facilities were discussed three times at the NRA Commission Meetings in FY2019 to review the conformity of the new regulations.

With regard to packaging design approval and packaging approval, and type certification and designation of type for design of specified container for spent fuel interim storage facilities, a review meeting was held on July 4, 2019 to discuss shipping container for the applications under examination based on the “basic considerations for publicizing meetings and interviews with licensees” at the 38th FY2018 NRA Commission Meeting (October 31, 2018). In FY2019, there were 2 cases of approval for change in type certification for design of specified container for spent fuel interim storage facilities, 2 cases of change in packaging design approval, 3 cases of packaging approval, and 4 cases of extension of period for packaging design approval and packaging approval, respectively.

## Figure 2-3 Status of Reviews and Inspections Concerning Conformity to New Regulatory Requirements (Nuclear fuel facilities, etc.)

○ Nuclear fuel facilities, etc.

| No. | Applicant | Targeted facility | New Regulatory Requirements Conformity Review (*1) | | | Pre-service inspection, etc. |
|---|---|---|---|---|---|---|
| | | | Permission of installation change or permission for facility operation change | Approval of construction plan | Approval of operational safety program | |
| 1 | Japan Nuclear Fuel Ltd. | Reprocessing facility | Under review | Under review | Under review | |
| 2 | | MOX fuel fabrication facility | Under review | Under review | Not applied | |
| 3 | | Uranium enrichment facility | **Completed** | Under review | Under review | **Under inspection** |
| 4 | | Waste management facility | Under review | Under review | Not applied | |
| 5 | | Category 2 waste disposal facilities (pit disposal) | Under review | | Not applied | |
| 6 | Recyclable-Fuel Storage Company | Spent fuel storage facility | Under review | Under review | Under review | |
| 7 | Mitsubishi Nuclear Fuel | Uranium fuel fabrication facility | **Completed** | Under review | Under review | Under inspection |
| 8 | Japan Atomic Energy Agency | Waste management facility | **Completed** | Under review | Under review | |
| 9 | | Research reactor facility (JRR-3) | **Completed** | Under review | Under review | **Under inspection** |
| 10 | | Research reactor facility (HTTR) | Under review | Under review | Under review | |
| 11 | | Research reactor facility (Common radioactive waste disposal facility) | **Completed** | Under review | **Under review** | **Under inspection** |
| 12 | | Research reactor facility (NSRR) | **Completed** | **Completed (*3,4)** | **Completed** | **Completed (*3,4)** |
| 13 | | Research reactor facility (STACY) | **Completed** | Under review | **Partially completed (*2)** | Under inspection |
| 14 | | Research reactor facility (Joyo) | Under review | Not applied | Under review | |
| 15 | Nuclear Fuel Industries. Ltd. | Uranium fuel fabrication facility (Tokai Works) | **Completed** | Under review | Under review | Under inspection |
| 16 | | Uranium fuel fabrication facility (Kumatori Works) | **Completed** | Under review | Under review | **Under inspection** |
| 17 | Global Nuclear Fuel Japan | Uranium fuel fabrication facility | **Completed** | Under review | Under review | **Under inspection** |
| 18 | Kyoto University | Research reactor facility (KUR) | **Completed** | **Completed (*4)** | **Completed (*4)** | **Under inspection (*3,4)** |
| 19 | | Research reactor facility (KUCA) | **Completed** | **Completed (*4)** | **Completed (*4)** | **Under inspection(*4)** |
| 20 | Kinki University | Research reactor facility (Kinki University Reactor) | **Completed** | **Completed (*4)** | **Completed** | **Completed (*4)** |
| 21 | Japan Atomic Power Company | Category 2 waste disposal facility (trench disposal) | Under review | | Not applied | |

(Note) Nuclear fuel facilities, whose decommissioning plans have been approved or whose decommissioning has been announced by the nuclear operator, are excluded.

(*1) This shall not preclude implementation of activities other than "those that greatly increase facility risk or that reduce facility risk" only for 5 five years since the enactment of New Regulatory Requirements. (Refer to "Policies on the Application of New Regulatory Requirements to Nuclear Fuel Facilities" enacted by the Secretariat of the NRA on November 6, 2013.)

(*2) Approved except for the part of the Operational Safety Program related to facility operation (application to be filed later for portions related to facility operation).

(*3) Approved as a research reactor without a facility of seismic class S (and passed inspections), after confirmation of compliance with all requirements for facilities of seismic class B and non-seismic requirements for facilities of seismic class C, according to the "Policies on the Application of New Regulatory Requirements to Nuclear Fuel Facilities" (as amended on December 21, 2016). Therefore, the interim measure not to preclude operation of the reactor is applied (for up to two years after permission of change in reactor installation is granted).

(*4) Additional application, approval or inspection in case of omissions of application for approval of design and construction methods, etc. (Secretariat of the NRA, September 25, 2019. Refer to the results of investigation on the omission of applications for the design and construction methods in the Nuclear Safety Research Reactor (NSRR) at JAEA's Nuclear Science Research Institute and other research reactor facilities).

: Nuclear fuel facilities, etc. power stations whose status changed in FY2019.

### 3. Implementation of Review on Aging Management System for Commercial Power Reactors

The aging management system requires an assessment of degradation of equipment and structures and development of a long-term maintenance policy for commercial power reactor facilities that have been operated for more than 30 years. This takes place every 10 years and is reflected to the operational safety programs.

In FY2019, TEPCO and Hokkaido Electric Power Co., Inc. filed an application for permission of change in operational safety programs in relation to the aging management system of Kashiwazaki-Kariwa NPS Units 2 and 5, and Tomari Power Station Unit 2, under the assumption that the plant is maintained only in a state of cold shutdown. The NRA approved the change in the TEPCO's Kashiwazaki-Kariwa NPS Unit 5 in February 27, 2020.

### 4. Actions Taken for Decommissioning of the Prototype Fast Breeder Reactor Monju

In January 2017, the NRA set up the Safety Oversight Team for Prototype Fast Breeder Reactor Monju Decommissioning to continuously check the state of Monju of JAEA and ensure the safety of decommissioning steps. Eight meetings of the Oversight Team were held and a site investigation was conducted in FY2019.

At the meetings of the Oversight Team, interviews were conducted to ascertain the state of study on problems to be solved for decommissioning of Monju, and the application for approval of the decommissioning plan, which was submitted by JAEA on December 6, 2017, was reviewed. At the 75th FY2017 NRA Commission Meeting (March 28, 2018), the decommissioning plan was approved.

Since the work for removing fuel from the core, etc., as described in the approved decommissioning plan, started in August 2018, the state of progress of the work has been checked through interviews at the meetings of the Oversight Team and other opportunities. 100 fuel assemblies were taken out from the core to the ex-core fuel storage tank by March 30, 2020, and 179 fuel assemblies were moved from the tank to the fuel pond.

On December 13, 2019, the NRA approved the application for the permission of change in the decommissioning plan in relation to the application as of November 13, 2019 for the permission of change in the facilities whose performance needs to be maintained.

### 5. Actions taken for Decommissioning of Tokai Reprocessing Facility

The NRA set up the Safety Oversight Team for Tokai Reprocessing Facility and Other Facilities in January 2016 to check the status of implementation of vitrification for risk reduction and safety of the Reprocessing Facility of Nuclear Fuel Cycle Engineering Laboratories at the Tokai Research and Development Center of JAEA ("Tokai Reprocessing Facility") and regularly review the way to ensure safety in the decommissioning process. At the 4th FY2019 NRA Commission Meeting (April 17, 2019), the JAEA Back-end Measure Oversight Team[21] was separated from the Safety Oversight

[21] A team dealing with the comprehensive issues on the backend measures of JAEA.

Team. The issues concerning the decommissioning of the Tokai Reprocessing Facility were continually checked by the realigned Oversight Team which held a total of 10 meetings in FY2019.

The Oversight Team reviewed the application for approval of the decommissioning plan submitted on June 30, 2017, and granted a permission at the 14th FY2018 NRA Commission Meeting (June 13, 2018).

The vitrification in FY2019 beginning on July 8 was temporarily suspended on and after July 29, 2019 due to the stoppage of glass flow. Accordingly, the Oversight Team checked the status of the activities to resume the work at meetings, etc., and requested JAEA to immediately make an application for the permission of change in the decommissioning plan on the safety measures for high-activity waste facilities to reduce the risk relating to highly radioactive waste fluid at an early stage.

At the Oversight Team meeting, the review team pointed out the insufficiency of technical information required for the application for approval for changes to the safety measures, which was submitted on December 19, 2019. The JAEA pledged to submit an amended application in January 2020, but later stated that corrections would be made around May 2020 as additional consideration was required.

Accordingly, the NRA chairman requested the president of JAEA at the 65th NRA Commission Meeting (February 19, 2020) in response to the discussions so far at the Oversight Team meeting that the amended application for safety measures should straightforwardly show technical justification required for discussion, such as tsunami run-up analysis and building response analysis, to promote discussions on safety measures step by step.

After that, as the policy of safety measures for high-activity waste storage facilities against tsunamis was presented at the Oversight Team meeting on March 11, 2020, it was decided that the validity etc. of the policy was to be confirmed at the future Oversight Team meetings. On September 10, 2019, the NRA granted permissions for both applications for changes to decommissioning plans in relation to changes to the radiation management equipment for which applications were submitted on January 31 and March 20, 2019. Approval was given on February 10, 2020 to the application for changes to decommissioning plans in relation to countermeasures for ground motion, etc. for use in the discussion of safety measures applied on November 9, 2018.

**6. Proper Implementation of a System for Evaluation of Safety Improvement**

In FY2019, notifications requesting the evaluation of safety improvement were filed for Ikata Power Station Unit 3 of Shikoku Electric Power Co., Inc. (May 24, 2019), Takahama Power Station Unit 3 (June 10, 2019) and Ohi Power Station Unit 3 (January 24, 2020) of Kansai Electric Power Co., Inc., and Genkai NPS Unit 3 of Kyushu Electric Power Co., Inc. (February 20, 2020), and the NRA confirmed the entries of these applications in accordance with the operational guidelines for the evaluation of safety improvement in commercial power reactors.

### 7. Improvement of Overall Examination for Nuclear Facilities

To achieve rigorous examination for nuclear facilities, proper feedback of the examination results and experience in the past, and accurate and efficient work are essential for dealing with a large number of applications including conformity to the new regulations and backfitting. For this reason, the NRA instructed the Secretariat to report measures for preventing the recurrence of omission of application for approval of design and construction methods for the JAEA's Nuclear Safety Research Reactor (NSRR) and improvement measures for examination for other nuclear facilities at the 31st FY2019 NRA Commission Meeting (September 25, 2019). At the 64th FY2019 NRA Commission Meeting (February 19, 2020), the NRA agreed on the report from the Secretariat of the NRA about the creation of the "Examination Progress Table" for integrating the progress of examination by article of regulatory requirements including schemes for ensuring feedback of entries in the application for permission of installation to the latter-stage regulations and prevention of omission of examination, as well as the hearing prior to the review meeting, continuous improvement and publicity of examination work manuals, and streamlining of applications, etc. for approval of design and construction methods for seismic class C buildings, systems and equipment, as measures for improving the overall examination of nuclear facilities.

## Section 2 Rigorous and Proper Implementation of Inspection, etc. on Reactor Regulation Act

### 1. Implementation of Operational Safety Inspection, etc. of Commercial Power Reactors, etc.

In order to ensure the safety of commercial power reactors, the NRA conducted quarterly operational safety inspections to licensees of commercial nuclear power reactors, primarily through nuclear safety inspectors stationed at NRA Regional Offices located near nuclear facilities. Considering the plant situation, these inspectors conducted daily patrols, interviewed the licensees about maintenance activity, and oversaw the licensees' regular surveillance.

In addition, the operational safety inspection for safety-significant activities was conducted to operating plants.

In operational safety inspections conducted to commercial power reactors in FY2019, 2 cases of violation of licensee's operational safety program were identified (except for inspection findings which were under evaluation at the end of FY2019).

Regarding other inspections relating to commercial power reactors (other than those based on the New Regulatory Requirements), pre-service inspections were conducted following renewal of equipment, and periodic facility inspections, etc. were also conducted with an interval determined by NRA Ordinance concerning Installation and Operation of Commercial Power Reactors. In FY2019, 14 cases were found to have passed pre-service inspections and 12 cases have completed periodic facility inspections.

Data falsifications related to quality management, etc. by manufacturers closely relating to nuclear facilities has been confirmed several times since FY2017. The NRA continues to pay close attention to the countermeasures of licensees against data falsification issues through interviews to

licensees about safety impacts to their facilities.

**2. Implementation of Operational Safety Inspection, etc. of Nuclear Fuel Facilities**

In order to ensure the safety of nuclear fuel facilities, the NRA periodically conducted quarterly operational safety inspections, primarily through nuclear safety inspectors stationed at NRA Regional Offices located near nuclear facilities. In accordance with the configuration of each facility, these inspectors made daily patrols of nuclear facilities, conducted interviews to ascertain the state of operations, and also witnessed periodic tests.

In operational safety inspections of nuclear fuel facilities, etc. conducted in FY2019, 4 cases of violation of the operational safety program were identified (excluding those which are under evaluation).

As for other inspections in relation to nuclear fuel facilities, etc., periodic facility inspections were conducted annually, and pre-service inspections or facility inspections were conducted following renewal of equipment. In FY2019, 6 facilities passed the pre-service inspections and 3 facilities completed the facility inspections.

In FY2019, the systematic on-site inspections of the users of nuclear fuel materials not subject to Article 41 of the Enforcement Ordinance of the Reactor Regulation Act[22] were conducted at 17 facilities.

**3. Identification of Causes of Event and Confirmation of Corrective Actions in Nuclear Facilities**

Article 62-3 of the Reactor Regulation Act requires licensees to report events in nuclear facilities stipulated in the NRA Ordinance (hereinafter referred to as "events reported based on the Act" in this paragraph and in Section 1(9) of Chapter 3 hereof).

In FY2019, there were 4 events – 3 out of the 4 events happened in commercial nuclear power reactors, and 1 event in a nuclear fuel facility. The NRA received reports on these events from the licensees and has been strictly checking on the licensee's cause identification and corrective actions (Events reported based on the Act related to Specified Nuclear Facility are listed in Section 1 (9) of Chapter 3 hereof).

In FY2019, 7 open meetings for hearing licensee's progress of investigation of the events at nuclear facilities (hereinafter simply referred to as the "open meetings" in this paragraph) were held.

Events reported based on the Act are subject to evaluations according to the International Nuclear and Radiological Event Scale (hereinafter referred to as "INES[23]"). Among the 4 events that occurred in FY2019, the event at Takahama Power Station of the Kansai Electric Power Co., Inc. on October 17th was evaluated as level zero (an event of no safety significance). The other 3 events are under evaluation at the end of FY2019. The events which had occurred at Kashiwazaki-Kariwa NPS of TEPCO, and at JAEA's Nuclear Fuel Cycle Engineering Laboratories, Tokai Research and

[22] Users of nuclear fuel materials and/or nuclear source materials, who have facilities not subject to any item of Article 41 of the Enforcement Ordinance of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors

[23] The International Nuclear and Radiological Event Scale

Development Center, all of them had occurred in FY2018 and been under evaluation since then, were evaluated as level zero (the event of no safety significance) in FY2019.

**(1) Response to Events occurred in FY2019**

**(a) Damage of Steam Generator Tubes at Takahama NPS Unit 4**

On October 17th, 2019, Kansai Electric Power Co., Inc. recognized that the following event should be reported to the NRA based on the Act; possible flaws were confirmed with significant signals on one of 3,245 heating tubes (excluding plugged tubes) of steam generator A, one of 3,248 heating tubes (excluding plugged tubes) of steam generator B, and three of 3,259 heating tubes (excluding plugged tubes) probably caused by scratches on outer surface of the tubes during Eddy Current Testing (ECT[24]) for checking the integrity of 9,754 heating tubes (excluding plugged tubes) of three steam generators at Takahama Power Station Unit 4, which was under outage for periodic inspection.

A report on the cause identification and the corrective actions was submitted to the NRA by the licensee on November 28, 2019. After hearing the cause and the corrective actions from the licensee at open meetings on December 6 and 19, 2019, the NRA admitted the validity of the cause analysis and the corrective actions at the 50th NRA Commission Meeting in 2019 (December 25, 2019).

**(b) Collapse of 2nd Cooling System's Cooling Tower in Japan Materials Testing Reactor**

On September 9, 2019, JAEA reported to the NRA that the cooling tower of the 2nd cooling system, which was subject to periodic facility self-inspection as specified in the reactor operational safety program, at the Oarai R&D Institute's Japan Materials Testing Reactor (JMTR) in preparation for decommissioning collapsed due to strong typhoon winds, and that this corresponded to an event that the licensee should reported based on the Act.

The licensee submitted a report concerning the cause and action for this incident as of December 20, 2019. The validity of the cause of investigation and measures for preventing its recurrence by the licensee was under evaluation as of the end of FY2019.

**(c) Rise of Control Rods during Lifting of the Upper Core Structure of Reactor Vessel in Unit 3 at Ikata Power Station**

On January 15, 2020, Shikoku Electric Power Co., Inc. recognized that the following event should be reported to the NRA based on the Act; a control rod cluster[25] unintentionally rose on January 12, together with the upper core structure[26] of the reactor vessel of Unit 3 at Ikata Power Station, which was under outage for periodic inspections.

The licensee submitted a report on the cause identification and the corrective actions on March

[24] Eddy Current Test

[25] A cluster is composed of 24 control rods. There are 48 clusters in Unit 3 at Ikata Power Station

[26] Of the structural objects in the reactor vessel, the upper core objects were integrated into one structure, which consists of an upper core supporting plate, upper core plate, upper core supporting column and control rod cluster guide pipe, etc.

17, 2020. The NRA held an open meeting as for hearing the cause identification and the corrective actions from the licensee on March 26, 2020. The validity of the cause identification and the corrective actions was under evaluation at the end of FY2019.

**(d) Damage of Steam Generator Tubes at Takahama NPS Unit 3**

On February 18, 2020, Kansai Electric Power Co., Inc. recognized that the following event should be reported to the NRA based on the Act; the significant signals were detected possibly due to scratches on the outer surfaces of one of the 3,248 heating tubes (excluding plugged tubes) of steam generator B and one of the 3,262 heating tubes (excluding plugged tubes) of steam generator C while ECT was conducted for an integrity check on 9,782 heating tubes (excluding plugged tubes) of three steam generators at Takahama NPS Unit 3 which was under outage for periodic inspections.

The licensee was investigating the cause at the end of FY2019.

**(2) Responses to Events Occurred in FY2018**

**(a) Seizure of Supercharger Shaft in Emergency Diesel Generator (B) at Kashiwazaki-Kariwa NPS Unit 1**

On September 6, 2018, TEPCO recognized that the following event should be reported to the NRA based on the Act; the shaft of the supercharger in emergency diesel generator ("emergency D/G") (B) at Kashiwazaki-Kariwa NPS Unit 1, which was under outage for periodic inspection, was seized. And the emergency D/G was regarded as not fulfilling the required safety function because the emergency D/G had to be transported to the manufacture for investigating and repairing, hence it was estimated that immediate recovery of the emergency D/G was difficult.

The NRA heard the licensee's progress of the cause identification and the corrective actions at open meetings held on October 29 and December 12, 2018, and received a report from the licensee on the cause identification and the corrective actions of the event on March 5, 2019. The NRA requested TEPCO and other licensees who installed emergency D/Gs with the same supercharger to take corrective actions such as replacing turbine blades at the 13th NRA Commission Meeting in 2019 (June 19, 2019). Besides, in the Commission Meeting, the NRA decided to confirm the licensees' evaluations and corrective actions in the open meetings. The open meetings held three times within the end of FY2019, including the meeting before the 13$^{th}$ NRA Commission Meeting. And the Commission also decided in the 13$^{th}$ meeting that NRA's safety inspectors staying at the NRA regional office oversaw the licensees' actual corrective actions.

Licensees were engaging in the investigation of superchargers and taking the corrective actions as of the end of FY2019.

**(b) Designation of Access Control Area due to Leakage of Nuclear Material at Nuclear Fuel Cycle Engineering Laboratories of JAEA**

On January 30, 2019, the NRA was informed by JAEA that an access control area was designated

in the Plutonium Fuel Development Section 2 of JAEA's Nuclear Fuel Cycle Engineering Laboratories due to activation of an alarm indicating nuclear material leakage within a controlled area and that this corresponded to an event that the licensee should report based on the Act.

The NRA received a report on the causes and countermeasures from JAEA on March 13, 2019, and evaluated the adequacy of the cause investigation and recurrence prevention measures at the meetings of the Safety Oversight Team for Tokai Reprocessing Facility and Other Facilities on February 26, March 14 and 28, and April 18, 2019, and a public meeting on June 18, 2019. It was determined at the 14th FY2019 NRA Commission Meeting (June 26, 2019) to request JAEA for reflecting the lessons learned in the procedures, taking necessary measures such as education and training, and confirming these measures in the operational safety inspection at the main sites of JAEA.

## Section 3 Develop and Review of Inspection Program based on the Latest Knowledge

### 1. Preparations for Full-scale Operation of New Inspection Program

Meetings of the Team for studying inspection program reform, which consists of NRA Commissioners, staff of the Secretariat of the NRA and experts, have been held continually since May 2016. The Team has discussed the basic design of the new inspection program at the meetings open to public with nuclear operators' participation. The Team also set up working groups to study in greater detail on the specific operation of the new inspection program as well as necessary documents including regulations. As a result, the Team developed various documents for the trial operation.

Based on the result of these activities, the NRA had planned to go through three phases (phases 1 to 3) during the trial operation towards the implementation of the new inspection program scheduled to begin on April 1, 2020, and started Phase 1 from October 2018. This phase aimed to (i) closely examine the methods and necessary documents for conducting inspections and run the entire program, (ii) enhance accuracy in assessing inspection results, and (iii) establish the formal process that consists of various administrative procedures and communications. In the meantime, the NRA received advice from the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee, and exchanged opinions with a wide range of stakeholders including dialogues with academic societies and institutions. In proceeding with these studies and preparations, the NRA made efforts to ensure effectiveness and efficiency in practice with the support of the NRC by, for example, dispatching staff members of the Secretariat of the NRA to the NRC for training, and from time to time, inviting NRC experts having sufficient experience of inspection related work for their advice on issues based on the current status of study for the inspection program reform and on-site inspection work. In addition, the NRA held briefing sessions for nuclear operators at the inception of the trial so that they can proactively take actions in line with the new inspection program.

In April 2019, Phase 2 started during which the scope of the trial operation was expanded mainly

of pilot plants, and in addition to inspection activities, detailed examination of overall implementation of the program was carried out while the NRA and licensees shared the idea of placing emphasis on risk in judging significance of findings and evaluating comprehensively performance of plants. In October 2019, Phase 3 started during which proficiency was acquired further beyond one in Phase 2 through performing inspection activities at all nuclear facilities in addition to the pilot plants. In this period, the NRA took final preparations for full implementation of the program such as streamlining legal system including development and revision of government ordinances, related rules and internal regulations for legal integration, and holding a mock public meeting for hearing from nuclear operators in respect of a preliminary judgment on significance of findings.

Photo2-1 Trial operation of new inspection program
（Tomari NPS, January 21, 2019)

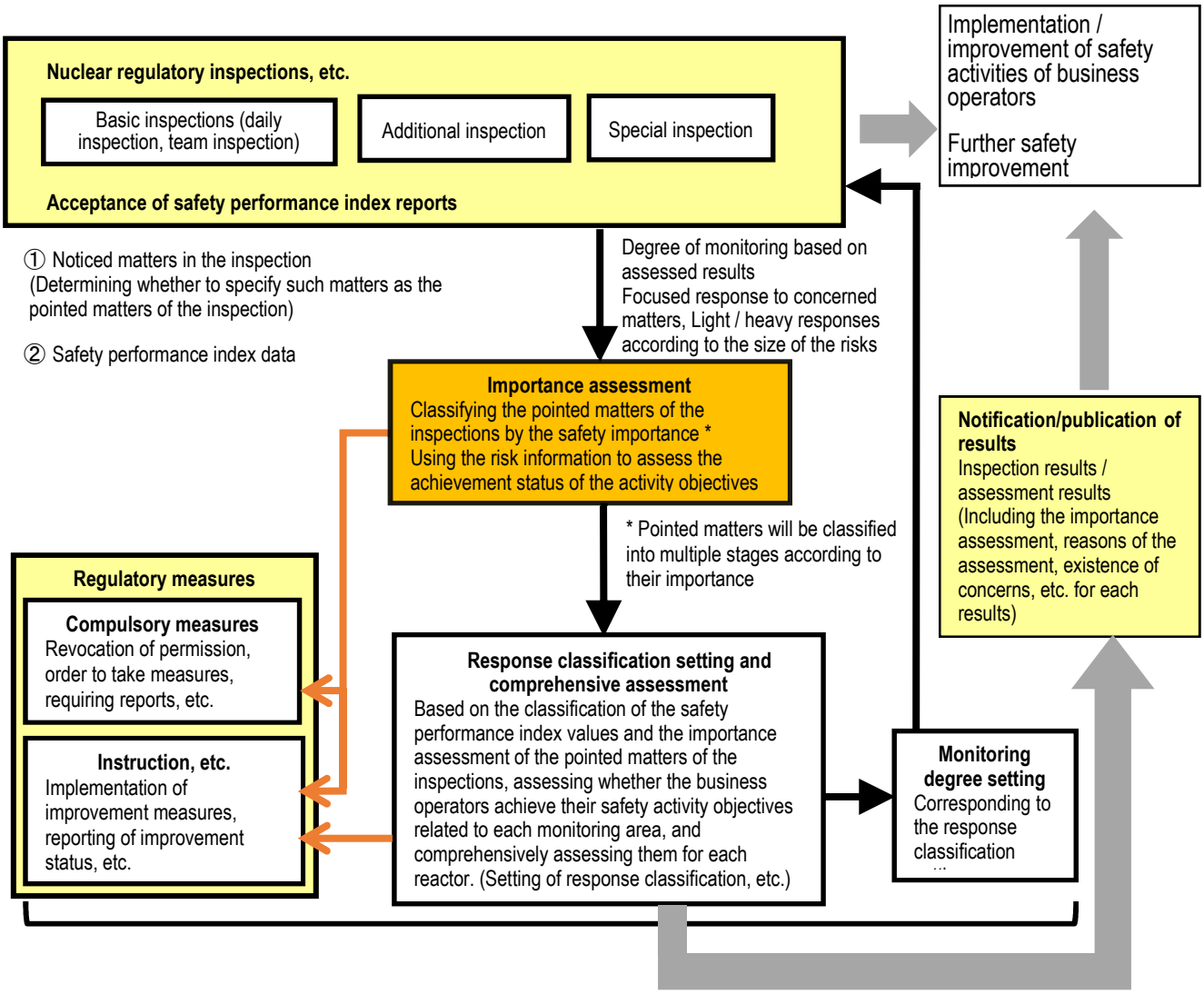



**Figure 2-1 Supervisory Process based on the Nuclear Regulatory Inspection (e.g., Commercial Nuclear Power Reactors)**

## 2. Enhancement of Information Gathering and Analysis on Natural Phenomena including Earthquakes, Tsunami and Volcanoes

### (1) Study on Monitoring of Volcanic Activities

The Subcommittee of Volcano Monitoring established on March 25, 2016 under the Reactor Safety Examination Committee (RSEC) held three meetings since the new era started, on November 27, 2019, and February 6 and March 6, 2020, and discussed the measure to judge significant changes in observation data and two matters on the evaluation of monitoring results by nuclear operators.

Continuous discussions were made about the measure to judge significant changes in observation data, and a summary report was completed in a meeting on March 6, 2020. The report was presented at the 72nd FY2019 NRA Commission Meeting (March 18, 2020), and it was agreed to apply the content of the report to the evaluation relating to the results of volcanic monitoring by the licensees

that have installed commercial power reactors.

The evaluations of volcanic monitoring results, carried out by Kyushu Electric Power Co., Inc. at Sendai NPS and Genkai NPS, were examined at a meeting in November 27, 2019, and the evaluation results were compiled.

**(2) Study on Decision of Ground Motions without Identification of Seismic Sources**

The NRA determined at the 52nd FY2017 NRA Commission Meeting (November 29, 2017) to launch a study team for deciding Ground Motions without Identification of Seismic Sources.

The study team held three meetings in FY2019, on May 10, July 8, and August 7, and finalized the results of the discussion at the meeting on August 7.

The results compiled by the study team were presented at the 24th FY2019 NRA Commission Meeting (August 28, 2019), and it was determined to include the standard response spectrum summarized as the Implementation of Ground Motions without Identification of Seismic Sources in the regulation (nationwide).

In addition to the evaluation according to the standard response spectrum, the following were decided at the 28th FY2019 NRA Commission Meeting (September 11, 2019): Request for the evaluation of the ground motion in the 2004 Rumoi-**N**anbu earthquake in conjunction with the standard response spectrum, revisions of the "Interpretation of the rule on standard for locations, structures and facilities of nuclear power reactor and its facilities," and "Review Guide for Design Basis Ground Motion and Seismic Design Policy," etc., and the hearing of opinions from nuclear operators about the period, etc. required for preparations in public meetings.

For hearing opinions from nuclear operators, the public hearing concerning the interim measure for the introduction of regulation on the "Ground Motions (spectrum) without Identification of Seismic Sources" was held twice in October 18 and December 24, 2019.

The NRA discussed the policy of standard revision based on the result of gathering opinions from licensees at the 68th FY2019 NRA Commission Meeting (March 4, 2020) and 73rd FY2019 NRA Commission Meeting (March 23, 2020). It also decided the method of reviewing standard response spectrum, nuclear facilities to be tested, and basic policies such as the period of interim measure, and instructed the interpretation of standard rules for installation permit and creation of a draft revision of examination guide.

**(3) Actions in Response to Re-evaluation of Eruptive Volume of Daisen-Namatake Tephra from Daisen Volcano**

At the 47th FY2019 NRA Commission Meeting (December 12, 2018), it was decided, in line with the scale of eruption of Daisen-Namatake tephra (DNP) and evaluation results, to issue an instruction to Kansai Electric Power Co., Inc. to collect reports from all nuclear power stations regarding the maximum thickness of the ash fall layer on the ground in their premises. Later in March 29, 2019, Kansai Electric Power Co., Inc. submitted a report for the instruction to collect

reports.

At the 4th FY2019 NRA Commission Meeting (April 17, 2019), the evaluation results at a meeting on the results of report collection regarding the eruptive volume of Daisen-Namatake tephra from Daisen Volcano (April 5, 2019), held for confirming the content of the report, were presented, and the review of regulatory measures was decided.

At the 10th FY2019 NRA Commission Meeting (May 29, 2019), the NRA found inadequacy in settings of the maximum thickness of falling pyroclastic materials in the sites of nuclear power stations of Kansai Electric Cp., Inc., to which permissions had already been granted, and decided to employ a policy of instructing the company to re-apply an application for permission of change in installation and giving an opportunity for justification based on the provisions of Article 43-3-23 (1) of the Reactor Regulation Act. The reply from Kansai Electric Power Co., Inc. indicated no objection for the instruction to apply an application for change on June 11, 2019.

At the 13th FY2019 NRA Commission Meeting (June 9, 2019), based on the provisions of Article 43-3-23 (1)of the Reactor Regulation Act, the NRA decided to issue an instruction for Kansai Electric Power Co., Inc. to submit an application for permission of change in installation in compliance with the provisions of Article 43-3-6 (1) (iv)of the Reactor Regulation Act on the premise of the facts admitted at the 4th FY2019 NRA Commission Meeting (April 17, 2019) ((i) the volume of eruption from DNP was estimated to be about 11 $km^3$, and (ii) DKP (Daisen Kurayoshi tephra) and DNP were not recognized as a series of gigantic eruptions, and DNP with the volume of eruption in (i) was a natural phenomenon that should have been assumed in the assessment of impacts of volcanoes),

The NRA received applications for permission of change in installation from Kansai Electric Power Co., Inc. for Ohi Power Station Units 3 and 4, Takahama Power Station Units 1 to 4, and Mihama Power Station Unit 3 on September 26, 2019. Examination was conducted at a review meeting relating to the conformity to the new regulatory requirements for nuclear power stations.

**(4) Countermeasures for Tsunamis that May Not Be Accompanied by Tsunami Warnings**

At Takahama Power Station Units 1 to 4 of Kansai Electric Power Co., Inc., tsunami height, runup areas and tsunami protection were not evaluated under the condition of an open tide gate of the water intake canal for tsunamis caused by “offshore landslide in the Oki Trough” with the tide gate open and probably not accompanied by tsunami warnings. At the 53rd FY2018 NRA Commission Meeting (January 16, 2019), the NRA decided to hear from Kansai Electric Power Co., Inc. to confirm the runup evaluation with the gate open, and the impacts on important equipment such as seawater pumps. On May 29, 2019, Kansai Electric Power Co., Inc. submitted a report concerning the tsunamis that may not be accompanied by tsunami warnings at Takahama Power Station.

Evaluation results of the report in the "Meeting for Hearing the Current Status of Responses to Tsunamis for which Warnings May Not Be Announced" (June 13, 2019), held to confirm the contents of the report, were presented at the 16th FY2019 NRA Commission Meeting (July 3, 2019),

and the NRA decided the necessity for the submission of applications for permission of change in installation within an appropriate period for tsunamis caused by “offshore landslide in the Oki Trough” with the tide gate open and probably not accompanied by tsunami warnings, and confirmed the intention of Kansai Electric Power Co., Inc.

At the 20th FY2019 NRA Commission Meeting (July 31, 2019), it was reported that Kansai Electric Power Co., Inc. said it would submit applications for permission of change in installation by September 30 and not operate Takahama Power Station Units 1 to 4 at the same time until necessary measures were taken at the NRA Commission Meeting (July 16, 2019).

The NRA received applications for permission of change in installation for Takahama Nuclear Power Station Units 1 to 4 from Kansai Electric Power Co., Inc. Examination was conducted at a review meeting relating to conformity to the new regulatory requirements for nuclear power stations.

**(5) Study on Seismic Isolation Structure of Buildings and Other Structures**

It was decided to launch a study team on seismic isolation structure of buildings and structures at the 46th FY2019 NRA Commission Meeting (December 4, 2019).

The study team held the 1st meeting on February 5, 2020, and the Secretariat of the NRA presented the purpose of the foundation of the study team and main themes to be discussed by the study team, and other matters.

**3. Continuous Improvement of Other Regulatory Systems**

**(1) Procedures for Unfinished Construction of Specialized Safety Facilities within Statutory Deadline**

At the 8th Opinion Exchange Meeting with CNOs (April 17, 2019), the nuclear operators expressed their concern about the possibility to fail to complete the construction of specialized safety facilities within the transitional period and requested the NRA to take into account the current status of measures taken by nuclear operators, and the time required for further improving safety in a comprehensive manner. Consequently, the NRA discussed the handling when specialized safety facilities were not completed within the statutory deadline, and decided to follow the policy of requesting nuclear operators to shut down their nuclear power reactor facilities if the specialized safety facilities were not completed within the specified time at the 5th FY2019 NRA Commission Meeting (April 24, 2019).

The NRA confirmed the actual procedure for the construction not completed within the statutory deadline at the 12th FY2019 NRA Commission Meeting (June 12, 2019).

Later at an opinion exchange meeting (the 35th FY2019 NRA Commission Meeting (October 15, 2019)) with the management of Kyushu Electric Power Co., Inc., the NRA was asked to confirm its response when the nuclear operator shut down the plant prior to the deadline for regular inspections. After discussions at the 36th FY2019 NRA Commission Meeting (October 16, 2019), the NRA agreed on a policy of not reclaiming the shutdown of the nuclear reactor facilities if there was firm

evidence to prove the nuclear reactor facilities were shut down for regular inspections on the expiration date of the transitional period.

Accordingly, it was confirmed that the shutdown of Sendai NPS Units 1 and 2 was not reclaimed at the 39th FY2019 NRA Commission Meeting (October 30, 2019), because it was obvious from the documents submitted by Kyushu Electric Power Co., Inc. that the reactors were shut down for regular inspections on the expiration date. As a policy, it was decided that the Secretariat should report similar cases to the NRA as soon as possible.

The handling by Kansai Electric Power Co., Inc. of the case in which specialized safety facilities for Takahama Power Station Units 3 and 4 had not been completed in time was reported at the 61st FY2019 NRA Commission Meeting (February 5, 2020).

**(2) Partial Revision of the Guideline for Assessment of Impacts of Volcanoes to Nuclear Power Stations**

At the 16th FY2019 NRA Commission Meeting (July 3, 2019), it was decided to review the description of the “Guideline for Assessment of Impacts of Volcanoes to Nuclear Power Stations" to make it easier to understand. The revision was drafted so as to describe the purpose of regulations of the guideline and the way to implement administrative work based on this guideline accurately with easy-to-understand sentences. A new guideline was determined and implemented in light of the result of calling for public comment at the 49th FY2019 NRA Commission Meeting (December 18, 2019).

**(3) Study on Continuous Improvements of Limiting Condition of Operation (LCO) in a coordinated manner**

At the 23rd FY2019 NRA Commission Meeting (August 21, 2019), the NRA showed a concern about keeping high adequacy in the limiting condition of operation (LCO) and measures for the deviation from LCO in the circumstances where safety facilities, etc. for serious accidents were in the process of recovery by complying with new regulatory requirements, in relation to the malfunction of a valve used for regular examination at Ikata Power Station Unit 3 of Shikoku Electric Power Co., Inc. It was decided, at the 27th FY2019 NRA Commission Meeting (September 4, 2019), as a policy that this was to be discussed at a public meeting participated by NRA commissioners, staffs of the Secretariat of the NRA and nuclear operators. Later in December of the same fiscal year at the 10th opinion exchange meeting with CNOs, ATENA made suggestions for the collection of typical samples at first for use in the examination and integration of operational revision plans and review of the resulting revision draft. It was decided to advance discussion in accordance with specific suggestions from ATENA in the future.

## Section 4 Harmonization among Nuclear Safety, Nuclear Security, and Safeguards

In order to achieve harmonization among nuclear safety, nuclear security and safeguards (3S[27]) at a higher level, the NRA clarified the related issues and discussed the direction to head at the 5th FY2018 NRA Commission Meeting (April 25, 2018). Continuous study on this matter was intended.

From July 2018, if a nuclear operator filed an application for permission about safety or nuclear security, the person in charge of examining the relevant measure checks adverse effects to other measures and shares the result with the sections responsible to eliminate mutually adverse effects as much as possible.

Full-scale operation regarding inspections, etc. has started. A local inspector who notices any matters about the nuclear security, and safeguards during the trial operation of nuclear regulatory inspection, started in October 2018, must share the information with the responsible section, or a security or safeguard inspector who finds something in other measures share the information with the responsible section as necessary.

If information on the above examination or inspection is shared, the shared information must be checked, and if there is concern about adverse effects, etc., related parties consult each other as necessary to eliminate mutual adverse effects, etc. as much as possible.

To reinforce cooperation between the departments in the Secretariat of the NRA, an internal document on harmonization of 3S was formulated and incorporated into the flow of examination and inspection related to conformity to the new regulatory standards.

For those engaged in the work that requires harmonization of 3S, such as examinations and inspections related to nuclear safety, the 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,” the reliability of employees who handle secrets on physical protection is being confirmed in sequence.

As the efforts concerning harmonization based on these considerations, the NRA clearly identified continuous efforts for rule making, etc. to enhance 3S interfaces in the goals for the second term of NRA in FY2019. The NRA also revised the NRA Management Rules on December 18, 2019 so as to check, and take into account, the mutual effects of 3S in the organizational operation and management of the NRA.

## Section 5 Rigorous and Proper Implementation of Regulations on the Act on Regulations of Radioisotopes, etc.

### 1. Development of Systems for the Prevention of Radioactive Hazards and Security of Specified Radioisotopes

#### (1) Development of Systems for the Prevention of Radioactive Hazards

##### (a) Development of Guidelines for Review of Regulations based on the Act on Regulations of Radioisotopes, etc.

[27] Safety, Security, Safeguards

As the 2017 amendments of Act have been sequentially put into force, the NRA promotes the development of guides for review and inspection, which are used as reference on judging the conformity to regulatory requirement stipulated in the Radioisotope Regulation Act. The NRA decided a policy at the 30th FY2019 NRA Commission Meeting (September 18, 2019) that, entries of draft guidelines, which have been developed should subject to public comment sequentially to the licensee under the Radioisotopes Regulation Act, and has called for public comment meeting once since then.

**(b) Development of Regulations, etc. relating to Changes in Equivalent Dose Limit for the Lens of the Eye**

In accordance with the recommendations of the International Commission on Radiological Protection (ICRP), the Radiation Council provided some insights on the "radiation protection of the lens of the eye" on March 2, 2018. To change the dose limit for the lens of the eye with these insights, the NRA drafted the amendments of related regulations and notifications and consulted to the Radiation Council on December 6, 2019, and with the consent of the Council, the NRA determined the related regulations and notices on February 12, 2020, and promulgated on March 18, 2020.

**(c) Revision of Notification on Positron Emission Tomography in Veterinary Practice**

Radioisotopes for positron emission tomography (PET medical care) dispensed at medical facilities used in veterinary medicine are excluded from the provisions of the Act on Regulations of Radioisotopes, etc. and regulated by the Veterinary Practice Act (Act No. 46 of 1992). Revision of the notification specifying the medicine under the Article 1 (iv) of the Order for Enforcement for the Act on Regulations of Radioisotopes, etc. was decided at the 19th FY2019 NRA Commission Meeting (July 24, 2019), and was enforced on August 5, 2019.

**(2) Development of Regulatory Systems for Security of Specified Radioisotopes**

On September 1, 2019, an obligation was placed on licensees who handle highly hazardous radioisotopes (hereinafter referred to as specified radioisotopes) to take security measures for preventing theft.

Specifically, amendment based on Article 5 of the 2017 Amendment of Act requires licensees who handle specified radioisotopes to take security measures for preventing theft, and the NRA made the following decisions toward the enforcement of this article:

- decision on the amendment of Cabinet Order on the Introduction of Security Measures for Specified Radioisotopes, regulations and notifications at the 38th FY2018 NRA Commission Meeting (October 31, 2018) (related cabinet orders were promulgated on November 21, 2018, and regulations and notifications on November 26, 2018).
- Decision of interpretation of regulations relating to the introduction of security of specified

radioisotopes at the 43rd FY2018 NRA Commission Meeting (November 22, 3018).

- Of the regulations, etc. required for the enforcement of Article 5 of the 2017 Amendment of Act, remaining regulations, notifications and internal regulations were revised or abolished in two steps.
- Decision of revision and abolition of rules, notifications and part of internal regulations which need a certain publicity period (proclaimed on June 10, 2019 and June 28, 2019) at the 8th FY2019 NRA Commission Meeting (May 22, 2019).
- Decision of revision of remaining internal regulations at 19th FY2019 NRA Commission Meeting (July 24, 2019).

The Act, enforcement ordinances, regulations and notifications subject to Article 5 of the 2017 Amendments of Act was enforced on September 1, 2019.

The NRA carried out the specified radioisotope security manager development program 10 times throughout the nation from December 2018 to August 2019 to facilitate the introduction of security measures for specified radioisotopes, which is a new regulatory requirement, and development of specified radioisotope security managers, etc., and dispatched lecturers for the request by related schools and associations, etc. to disseminate the Enforcement Regulation of the Act on Regulations of Radioisotopes, etc.

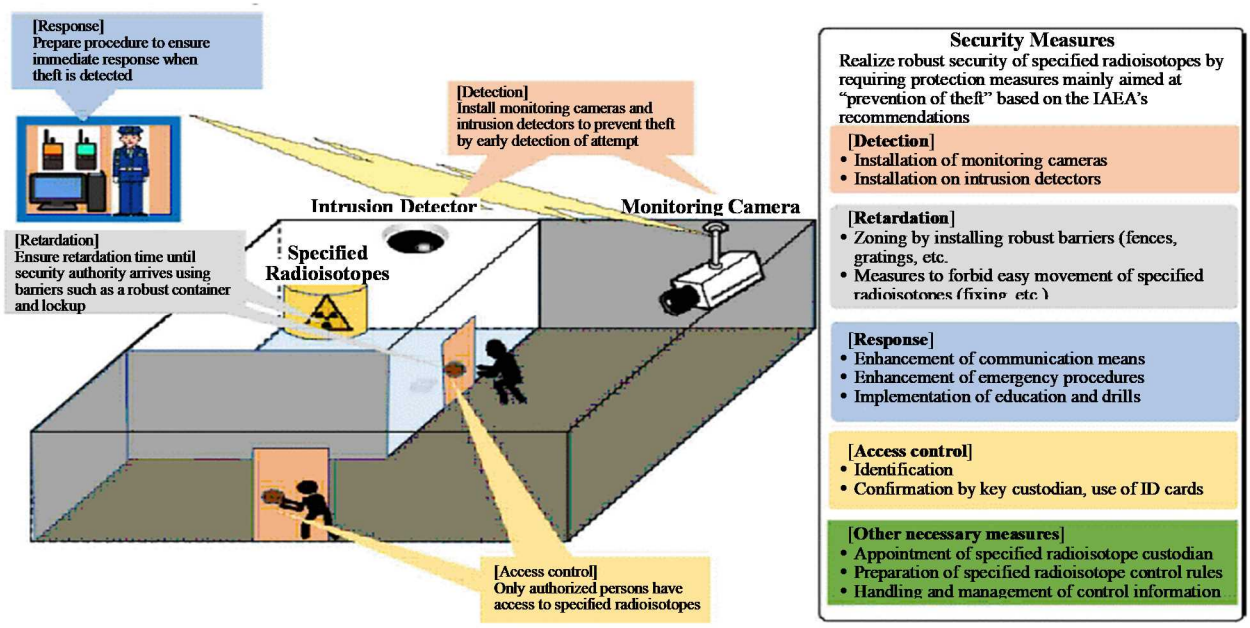



**Figure 2-2 Security Measures for Specified Radioisotopes**

## 2. Rigorous and Proper Implementation of Regulations based on the Act on Regulations of Radioisotopes, etc.

To prevent radiation hazards due to the use of radioisotopes and other sources of radiation, the NRA regulates the use, sale, lease, waste management, and other handling of radioisotopes, use of

radiation generators, and other handling of radioactively contaminated objects, based on the Act on Regulations of Radioisotopes, etc. The implementation status of regulations is shown below.

**(1) On-site Inspections**

Article 5 of the 2017 Amendment of Act was enforced on September 1, 2019, and the NRA started on-site inspections to verify security measures implemented by a licensee for confirmation (125 cases as of the end of FY2019).

Based on the matters pointed out in the IRRS report, the NRA reinforced the monitoring of the implementation status of registered certification organizations, etc., which are responsible for regulatory control based on the Act on Regulations of Radioisotopes, etc., and conducted 13 on-sight inspections of these organizations in FY2019, as continued from FY2016 to maintain and enhance their quality of operations and reliability of examinations.

**(2) Radiation Control Status**

Pursuant to the provisions of Article 42, paragraph (1), etc. of the Radioisotope Regulation Act, the NRA obliges licensees to submit reports concerning the condition of storage for waste management of radioisotopes and that of exposure management for radiation workers within 3 months from the end of the reporting period. The radiation control status report in FY2018 (reporting period: from April 1, 2018 to March 31, 2019) indicates that the condition of storage for waste management of radioisotopes, etc. in all site in FY2018 had no significant difference compared with past records, and the effective dose received by individual radiation workers at each site in FY2018 was lower than the annual effective dose limits prescribed by the relevant laws and regulations.

**(3) Confirmation of the Causes and Measures against Accidents and Failures Occurred in Sites Handling Radioisotopes, etc.**

If an incident falling under Article 31-2 of the Act on Regulations of Radioisotopes, etc. (hereinafter referred to as an “incidents under obligation to report”) has occurred, reporting to the NRA is obligatory.

In FY2019, 5 such incidents were reported. However, there were none likely to cause radiation hazards to any employees or the general public.

The INES evaluation is performed on an annual basis for events with no risk to cause effects on employees or the general public at places of business handling radioisotopes, etc. All of 5 events that occurred in FY2018, reported at the 6th FY2019 NRA Commission Meeting (May 8, 2019), and each has been evaluated as level 0 (an event of no safety significance).

The events reported in FY2019 are shown below.

**(a) Disappearance of Radioisotopes at Narita International Airport Corporation**

On April 10, 2019, Narita International Airport Corp. reported to the NRA that the component parts of an explosive detection system containing a sealed source (nickel 63) went missing, which corresponded to an incident reported based on the Act. The company explained that they searched every possible place but the components could not be found.

The cause of disappearance is that the employees were not aware of the importance of handling radioisotopes, and when the system malfunctioned, left the equipment uncontrolled. As a means to prevent the recurrence of the similar incident, the company provided thorough re-education of employees and inspections and record of the results as well as the installation of a surveillance camera for monitoring the storage cabinet.

**(b) Unplanned exposure of radiation workers at WITHSOL Inc.**

On April 24, 2019, WITHSOL Inc. reported to the NRA that one of two radiation workers was exposed to radiation, unplanned, exceeding 5 mSv (9.09 mSv) at the chemical factory of the company during the inspection of corrosion of piping using a gamma-ray inspection system containing a sealed source (iridium 192 (gamma source)) on April 23, 2019.

The company was investigating the cause as of the end of FY2019.

**(c) Disappearance of Radioisotopes at Gunma University**

On August 14, 2019, the disappearance of a sealed source for calibrating the radiation detector (approved devices with certification label, cobalt 57) was reported to the NRA from the hospital affiliated with the Medical Department of Gunma University.

They reported the last usage of the radiation source was March 8, 2014, and they searched storage cabinets, locations of use and vicinity, but all failed. Under these circumstances, the hospital reported to the NRA on August 21, 2019 that this corresponded to an incident reported based on the Act.

As of the end of FY2019, the company was investigating the cause and searching for the missing radiation source in an attempt for early recovery.

**(d) Event potentially cause Leakage of Radioisotopes to the Outside of a Controlled Area at Dainihon Jochugiku Co., Ltd.**

On September 3, 2019, the Research and Development Laboratory of Dainihon Jochugiku Co., Ltd. reported to the NRA that a building fire broke out in the premises on September 2, and the approved device with a certification label containing a sealed source (nickel 63), stored in the building, was burnt out, resulting in the possibility of the leakage of radioisotopes outside the control area, and that this corresponded to an incident reported based on the Act .

After the fire was extinguished, the site was checked with direct and indirect measurement methods, and no damage was found in the fireproof container of the sealed source by September 4, proving no leakage of radioisotopes.

**(e) Disappearance of Radioisotopes at Furukawa Co., Ltd.**

On December 16, 2019, Furukawa Co., Ltd. reported to the NRA that a sealed source used for checking operation of and calibrating a radiation counter (approved device with certification label, cesium 137) disappeared at the New Material Development Department of the Technology Management Division, and that this corresponded to an incident reported based on the Act.

As of the end of FY2019, the company was investigating the cause and searching for the missing radiation source in an attempt for early recovery.

# Chapter 3 Oversight of Efforts to Decommission Reactors of TEPCO's Fukushima Daiichi NPS

**Summary of Chapter 3**

(Oversight of Efforts to Decommission Reactors of TEPCO's Fukushima Daiichi NPS)

In FY2019, the NRA rigorously reviewed TEPCO's applications for change in the "Implementation Plan Pertaining to Specified Nuclear Facilities at the Fukushima Daiichi NPS" (hereinafter referred to simply as the "Implementation Plan") and approved 21 cases of change.

TEPCO's activities to comply with the approved Implementation Plan are being supervised through daily inspection patrols by regional safety inspectors, operational safety inspections, pre-service inspections, welding inspections, and daily inspection patrols by the safety inspectors stationed on the site.

Regarding the removal of fuel, etc. from the Unit 3 spent fuel pool, the NRA required TEPCO to explain the progress of the work and measures taken for solving problems, and to improve procurement and quality management at the meeting of Commission on Supervision and Evaluation of the Specified Nuclear Facilities (hereinafter referred to as the "Supervision and Evaluation Commission"). The activity of TEPCO was supervised in the operational safety inspection, etc.

Regarding the dismantling of the upper part of the exhaust stack for Units 1 and 2, the work was supervised in daily inspection patrols by regional safety inspectors, etc. TEPCO explained the progress of the work and countermeasures for problems at the meeting of Supervision and Evaluation Commission.

(Measures for Mid-term Risk Reduction)

The NRA developed the "Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS," (hereinafter referred to as the "Risk Map") in February 2015 and has regularly revised it according to the progress of decommissioning. In FY2019, NRA confirmed that method of removing spent fuels from the spent fuel pools of Unit 1 and 2 was decided by TEPCO, etc. In addition, taking into account that future goals for risk reduction are expected to more include the ones which take a relatively long period, the NRA revised the Risk Map from its concept to "Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS (March 2020 version)".

(Analysis of TEPCO's Fukushima Daiichi NPS Accidents)

The accident analysis is one of the important tasks of the NRA, and carrying out investigation and analysis from technical viewpoint. The NRA established the Committee on Accident Analysis of Fukushima Daiichi Nuclear Power Station (hereinafter referred to as the "Accident Analysis Committee") and examined accident analysis issues in its meetings from May 2013, and in October 2014, published the "Analysis of TEPCO's Fukushima Daiichi NPS Accidents Interim Report."

In FY2019, on-site investigation, required for accident analysis, etc. was made possible with the improvement in the site environment and progress of decommissioning work, etc., and the NRA reorganized the accident analysis implementation policy and system, and carried out on-site investigation in the interior of the Unit 3 reactor building etc. and examined the results in Accident Analysis Study Committee meetings. At the same time, the NRA established the "Fukushima Daiichi NPS Decommissioning and Accident Investigation

Liaison and Coordination Meeting" in which implementing bodies of accident analysis and the decommissioning work participates in order to coordinate the work related to accident analysis and the decommissioning work and necessary coordination was made in the meetings.

The NRA continued to participate in the OECD/NEA/CSNI research project (ARC-F) which started in January 2019.

(Monitoring after TEPCO's Fukushima Daiichi NPS Accidents)

According to the agenda of the "Comprehensive Radiation Monitoring Plan" (formulated at the Monitoring Coordination Meeting on August 2, 2011 and most recently revised on February 1, 2019), the NRA engaged in post-accident radiation monitoring of TEPCO's Fukushima Daiichi NPS, including general environmental monitoring throughout Fukushima Prefecture and monitoring of the waters near TEPCO's Fukushima Daiichi NPS and of Tokyo Bay.

## Section 1 Oversight of Efforts to Decommission Reactors of TEPCO's Fukushima Daiichi NPS

### 1. Approval and Inspection, etc. of the Implementation Plan pertaining to TEPCO's Fukushima Daiichi NPS

In order to employ appropriate management methods in accordance with the state of the facility, the NRA designated the TEPCO's Fukushima Daiichi NPS a "Specified Nuclear Facility" in November 2012, and indicated to TEPCO measures which should be taken in order to secure the nuclear power reactor facilities and protect specified nuclear fuel material. An application for the approval of the Implementation Plan was received, and approval was granted in August 2013 with indicating some points of concern

In FY2019, 21 changes to the Implementation Plan were approved. The state of compliance with the approved Implementation Plan of TEPCO has been supervised in daily inspections conducted by regional safety inspectors, 5 operational safety inspections, 25 pre-service inspections, and 17 welding inspections. Moreover, the NRA also supervised TEPCO's activities by conducting periodic facility inspections, focusing on safety-significant equipment for maintaining the performance of the facility.

### 2. Oversight of Treatment of Stagnant Water in the Building

Regarding the treatment of stagnant water in the building, TEPCO plans to expose the bottom floor of buildings other than Units 1 to 3's reactor buildings, process main building, and high-temperature incinerator building by the end of FY2020.

In FY2019, the NRA confirmed the completion of almost all of the prioritized processing of residual water in the Unit 1 radioactive waste treatment building and Unit 4 turbine building, and required TEPCO to maintain the exposed floor of the building by installing permanent pumps in the sump pit, etc.

Meanwhile, the presence of high-dose zeolite was confirmed in the basement floor of the main process building and the high-temperature incinerator building. The NRA required TEPCO to appropriately evaluate the risk of exposure of high-dose zeolite due to a decrease in water level, and consider countermeasures and plan of processing of stagnant water in the buildings.

### 3. Oversight of Removal of Fuel from Unit 3 Spent-fuel Pool

The NRA is requiring continuously TEPCO to explain the progress of the work and countermeasures to problems at the Supervision and Evaluation Commission meetings, since troubles had frequently occurred from the preparation stage. Furthermore, there were many cases of nonconformity in the procurement of fuel handling equipment, etc. Therefore, the NRA requested TEPCO to improve procurement and quality control, and explain specific efforts at the Supervision and Evaluation Commission meetings.

The NRA supervised the activities of TEPCO on the procurement and quality management in the operational safety inspection, focusing on the removal of fuel from Unit 3's spent fuel pool carried out from February 2019 to the end of FY2019.

After FY2020, the NRA continues to supervise the activities of TEPCO by inspecting whether the work is proceeding according to the implementation plan.

**4. Oversight of Dismantling of the Upper Part of the Exhaust Stack for Units 1 and 2**

The NRA has supervised the work of dismantling the upper part of the exhaust stack for Units 1 and 2 in daily inspection patrols by regional operation inspectors, and required TEPCO to regularly report the progress of work at the Supervision and Evaluation Commission meetings. Since trouble occurred in relation to the height adjustment of the crane planned to be used for the work, and a number of defects were found in the dismantling equipment during operation, the NRA confirmed countermeasures taken by TEPCO to these problems at the Supervision and Evaluation Commission meetings.

**5. Oversight of TEPCO's Ability to Analyze Radioactive Materials at Fukushima Daiichi NPS**

The NRA required TEPCO to develop the capabilities and systems necessary for the analysis of radioactive materials to proceed with decommissioning work at TEPCO's Fukushima Daiichi NPS.

Regarding the second building of the Radioactive Substance Analysis Facility where analysis to promote safe fuel debris retrieval will be conducted, the NRA has confirmed whether the TEPCO' planning of reviewing specifications of the facility is appropriate and input of resources is planned appropriately in order to carry out necessary analysis at the Supervision and Evaluation Commission meetings.

Regarding the measurement of the treated water by the Advanced Liquid Processing System (ALPS) stored in tanks (hereinafter referred to as "treated water") by TEPCO, NRA pointed out that there are deviation in the concentration of 7 main nuclides[28] and gross beta concentration contained in the treated water in some tanks, and required to investigate the cause (at the 67th Supervision and Evaluation Commission Meeting (January 21, 2019), etc.). TEPCO reported C-14 and Tc-99 was significantly detected, in addition to 7 main nuclides, in some tanks at the 72nd Supervision and Evaluation Commission Meeting (June 17, 2019). In response to this, the NRA required TEPCO to conduct detailed measurements on other tanks, and take measures such as inputting necessary resources to allow appropriate measurement and analysis. TEPCO reported the results of measurement on other tanks at the 79th Supervision and Evaluation Commission Meeting (March 16, 2020). The NRA required TEPCO to appropriately analyze C-14 and Tc-99 in addition to 7 main nuclides, and explain the impacts to safety based on the results of current measurement and establish a system in order to take appropriate measures in case the possibility of the existence of new, unknown nuclides become apparent.

**6. Oversight of TEPCO'S Decommissioning System at Fukushima Daiichi NPS**

From the findings in inspection and guidance of TEPCO's activities on the decommissioning of

[28] Significantly detected nuclides in the process of ALPS treatment (Cs-134, Cs-137, Co-60, Sb-125, Ru-106, Sr-90, I-129)

Fukushima Daiichi NPS on-site at the Fukushima Daiichi NRA Regional Office reported to the NRA the possibility of insufficient resources, especially humane resources, in the TEPCO system on decommissioning at the 40th FY2019 NRA Commission Meeting (November 6, 2019).

Accordingly, the NRA exchanged opinions with TEPCO's management at the 53rd FY2019 NRA Commission Meeting (January 16, 2020) and required TEPCO to take necessary reinforcement of the TEPCO system on decommissioning of Fukushima Daiichi NPS.

The Secretariat of the NRA confirmed TEPCO's efforts to the requirement from the NRA at the 78th Supervision and Evaluation Commission Meeting (February 17, 2020), etc., and reported it to the NRA at the 64th FY2019 NRA Commission Meeting (February 19, 2020).

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

The NRA developed the Risk Map in February 2015 for the purpose of setting a target related to measures at TEPCO's Fukushima Daiichi NPS, and reviewed in accordance with the progress of the decommissioning work.

In FY2019, NRA confirmed that TEPCO decided the method of removing spent fuel, etc. from the spent fuel pools of Units 1 and 2, and the completion of prioritized treatment of remaining water in the Unit 1 radioactive waste building and Unit 4 turbine building, etc. Taking into account that future goals for risk reduction are expected to more include the ones which take a relatively long period, the NRA revised the Risk Map to "Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS (March 2020 Version)". In doing so, the NRA reviewed the structure of the risk reduction areas referring to "Mid-and Long Term Roadmap towards the Decommissioning of TEPCO Fukushima Daiichi Nuclear Power Station" established by the government, developed a picture to aim for in about 10 years and raised risk reduction goals to be achieved in the earliest three years (see Figures 3-1 and 3-2). Reference materials showing the locations of radioactive materials in the premises of TEPCO's Fukushima Daiichi NPS were also added to clarify the risk reduction goals (see Figures 3-3 and 3-4). In addition, the achievement status of the risk reduction goals as of March 2020 was also attached as a reference material (see Figure 3-5).

From a standpoint of international public relations, an English version of the Risk Map was also prepared, and published on the NRA website.

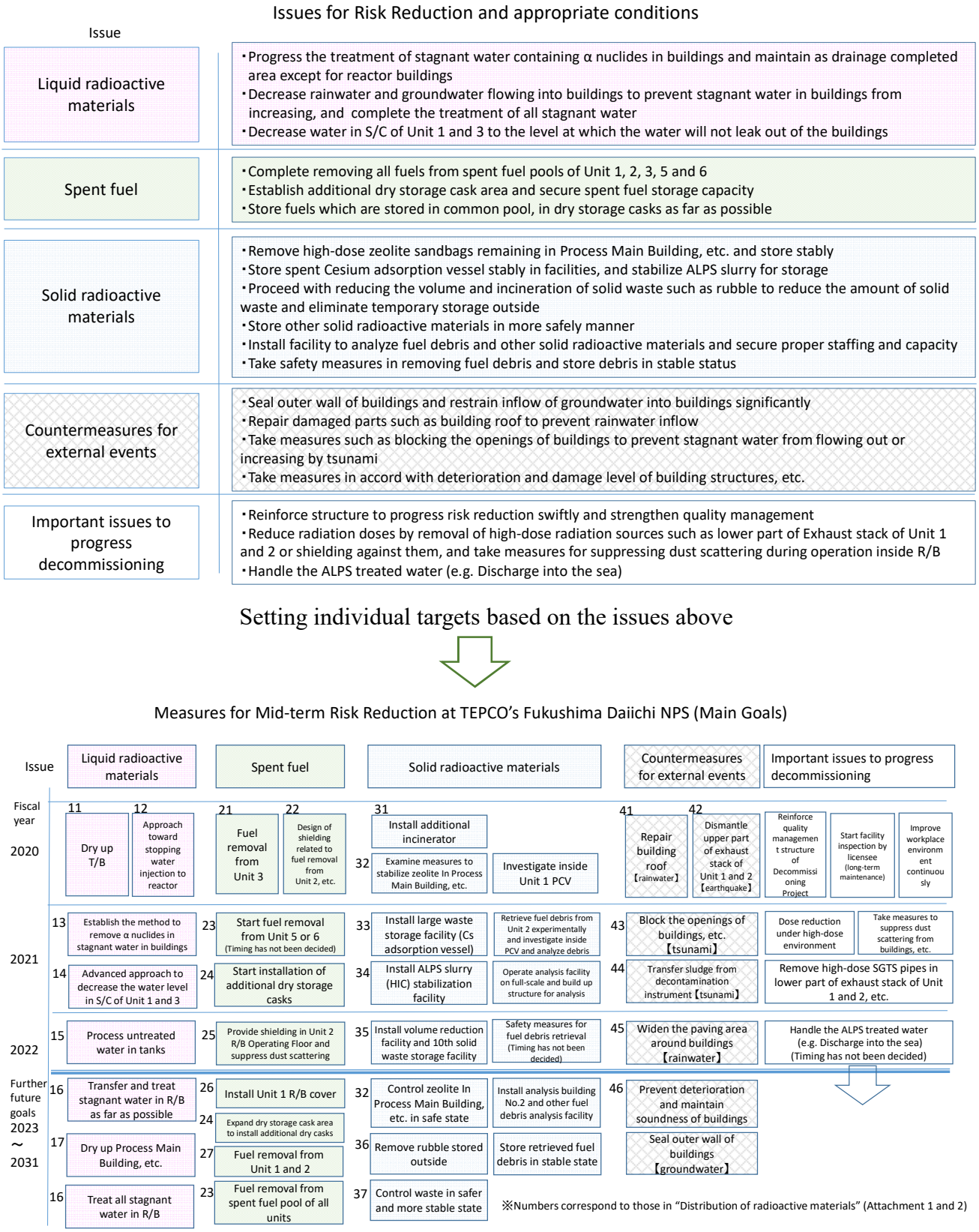



**Figure 3-1 Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS (March 2020 Version) Areas, Ultimate Goals and Main Targets of Risk Reduction**

Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS (Other Tasks) 1/2

| ◯Liquid radioactive materials | | Timing |
|---|---|---|
| To be conducted | Treat strontium removed water | Within 2020 |
| Timing has not been decided | Remove contaminated water in trenches, etc. | |
| | Remove underground cisterns | |
| ◯Spent fuel | | |
| Timing has not been decided | Treat the well plug of Unit 1 R/B Operating Floor and remove rubble | |
| | Remove spent control rods | |
| ◯Solid radioactive materials | | |
| To be conducted | Install temporary storage facilities for contaminated soil | Within FY2020 |
| | Install additional incineration facilities | Within FY2020 |
| | Install Radioactive Material Analysis Facility (building No. 1) | Within FY2021 |
| Timing has not been decided | Install stabilization equipment for sludge from decontamination instrument | |

Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS (Other Tasks) 2/2

| ◯Countermeasures for external events | | Timing |
|---|---|---|
| To be conducted | Take measures for Mega-Float | Within FY2020 |
| | Install tide embankment against Chishima-trench Tsunami | Within FY2020 |
| | Restrain the inflow of rainwater into Unit 3 Turbine Building | Within FY2020 |
| | Restrain the inflow of rainwater into radioactive waste treatment buildings of Units 1 and 2 | Within FY2021 |
| ◯Important issues to progress decommissioning | | |
| To be conducted | Survey the contamination status inside the reactor buildings, etc. (nuclide analysis, etc.) | After FY2020 |
| | Grasp the properties and characteristics of the cooling water after the reactors have cooled down (nuclide analysis, etc.) | After FY2020 |
| | Analyze the flow of contaminated water inside the reactor buildings, etc. | After FY2020 |
| | Directly observe inside the containment vessel and pressure vessel | After FY2020 |
| Timing has not been decided | Remove rubble around the buildings | |
| | Reduce concentration of radioactive materials in the water of drainages | |
| To be considered necessary or not | Improve the environment of ground level 2.5m | |

**Figure 3-2 Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS (March 2020 Version) Other Targets**

**Figure 3-3 Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS (March 2020 Version) Radiological Spots on the Premise**

**Figure 3-4 Measures for Mid-term Risk Reduction for TEPCO's Fukushima Daiichi NPS (March 2020 Version) Radiological Spots (Mainly Cs-137) around Units 1 to 6 and Nearby Hills**

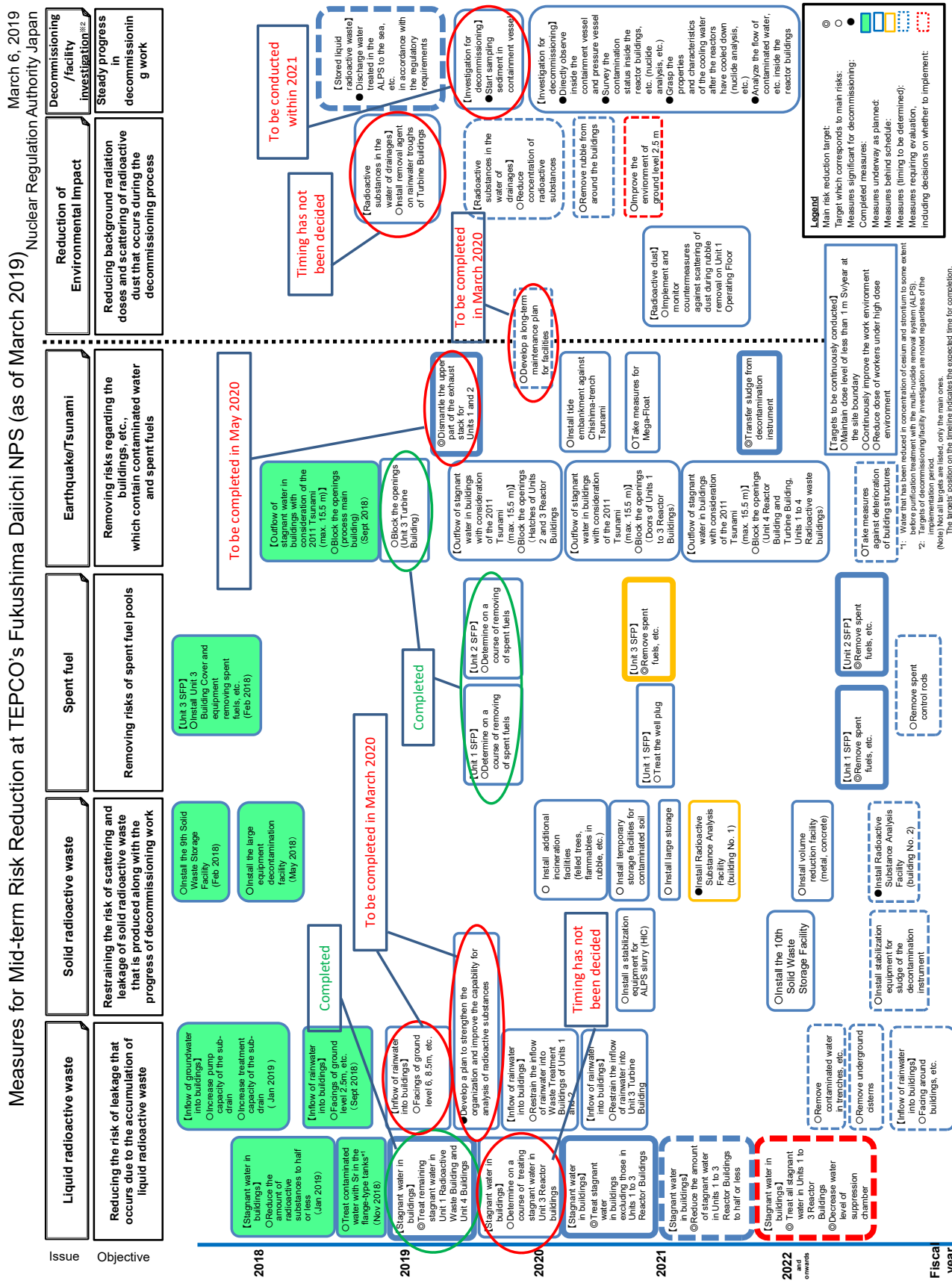



**Figure 3-5 Measures for Mid-term Risk Reduction for TEPCO's Fukushima Daiichi NPS (March 2020 Version) Progress of Risk Map**

## 8. Review of Regulations to TEPCO's Fukushima Daiichi NPS

In line with the progress of decommissioning work at TEPCO's Fukushima Daiichi NPS, and introduction of the new inspection program (nuclear regulatory inspection) in other nuclear power facilities from FY2020, the NRA decided to review the regulations to TEPCO's Fukushima Daiichi NPS, and regulate the whole station including Units 5 and 6 in a unified manner mainly with the implementation plan, continue to apply conventional inspection system at the TEPCO's Fukushima Daiichi NPS instead of applying the nuclear regulatory inspection at the 10th FY2019 NRA Commission Meeting (May 29, 2019). Regarding the inspection at TEPCO's Fukushima Daiichi NPS, in this review it clarified the obligation of implementation of inspection conducted by TEPCO itself also at Fukushima Daiichi NPS and made NRA able to oversight flexibly and appropriately in accordance with the progress of the decommissioning work. Preparations such as the revision of relating laws and regulation, etc., required for system reform were also promoted.

Revised regulations for TEPCO's Fukushima Daiichi NPS will be operated from FY2020.

## 9. Confirmation of the Causes and Countermeasures for Accidents and Failures That Occurred in TEPCO's Fukushima Daiichi NPS and Confirmation of Recurrence Prevention Measures

### (1) Incidents reported based on the Reactor Regulation Act at TEPCO's Fukushima Daiichi NPS

There were the following two incidents reported based on the Reactor Regulation Act at TEPCO's Fukushima Daiichi NPS occurred in FY2019:

#### (a) Breakage of the Handle Shaft for Manual Operation of Pressure Suppression Chamber Suction Valve in Residual Heat Removal System (System B) of Unit 6

On November 26, 2019, TEPCO reported to the NRA that the shaft of the handle for manual operation of the pressure suppression chamber suction valve in the residual heat removal system (system B) of Unit 6 was broken, and necessary functionality to ensure the safety of the nuclear reactor facility became unavailable, and that this corresponded to an incident that the licensee should report based on the Reactor Regulation Act.

TEPCO reported to the NRA details of the event, causes and measures taken at the 77th Supervision and Evaluation Commission Meeting (December 16, 2019). On February 3, 2020, TEPCO submitted a report, reporting the cause of the incident and measures taken, and the NRA required TEPCO additional explanations at the 78th Supervision and Evaluation Commission Meeting (February 17, 2020).

TEPCO is working to reply to the requirements from the NRA as of the end of FY2019.

#### (b) Leakage of Nuclear Fuel Material, etc. in the Controlled Area from Drain Sump Pit of Exhaust Stack for Units 1 and 2

On November 28, 2019, TEPCO reported to the NRA that decrease of water level was confirmed

in the drain sump pit of the exhaust stack for Units 1 and 2 even though the water in the pit was not transferred, and that the possibility of leakage of water, contaminated with radioactive materials, in the controlled area could not be denied, and that this corresponded to an incident that the licensee should report based on the Act.

TEPCO reported to the NRA details of the incident, causes and measures taken at the 77th Supervision and Evaluation Commission Meeting (December 16, 2019). On February 3, 2020, TEPCO submitted a report, reporting the causes and measures taken, and the NRA required TEPCO for additional explanations at the 78th Supervision and Evaluation Commission Meeting (February 17, 2020).

TEPCO is working to reply to the requirements from the NRA as of the end of FY2019.

**(2) Report on Declarations of Deviation from LCO at TEPCO'S Fukushima Daiichi NPS**

The NRA received reports from TEPCO regarding a declaration of deviation from the limiting condition of operation stipulated in the implementation plan as shown in Table 3-1, and conducted inspections according to the provisions of paragraph 1 of Article 68 of the Reactor Regulation Act and confirmed that necessary measures had been taken.

**Table 3-1 Report on Declarations of Deviation from LCO in FY2019**

| Date of Report Receipt | Description |
|---|---|
| May 20 | Since there was an error in the lower limit of the measurement range of the flowmeter installed in the nitrogen-filling facility in the Unit 2 reactor containment vessel, it was not able to confirm whether required amount of nitrogen was filled (once a day) for a certain period of time. |
| July 16 | Since there was a possibility of fuel light oil mixing in the lubricating oil in the valve lubrication tank of emergency diesel generator (system B) of Unit 5, the emergency diesel generator was put in a non-standby state, and the stand-by state of necessary emergency power generation equipment could not be maintained. |
| August 6 | There was an error in the on-site marking tag for the configuration operation valve of the nitrogen filling facility system in the Unit 2 containment vessel, causing a wrong system configuration when the valve was operated, and the amount of nitrogen filled in the reactor pressure vessel and reactor containment vessel temporarily became zero. |
| October 28 | The difference between the water level in a sub-drain pit around the Unit 1 building and the stagnant water level in the building fell below the limit (400 mm). |

| | |
|---|---|
| October 29 | In sub-drain pits around the Units 1 and 2 building, the difference between the water level in these pits and the stagnant water level in the building fell below the limit value (400 mm). |
| January 29 | The water level in a sub-drain pit around the Unit 2 building fell below the stagnant water level in the building. |

Regarding continuous improvement of LCO at TEPCO's Fukushima Daiichi NPS, review of LCO for better integration and operation was discussed at the Supervision and Evaluation Commission Meeting, etc. taking the state of facilities into account.

## Section 2 Analysis of TEPCO's Fukushima Daiichi NPS Accident

### 1. Continuous Accident Analysis

The ongoing analysis of the accidents at TEPCO's Fukushima Daiichi NPS is a priority matter under the jurisdiction of the NRA, and it is carrying out in-depth investigation from technical viewpoints.

Since May 2013, the NRA has examined issues at the Accident Analysis Committee meetings. In October 2014, the NRA received a report from the TEPCO's Fukushima Daiichi NPS Accident Investigation Committee of TEPCO which identified 7 issues requiring empirical investigations by regulatory bodies as unsolved problems, and consolidated these issues into the "Interim Report on Analysis of TEPCO's Fukushima Daiichi NPS Accident." In this report, the NRA pledged continuous accident analysis in accordance with the progress of decommissioning work.

Under the circumstances where on-site investigations necessary for accident analysis became possible due to the improvement of environmental condition at the site and progress of decommissioning work, the NRA decided to reorganize the accident analysis implementation policy and system, and draft an interim report by the end of 2020 at the 27th and 28th FY2019 NRA Commission Meetings (September 4 and 11, 2019).

In FY2019, the NRA conducted a total of 18 on-site investigations, including those open to the press, and held the Accident Analysis Committee Meeting five times to examine issues such as the release route of radioactive materials, etc. via the PCV hardened vent line based on the information obtained from the investigations. NRA required active cooperation to ATENA such as participation in the Accident Analysis Committee Meetings and providing information required for accident analysis etc.

Furthermore, the NRA held the "Fukushima Daiichi NPS Decommissioning and Accident Investigation Liaison and Coordination Meeting" consisting of the Secretariat of the NRA, Agency of Natural Resources and Energy, Nuclear Damage Compensation and Decommissioning Facilitation Corporation and TEPCO, among others, to coordinate the tasks relating to accident analysis and decommissioning work

In FY2019, the meeting was held three times for necessary coordination.

## 2. Efforts to Publish Information about Analysis of TEPCO's Fukushima Daiichi NPS Accident

The NRA disseminates information on the accident analysis at home and abroad.

The English version of the "Interim Report on Analysis of TEPCO's Fukushima Daiichi NPS Accidents" was sent to the IAEA, OECD / NEA, etc., and disseminated to the international community.

In FY2019, a video of the internal investigation of the Unit 3 reactor building, conducted on December 12, 2019, was released on YouTube and attracted a large number of audiences as pertaining to the recorded number of viewers. The video was used in discussions at the 9th Accident Analysis Committee Meeting (December 26, 2019). On January 30, 2020, an on-site investigation at TEPCO'S Fukushima Daiichi NPS was open to the press to release the actual activities of investigation to various media outlets.

The NRA participated in international projects for research and investigation of the accident, in particular, the research project (ARC-F) of OECD / NEA / CSNI, which started in January 2019 for the purpose of analyzing the accident in more detail based on the results of internal surveys of the reactor buildings and accident progression analysis and shared the current status of analysis for accident scenarios and associated transportation and dispersion of fission products with the participants (12 nations and 22 organizations).

# Section 3 Implementation of Environmental Radiation Monitoring in Response to TEPCO's Fukushima Daiichi NPS Accident

## 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 based on the "Comprehensive Radiation Monitoring Plan" (established at the Monitoring Coordination Meeting on August 2, 2011 and most recently revised on February 1, 2019) by carrying out 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.

In FY2019, the NRA also conducted detailed monitoring in the difficult-to-return zones and made public the results.

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

The NRA implemented airborne monitoring in Fukushima and neighboring prefectures. In February 2020, the NRA published the air dose rate map as of September 18, 2019 in the 80 km zone from TEPCO's Fukushima Daiichi NPS, as well as the map as of November 2, 2019, in

Fukushima and its neighboring prefectures. The NRA also published the output report of the "Project of the Outsourcing Fee for the Measurement Investigation of Radioactive Materials in FY2018 (The Aggregation of Distribution Data of Radioactive Materials along with TEPCO's Fukushima Daiichi NPS Accident)" in December 2019 and indicated the measurement results, such as the distribution of air dose rate by vehicle-borne survey and the deposition amount of radioactive cesium in soil in this report.

* The map for one month after the accident was prepared using a different method.

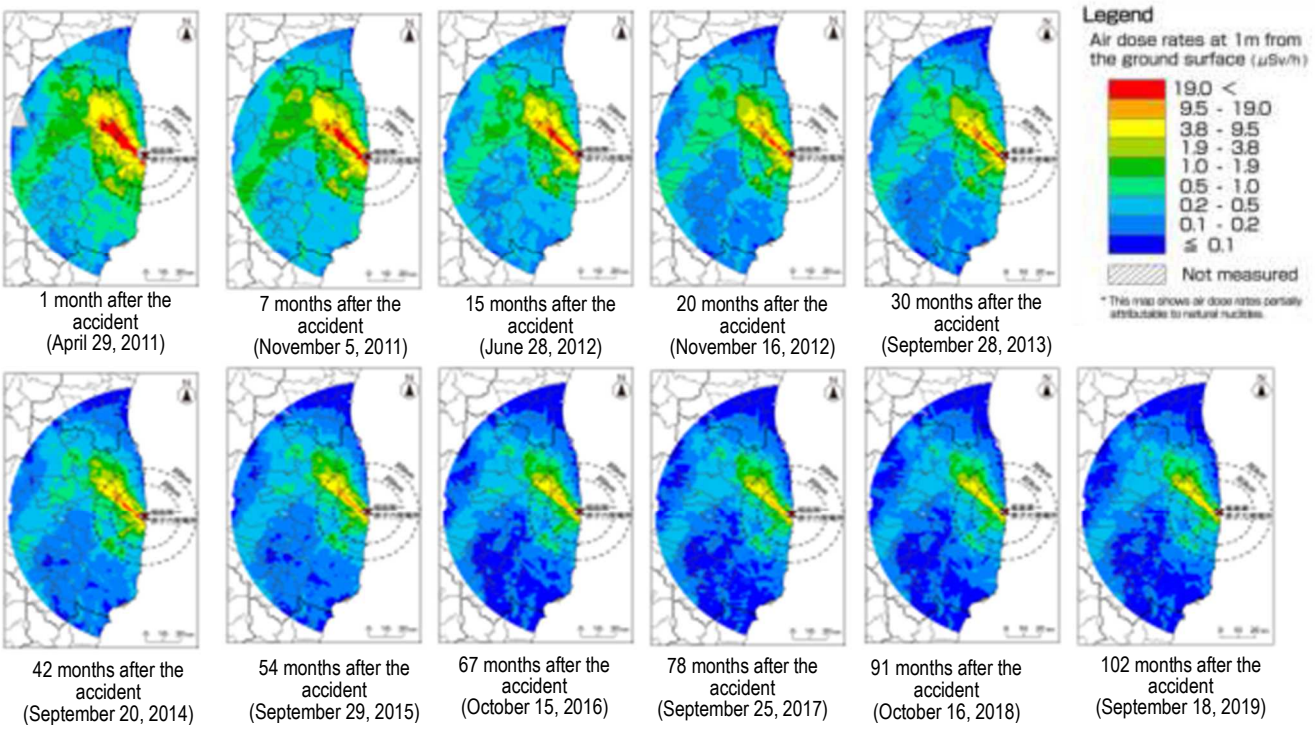



**Figure 3-6 Changes in the Air Dose Rate Map within the 80 km Zone**

### (2) Measuring the Air Dose Rates in Fukushima and Its Neighboring Prefectures by Monitoring Posts

At the request of local governments, the air dose rates are measured continuously with about 700 units of Portable 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 announced on the NRA website in real time. At the 10th FY2019 NRA Commission Meeting (May 29, 2019), as the future approach for the review of the location of the Real-time Dose Measuring Systems, it was decided to maintain these systems currently located in areas other than the municipalities in Fukushima Prefecture specified or released from the evacuation order for the time being in principle, and optimize the location of these systems concentrated in small areas in consultation with the related municipalities.

### (3) Sea Area Monitoring

Continuing from FY2018, relevant organizations cooperated to implement the monitoring based on the "Implementation Guides on Sea Area Monitoring," which was a part of the Comprehensive Radiation Monitoring Plan. The NRA collected seawater and sediment from near, coast, offshore, and open ocean of TEPCO's Fukushima Daiichi NPS and from Tokyo Bay, analyzed the radioactivity in those samples, and announced the results on the NRA website.

In addition, experts from the IAEA Environment Laboratories and ALMERA (Analytical Laboratories for the Measurement of Environmental Radioactivity) Network visited Japan in June 2019, and in cooperation with the NRA, collected seawater and sediment in the sea near TEPCO's Fukushima Daiichi NPS, in order to carry out inter-laboratory comparisons of the analysis results.

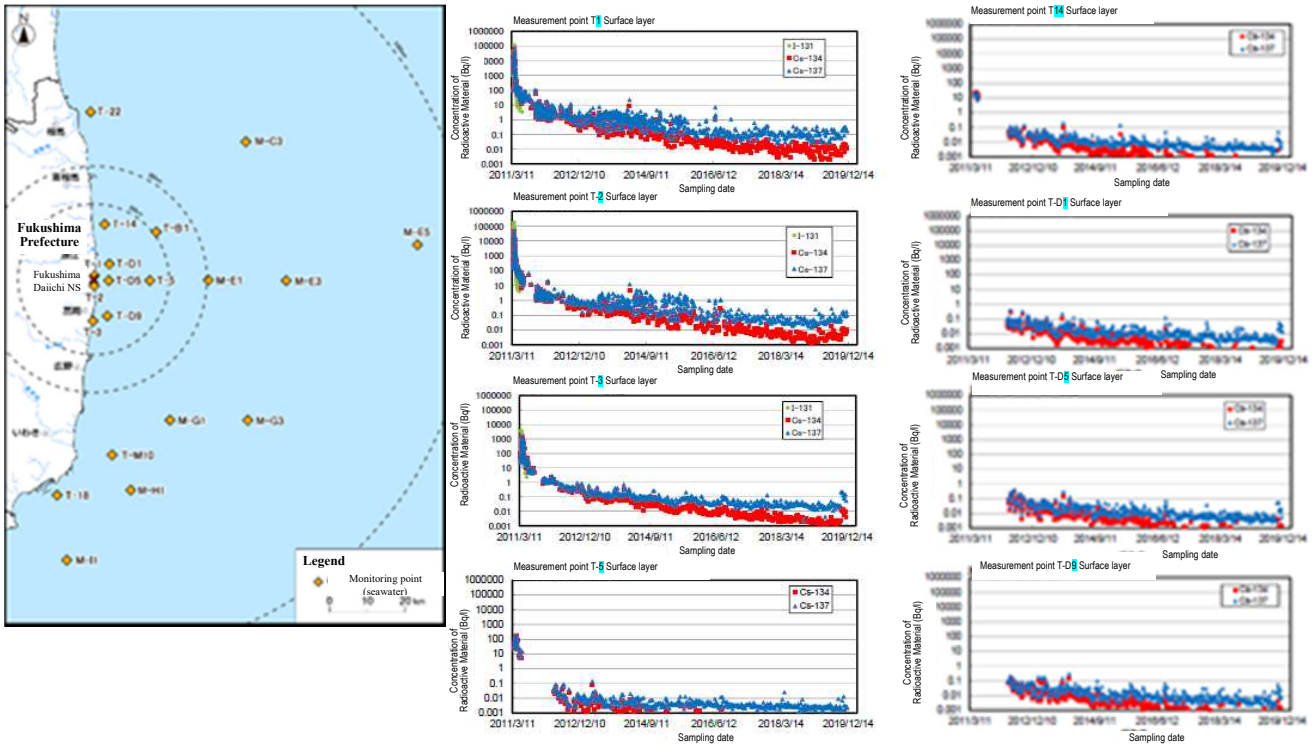



**Figure 3-7 Changes in the Radioactive Concentration at Monitoring Survey Sites**

# Chapter 4 Establishing Technical and Human Resource Foundations to Ensure Nuclear Safety

**Summary of Chapter 4**

(Continuous Improvement of Regulatory Requirements Based on the Latest Scientific and Technical Knowledge and Findings)

Upon obtaining knowledge or information important to safety, the NRA reflects it in the regulatory standards in a timely manner according to its importance or urgency. In FY2019, the NRA conducted the following:

- The revision of regulations relating to on-site storage using Dual Purpose Dry Cask for both Transportation and Storage
- The development of guidelines for fostering and maintaining a healthy safety culture and for cause analyses
- A technical assessment is ongoing regarding the 2016 version "Method of Checking the Fracture Toughness of Reactor Pressure Vessel during In-Service Period" by the Japan Electric Association
- The development of a regulatory standards for low-level radioactive waste disposal is ongoing.

A regulation and others regarding the clarification of performance required for pit disposal and trench disposal facilities and for radioactive waste were revised

- With regard to the development of a regulatory standard for mid-depth disposal, related rules will be revised in or after next fiscal year. A standard for examining a reasonable clearance check method was developed
- Policies for continuously improving regulatory standards were developed, and related opinions and proposals were collected inside the Secretariat of the NRA

(The Collection and Analysis of the Latest Domestic and Overseas Knowledge and Information, and the Reflection of their Results in Regulatory Activities)

The NRA had its Generic Issues Task Force identify information that needs to be reviewed because of a possibility that they may relate to our country's regulations or nuclear facility safety and held technical information review meetings. In addition, the NRA reviewed the following standards and others in FY2019 according to the importance or urgency of obtained knowledge or findings:

- The revision of the Commercial Reactors Operational Safety Program Standards to enable the handling of a serious accident due to other than intentional large-aircraft crash or other terrorism, by means of a specialized safety facility
- The revision of the test reactor operational safety program examination standard and the development of an operational guideline for periodically assessing a test and research reactor facility
- The revision of the rule for radiation dose notification, on the basis of the Seoul statement (adopted by the ICRP) regarding the "lowering of the equivalent dose limit for the lens of the eye"
- Requirements for strengthening measures against the common cause failure of a digital safety protection circuit of a nuclear power reactor facility were organized. A concrete method for incorporating such measures into a regulation is under review

In addition to these, the NRA collected, analyzed and screened information on accidents and failures in and out of Japan and held a technical information review meeting to review the screening results. The NRA reported the screening results to the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination

Committee, both consisting of external experts, for their advice. In September 2019, the NRA held a bilateral meeting with the Indonesian nuclear regulatory body BAPETEN to discuss earthquakes and tsunami in Republic of Indonesia (Indonesia). It also participated in an international symposium in Indonesia and held an academic lecture meeting at the Secretariat of the NRA.

(Promotion of Safety Research)

In FY2019, the NRA conducted 24 safety research projects relating to 13 research areas. As the achievements of the safety research, NRA staff members published two NRA technical reports and one NRA technical note, 23 papers in journals and four papers at international conferences, made 38 conference presentations and were awarded with four academic prizes.

With regard to safety research assessments, the NRA carried out the ex-post assessment of five safety research projects that ended in FY2018, the interim assessment of five ongoing safety research projects and the prior assessment of five safety research projects scheduled to start in FY2020.

As for a safety research policy, the NRA developed a guideline "Fields of and Policy on the Implementation of Safety Research to be Promoted (for safety research to be conducted for and after FY2020)."

As international activities, the NRA conducted bilateral information exchanges and participated in 17 OECD/NEA international joint research projects and 11 OECD/NEA CSNI meetings to collect technical findings including the latest trend in each research field.

In FY2019, the NRA conducted 13 joint research projects.

(Securing and Developing Human Resources for Nuclear Regulation and the Expansion and Development of Research Environment for Research Staff)

In FY2019, the NRA employed 33 experienced persons and 22 new recruits.

To improve and strengthen human resources, the NRA developed practical training courses utilizing plant simulators and others, carried them out as planned.

Education and training courses for acquiring job qualifications (basic qualifications) were started in April 2018. In FY2019, the first trainees graduated from the courses. In addition, the NRA provided qualified staff with a nuclear inspection qualification to conduct with the new nuclear regulatory inspections starts in April 2020.

Moreover, the NRA had its 37 research personnel engage in joint research projects (including simultaneous engagement in multiple projects) and dispatched three research personnel to the Japan Atomic Energy Agency (JAEA) in order for them to exclusively engage in testing and research activities. The NRA accepted two JAEA's staff members engaged in research-related work.

## Section 1 Continuous Improvement of Regulatory Requirements Based on the Latest Scientific and Technical Knowledge and Findings

### 1. The Consideration of the Necessity of Reviewing Regulatory Standards on the Basis of the Latest Knowledge

After the accident at TEPCO's Fukushima Daiichi NPS, the NRA enforced the New Regulatory Requirements with regard to commercial power reactors in July 2013 and with regard to facilities for handling nuclear fuel materials in December 2013. These were based on the lessons learned from the accident, the latest scientific and technical knowledge, and overseas regulation trends, including safety requirements issued by international organizations such as the IAEA. The NRA has been continuously collecting, analyzing and screening domestic and overseas latest knowledge and safety information on the basis of a process (approved in the 45th FY2016 NRA Commission Meeting on November 22, 2016) for reflecting the latest knowledge and findings to regulations. When the NRA has obtained findings and information important to safety through these activities, it incorporates them into regulatory standards (including interpretations and guidelines) according to their importance and urgency.

This process also regularly organizes items that failed to be reviewed. Therefore, the NRA has decided that examination experiences and past records that failed to be reviewed because of their low levels of importance or urgency should be comprehensibly and appropriately reflected in regulatory standards to further concretize and clarify the standards.

#### (1) Study on establishment of Regulatory Requirements Applicable to Dual Purpose Dry Cask (DPC) for Transportation and Storage

With respect to spent fuel storage in a nuclear power station, the NRA had decided to review regulatory requirements for earthquake resistance to encourage the use of casks for storage and transportation which satisfy strict requirements. After the review by the "Study Team on Dual Purpose Dry Cask (DPC) for Transportation and Storage" in FY2017, the Study Team explained its opinion at the 43rd FY2017 NRA Commission Meeting (October 11, 2017) and the 22nd FY2018 NRA Commission Meeting (August 1, 2018). Based on these, the revisions of the Regulations on the Standards for the Position, Structure and Equipment of Commercial Power Reactors and Associated Facilities and the Regulations on the Technical Standards for Commercial Power Reactors and Associated Facilities as well as their interpretations were deliberated at the 45th FY2018 NRA Commission Meeting (December 5, 2018). After the solicitation of public comments, their revised versions were officially announced and put into effect on April 2, 2019.

Before receiving the IRRS follow-up mission (January 2020), the NRA, in accordance with an action plan included in its self-evaluation document relating to regulation of radioactive material transportation, decided to revise the application procedure of nuclear fuel material transportation approval and streamline the examination of transportation using DPC. The NRA deliberated on the proposed revision of Notification on Technical Details for Off-Site Transportation of Nuclear Fuel

Materials, etc. and on the proposed application procedure guideline at the 46th FY2019 NRA Commission Meeting (December 4, 2019). After the solicitation of public comments and based on the solicitation results, the NRA decided to revise the Notification and to establish the guideline at the 67th FY2019 NRA Commission Meeting (February 26, 2020).

**(2) Study on Formulation of Guidelines on Human and Organizational Factors**

Based on the necessity of considering human and organizational factors, pointed out by the IRRS mission in FY2015, the NRA decided to develop a guideline for assessing a reactor control room, a guideline relating to safety culture, and a guideline for cause analysis (assessments considering human and organization factors). The 31st FY2019 NRA Commission Meeting (September 25, 2019) deliberated on the guideline relating to safety culture and the guideline for cause analysis. After the solicitation of public comments and based on the solicitation results, the 50th FY2019 NRA Commission Meeting put them into effect.

**(3) Continuous Improvement of Regulatory Standards by Reflecting Examination Experiences and Past Records**

At the 38th FY2019 NRA Commission Meeting (October 23, 2019), the NRA approved a concrete method of continuously improving regulatory standards through the incorporation of examination experiences and past records that had not been reviewed because of their importance or urgency levels. Based on this, the NRA collected its Secretariat's opinions and proposals regarding issues that require reviews.

**2. Review and Implementation of a Plan for the Technical Evaluation of Private Standards**

**(1) Development of a Plan for the Technical Evaluation of Private Standards**

In order to develop a FY2019 draft plan for the technical evaluation of private standards, the NRA conducted hearings (March 29 and April 18, 2019 meetings for hearing nuclear operators' opinions regarding new regulatory requirements) regarding private standards whose technical evaluation were hoped for by nuclear operators. Based on this, the NRA developed a "Plan for the Technical Evaluation of Private Standards" for FY2019 at the 11th FY2019 NRA Commission Meeting (June 5, 2019). Moreover, in order to develop a 2020 plan for the technical evaluation of private standards, the NRA held a hearing (February 7, 2020) of opinions regarding new regulatory requirements from nuclear operators and identified private standards whose technical evaluation where hoped for by them. Based on this, the NRA will develop a 2020 plan for the technical evaluation of private standards.

**(2) Conducting the Technical Evaluation of Private Standards**

Based on the FY2019 Plan for the Technical Evaluation of Private Standards adopted at the 11th FY2019 NRA Commission Meeting (June 5, 2019) and for the purpose of the technical evaluation of

the Japan Electric Association's 2016 version "A Method of Checking the Fracture Toughness of a Reactor Pressure Vessel during a In-Service Period" and related 2015 version "A method of Determining the Fracture Toughness Reference Temperature $T_0$ of Ferrite Steel" and for the assessment-based partial revision of the interpretation of the "Regulations on Technical Standards for Commercial Power Reactors and Associated Facilities," the 17th 2019 NRA Commission Meeting (July 10, 2019) decided to hold the meetings of a "Team for Reviewing the Technical Assessment of a Method for Checking the Fracture Toughness of a Reactor Pressure Vessel during an In-Service Period." Thus far, five review team meetings for technical evaluation were held.

In response to the Japan Society of Mechanical Engineer's and the Japan Electric Association's issuance of errata relating to codes that had been cited in the examination standards during the period of February 17, 2016 to July 12, 2019, the NRA decided to prepare a technical evaluation report (draft) relating to the errata and also decided to partially revise the interpretation of the Regulations on Technical Standards for Commercial Power Reactors and Associated Facilities in which said codes had been cited, in order to clarify that the post-revision requirements must be applied in the application of the cited codes. These decisions and revision were deliberated at the 43rd FY2019 NRA Commission Meeting (November 20, 2019). After the solicitation of public opinions, the 52nd FY2019 NRA Commission Meeting (January 15, 2020) finally decided on said revision based on the public opinion results.

### 3. Development of Regulatory Standards for Low-level Radioactive Waste Disposal

#### (1) Expansion and Development of Regulatory Standards for the Near Surface Disposal of Low-level Radioactive Waste containing Uranium Waste

As one of important issues in 2019, the NRA identified the expansion and development of regulatory standards for the near surface disposal of low-level radioactive waste containing uranium waste (53rd FY2018 NRA Commission Meeting on January 16, 2019). In order to develop the regulatory standards for uranium waste, the NRA studied the concept of handling natural and artificial nuclides shown in the IAEA's safety standard GSR Part 3, "Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards" and the concept of handling them shown in the European Commission's council directive, and discussed the setting of clearance levels for naturally existed radioactive materials at the 63rd FY2018 NRA Commission Meeting (February 27, 2019). The NRA also decided to investigate the actual situation in each country.

In the opinion exchange meeting held between the NRA and international advisors for nuclear regulations on April 1, 2019, the disposal and clearance of waste containing natural nuclides were discussed as part of the agenda. The international advisors for nuclear regulations pointed out the necessity of adhering to the IAEA's safety standard documents, of participating in its discussions, of ensuring processes that maintain an importance in safety (graded approach) and of considering the effect of the generation (buildup) of progeny nuclide from uranium not having reached radioactive equilibrium.

In the 40th FY2019 NRA Commission Meeting (November 6, 2019), in order to promote discussions regarding regulatory concept for our country's uranium waste burial disposal, the NRA requested its Secretariat to organize overseas information and report identified issues to it. The Secretariat's work in response to the requests is ongoing.

**(2) Development of Regulatory Standard for Category 2 Waste**

Until FY2018, the NRA's review team for radioactive waste generated from decommissioning discussed the main points of category 2 waste burial (mid-depth disposal, pit disposal and trench disposal). Among the main points, the 61st FY2018 NRA Commission Meeting (February 20, 2019) decided to prioritize the revision of regulatory standards relating to pit and trench disposal (regulatory standards relating to the clarification of performance required for related facilities and radioactive waste disposal).

After soliciting public comments from July 18 to August 16, 2019, the NRA decided to revise the "Rules for Disposal of Category 2 Waste of Nuclear Fuel Material or Material Contaminated with Nuclear Fuel Material," the "Rules on the Locations, Structures and Equipment of Category 2 Waste Disposal Facilities," and their interpretations as well as the "Examination Standards for Operational Safety Program of Waste Disposal Facilities for Category 2 Waste Disposal Activities," and decided to abolish the "Notification on Technical Details for Category 2 Waste (including Nuclear Fuel Materials) Disposal Facilities" (the 33rd FY2019 NRA Commission Meeting on October 2, 2019 and the 38th FY2019 NRA Commission Meeting on October 23, 2019). The revised rules and others took effect on December 5 of the same year.

Regarding the development of a regulatory standard for mid-depth disposal, the 40th FY2019 NRA Commission Meeting (November 6, 2019) carried out a hearing from nuclear operators considering mid-depth disposal, to obtain information on the period of waste generation and project plans, and based on the hearing results, decided to develop regulatory standards for design and checking, assessment and monitoring methods.

Regarding nuclear operators' needs relating to mid-depth disposal, the NRA exchanged opinions (2nd opinion exchange on December 17 the same year) with nuclear operators to be affected by regulations on radioactive waste generated from decommissioning. As a result of the opinion exchange (hearing), it was found that no organization (entity) responsible for in-depth disposal was yet established and both the period of generation of disposal waste for mid-depth disposal and disposal project application period were up in the air. This situation was reported to the 52nd FY2019 NRA Commission Meeting (January 15, 2020). The 64th FY2019 NRA Commission Meeting (February 19 the same year) conducted a hearing from the Federation of Electric Power Companies' director to learn about nuclear operators' opinions regarding regulatory standard development policies proposed for the future.

**(3) The Expansion of Clearance Level Targets and the Establishment of a Reasonable Method**

**for Checking a Clearance Level**

With regard to the establishment of a reasonable method for checking a clearance level, the NRA, based on its past examination experiences, reviewed the former Nuclear and Industry Safety Agency's in-house rule for approving radioactive concentration measurement and assessment methods and decided to develop a new examination standard that stipulates the selection of assessment-target nuclides on the basis of radioactivation and contamination histories and the necessity of considering uncertainties in checking a radioactive concentration. After the solicitation of public comments, the 28th FY2019 NRA Commission Meeting (September 11, 2019) put the new examination standard into effect. With regard to the expansion of clearance targets, the NRA decided to review the current clearance rules and additionally stipulate the clearance levels of 257 radioactive materials designated in the international standard, thereby developing new rules targeting wider-ranging facilities and items.

## Section 2 The Collection and Analysis of the Latest Domestic and Overseas Knowledge and Information, and the Reflection of their Results in Regulatory Activities

### 1. The Reflection of the Latest Knowledge to Regulatory Standards

As an activity for continuously improving regulatory standards on the basis of the latest domestic and overseas scientific and technical knowledge, the NRA's Generic Issues Task Force has been organizing information on overseas regulatory trends, safety research, international standards and academic societies to extract information that require review in terms of our country's regulations and nuclear facility safety, on the basis of a process for reflecting the latest findings to regulations - process approved at the 45th FY2016 NRA Commission Meeting (November, 22, 2016). In FY2019, the NRA screened 50 cases and extracted six types of technical information requiring some sort of regulatory countermeasures. These information were shared at a technical information review meeting, which discussed the necessity of regulatory countermeasures.

### 2. Utilization of Scientific and Technical Knowledge and Findings Obtained from Safety Research

In order to utilize the domestic and overseas latest scientific and technical knowledge and findings results of safety research in its regulatory work such as examination and inspection, the NRA has its Secretariat's Research Divisions provide the Nuclear Regulation Department with technical support such as providing information. In FY2019, the Research Divisions provided the Nuclear Regulation Department with 38 cases of technical support in the licensing review of conformity to the new regulatory requirements, participation to the team meetings and others.

### 3. Collection of Information on the Trend of Regulation regarding Measures against a Common Cause Failure of Digital Safety Protection System

As the NRA's important task in 2019, the 53rd FY2018 NRA Commission Meeting (January 16, 2019) pointed out the necessity of efforts for regulating measures against a common cause failure of

digital safety protection system. The 29th FY2019 NRA Commission Meeting (September 13, 2019) set up a review team for studying this task to provide specific results within FY2019.

The 33rd FY2019 NRA Commission Meeting (October 2, 2019) decided to hold "review team meetings regarding measures against a common cause failure of digital safety protection system of a nuclear power reactor facility." Since then, a total of four review team meetings were held, in which requirements for reinforcing such measures were organized. In the 69th FY2019 NRA Commission Meeting (March 11, 2020) and the 73rd FY2019 NRA Commission Meeting (March 23, 2020), the review team reported its study results. A concrete method of incorporating said requirements into regulations is under discussion.

The 39th technical information review meeting (November 20, 2019) decided to start the research of regulations, codes and standards in other countries having introduced digital safety protection circuits and of a concrete level required for a digital safety protection circuit design taking into account electromagnetic compatibility.

**4. Review of Standards and Others with Importance and Urgency Taken into Account**

**(1) Partial Revision of the Examination Standard for the Operational Safety Program of Commercial Power Reactor and Associated Facilities**

At the 14th FY2019 NRA Commission Meeting (June 26, 2019), the NRA decided to require nuclear operators to incorporate the following requirements into their operational safety programs: the handling of a serious accident other than intentional large-aircraft crash and other terrorism by means of a specialized safety facility and the accurate and flexible handling of a serious accident without unnecessarily bound by procedures. Based on this and the results of hearing from nuclear operators and to clarify the bases of the requirements, the 20th FY2019 NRA Commission Meeting (July 31, 2019) proposed the partial revision of the "Examination Standard for the Operational Safety Program of Commercial Power Reactor and Associated Facilities," and the proposed revision was subjected to public comments. Subsequently, the 33rd FY2019 NRA Commission Meeting (October 2, 2019) adopted and put the partial revision into effect.

**(2) The Development of a Regular Safety Review Guideline and the Revision of the Examination Standard for Related Operational Safety Program**

The 65th FY2018 NRA Committee Meeting (March 6, 2019) decided to develop a guideline for regularly assessing nuclear research and test reactor facilities and revise the examination standard for a related operational safety program. In response, the 27th FY2019 NRA Commission Meeting (September 4, 2019) proposed the revision of the operational safety program examination standard and proposed an operational guideline for regularly assessing nuclear research and test reactor facilities. Regarding the proposed revision of the operational safety program examination standard, public comment solicitation based on the Administrative Procedure Act was carried out. As for the proposed operational guideline, arbitrary public comment solicitation was carried out. The 42nd FY2019 NRA Commission Meeting (November 13, 2019) adopted these proposals (put into effect on

April 1, 2020).

### (3) Development of a Notification relating to the Modification of Equivalent Dose Limit for Lens of the Eye

The 36th FY2019 NRA Commission Meeting (October 16, 2019) decided to incorporate the Radiation Review Council's opinion based on the Seoul statement (adopted by the ICRP) regarding the "lowering of the equivalent dose limit for the lens of the eye" into the regulation regarding radiation dose notification as provided in the Reactor Regulation Act. Subsequently, the 46th FY2019 NRA Commission Meeting (December 4, 2019) deliberated on the public comment solicitation results concerning the proposed revision of the notification rule of the Reactor Regulation Act and decided to consult the Radiation Review Council regarding the contents of stipulation relating to the modification of the equivalent dose limit for the lens of the eye. The 147th Radiation Review Council general meeting (December 23, 2019) confirmed the validity of the consultation contents. In response, the 63rd FY2019 NRA Commission Meeting (February 12, 2020) decided to revise said notification rule. Regarding the modification of dose limit for the lens of the eye (100 mSv per 5 years and 50 mSv per year), the NRA decided to put the modification into effect on April 1, 2021 in order to align the starting point of reckoning 5-year total dose with the current effective dose management situation.

## 5. Collection and Analyses of Domestic and Overseas Accidents/Failures Information

In order to introduce the latest scientific and technical knowledge, the NRA is collecting and analyzing domestic and overseas information on accidents and failures and conducting two-stage screening on the basis of the necessity of regulatory intervention. In FY2019, the NRA conducted the primary screening (189 cases) and secondary screening (4 cases) of publicly available information on domestic accidents and failures as well as accidents and failures information collected through cooperation with international organizations and other countries.

As a result, 182 cases were screened out through the primary screening, 7 cases are under review after the primary screening, 4 cases were screened out through the secondary screening and 1 case is under review after the secondary screening. Other than these, the technical review of one case that requires some sort of regulatory intervention is ongoing, and preparation for regulatory intervention is ongoing for 2 cases.

Screening results were deliberated in five technical information review meetings in FY2019. Information on an overseas event "the trace of dry-out in first-cycle fuel" was updated in September 2019, so re-screening was carried out. Regarding the case of "control rod stuck (fixated) due to the wear of thermal sleeve flange," secondary screening is ongoing. The results of such screening results concerning domestic and overseas accidents and failures were reported to the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee, both of which consist of external experts, to obtain their advice (July 5 and December 23, 2019).

### 6. Collection and Analysis of Information on Natural Phenomena Having Occurred Inside and Outside Japan

The 53rd FY2018 NRA Commission Meeting (January 16, 2019) discussed the "enhancement of collection and analysis of information on domestic and overseas natural phenomena that may affect the safety of nuclear power facilities" as a priority subject in 2019. Based on this and in order to establish a mechanism for collecting information on domestic and overseas natural phenomena, the NRA explored the possibilities of cooperation with Indonesian regulatory body BAPETEN and field surveys focused on earthquakes and tsunamis in Indonesia. In September 2019, the NRA held a bilateral meeting with the BAPETEN and obtained its cooperation for field surveys and an agreement to holding an information exchange meeting, the schedule of which is being adjusted for its realization.

As part of information gathering regarding earthquakes and tsunamis in Indonesia, the NRA participated in an international symposium and others held in the country, conducted a hearing from academics and experts who had performed three-time field surveys in the country, and held six lecture meetings at the NRA Secretariat to share and accumulate knowledge and findings. The NRA also conducted research on literature concerning earthquakes and tsunami in Indonesia and reported findings relating to tsunami induced by submarine landslide at a technical communication meeting. The NRA's staff participated in committee and academic meetings held by government organizations and research institutes to collect and analyze information on domestic and overseas natural phenomena. Subsequently, the NRA shared information on the subjects "Revision of Long-Term Evaluation of Seismic Activities along the Japan Trench (reported by The Headquarters for Earthquake Research Promotion)" and "Assumption of Flooding from Tsunami (reported by Fukushima Pref.)" at technical information review meetings.

### 7. Participation in International Conferences

A framework has been established, in which discussions based on the latest research and study results regarding nuclear power facilities, radioactive waste and its safe transportation are held at international arenas such as the IAEA and results obtained from such discussions are reflected in regulations in each country.

The NRA's staff collected the latest safety-related knowledge and findings at meetings held by international organizations. At the same time, in order to reflect our country's experiences and opinions in international discussions, the NRA's staff participated in meetings held by IAEA's Nuclear Safety Standards Committee (NUSSC), the Waste Safety Standards Committee (WASSC), the Transport Safety Standards Committee (TRANSSC) and others.

## Section 3 Promotion of Safety Research

### 1. Proactive Implementation of Safety Research[29]

Based on the "Basic Policy on Safety Research by the NRA" (NRA decision on July 6, 2016) and

[29] This means NRA's own research activities for addressing issues in nuclear regulations.

the “Fields of and Policy on the Implementation of Safety Research to be Promoted (for safety research to be conducted in and after 2019)” (NRA decision on July 18, 2018), the NRA is conducting safety research projects. The NRA is publishing its safety research results through “NRA technical reports” compiling technical basics and experiments data for regulatory use so that they can be used as bases for regulatory standards, guidelines, examinations and inspection, as well as through academic papers and academic presentations. In FY2019, to promote the publication of safety research results, the NRA created a new report category “NRA technical note” a report of which is developed by compiling data and information.

The NRA implemented 24 safety research projects in 13 research fields. As the achievements of the safety research, NRA staff issued two NRA technical reports and one NRA technical note, published 23 papers in journals, presented four papers at international conferences, and made 38 academic presentations. Moreover, the NRA staff members were awarded with four academic prizes because of their excellent academic achievements in safety research (one research paper prize awarded by the Japan Society of Corrosion Engineering, one excellent lecture prize awarded by the Thermal-Hydraulics Division of the Atomic Energy Society of Japan, one exhortative prize awarded by the Reactor Physics Division of the same, and one exhortative prize awarded by the Thermal-Hydraulics Division of the same).

**2. Safety Research Assessment and Policy Development**

The 12th FY2019 NRA Commission Meeting (June 12, 2019) performed the ex-post evaluations of five safety research projects completed in FY2018 and the interim evaluations of three safety research projects ongoing in 2019. The 57th FY2019 NRA Commission Meeting (January 29, 2020) and the 64th FY2019 NRA Commission Meeting (February 19, 2020) implemented the interim evaluations of two ongoing safety research projects and the prior evaluations of five safety research projects newly starting in FY2020). Based on the “Basic Policy on Safety Research by the NRA,” the NRA reviewed safety research plan from 2020, and at the 16th FY2019 NRA Commission Meeting (July 3, 2019), developed the “Fields of and Policy on the Implementation of Safety Research to be Promoted (for safety research to be conducted for and after FY2020)”.

**3. Participation in Joint Research Projects**

The NRA has been participating in international joint research projects in collaboration with the Japan Atomic Energy Agency (JAEA)’s Nuclear Safety Research Center. As bilateral international activities in FY2019, the NRA exchanged information with the NRC, IRSN and GRS[30] and participated in 17 international joint research projects of the OECD/NEA, and 11 working groups and senior expert meetings that fall under the umbrella of OECD/NEA CSNI, to collect technical findings including the latest trend in each research field.

With regard to the research and investigation of the accident at TEPCO’s Fukushima Daiichi NPS,

[30] Gesellschaft für Anlagen- und Reaktorsicherheit

the NRA participated in the research project (ARC-F) of OECD/NEA/CSNI and shared current status and issues of analysis for accident scenarios and associated transportation and dispersion of fission products with 12 countries (22 organizations).

On the other hand, with regard to joint research, which also contributes to the technological ability improvement of research staff, in January 2020, the NRA developed a review procedure manual for joint research projects. The manual is based on joint research provisions established in April 2017 and specifically sets forth a method of checking research programs and progress. In FY2019, the NRA conducted 13 joint research projects (9 projects with the JAEA and 11 projects with universities (7 projects both with JAEA and universities)), which exceeds the number in the previous fiscal year.

## Section 4 Securing and Developing Human Resources for Nuclear Regulation and the Expansion and Development of Research Environment for Research Staff

### 1. Securing and Developing Human Resources

#### (1) Securing Human Resources with Experience

The NRA conducted open recruitment for experienced persons (who have worked in other sectors including the private sector) mainly in the areas of reviews/inspections for safety regulations, nuclear emergency preparedness, and radiation hazard prevention, and employed 33 people in FY2019.

#### (2) Securing New Graduates

In order to attract large numbers of promising qualified personnel, the NRA actively carried out a campaign for recruitment such as presentations on the activities/missions of the Secretariat of the NRA emphasizing the importance of regulations for nuclear safety.

With regard to the employment of new staff members, the NRA effectively utilized the "Nuclear Engineering Examination" (for general positions) as in the past, which is the NRA Secretariat's original examination intended to proactively employ graduates who majored in nuclear engineering, and at the same time, carried out the open recruitment of new research staff in charge of technical research and survey. Through these efforts, the NRA adopted 22 young personnel in FY2020 recruitment (4 for career positions, 12 for general positions, 2 through a nuclear engineering exam and 4 through a research staff recruitment exam), who are expected to play important roles in future nuclear regulatory administration.

As a result, the number of NRA staff has become 1,008, with the ratio of personnel to the prescribed number of personnel becoming 95.4%.

**Table 4-1 Situation of securing human resources from FY2014 to 2019** (Unit: persons)

| | FY2014 | FY2015 | FY2016 | FY2017 | FY2018 | FY2019 | Total |
|---|---|---|---|---|---|---|---|
| Experienced personnel*[1] | 51 | 59 | 39 | 44 | 23 | 33 | 249 |
| New graduates*[2] | 22 | 19 | 19 | 25 | 29 | 22 | 136 |
| Total | 73 | 78 | 58 | 69 | 52 | 55 | 385 |

*[1]: Number of personnel hired during the period from April 1, 2019 to March 31 in the relevant fiscal year
*[2]: Number of personnel hired from the date of job offer in previous fiscal year to April 1 in next fiscal year

#### (3) Efforts concerning the Program of NRA Human Resource Development

In order to broadly secure personnel and develop human resources engaged in nuclear safety and regulations aiming at steadily improving nuclear regulations, the NRA launched the subsidy program for human resource development for nuclear regulations. This program has been carried out in collaboration with universities and other institutions since FY2016. In FY2019, this program was applied to a total of 17 cases (13 cases adopted in FY2016 and 4 cases did in FY2017) implemented by universities and other institutions.

### (4) Securing and Developing Regulatory Human Resources for the Full-scale Operation of the New Nuclear Regulatory Inspections

To enhance inspector training as one of issues identified through the IRRS mission and to ensure the implementation of the “Basic Policy of Development of NRA Officials” (NRA commission decision on June 25, 2014), the NRA started training and OJT in order for 242 personnel to acquire job qualifications in five job fields, “nuclear inspection,” “nuclear safety review,” “safeguards inspection,” “emergency preparedness,” and “regulation for radiation” under the job qualification system introduced in FY2017. Particularly to cope with the full-scale operation of nuclear regulatory inspections to be started in April 2020, 198 nuclear inspection qualifications were given to the personnel, having expertise capable of handling nuclear regulatory inspections.

Continuing from FY2018, the NRA has been providing the education and training courses for basic qualifications to NRA staff in five job fields. In FY2019, 7 personnel were selected for an “intensive course” intended for them to concentrate on the course without involving in their daily jobs, and six personnel were selected for “distributed course” intended for them to receive training while working. Education and training course trainees who were receiving the “intensive course” since FY2018 were provided with job qualifications in FY2019 as planned.

Technical proficiency program in the education and training course has been improved and strengthened. The other training course was created for the personnel with less opportunity to gain technical expertise. The course starts the explanation of the outline of nuclear facilities, and then utilizes plant simulator for training and visualizing nuclear reactor behavior.

Also in FY2019, the competence of the NRA staff was managed by the qualifications of five job fields, and reflects their position and salary. Knowledge management activities such as seminars for transferring and sharing administrative experiences and technological knowledge were continued.

## 2. Development of Human Resources for Research

In FY2019, to promote human resource cultivation and personnel exchanges by utilizing joint research, the NRA had 37 staff members engage in joint research, which is a number exceeding that in the previous year, and dispatched three staff members to the Japan Atomic Energy Agency in order for them to exclusively engage in testing and research activities. The NRA also accepted staff members dispatched from the Japan Atomic Energy Agency. Two of them worked in research-related jobs. The NRA actively published safety research results such as those by academic societies and endeavored to improve the abilities of its research staff by making them discuss with experts at academic meetings.

# Chapter 5 Enhancement of Nuclear Security Measures and Steady Implementation of Safeguards

**Summary of Chapter 5**

(Enhancement of Nuclear Security Measures)

Regarding regulations for physical protection, the NRA conducted focused physical protection inspections of nuclear materials including the inspection of the situation of confirmation system of trustworthiness (system for checking the reliability of individuals), and strictly and appropriately examined the applications for permission to change physical protection programs. Status of trial operation of nuclear regulatory inspection related to nuclear material protection started in June 2019. Based on the above, the NRA formulated the "Guide for Assessing Safety Significance in Physical Protection" in April 2020.

As for the development of a system for enhancing nuclear security measures, the NRA revised its ordinance on the reinforcement of measures against insider threats at nuclear facilities other than commercial nuclear power reactor facilities (revision put into effect in March 2019), and in consideration of threats (e.g., sabotage) to information systems of nuclear facilities, revised its examination standard for physical protection (revision put into effect in April 2019). It also developed related ordinances and nuclear regulatory inspection documents on the basis of the results of the trial operations.

In addition, the NRA received the IPPAS[31] follow-up mission report. The report said that the IPPAS team saw significant enhancements comparing to the previous mission. The IPPAS team also concluded overall that Japan has robust nuclear security regime that meets that intent of the Convention on the Physical Protection of Nuclear Material and its 2005 Amendment.

(Steady Implementation of Safeguards)

The IAEA's report regarding safeguards activities in Japan in 2018 concluded that all nuclear materials remained in peaceful activities (Broader Conclusion).

Regarding TEPCO's Fukushima Daiichi NPS, Units 1 to 3, where normal inspections cannot be carried out, the NRA took necessary measures such as the verification activities of fresh fuel assemblies transferred from the spent fuel pool of Unit 3 to the Common Spent Fuel Storage facility through continuous consultation with the IAEA, besides the additional measures it took by the previous fiscal year.

Following the IAEA's efforts to maintain efficient and effective state level safeguards with limited resources, the NRA discussed and consulted with the IAEA regarding facility-type-specific safeguards approach to be applied to each nuclear facility in Japan. The NRA facilitated the international community's understanding of Japan's safeguards and contributed to strengthening and improving the efficiency of international safeguards through participating in international safeguards-related conferences and support for education of safeguards personnel and development of safeguards technologies.

The NRA provided necessary guidance and supervision for the designated organization for information processing and implementing safeguards inspection, which is an essential part of the domestic safeguards system, to ensure proper performance of its duties.

[31] International Physical Protection Advisory Service

## Section 1 Enhancement of Nuclear Security Measures

### 1. Implementation of Physical Protection Inspections of Nuclear Material

#### (1) Strict Implementation of Physical Protection Inspections of Nuclear Material

In accordance with the Reactor Regulation Act, the NRA approves physical protection programs which the nuclear operators who handle specific nuclear fuel materials must comply with to protect them. The NRA also conducts inspections for evaluating the status of compliance with approved physical protection program (hereinafter referred to as "physical protection inspections"). In addition to 149 cases of approving physical protection program modifications, the NRA, based on the physical protection inspection policy established in May 2019, strictly and appropriately conducted 56 physical protection inspections including the inspections of the operation of a confirmation system of trustworthiness (system for checking the reliability of individuals), initial responses in physical protection exercises and the status of information system security measures.

In addition, in preparation for the start of nuclear regulatory inspection from April 2020, the NRA developed the "Guide for Assessing Safety Significance in Physical Protection," based on the result of trial operation of nuclear regulatory inspections which were conducted at two facilities in June 2019 and all facilities in October 2019.

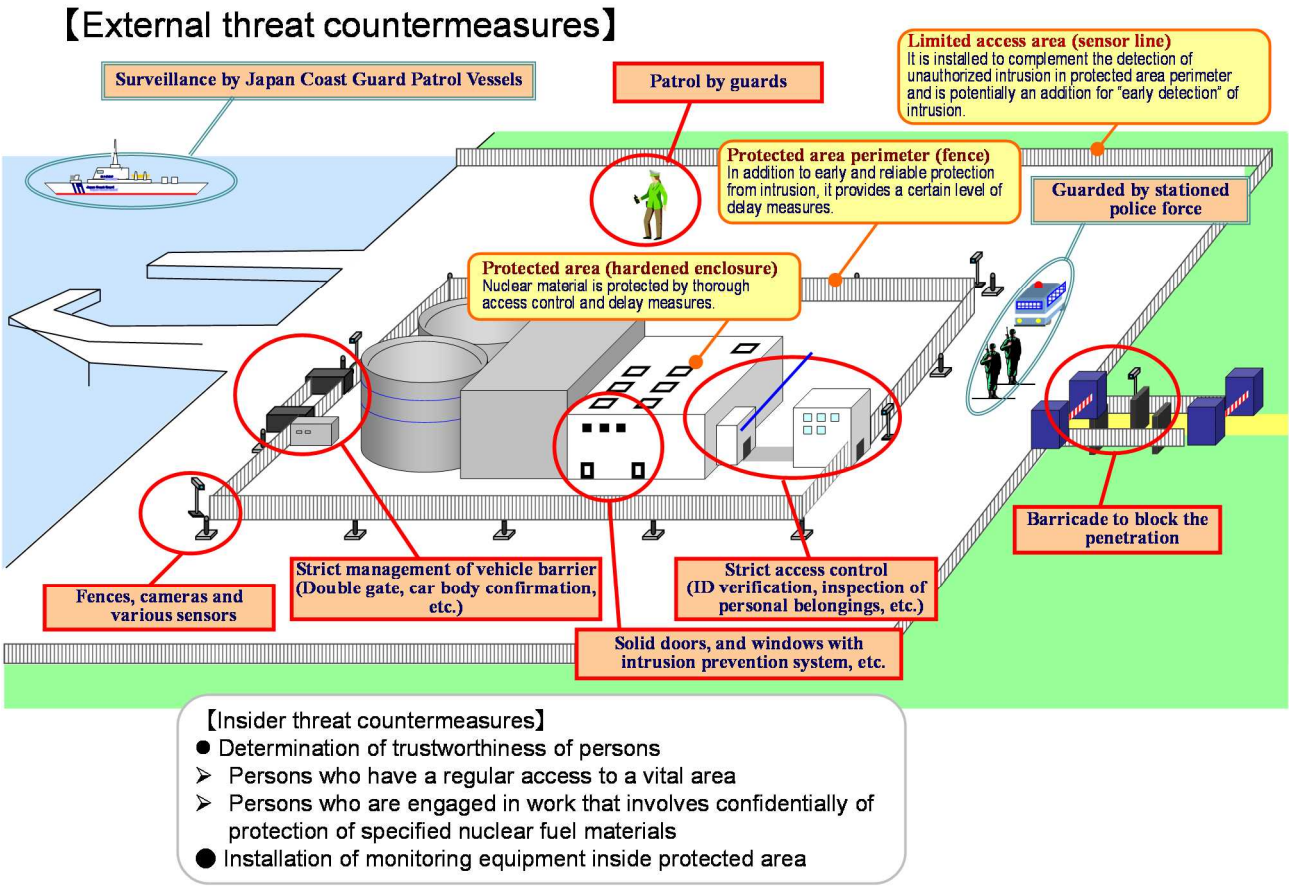



**Figure 5-1 Overview of Protective Measures**

#### (2) Efforts for Improving Physical Protection Training

The NRA improved and strengthened the nuclear operators' physical protection system through

physical protection inspection, in particular the NRA focused on the checking of nuclear operators' levels of training for initial responses to a physical protection emergency, such as the checking of nuclear operator's judgments in case of an event requring information gathering or an alert-level event, as well as countermeasures including evacuation instructions and information sharing with the NRA's Secretariat and security organizations.

## 2. Response to Nuclear Security Challenge

### (1) Steady Implementation to Foster Nuclear Security Culture of NRA Officials

In order to foster its nuclear security culture and in light of the "Code of Conduct on Nuclear Security Culture" developed in January 2015 based on the "Organizational Philosophy of the Nuclear Regulation Authority" developed in January 2013, the NRA implemented training and others relating nuclear security culture, targeting newly hired personnel and persons who's assuming the post of inspector is expected.

### (2) Examinations of Physical Protection Programs related to Insider Threat Countermeasures

The IAEA's Nuclear Security Recommendations on Physical Protection of Nuclear Materials and Nuclear Facilities (INFCIRC/225/Rev.5 January 2011) call for the introduction of a confirmation system of trustworthiness as one of the insider threat countermeasures at nuclear facilities, which is a system to check the individuals' personal histories and other information on persons working in a nuclear facility before granting them access to critical zones on the basis of the check results. In response to the recommendations and to strengthen insider threat countermeasures including a confirmation system of trustworthiness of individuals at commercial power reactor facilities, the NRA put into effect its revised ordinance in September 2016. The implementation of such measures against insider threats started in November 2017 after the NRA approved physical protection program modifications applied for the relevant commercial power reactor facilities. With regard to insider threat countermeasures at nuclear research and test reactor facilities other than commercial power reactor facilities, the NRA revised the related ordinances (revised in March 2019) and the examination standard for physical protection (revised in April 2019) and is proceeding with the examinations of applications for its approval of physical protection program modifications.

### (3) Enhancement of Cyber Security Measures

The NRA conducted physical protection inspections and focused checking of progress in nuclear operators' cyber security of information system taking into account the "Guidelines for Security Measures for Nuclear Facility Information System" drawn up in March 2018 as reference materials for continuously improving the cyber security measures.

Based on the possible threats (such as sabotage) to information system of nuclear facilities (developed in October 2018) and others, the NRA revised the Examination Standard for Physical Protection in April 2019 and is examining the applications for approval of the physical protection

program modifications. In order to further strengthen cyber security countermeasures, the NRA provided nuclear operators with technical advice at the occasions of their physical protection exercises.

**(4) Review of Nuclear Security Measures during Transportation**

The "Ordinance on the Shipment of Nuclear Fuel Material Outside of Factory or Power Reactor Facilities" requires the locking up and sealing of transportation containers in which specified nuclear fuel material is enclosed. The "Ordinance on Arrangement of Transportation of the Specified Nuclear Fuel Material" requires that a person responsible for the transport of such nuclear fuel material shall be clarified, that an agreement shall be concluded among related parties, and that the agreement shall be confirmed by the NRA before transport begins.

In FY2019, the NRA carried out checks based on these related ordinances, dispatched its staff to the July 2019 meeting of the Japan-U.S. Nuclear Security Working Group established after the 1st Nuclear Security Summit held based on the U.S. president's proposal in April 2010 (summits were held four times until April 2016) and to the international symposium relating to transportation security in November 2019, and exchanged opinions on security measures during transportation with relevant ministries and agencies.

**(5) Responses to the Results of IAEA's IPPAS Mission and Follow-Up Mission**

In February 2015, Japan invited the IAEA's IPPAS mission, through which the IAEA makes recommendations and advices regarding the member countries' status of compliance with the Convention on the Physical Protection of Nuclear Material and IAEA guidance to strengthen the member countries' nuclear security systems, and received a report from the mission in June of the same year. In addition, Japan invited an IPPAS follow-up mission from November to December 2018 to confirm the Japan's response to the recommendations and advice of the said report and received a follow-up mission report in April 2019. The report said that the IPPAS team saw significant enhancements comparing to the previous mission. The IPPAS team also concluded overall that Japan has robust nuclear security regime that meets that intent of the Convention on the Physical Protection of Nuclear Material and its 2005 Amendment. Because the IAEA leaves the publication of such reports to the judgment of each host country, the NRA referred to other countries' examples before publishing the original report (written in English) excluding the specific contents of measures for the physical protection of nuclear materials and the results of reviewing each facility.

**3. Participation in International Meetings**

A framework is in place in which countries discuss nuclear security based on the latest knowledge at international arenas such as the IAEA and reflect discussion results to their laws and ordinances.

NRA staff participated in meetings held by international organizations such as the 3rd international regulator conference on nuclear security and the IAEA's International Conference on Nuclear Security

to collect the latest knowledge relating to the physical protection of nuclear materials as well as to reflect Japan's experiences and opinions in international discussions.

## Section 2 Steady Implementation of Safeguards

### 1. Steady Implementation of Safeguards Activities in Japan

In Japan, limiting the use of nuclear power to peaceful purposes is a fundamental policy manifested in the Atomic Energy Basic Act. Japan has accordingly signed the Treaty on the Non-Proliferation of Nuclear Weapons and also concluded a safeguards agreement (Japan-IAEA Safeguards Agreement)[32] and the Additional Protocol with the IAEA based on this treaty. Bilateral nuclear agreements to promote cooperation concerning the peaceful use of nuclear power have also been concluded with 14 countries and one 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 will implement the prescribed regulatory controls in Japan and coordinate on 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 Safeguarded Material and Approval of Provisions for Accounting and Control

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 FY2019, there were 49 cases in which permission or approval to the use of safeguarded material was granted and 368 cases in which a notification of change was submitted. In order to ensure proper accounting for and control of safeguarded material in Japan, nuclear operators including the users of such materials (hereinafter referred to as "safeguarded material users") are obligated to stipulate their accounting provisions. In FY2019, permission or approval was granted to the accounting provisions in 49 cases and changes were permitted or approved in 156 cases.

##### (b) Accounting Reports, Providing Design Information of Facilities, and Other Reporting, and Applications Based on the Additional Protocol

Nuclear material accounting is an important basic step in Safeguards. Safeguarded material users are obligated to report the current and changes of inventory of nuclear materials to the NRA in accordance with the Reactor Regulation Act. The NRA has submitted data (inventory and inventory changes) processed by the public interest incorporated foundation, Nuclear Material Control Center (hereinafter

[32] An agreement concluded between the Japanese government and the IAEA to implement the provisions of Article 3(1) and (4) of the Treaty on the Non-Proliferation of Nuclear Weapons

referred to as the “Nuclear Material Control Center”), which has been designated as a registered information processing organization under the Reactor Regulation Act, and compiles the processed data into an accounting report, which the NRA submits through the Ministry of Foreign Affairs to the IAEA on a timely basis. In FY2019, 2,095 safeguarded material users were required to submit an accounting report. The number of each type of submitted accounting report is shown in Table 5-1.

In addition, the NRA provided design information relating to facilities subject to the Safeguards Agreement and other information required to implement safeguards, and submitted a declaration based on the Additional Protocol to the IAEA through the Ministry of Foreign Affairs.

**Table 5-1 Number of Accounting Reports for FY2019**

(From April 1, 2019 to March 31, 2020)

| Type | No. of cases |
|---|---|
| Inventory change reports | 830 |
| Material balance reports | 401 |
| Physical inventory listings | 4,314 |
| Nuclear fuel material management reports | 3,504 |

**(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 safeguard inspections are conducted by the Nuclear Material Control Center, which has been designated as an organization for implementing safeguards inspection 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. Table 5-2 shows a record of on-site verification activities in FY2019.

**Table 5-2 Record of On-site Verification Activities Carried Out in FY2019**

(From April 1, 2019 to March 31, 2020)

| Type | Nuclear Regulation Authority | Nuclear Material Control Center | Ministry of Foreign Affairs |
|---|---|---|---|
| Safeguards inspections | 19 person-days | 1,657 person-days | |
| Design information verification | 91 person-days | | |
| Complementary access | 33 person-days | | 27 person-days |

**(d) Coordination for Facilitating Implementation of Safeguards**

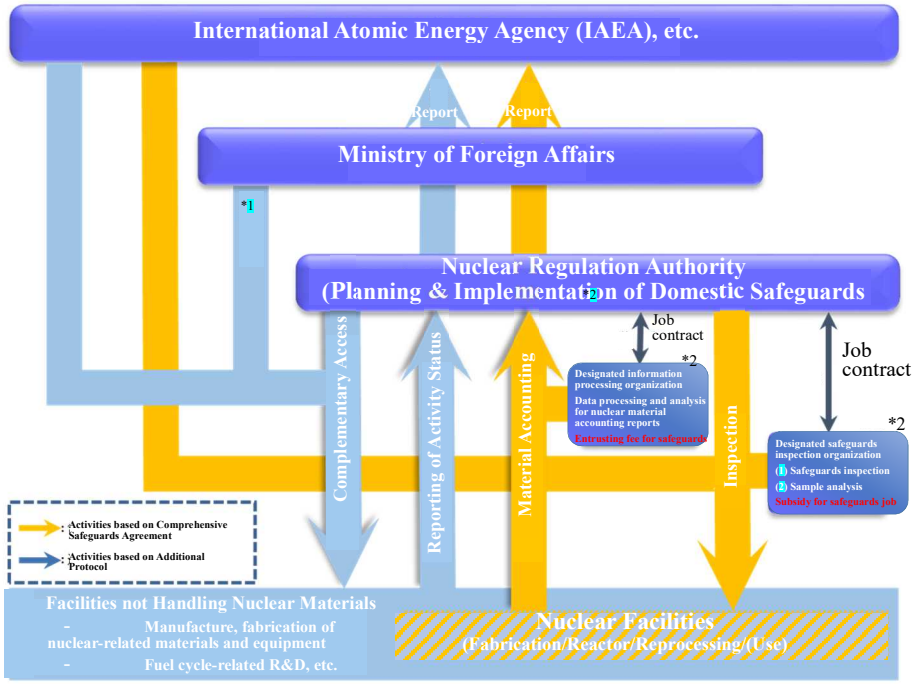
In order to facilitate the implementation of safeguards, the NRA has been holding meetings with the IAEA with the attendance of relevant domestic organizations for the purpose of sharing information on the state of facilities, investigating issues that arise when safeguards are implemented and making adjustments. In FY2019, a total of 20 working group meetings participated by the specified facility groups were held to review and adjust safeguards-related problems. Based on this, a plenary meeting was held on December 2, 2019 to summarize past activities.

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

In order to prevent the occurrence of safety problems caused by safeguards equipment such as monitoring cameras installed in nuclear power 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**

On May 15, 2019, the NRA received from its Secretariat the results of 2018 safeguards activities in Japan and reported the results to the IAEA to contribute to the IAEA's assessment on its safeguards activities. The IAEA draws a conclusion on safeguards based on the evaluation of all information obtained through safeguards activities carried out every year by the States 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 2018 that all nuclear materials remained in peaceful activities (Broader Conclusion). Accordingly, this Broader Conclusion has been adopted continuously for 16 years since the results of the implementation of safeguards in 2003 were obtained.




*1 Complementary access during normal inspection is excluded.

*2 Nuclear Material Control Center (NMCC) is designated under the Reactor Regulation Act.

**Figure 5-2 Safeguards Implementation Arrangement**

Inspection activity


Seal

Maintenance of monitor

**Figure 5-3 Safeguards-related Activities**

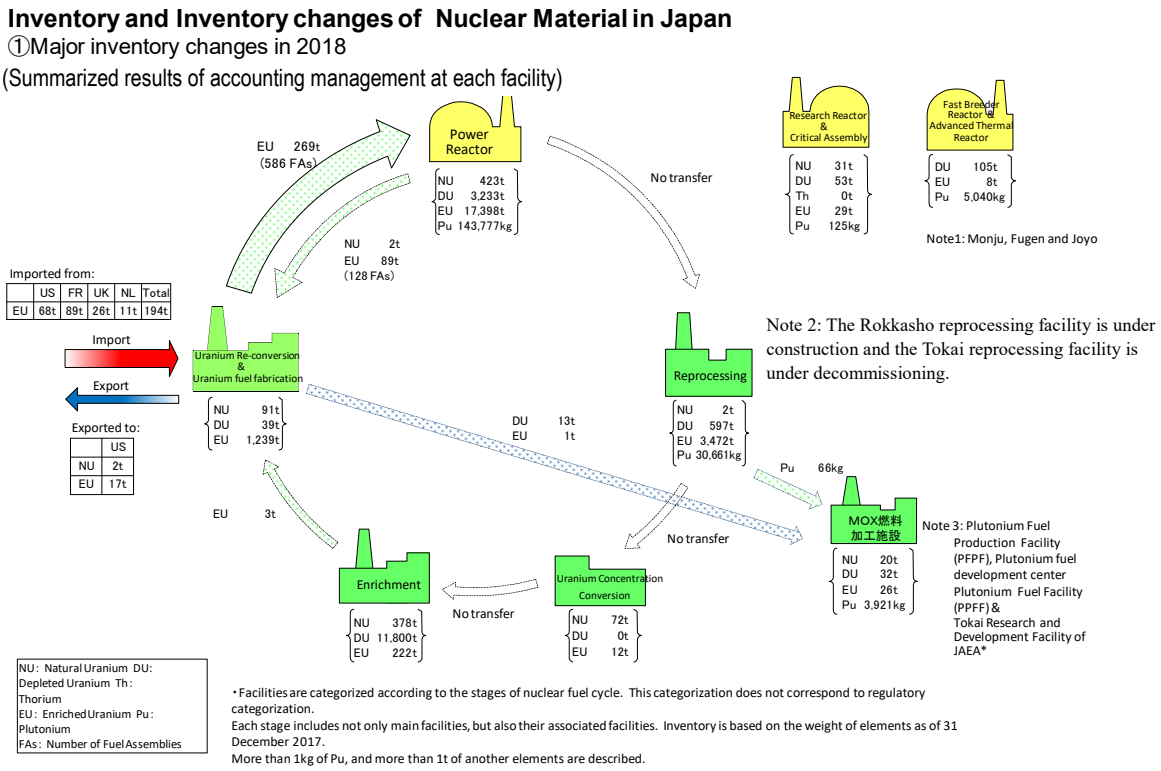



**Figure 5-4 Amount of Nuclear Materials in Japan**

### (2) Implementation of Procedures for Safeguarded Material on the Basis of Bilateral Nuclear Agreements

Japan has concluded bilateral nuclear agreements with 14 countries and one international organization, and has undertaken commitments to use nuclear source materials, nuclear fuel materials, and moderator materials which have been transferred under these agreements, and nuclear fuel materials produced as a result of using these transferred materials, for only peaceful purposes and to carry out procedures applicable to items subject to these agreements. In FY2019, in accordance with these agreements, the NRA handled one case of verification pertaining to the management of the country origin of the nuclear materials transferred from other contracting party and two cases of verification pertaining to the management of the country origin of nuclear materials transferred to other contracting parties. In addition, with the support of the Nuclear Material Control Center, the NRA reported 14 inventory listings to the IAEA.

## 2. Safeguards at TEPCO's Fukushima Daiichi NPS

Normal on-site verification activities have been carried out for all nuclear materials in reactors except Units 1 to 3 at 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, the NRA has introduced a full-time monitoring system based on the use of surveillance cameras and radiation monitors and special additional verification

activities specific only to this NPS site. Thus, the NRA established a framework to allow the IAEA to verify that no undeclared nuclear material has been moved within Units 1 to 3. In FY2019, the NRA carried out verification activities on the transfer of fresh fuel assemblies from the Unit 3 spent fuel pool to the Common Spent Fuel Storage facility.

The Fukushima Task Force Meetings held jointly with the IAEA in April and September 2019 reviewed safeguards activities at the entire Fukushima Daiichi NPS site. At the Core Damage Subgroup Meetings held in July 2019 and January 2020, the NRA reviewed accounting technique and provided information on analysis facility.

### 3. Examination of New Safeguards Inspections

In order to maintain efficient and effective safeguards with limited resources while utilizing the experience of safeguards implementation and new techniques, the IAEA has decided to formulate a "State Level Safeguards Approach" for each country taking into account the state of nuclear activities and technical capacities of each member state. Because the IAEA adopted the same approach also to Japan, the NRA, in continuation from FY2018, discussed inspection procedures based on the facility-type-specific safeguards approach applied to domestic nuclear facilities at working group meetings jointly held with the IAEA from January 2020 and started applying new inspection procedures to the low enriched uranium fuel fabrication facilities.

The IAEA expressed its intention of enhancing the inspections of “location outside facilities” [33] present in 191 locations in Japan (as of April 1, 2019) and is recommending Japan’s independent implementation of safeguard inspections that complement “location outside facilities” inspections. Therefore, in order to improve the quality of accounting control at “location outside facilities” and the reliability of Japan’s safeguards activities, the NRA is considering to experimentally carry out activities equivalent to the safeguard inspections at three “location outside facilities” apart from the IAEA’s inspections that will be followed by implementing full-scale safeguard inspections from 2020.

### 4. Information Transmission and Human Resource Development related to Japan’s Safeguards Activities

#### (1) Information Transmission through the Asia-Pacific Safeguards Network (APSN)

The Annual Conference of the Asia-Pacific Safeguards Network (APSN[34]) was held in Bali, Indonesia from August 26 to 29, 2019 with the participation of 16 member countries, the IAEA, and the European Safeguards Research and Development Association (ESARDA[35]). The NRA made a presentation on Japan’s distinctive safeguards experiences at TEPCO’s Fukushima Daiichi NPS and the Japan Nuclear Fuel’s Rokkasho Reprocessing Plant to help enhance the safeguards arrangements

[33] These mean structures or locations that do not fall under the IAEA safeguards categories of nuclear reactor facility, criticality facility, conversion plant, fabrication plant, reprocessing plant, isotope separation plant or independent storage facility and that normally use nuclear materials less than 1 effective kilogram. Particularly, “usage facilities” in regulatory classification in terms of the Nuclear Reactor Regulations Act correspond to the “locations outside facilities.”

[34] Asia-Pacific Safeguards Network

[35] European Safeguards Research and Development Association

in the Asia-Pacific region.

Regional seminars on safeguards for APSN member countries were held in Vietnam in October 2019 and in Singapore in January 2020. In Socialist Republic of Viet Nam (Vietnam), "Safeguards for Location Outside Facilities," and in Republic of Singapore (Singapore), "Establishment of Effective Regulatory Bodies for Safeguards Implementation" were discussed, and the NRA presented Japan's knowledge in those seminars.

The NRA made presentations on Japan's safeguards situation and the challenges it faces in a joint workshop to strengthen the international safeguards and nuclear security organized by INMM[36], the ESARDA and the INMMJ[37] in Tokyo in October 2019 and also in a ESARDA training course to enhance the abilities of international human resources engaged in safeguards and nuclear nonproliferation held in Ispra, Italian Republic (Italy) in April 2019.

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

The technical development required for the implementation of safeguards by the IAEA has been conducted by the key IAEA member states. Japan has proactively contributed to the reinforcement of international safeguards. Specifically, Japan has helped to improve the technical capacity of the IAEA and other member states to implement safeguards through a framework that includes the Japan Support Programme for Agency Safeguards (JASPAS[38]). The program covers a lot of ground, including participation in the IAEA Network Laboratories for Safeguards Analysis, which analyzes environmental samples obtained by the IAEA inspectors, and providing training opportunities to IAEA inspectors and officials of member states. The NRA has made overall coordination of the support program and provided the necessary funds. As of the end of 2019, 29 projects are in progress. In a regional training course for State System of Accounting for and Control of nuclear material jointly held by the Japan Atomic Energy Agency and the IAEA in Tokai Village, Ibaraki Prefecture, the NRA presented Japan's accumulated knowledge.

## 5. Guidance and Supervision of the Designated Organization for Information Processing and for Implementing Safeguards Inspection under the Reactor Regulation Act

As the designated organization for information processing and for implementing safeguards inspections and associated activities under the Reactor Regulation Act, the Nuclear Material Control Center is required to carry out its operations in an appropriate manner. To ensure the proper performance of the work by the Nuclear Material Control Center, the NRA periodically conducts on-site inspections based on the Reactor Regulation Act and checks compliance with provisions relating to the Act and information security reinforcement situations.

[36] Institute of Nuclear Materials Management
[37] Institute of Nuclear Materials Management Japan Chapter
[38] Japan Support Programme for Agency Safeguards

# Chapter 6 Enhancement and Reinforcement of Radiation Protection Measures and Crisis Control System

**Summary of Chapter 6**

(Improvement of Technical Standards for Radiation Protection on the Basis of the Latest Knowledge)

The Radiation Council drew up the "Interim Report on How to Proceed with Future Deliberations on the Dose Limit and Measurement Frequency for Female Radiation Workers (Including a Dose Limit for Pregnant Radiation Workers)" and the "Interim Report on How to Proceed with Future Deliberations on an Effective Dosage Coefficient, a Concentration Limit in Exhaust Gas, Air, Effluent or Discharged Water and the Usage of an Effective Dose."

Based on a report compiled by the "Study Team on Administration of Stabilized Iodine" in FY2018, the NRA revised the "NRA Guide for Emergency Preparedness and Response (hereinafter referred to as NRA EPR Guide)" and the "Distribution and Administration of Stabilized Iodine" on July 3, 2019. The NRA also revised the NRA EPR Guide on February 5, 2020 to review the Emergency Action Level (EAL) used by nuclear operators to determine whether a situation corresponds to an emergency and to clarify the roles of the national government in ensuring the smooth implementation of disaster prevention measures for the transportation of nuclear fuel materials, etc.

The NRA has been steadily carrying out the "Strategic Radiation Safety Research Promotion Project" initiated in FY2017. Part of the results of this Project were reported to the Radiation Council meeting, and contributed to discussions on the incorporation of the 2007 Recommendations of ICRP into domestic regulations.

(Implementation of and Technical Study on Radiation Monitoring)

The NRA conducted radiation monitoring training and others for the Emergency Monitoring Centers, and reinforced measurement system of the emergency monitoring with establishment of effective monitoring system.

(Enhancement and Reinforcement of Crisis Control System)

In order to strengthen its emergency response capability, the NRA developed a response manual for the accident or event in the facility which is under the scope of the Act on the Regulation of Radioisotopes, etc. In response to what the IRRS pointed out, the NRA developed a manual for clarifying initial responses in case of a disaster during the land transportation of radioactive materials. Moreover, to clarify procedures for handling an ERSS[39] failure, the NRA developed the "ERSS Operating Manual." In addition to these, the NRA identified problems through training and assessments and addressed them and reinforced its communication network equipment and system.

To strengthen nuclear operators' emergency response capability, the NRA started assessing emergency drills not only for commercial nuclear power reactors but also for nuclear fuel facilities and others. Based on the FY2019 training policies, the Training Scenario Development Working Group continued conducting training for improving the nuclear operators' decision-making and on-site response capabilities.

[39] Emergency Response Support System

## Section 1 Improvement of Technical Standards for Radiation Protection on the Basis of the Latest Knowledge

### 1. Investigation and Deliberation by Radiation Council

Established under the NRA, the Radiation Council is intended to uniform technical standards for preventing radiation hazards on the basis of the Act on Technical Standards for Prevention of Radiation Hazard.

In FY2019, the Radiation Council held four general meetings. The Council discussed how to incorporate the 2007 Recommendations of ICRP into the domestic systems and drew up the "Interim Report on How to Proceed with Future Deliberations on the Dose Limit and Measurement Frequency for Female Radiation Workers (Including a Dose Limit for Pregnant Radiation Workers)" and the "Interim Report on How to Proceed with Future Deliberations on an Effective Dose Coefficient, a Concentration Limit in Exhaust Gas, Air, Effluent or Discharged Water and an Effective Dose."

Regarding the technical standards for preventing radiation hazards the related ministries and agencies consulted on the basis of the "On a modality of the Radiation Protection for the Lens of the Eyes" (recommended views in March 2018), the Council confirmed the validity of said technical standards (147th Radiation Council general meeting on December 23, 2019 and the 148th Radiation Council general meeting on January 24, 2020).

### 2. Continuous Improvement of the NRA Guide for Emergency Preparedness and Response (NRA EPR Guide)

Under the Act on Special Measures Concerning Nuclear Emergency Preparedness (Act No. 156 of 1999; hereinafter referred to as "Nuclear Emergency Act"), the NRA shall develop the NRA EPR Guide in order to ensure smooth implementation of nuclear emergency measures to be taken by nuclear operators, the national government, local governments, etc. Regarding the NRA EPR Guide, the NRA has been constantly improving its contents to optimize the judgment criteria for developing the disaster prevention plans by actively incorporating the latest international knowledge.

With regard to the development of medical systems for a nuclear disaster, mentioned in the NRA EPR Guide, the NRA established close coordination with the National Institutes for Quantum and Radiological Science and Technology designated as the Core Advanced Exposure Medical Support Center as well as with Hirosaki University, Fukushima Medical University, Hiroshima University and Nagasaki University which have been designated as the Nuclear Emergency Medical Support Center, and established a network among nuclear emergency medical care organizations through a council for promoting national nuclear emergency medical coordination and through another council for promoting regional nuclear emergency medical coordination. In addition, the NRA supported the development of facilities and equipment for the said five institutes and universities and developed an environment for accepting radiation-exposed patients and providing related education and training.

With regard to operation of distribution and dosing of stable iodine mentioned in the NRA EPR Guide, the NRA revised the Guide and the "Distribution and Administration of Stabilized Iodine" on

July 3, 2019 on the basis of medical study results by the "Study Team on Administration of Stabilized Iodine" (created in FY2018). Through the revision, the NRA stipulated the effects/efficacies and adverse effects of stabilized iodine, appropriate timing for taking them, and about the persons who should take them on a priority basis. Further, it stipulated a provision for enabling their distribution also through pharmacies employing a member of pharmacist association designated by the local government or through available medical institutions on the premise that explanatory meetings are held for residents periodically.

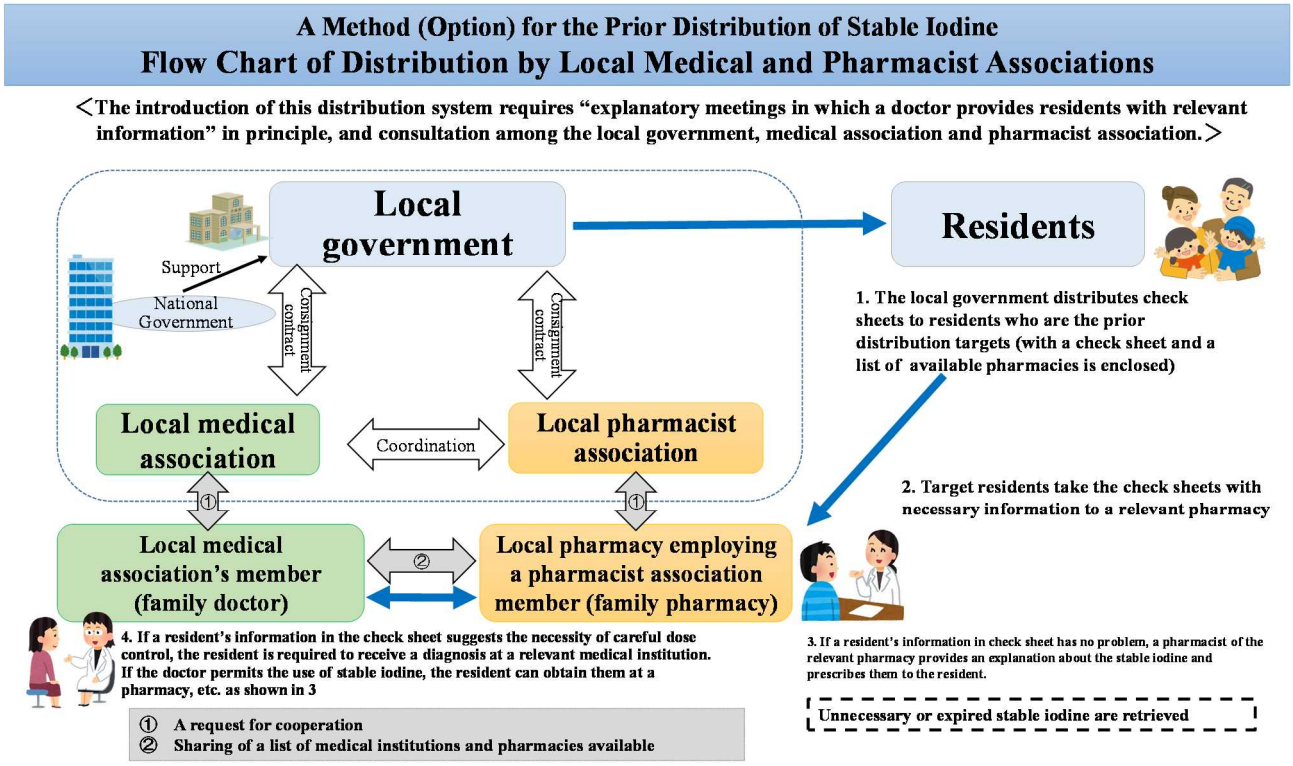



**Figure 6-1. Flow Chart of Distribution by Local Medical and Pharmacist Associations**

After identifying issues to be addressed from the outcome of emergency drills conducted by nuclear operators in FY2018, the NRA organized them and decided to improve the said guidelines. As for the Emergency Action Level (EAL), used by nuclear operators to determine whether a situation corresponds to an emergency classification, based on the results of discussion at the "Meeting for the Review of the Emergency Action Level (EAL)" held on September 11, 2019, the NRA decided to revise the NRA EPR Guide and related ordinances on February 5, 2020. In addition, it was discussed at the 75th FY2019 NRA Commission Meeting (March 30, 2020) how to proceed with an EAL review, and it was decided to hold meetings in principle in public, but closed to the public in the case of dealing with specialized safety facilities, under a new study team, to review the EAL by taking into account the specialized safety facilities and diversity-expanded facilities.

Based on the policy of improving the description by clarifying initial emergency responses procedures during the land transportation of nuclear fuel materials, etc. , and taking into account the

role sharing among the related ministries and agencies in charge of implementing the regulations for radioactive material transportation, the NRA decided to revise the NRA EPR Guide on February 5, 2020 to clarify measures to be taken by the national government against a disaster during such transportations.

**3. Promotion of Safety Research on Radiation Protection**

The NRA has been carrying out the "Radiation Safety Research Promotion Project" since FY2017, aiming at systematically and effectively promote investigations and research for ensuring safety through regulation of radiation sources and radiation protection measures. This project is composed of the "Radiation Safety Research Program" and the "Radiation Protection Research Network Program." For the "Radiation Safety Research Program" in FY2019 research applications were invited for 3 priority areas set up by the NRA "Technical issues on the first response to a large number of victims in a nuclear or radiation emergency," "Rationalization and systematization of radiation safety management based on the actual conditions of use of RI and radiation" and "Common issues for practical radiation safety regulations" consequently, 4 research themes on priority areas were newly adopted and 10 themes were continued.

The Research Promotion Committee including external experts deliberated and confirmed the selection of themes and results of progress management. The results of FY2019 research were evaluated by the external experts at the Research Evaluation Committee meeting in February 2020.

The result of this Project" were reported to the 145th and 146th general meeting of the Radiation Council. Part of the results of the study project on comprehensive discussion of medical examinations for radiation workers and the study project on development of internal-dosimetry code were also contributed to discussion on incorporation of the 2007 Recommendations of ICRP into domestic regulations.

In addition, as preparation for FY2020, three priorities "dosimetric procedure in nuclear/radiation emergencies," "risk-benefit of protective actions during nuclear emergencies," and "technical issues in the application of international standards for radiation safety regulations" were set and research applications and selections were conducted.

**4. Participation in International Meetings**

A framework is in place in which radiation protection and nuclear disaster countermeasures are discussed based on the latest research and investigation results at international arenas such as the ICRP and the IAEA and the results are reflected to regulations of each country.

To collect the latest knowledge and findings relating to radiation protection and to reflect our country's experiences and opinions to discussion at meetings held by international organizations, the NRA participated in international meetings such as those held by the IAEA.

## Section 2 Implementation of and Technical Study on Radiation Monitoring

### 1. Enhancement of Emergency Monitoring Systems in Areas where Nuclear Facilities are Located

The NRA EPR Guide stipulate 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. Based on this guideline, the NRA developed an effective emergency monitoring system including the constant on-site stationing of senior specialists for radiation monitoring in order to command the monitoring of the vicinity of nuclear facilities during an emergency and further improved and reinforced the measurement system.

During the FY2019 Nuclear Energy Disaster Prevention Drill and in various training activities, efforts have been made to improve the monitoring operations with the "Emergency radiation monitoring information sharing and announcement system," which facilitates prompt collecting and sharing of monitoring information among the staff and the related organizations for the emergency, and publication of the results of emergency monitoring.

Emergency monitoring results collected through the "emergency radiation monitoring information sharing and announcement system," used to be announced on the NRA's homepage at the stage of notification based on the Nuclear Emergency Act, Article 10, Paragraph 1. In order to facilitate information transfer to the public in case of emergency, the 10th FY2019 NRA Commission Meeting (May 29, 2019) decided to announce the measured values even at ordinary times through a new system which is planned to start its operation in October 2020.

### 2. Reinforcement of Emergency Monitoring Systems at Ports of Call of Nuclear-Powered Warships

To cope with the aging of monitoring facilities, each of the monitoring facilities of the Port of Yokosuka, Kanagawa Prefecture and Sasebo Port, Nagasaki Prefecture was renovated. Subsequently, the renovation of another monitoring facility of Sasebo Port and a monitoring facility of Kinnakagusuku Port, Okinawa Prefecture started.

### 3. Reinforcement of Emergency Response Capabilities through Training Activities

In FY2019, "Monitoring practical training" was conducted 26 times and "Monitoring drill for Emergency Monitoring Center" was conducted 10 times for local government staff to improve their effectiveness of emergency monitoring.

### 4. Radiation Monitoring of Nationwide Environment

#### (1) Environmental Radioactivity Level Research (Conducted since FY1957)

Continuing on from last fiscal year, 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 until FY2018 were put into a database to be published. Furthermore, dose rate is continuously measured at 297 monitoring posts throughout Japan to open the measured data on the NRA website

**(2) Oceanic Environmental Radioactivity Comprehensive Evaluation (Conducted since FY1983)**

In order to investigate radiation effects in the surrounding areas of nuclear power plants and nuclear fuel reprocessing plants as well as nationwide environmental radioactivity levels, the NRA continued the radiation analysis of sea water in 16 ocean areas. The measurement results for FY2018 were put into a database to be opened on the NRA website.

**(3) Radiation Monitoring in the Vicinity of Nuclear Power Plants (Subsidies Issued since FY1974)**

Continuing on from last fiscal year, 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 database sequentially to be published.

**(4) Monitoring of the Impact of Nuclear Events Overseas (Monitoring started in FY2018)**

With regard to the impact of radioactive substances on Japan when nuclear power related events occur abroad, the NRA installed a monitoring posts in Tsushima and on Yonaguni Island so that the state of dose rate can be grasped more precisely. Also in FY2019, the NRA website announced the measurement results.

**(5) Training for the Monitoring Personnel of Local Governments (Implemented since FY1990)**

The NRA carried out “training for environmental radiation analysis” 18 times, targeting environmental radiation monitoring personnel in each prefecture.

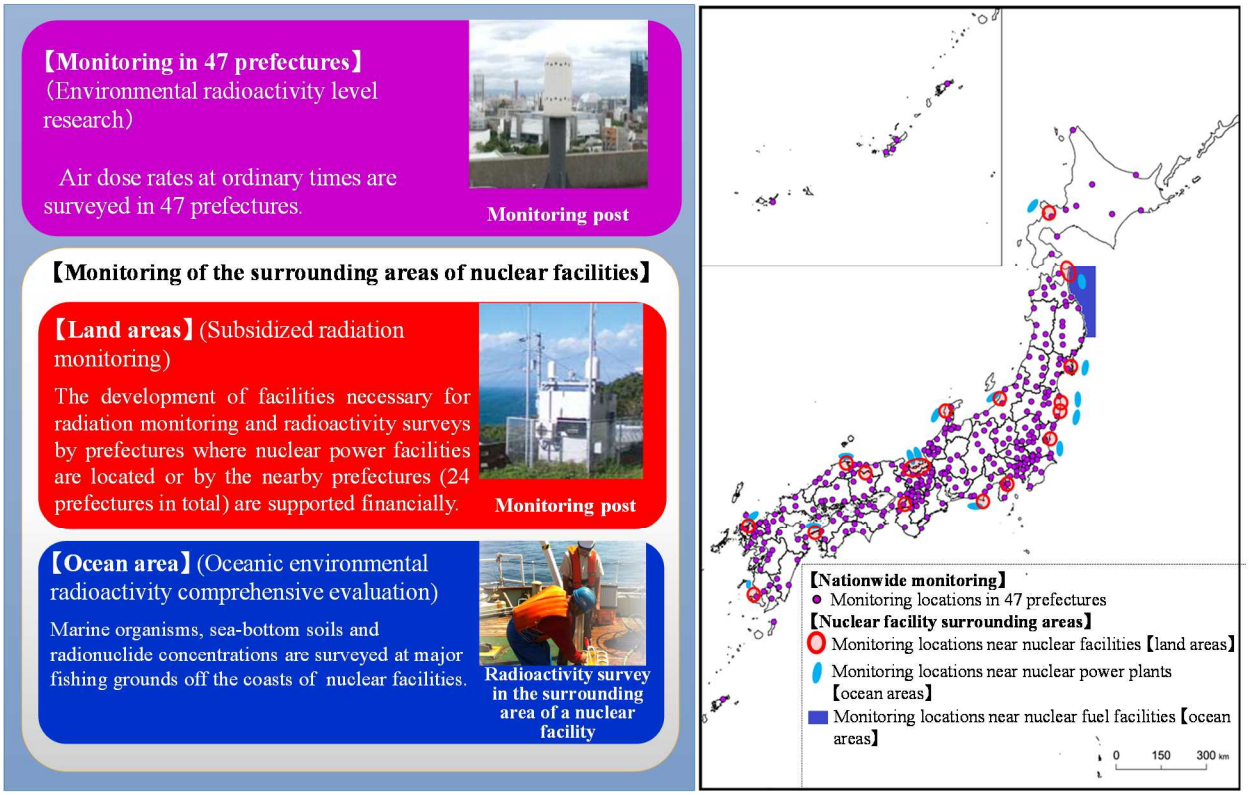



**Figure 6-2. Environmental Radiation Monitoring at Ordinary Times**

## 5. Radiation Survey concerning Ports of Call of Nuclear-Powered Warships

The NRA periodically conducted radiological surveys in cooperation with related organizations such as the Japan Coast Guard at the three 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. Especially, during each nuclear-powered warship port call, the NRA organized a radiological survey team that measured radioactivity and analyzed sea water samples, and it was confirmed that the measurement results were of the same level as those before port calls. The NRA daily published the radiological survey results during both port entries and exits of nuclear-powered warships on its website and compiled past results into a database and made them publicly available.

## 6. Investigation on Technical Matters Relating to Monitoring

The NRA held a meeting of the "Technical Study Team on Environmental Radiation Monitoring" (December 2019), which is engaged in continuous studies on technical matters relating to monitoring, and examined the proposed revision of the Series of Environmental Radioactivity Measuring Methods No. 7 "Gamma-Ray Spectrometry Using Germanium Detector."

Based on the Technical Study Team's FY2018 study results of reviewing the emergency-related explanatory chapter of the "Guideline for Environmental Radiation Monitoring" compiled by the former Nuclear Safety Commission, the NRA revised in July 2019 the "Regarding Emergency Monitoring," which is a document supplementary to the Nuclear Emergency Response Guidelines.

## Section 3 Enhancement and Reinforcement of Crisis Control System

### 1. Reinforcement of Emergency Response Capabilities of NRA

The NRA is tasked with the duty of ensuring safety in the utilization of nuclear energy to contribute to the protection of the lives, health and properties of the citizens, preservation of the environment and national security of Japan. To fulfill this duty, the NRA is tasked with protecting the people and environment even in the event of a nuclear disaster by utilizing its expertise and immediately responding in an organized manner.

In response to the occurrences of large-scale natural disasters in FY2019, the Secretariat of the NRA gave personnel mobilization directions (twice) with augmented information collection and communication activities, promptly checked for abnormalities in nuclear facilities, and publicly announced the relevant information.

#### (1) Clarification and Systematization of Crisis Control System under Normal Conditions

In order to further strengthen the emergency response capability of its emergency response personnel, the NRA improved its annual training and instruction programs for manpower management as a basis and systematically promoted the preparation of an ability enhancement sheet for each functional team and the reflection of this information in the sheets for personnel evaluation. These reinforced the NRA's manpower management system for its personnel.

#### (2) Preparation for Crisis Management and Response Manuals

As part of its efforts for crisis management, the NRA participated in the FY2019 Nuclear Energy Disaster Prevention Drill for Chugoku Electric Power Company's Shimane Nuclear Power Station on November 8, 9 and 10, 2019. Based on problems and lessons identified in the drill, the NRA considered revising the Nuclear Emergency Response Manual.

The NRA is developing manuals for crisis management capable of coping not only with nuclear disasters but also various events such as a large-scale natural disaster. On April 1, 2019, the NRA developed a response manual for the accident or adverse event including an emergency relating to a radiation source in the facility covered by the Act on the Regulation of Radioisotopes, etc., and also improved its response system. Based on what the IRRS follow-up mission pointed out, the NRA developed a manual clarifying initial responses in the event of a disaster due to the land transportation of nuclear materials such as nuclear fuel materials, nuclear raw materials and radioisotopes, on March 30, 2020. The NRA will check the effectiveness of the manual through exercises. Moreover, on June 12, 2019, the NRA newly developed and introduced the "Operating Manual for Emergency Response Support System (ERSS)" to reflect enhanced functions and operation of the ERSS.

In addition, the NRA reviewed and examined equipment and plans taking occasions of various exercises (such as on-foot gathering exercises in emergency, setting-up exercise of the Emergency

Response Headquarters) to ameliorate effectiveness of the business continuity plans responding to emergency cases, such as a Tokyo Inland Earthquake and novel influenza.

### (3) Functional Enhancement of Disaster Prevention Drills

To enhance its emergency response capability, the NRA carried out tabletop exercises centering on emergency decision makers such as the NRA's commissioners and its Secretariat's executives. In FY2019, four tabletop exercises were carried out, including those relating to off-site and on-site responses.

The NRA conducted training in conjunction with nuclear operators' emergency drills to explore a method of smooth information sharing between the ERC[40]'s plant team and nuclear operators' immediate response centers, thereby improving their emergency response capability. In addition to the ERC plant team, each functional team also carried out training in coordination with nuclear operators' emergency drills. Continuing on from FY2018, the NRA also carried out emergency communication training with the local governments of regions where nuclear facilities are present. Such Training improved the abilities of personnel in charge of each functional team and contributed to the identification and resolution of problems.

## 2. Reinforcement of Nuclear Operators' Emergency Preparedness and Response

### (1) Enhancement of Evaluation of Emergency Drills by Nuclear Operators

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

The debriefing session was held on June 28, 2019, in which the NRA received a report from its Secretariat regarding the results of evaluating nuclear operators' emergency drills carried out at each nuclear power plant (commercial power reactor facility). According to the report, some nuclear power plants were evaluated as requiring a further improvement in assessment indexes such as the "information sharing with the ERC plant team" and the "certain notifications and communications," but other indexes indicated an overall enhancement in crisis response capability owing to improvement efforts. Based on the evaluation results during the past four years (FY2015 to 2018), the NRA decided to continuously check the state of improvements by nuclear operators so that improvement efforts by every nuclear operator will take root.

With regard to the evaluation of nuclear fuel facilities, their assessment indexes were adopted in FY2018 on the basis of trial evaluation results in FY2017, and their first evaluation was carried out in FY2019. As a result, in order to coordinate emergency response capabilities between the response centers and between the operation departments of the Japan Atomic Energy Agency and the Japan Nuclear Fuel Ltd., the NRA decided to assess not only the response centers and operation departments but also the situation of overall organizational improvement. As for other nuclear fuel facility

[40] Emergency Response Center

operators, in order to ensure the implementation of their new training that includes constant information sharing with the ERC, the NRA decided to take measures against the identified problems and tasks, and check their effectiveness.

Moreover, the Training Scenario Development Working Group set up under the briefing sessions since FY2017 is carrying out training for improving the judging ability of the commanders of nuclear power plants' emergency response centers and central control rooms and also training for enhancing on-site response ability. Based on the results of training performed in FY2018, the NRA developed FY2019 training policies, based on which it developed the training scenarios, implemented training and evaluated training results. In FY2019, courses for commander judging ability for 5 nuclear operators and courses for response capabilities for 9 nuclear operators have been conducted.

○Record of Emergency Drills by Nuclear Operators at Commercial Power Reactors in FY2019

| № | Date | Nuclear Facility | |
|---|---|---|---|
| 1 | Apr. 25, 2019 * | Kansai Electric | Ohi PS<br>Takahama PS |
| 2 | May 17, 2019 * | Shikoku Electric | Ikata PS |
| 3 | Oct. 4, 2019 | Kyushu Electric | Sendai NPS |
| 4 | Oct. 18, 2019 | Kansai Electric | Mihama PS |
| 5 | Oct. 25, 2019 | JAPC | Tsuruga PS |
| 6 | Nov. 1, 2019 | TEPCO Holdings | Kashiwazaki-Kariwa NPS |
| 7 | Nov. 18, 2019 | Shikoku Electric | Ikata PS |
| 8 | Nov. 22, 2019 | Tohoku Electric | Higashidori NPS |
| 9 | Nov. 29, 2019 | Hokkaido Electric | Tomari PS |
| 10 | Dec. 6, 2019 | Kyushu Electric | Genkai NPS |
| 11 | Dec. 13, 2019 | Kansai Electric | Ohi PS |
| 12 | Jan. 24, 2020 | TEPCO Holdings | Fukushima Daiichi NPS<br>Fukushima Daini NPS |
| 13 | Jan. 27, 2020 | Hokuriku Electric | Shika NPS |
| 14 | Jan. 31, 2020 | Chugoku Electric | Shimane NPS |
| 15 | Feb. 7, 2020 | Kansai Electric | Takahama PS |
| 16 | Feb. 14, 2020 | JAPC | Tokai PS<br>Tokai Daini PS |
| 17 | Feb. 21, 2020 | Tohoku Electric | Onagawa NPS |
| 18 | Feb. 28, 2020 | Chubu Electric | Hamaoka NPS |

* Re-training implemented based on the FY2018 indexes

○ Evaluation Indicators of Emergency Drills by Nuclear Operators at Commercial Power Reactors in FY2019

| Category | № | Indicator |
|---|---|---|
| Information sharing and notification | 1 | Information flow for information sharing |
| | 2 | Information sharing with ERC plant team<br>(1) Conditions of accident and plant, (2) Strategy to bring accident to end, (3) Progress of strategy |
| | 3 | Use of tools for information sharing<br>(1) Use of plant information display system (Training using ERSS or SPDS), (2) Activities of liaison personnel, (3) Utilization of COP, and (4) Utilization of documents at ERC |
| | 4 | Reliable notification and communication<br>(1) Accurate notification messages, (2) Explanation on EAL judgment bases, (3) Actions such as Article 10 confirmation meeting, (4) Reporting according to Article 25 |
| Efforts to improve emergency drills by nuclear operators | 5 | Development of improved drill implementation plan addressing the challenges from preceding drills |
| | 6 | Variety and complexity of scenarios |
| | 7 | Implementation of on-site training |
| | 8 | Public relations activities<br>(1) Press response in coordination with public relations group, (2) Participation of outsiders such as reporters, (3) Participation of outsiders such as public relations personnel of other nuclear operators, (4) Simulated press briefing, (5) External communications using communication tools |
| | 9 | Logistics support activities<br>(1) Support activities between nuclear operators, (2) Coordination with logistics support bases, (3) Coordination with nuclear emergency support organizations |
| | 10 | Observation of drills<br>(1) Observation of drills by other nuclear operators, (2) Acceptance of drill observers, (3) Acceptance of peer review, etc., (4) Observation of on-site drills by other nuclear operators |
| | 11 | Self-evaluation/analysis of drill results<br>(1) Identification of tasks from problems (2) Cause analysis, (3) Improvements based on the cause analysis results |

**Table 6-1. Record of Emergency Drills by Nuclear Operators at Commercial Power Reactors in FY2019**

○ Record of Emergency Drills by Nuclear Operators at Nuclear Fuel Facilities (JAEA and JNFL) in FY2019

| № | Date | Nuclear Facility | |
|---|---|---|---|
| 1 | Sep. 24, 2019 | JAEA | Advanced Converter Reactor Fugen |
| 2 | Oct. 15, 2019 | JAEA | Oarai Research and Development Institute |
| 3 | Oct. 29, 2019 | JNFL | Enrichment and Disposal Plant, Disposal Department |
| 4 | Nov. 14, 2019 | JAEA | Ningyo-toge Environmental Engineering Center |
| 5 | Nov. 26, 2019 | JNFL | Enrichment and Disposal Plant, Enrichment Department |
| 6 | Dec. 10, 2019 | JAEA | Nuclear Science Research Institute |
| 7 | Jan. 14, 2020 | JAEA | Nuclear Fuel Cycle Engineering Laboratories |
| 8 | Feb. 18, 2020 | JAEA | Prototype Fast Breeder Reactor Monju |
| 9 | Mar. 6, 2020 | JNFL | Reprocessing Plant |

○ Evaluation Indicators of Emergency Drills by Nuclear Operators at Nuclear Fuel Facilities (JAEA and JNFL) in FY2019

| Category | № | Indicator |
|---|---|---|
| Information sharing and notification | 1 | Information flow for information sharing |
| | 2 | Information sharing with ERC plant team<br>(1) Conditions of accident and plant, (2) Strategy to bring accident to end, (3) Progress of strategy |
| | 3 | Use of tools for information sharing<br>(1) Use of plant information display system (Training using ERSS or SPDS), (2) Activities of liaison personnel, (3) Utilization of COP, and (4) Utilization of documents at ERC |
| | 4 | Reliable notification and communication<br>(1) Accurate notification messages, (2) Explanation on EAL judgment bases, (3) Actions such as Article 10 confirmation meeting, (4) Reporting according to Article 25 |
| Efforts to improve emergency drills by nuclear operators | 5 | Review of the midterm plan |
| | 6 | Development of improved drill implementation plan addressing the challenges from preceding drills |
| | 7 | Implementation status of drills without pre-announced scenario |
| | 8 | Variety and complexity of scenarios |
| | 9 | Public relations activities<br>(1) Press response in coordination with public relations group, (2) Participation of outsiders such as reporters, (3) Simulated press briefing, (4) External communications using communication tools |
| | 10 | Logistics support activities<br>(1) Support activities between nuclear operators, (2) Coordination with nuclear operations emergency response support bases, (3) Coordination with nuclear emergency support organizations |
| | 11 | Observation of drills<br>(1) Observation of drills by other nuclear operators, (2) Acceptance of drill observers, (3) Acceptance of peer review, etc. |
| | 12 | Self-evaluation/analysis of drill results<br>(1) Identification of tasks from problems, (2) Cause analysis, (3) Improvements based on the cause analysis results |
| Nuclear operator's performance in emergency drills | 13 | Participation rate of emergency response personnel in drills (plant) |
| | 14 | Participation rate of emergency response personnel in drills (immediate response center) |

**Table 6-2. Record of Emergency Drills by Nuclear Operators at Nuclear Fuel Facilities (the Japan Atomic Energy Agency and the Japan Nuclear Fuel Ltd.) in FY2019**

○Record of Emergency Drills by Nuclear Operators at Nuclear Fuel Facilities (other than JAEA and JNFL) in FY2019

| № | Date | Nuclear Facility |
|---|---|---|
| 1 | October 1, 2019 | Nuclear Development Corporation |
| 2 | October 8, 2019 | Toshiba Energy Systems & Solutions Corporation, Nuclear Technology Research Institute |
| 3 | November 5, 2019 | Institute for Integrated Radiation and Nuclear Science, Kyoto University |
| 4 | November 19, 2019 | Kinki University |
| 5 | December 3, 2019 | Nippon Nuclear Fuel Development Co. Ltd. |
| 6 | December 20, 2019 | Tokyo University Graduate School of Engineering, Nuclear Professional School |
| 7 | December 24, 2019 | Global Nuclear Fuel Japan |
| 8 | January 17, 2020 | Rokkasho Safeguards Center, Nuclear Material Control Center |
| 9 | January 21, 2020 | Tokai Safeguards Center, Nuclear Material Control Center |
| 10 | January 28, 2020 | Kumatori Works, Nuclear Fuel Industries, Ltd. |
| 11 | February 4, 2020 | Mitsubishi Nuclear Fuel Co., Ltd. |
| 12 | February 25, 2020 | Tokai Works, Nuclear Fuel Industries, Ltd. |

○Evaluation Indicators of Emergency Drills by Nuclear Operators at Nuclear Fuel Facilities (other than JAEA and JNFL) in FY2019

| Category | № | Indicator |
|---|---|---|
| Information sharing and notification | 1 | Information sharing between emergency room center and ERC plant team |
| | 2 | Reliable notification and communication<br>(1) Notification with facsimile, etc. within 15 minutes, (2) Accurate notification messages, (3) Explanation on EAL judgment bases, (4) Reporting according to Article 25 |
| | 3 | Operation of communication equipment (operation of communication equipment to connect emergency response room and ERC plant team) |
| Efforts to improve Emergency Drills by Nuclear Operators | 4 | Review of the midterm plan |
| | 5 | Development of improved drill implementation plan addressing the challenges from preceding drills |
| | 6 | Implementation status of drills without pre-announced scenario |
| | 7 | Variety and complexity of scenarios |
| | 8 | Public relations activities<br>(1) Press response in coordination with public relations group, (2) Participation of outsiders such as reporters (including public relations staff of other nuclear operators), (3) Simulated press briefing, (4) External communications using communication tools |
| | 9 | Logistics support activities<br>(1) Support activities between nuclear operators, (2) Coordination with nuclear operations emergency response support bases |
| | 10 | Observation of drills<br>(1) Observation of drills by other nuclear operators, (2) Acceptance of drill observers, (3) Acceptance of peer review, etc., (4) Visit to ERC for training, (4) Observation of drills at ERC |
| | 11 | Self-evaluation/analysis of drill results<br>(1) Identification of problems and challenges, (2) Cause analysis, (3) Improvements based on the cause analysis results |
| Nuclear operator's performance in emergency drill | 12 | Participation rate of emergency response personnel in drills (plant) |

* Personnel of the NRA Secretariat participate in various drills as members of each plant team in the Prime Minister's office, ERC and OFC, staff dispatched from the ERC to an immediate situational response center, or staff dispatched to an emergency response room; some personnel evaluate the state of Emergency Drills by Nuclear Operators. (In addition to members of the ERC plant team, members of other functional teams also participate in drills at Ohi NPS and Takahama NPS on April 25, Ikata PS on May 17 and Shimane NPS on January 31.)

**Table 6-3. Record of Emergency Drills by Nuclear Operators at Nuclear Fuel Facilities (other than the Japan Atomic Energy Agency and the Japan Nuclear Fuel Ltd.) in FY2019**

### (2) Collaboration with Relevant Ministries and Agencies Pertaining to Nuclear Emergency Preparedness

Based on the provisions of the Basic Disaster Management Plan and in order to coordinate emergency responses and necessary support at nuclear sites, the NRA has been holding meetings of the Central Liaison Council for Nuclear Disasters, which consists of relevant ministries and agencies, nuclear operators and the Atomic Energy Association (ATENA). In FY2019, the NRA held two meetings of the Central Liaison Council for Nuclear Disasters, with the agendas of "implementation status of training in cooperation with related organizations" and "efforts by nuclear operators." Even in regions where nuclear power plants are located, the NRA holds meetings of the Local Liaison Councils for Nuclear Disasters, which consist of local branch bureaus and departments of the member ministries and agencies of the Central Liaison Council located in a given area, the prefectural police headquarters responsible for the area (prefectural police headquarters of an area which becomes a wide-area evacuation site for the given area, as necessary), the fire department, the Regional Coast Guard Headquarters (Coast Guard Office responsible for the given area, as necessary), the SDF, and nuclear operators. In FY2019, a total of four meetings were held to strengthen cooperation among related organizations.

### 3. Reinforcement of Communication Network Equipment and Systems

Because the lease contract for the integrated nuclear emergency preparedness network system expired at the end of FY2018, the NRA renewed the system during the period from FY2018 to FY2019. In the renewal, the NRA improved the convenience and security measures taking into account the opinions of users, such as the addition of video conference consoles and high-level cyberattack countermeasures.

Since FY2019, the NRA has been updating its Emergency Response Support System (ERSS). In the ERSS updates, intended to enhance its user-friendliness, robustness and security, its functions and security measures focused on reactor facilities complying with the new regulatory requirements, were reinforced and its system technology was updated.

As for the "emergency radiation monitoring information sharing and announcement system," the NRA enriched the master data and enabled the data linkage with the external system IRMIS[41]. In addition, the NRA is proceeding with the establishment of a next-version system whose operation is scheduled to start in October 2020.

[41] The International Radiation Monitoring Information System

# References

## TABLE OF CONTENTS

## Reference 1: Ensuring Trust in Nuclear Regulatory Administration (Chapter 1)

### 1. Terms of Office of the Chairman and Commissioners

| | From September 19, 2012 to September 18, 2014 | From September 19, 2014 to September 18, 2015 | From September 19, 2015 to September 21, 2017 | From September 22, 2017 |
|---|---|---|---|---|
| Chairman | Tanaka Shunichi | Tanaka Shunichi | Tanaka Shunichi | Fuketa Toyoshi |
| Commissioner (Substitute for the Chairman) | Shimazaki Kunihiko | Fuketa Toyoshi | Fuketa Toyoshi | Tanaka Satoru |
| Commissioner (Second substitute for the Chairman) | Fuketa Toyoshi | Tanaka Satoru | Tanaka Satoru | Yamanaka Shinsuke |
| Commissioner (Third substitute for the Chairman) | Nakamura Kayoko | Nakamura Kayoko | Ishiwatari Akira | Ban Nobuhiko |
| Commissioner (Fourth substitute for the Chairman) | Oshima Kenzo | Ishiwatari Akira | Ban Nobuhiko | Ishiwatari Akira |

(As of March 31, 2020)

### 2. Establishment of the NRA and Organizational Changes

- September 19, 2012: The NRA was established
- March 1, 2014: Japan Nuclear Energy Safety Organization (JNES) was abolished and integrated into the NRA
- October 14, 2014: Director General for Nuclear Disaster Management was placed 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 FY2019 Budget of the NRA (after revision)

| | Budget section | FY2019 budget amount (after budget revision) (million yen) |
|---|---|---|
| General account | Shared NRA costs | 4,454 |
| | Costs of ensuring nuclear safety | 4,944 |
| | Radioactivity investigation and research costs | 1,473 |
| Special account for energy measures | Costs of power-usage measures | 783 |
| | Costs of nuclear safety regulatory measures | 33,276 |
| | Administrative handling costs | 25.471 |
| | Disbursements | 0.27 |
| | Reserve funds | 100 |

| | | |
|---|---|---|
| Special account for reconstruction after the Great East Japan Earthquake | Costs of policies for environmental conservation and restoration | 3,264 |
| Total | | 73,765 |

## 4. Organization of the NRA

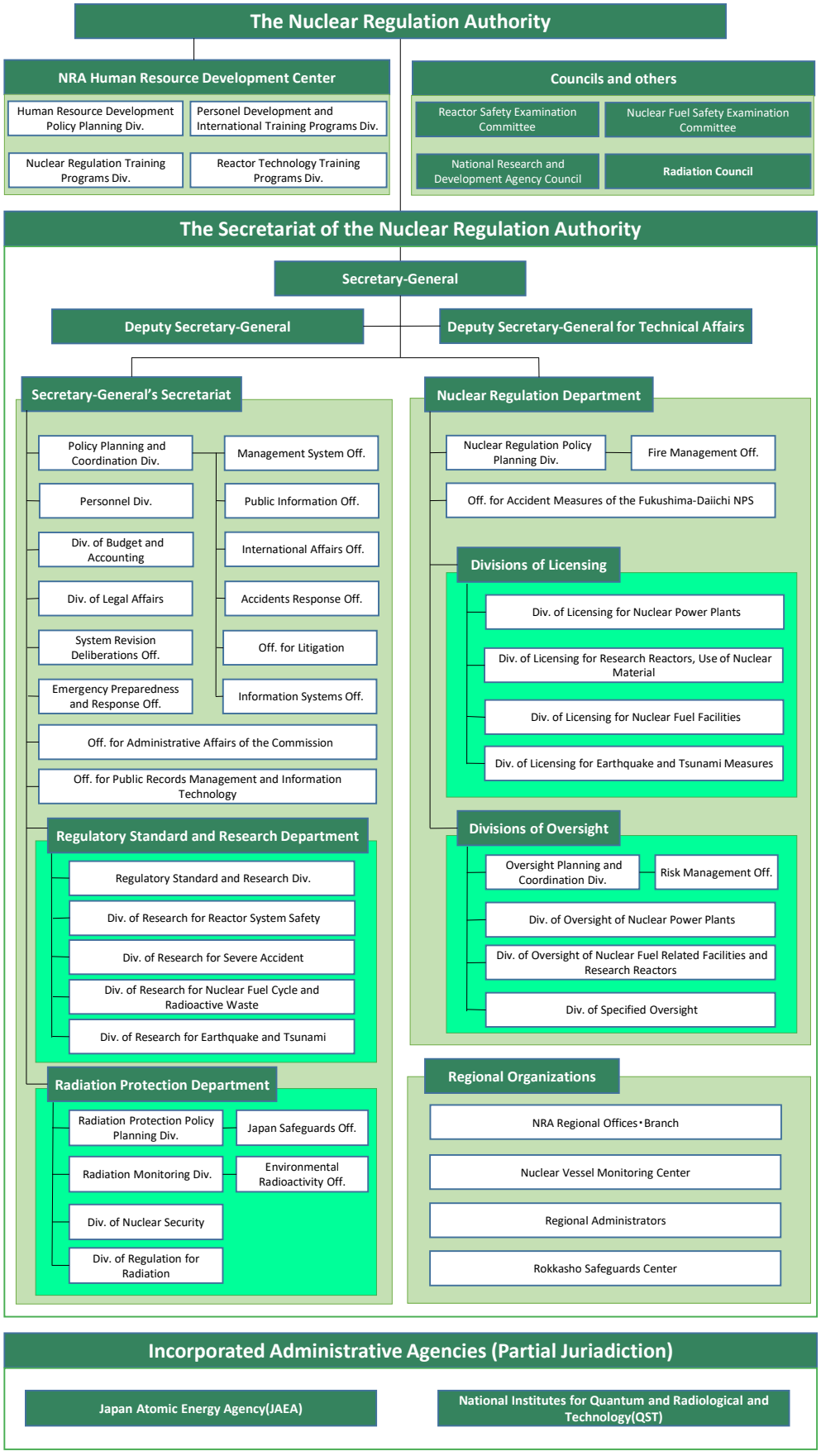



**Figure i Organizational Structure of the NRA (April 2019 – March 2020)**

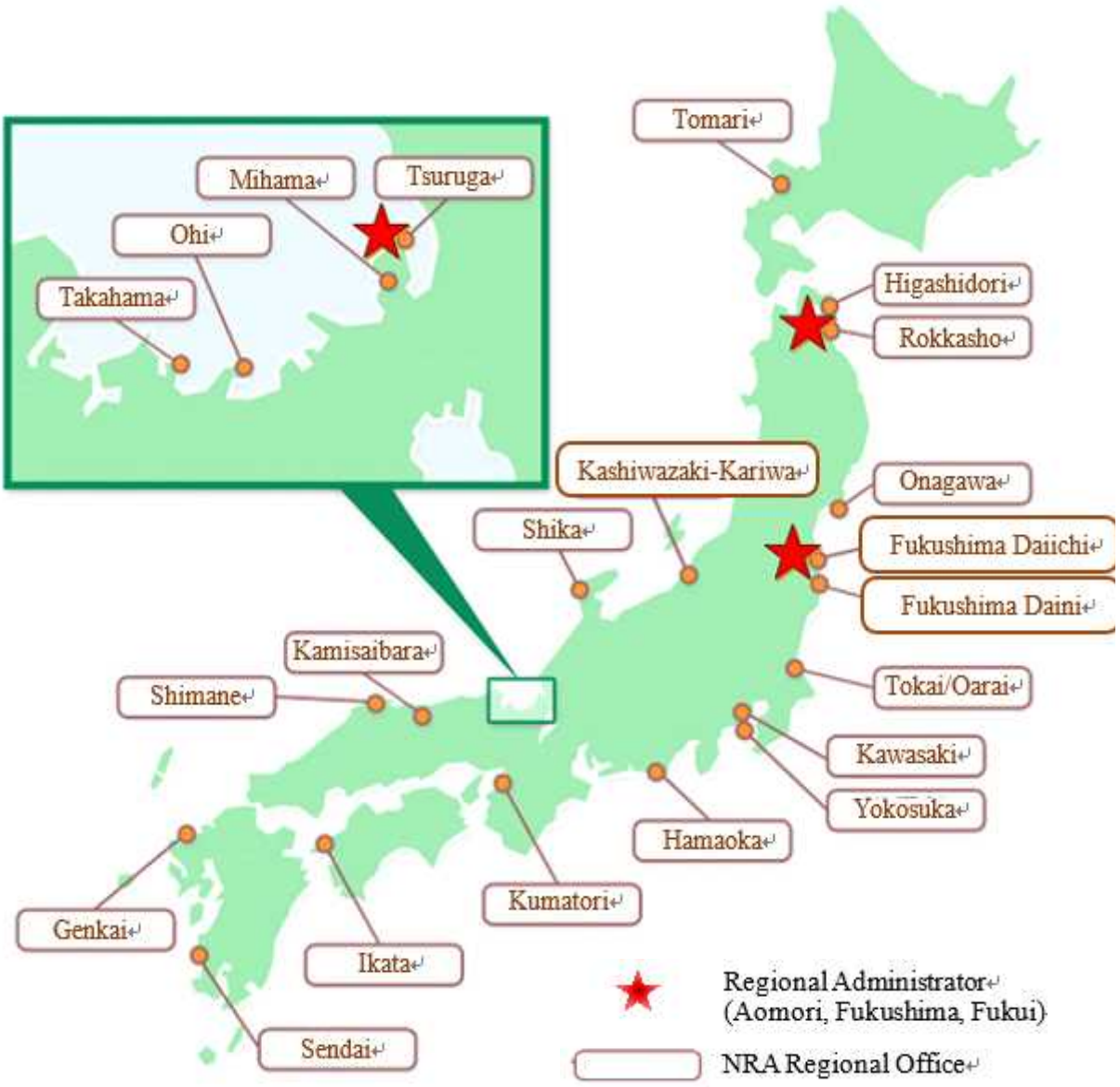



**Figure ii Location of NRA Regional Offices and Stationing of Regional Administrators**

## 5. NRA's Core Values and Principles

(Determined on January 9, 2013 by the NRA)

Bearing in mind that:

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

Determined that:

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

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

**Mission**

Our fundamental mission is to protect the public and the environment through rigorous and reliable 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 threat exists at all times and constantly bear in mind the importance of nuclear security.

**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 effect on 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 make a continuous effort to foster the positive culture through setting up concrete goals and measuring the achievement.

**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 for raising awareness of the importance of safety culture among everyone involved in nuclear energy and hence contributing to fostering safety culture in Japan.

**Code of Conduct**

**1. Priority to safety**

In lucid recognition that absolute safety is not achievable and the possibility of a serious accident remains, the overriding priority shall be placed on safety for "protecting people and the environment".

**2. Decision-making taking into account the risks**

Decision shall be made in an independent and objective manner taking due account of the risks. Anyone who makes a decision is responsible for explaining logically the rationale of the decision while clarifying its own roles, responsibilities, and authority.

**3. Fostering, sustaining and strengthening safety culture**

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

**4. Maintaining high level of expertise and organizational learning**

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

**5. Effective communication**

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

**6. Questioning attitude**

All the personnel shall always have one's own "questioning attitude" without complacency whether there are any weaknesses that may affect safety, as well as whether there is any room for further improvement, and thereby identify safety issues.

**7. Rigorous and prudent decisions and agile actions**

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

**8. Harmonization with nuclear security**

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

## 8. NRA Second Period Mid-term Goals

(Decided on February 5, 2020 by the NRA)

Preamble

The NRA's mid-term goals are set to effectively and efficiently perform the in-house management by systematizing various measures by the NRA, and to set the directions and priorities of such measures. According to mid-term goals, an annual strategic plan is developed every year to specify the goal of each measure and the implementation result is evaluated. Through this PDCA cycle[42], a continuous improvement has been ensured. The NRA believes that these efforts will contribute to the improvement of trust in the nuclear regulatory administration.

Looking back on the efforts for the first mid-term goal period, the NRA established its core values and principles for ensuring its independence, impartiality, and transparency, based on which its organizational attitude of thoroughly implementing public discussions and making decisions from scientific and technological perspectives has taken root. With regard to the safety regulations of nuclear facilities, the NRA speedily developed the new regulatory standards, reviewed the conformity and carried out systemic reforms to improve the effectiveness of inspections. In the fields of nuclear security measures and safeguards[43], the NRA has been taking appropriate measures such as the invitation of the International Atomic Energy Agency's (IAEA's) International Physical Protection Advisory Service (IPPAS), the introduction of a trustworthiness check system and the maintenance of the IAEA's safeguards-related Broader Conclusion[44]. The NRA is continuing the supervision of Tokyo Electric Power Company's work of decommissioning the Fukushima Daiichi Nuclear Power Station by examining the implementation plan and by formulating and revising "Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS". With regard to the regulation of radioisotopes, the NRA examined various applications for license permission, inspected licensees and strengthened the security of the specified radioisotopes as an institutional measure. The NRA has been steadfastly conducting nationwide radiation monitoring and improving its crisis-management system through emergency preparedness drills and others.

As for the NRA's organization and system, the number of its personnel of 473 when it was established, has reached 1,056 at the beginning of FY2019. Meanwhile, in FY2013, regulatory works such as safeguards, radiation monitoring and radioisotope regulation were transferred from the Ministry of Education, Culture, Sports, Science and Technology, the incorporated administrative agency Japan Nuclear Energy Safety Organization was integrated into the NRA's Secretariat and the NRA Human Resource Development Center was established. Subsequently during FY2014 and FY2015, an organizational reform based on the supplementary provisions of the Act for Establishment of the Nuclear Regulation Authority was carried out, nuclear disaster management was transferred to the Cabinet Office, and the Director General for Nuclear Disaster Management (Cabinet Office) was appointed (FY2014). In FY2015 and FY2019, the NRA received the multifaceted review of its safety regulations and its entire organization system by the IAEA's Integrated Regulatory Review Service (IRRS). Based on the review results, the NRA has been continuously improving its regulatory infrastructure.

While the first mid-term goal period can be regarded as a period for establishing the foundation of nuclear regulatory administration, the second mid-term goal period can be regarded as a period for making the

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[42] A PDCA cycle means a mechanism for continuous improvement in which the process of Plan, Do (execution), Check (evaluation) and Act (improvement) is cycled.

[43] Safeguards are verification activities to ensure that nuclear materials are used only for peaceful purposes and are not diverted to produce nuclear weapons.

[44] The IAEA's evaluation of safeguards activities is classified into "broader conclusions" and "non- broader conclusions." In the case of "non-broader conclusions," the IAEA draws only a conclusion that declared nuclear material remain in peaceful activities, while in the case of "broader conclusions," the IAEA found no indication of the diversion of declared nuclear material and no indication of undeclared nuclear material or activities and therefore all nuclear material remained in peaceful activities. Japan has been continuously obtaining the broader conclusions since 2003, when it was firstly concluded, until 2018 (as of February 2020).

regulatory core concepts take root and permeate throughout the regulatory activities, such as further developing the NRA's still early-stage activities including nuclear regulatory inspections, the further application of the graded approach[45] and the further systemization of the backfit system[46]. Moreover, in order to keep on timely response to various regulatory needs and conduct reliable safety regulations, it is essential to make the NRA an organization capable of flexibly respond to new tasks and challenges. As part of such efforts, the second mid-term goal period can be also regarded as a period for fostering an organizational culture in which the NRA Secretariat staff work on the tasks by thinking proactively without sticking to formality or carelessly following the precedents.

While the second period mid-term goals relate to major activities such as regulations as with the first period, they also include goals for activities to be implemented without fail and continuously in terms of the above-mentioned problem consciousness, goals for new efforts based on a hard look at what things will be like ten or twenty years from now, and goals for activities for the next five years necessary for the NRA to keep fulfilling its missions.

The NRA will make continuous improvements through its PDCA cycle with the mid-term goals as a starting point, and continue fulfilling its mission "protection of the public and the environment" by achieving such goals.

1. Mid-term Goal Period

Five years from April 1, 2020 to March 31, 2025

2. Organizational goal

To protect the public and the environment through the reliable regulation of nuclear energy

3. Goals for measures

1. Ensuring independence, impartiality and transparency and the improvement of the organizational structure/system

(Basic concepts)

- Ensuring the independence, impartiality and transparency of nuclear regulation administration, continuous improvement of the organization and operations, and cooperation and coordination with other countries and international organizations
- Securing and developing human resources and fostering and maintaining an organizational culture that promotes a "constantly questioning attitude."

(Strategies)

(1) Implementation of regulatory activities that embody the core values and principles of the NRA

- Maintaining independency and impartiality and making decisions based on the scientific and technological information. The codes of conducts stipulated to ensure transparency will be strictly complied with.
- Endeavoring to improve the information transmitted from the homepage to ensure transparency and enhance search performance. Timely and appropriate disclosure of regulation-related information including decision-making process to ensure accountability.
- Being open to all opinions and advice from domestic and international communities through opinion exchanges with external advisors from overseas and continuously promoting communications with nuclear operators and stakeholders such as local public bodies.
- Transferring lessons learned from the accident at TEPCO's Fukushima Daiichi NPS to the next-

[45] The graded approach means regulatory handling according to the level of importance to safety.

[46] The backfit system means a mechanism for reflecting new knowledge and findings to standards and making existing nuclear facilities conform to the latest standards.

generation personnel, not only as knowledge but also to raise their crisis awareness, thereby to create an organization culture in which the personnel always keep a questioning attitude without carelessly following precedents.
- Ensuring leadership at each organizational hierarchy to cultivate and maintain the nuclear safety and nuclear security culture and evaluate the status.

(2) Enhancement of business infrastructure to support regulatory operations
- Making the management system established throughout the NRA in order to fulfill its responsibilities, maintain and improve the abilities of its staff and organization, and cultivate and maintain its safety culture. In so doing, the NRA will continuously endeavor to make the management system easier to use and substantially improve the staff's operations by taking into account matters pointed out by the IRRS.
- Contributing to the steadfast improvement of domestic and overseas nuclear safety, nuclear security, radiation protection and safeguards through cooperation with international organizations, multilateral cooperation and bilateral cooperation.
- Appropriately preparing and organizing public documents and establishing a document management method that realizes strict document management and operational efficiency.
- Maximizing the potential of the entire NRA including its regional offices and branches and constantly reviewing its organizational configuration and personnel allocation to ensure the mid-to-long term sustainability of the entire organization.
- Improving the functions of management works by enhancing efficiency through the use of information systems.
- Appropriately handling litigations in coordination with related organizations. At the same time, making appropriate legal judgments so that the NRA's administration can be conducted properly and institutional improvements can be made flexibly and smoothly.

(3) Securing and developing personnel resources
- The NRA's personnel, based on the NRA's core values and principles and to realize their missions, shall maintain a high sense of ethics and discipline as national public officers and fully engage in their duties. To continuously ensure this, the NRA shall provide strict guidance and supervision across the organization.
- The NRA will appropriately employ new graduates and experienced persons to stabilize its organizational operations and endeavor to expand the base for those who are willing to contribute to nuclear regulation.
- In addition to daily OJT[47], the NRA will develop its personnel through their active participation in international conferences, by dispatching them to international organizations and overseas regulatory bodies, by developing the training systems, and through knowledge management etc. The NRA will proceed with the development of its personnel while taking into account the balance between an ability for handling the administrative affairs (e.g., legal and international affairs) and the required technical expertise (relating to technology, emergency response, etc.).
- The NRA will provide its personnel with appropriate career paths and allocate them based on their skills and job responsibilities, thereby maximizing their abilities.
- The NRA will clarify divisions and staff capable of providing technical and professional advice so that work-related counseling and advice are effectively available for its personnel and develop an environment to realize flexible and smooth communications among them.
- Based on the "Basic Policy on Safety Research by the NRA," the NRA will develop a research environment through personnel exchanges with outside research organizations and joint research, and will develop human resources for research.

2. <u>The implementation of strict and appropriate nuclear regulations and the reinforcement of the technology base</u>

(Basic concepts)

[47] On-the-job training: education and training through daily work

- To safely utilize nuclear energy, the NRA will strictly and appropriately conduct regulations relating to the Reactor Regulation Act.
- The NRA will promote safety research to obtain the latest scientific and technological knowledge and collect domestic and overseas information.
- The NRA will continuously improve its regulations relating to the Reactor Regulation Act.

(Strategies)

(1) Implementation of regulations relating to the Reactor Regulation Act

- By strictly and appropriately implementing statutory examinations and inspections, the NRA will prevent the occurrence of an event that may seriously undermine safety at facilities covered by its regulations (see clause 3 for the goals of nuclear security and safeguards).
- By checking nuclear operators' safety improvement assessments and through communications with them during safety reviews and inspections, the NRA will promote their voluntary efforts.
- With regard to incidents and accidents at nuclear facilities, the NRA will strictly and appropriately investigate their causes and evaluate nuclear operators' corrective actions.

(2) The Promotion of safety research and the continuous improvement of regulatory standards

- The NRA will conduct safety research based on the tasks mentioned in 2. (4) to accumulate the latest scientific and technological knowledge. Moreover, it will actively utilize international joint research.
- The NRA will collect the latest knowledge and findings inside and outside Japan and reflect those which are important to safety to its regulatory standards.
- Based on experiences acquired through the examinations of conformity to the new regulatory standards, the NRA will further concretize and clarify the new regulatory standards.

(3) Steadfast implementation of the revised Reactor Regulation Act

- The NRA will make the new nuclear regulatory inspection program take root smoothly to improve the effectiveness and efficiency of inspections.
- The NRA will smoothly, strictly and appropriately execute the authorization and licensing system revised to reinforce the quality management systems of nuclear operators.

(4) Continuous improvement of regulatory activities and responses to new regulatory needs

- The status of nuclear facility examinations and identified issues will be clarified.
- Regarding the backfit system, the NRA, based on its past experiences, will identify improvements of the system to operate it smoothly and effectively and further systematize it.
- In order to improve rationality and objectivity in its safety reviews and inspections, the NRA will study and prepare methods for utilizing risk information and implement them in feasible fields.
- The NRA will review regulatory requirements according to the level of importance to safety by actively applying the graded approach and utilizing risk information.
- The NRA will check whether decommissioning measures have been safely and steadfastly conducted, through its safety reviews and inspections.
- The NRA will proceed with regulatory measures so that nuclear operators can smoothly carry out the treatment, disposal and clearance of waste of various radioactivity levels containing nuclides. Particularly, regarding the disposal of uranium waste, the NRA will develop effective standards.
- The NRA will improve its regulatory approaches by incorporating recommendations and suggestions by the IRRS.

3. Promotion of nuclear security measures and steadfast implementation of safeguards

(Basic concepts)

- The NRA will promote nuclear security measures and carry out regulations for implementing safeguards based on international agreements and ensuring the peaceful use of nuclear energy.
- The NRA will continuously improve its regulations relating to nuclear security measures

(Strategies)

(1) Promotion of measures for nuclear security

- The NRA will smoothly carry out nuclear regulatory inspections for physical protection based on the revised Reactor Regulation Act and strictly and appropriately examine and inspect nuclear operators' physical protection programs, thereby preventing the occurrence of an event that may seriously undermine nuclear security.
- By steadfastly carrying out specified radioisotope protection regulations and making such regulations take root among licensees, the NRA will prevent the occurrence of an event that may seriously undermine nuclear security at regulation-target facilities.
- Based on domestic and overseas trends, the NRA will continuously improve regulations relating to nuclear security measures.

(2) Steady implementation of safeguards
- By implementing the Japan-IAEA safeguards agreement in good faith, the NRA will maintain the safeguards-related Broader Conclusion.
- The NRA will disseminate Japan's safeguards efforts to gain the trust of the international community and contribute to the peaceful use of nuclear energy.

(3) Reinforcement of interface for nuclear safety, nuclear security and safeguards
- Because nuclear safety, nuclear security and safeguards may interfere with each other, the NRA will continue to work on the formulation of operational rules.

4. Ensuring the safety of decommissioning of TEPCO's Fukushima Daiichi NPS and investigating the causes of the accident

(Basic concepts)
- The NRA will steadfastly supervise the decommissioning activities at TEPCO's Fukushima Daiichi NPS.

(Strategies)
(1) Supervision of decommissioning activities
- The NRA will strictly and appropriately examine the implementation plan and inspect the facilities, guide and instruct TEPCO as the regulatory authority and promote mid-term risk reduction as planned.

(2) Accident analysis
- The NRA will continuously analyze the accident, reflect findings obtained from the analysis to regulations, and actively disseminate them to the world to contribute to the improvement of international nuclear safety.
- The NRA will actively communicate and make adjustments with related organizations to maintain consistency with decommissioning work and on-site investigation for accident analysis.

(3) Radiation monitoring
- As post-accident measures, the NRA will steadfastly conduct radiation monitoring at land and ocean areas centering on Fukushima Prefecture on the basis of the Comprehensive Radiation Monitoring Plan and provide easily comprehensible information inside and outside Japan.

5. Appropriate implementation of radiation protection measures and emergency preparedness

(Basic concepts)
- The NRA will promote radiation protection measures based on the latest knowledge and findings.
- In order to ensure safety in the utilization of radioisotopes and other sources of radiation, the NRA will rigorously and properly implement regulations on the Radioisotope Regulation Act.
- The NRA will continuously improve regulations relating to the Radioisotope Regulation Act.
- Based on lessons learned from the accident at TEPCO's Fukushima Daiichi NPS, the NRA will continuously improve the emergency response system, such as the revision of the NRA Guide for Emergency Preparedness and Response.

- The NRA will develop and operate a crisis management system for peacetimes and emergency, and establish and maintain a line-of-sight monitoring system.

(Strategies)

(1) Promotion of radiation protection measures

- Based on the latest standards of the IAEA and the International Commission on Radiological Protection (ICRP), the safety research results, and the opinions of the Radiation Council, the NRA will incorporate them into laws and regulations.
- The NRA will study radiation protection against high-concentration natural radionuclides contained in rocks and others.

(2) Implementation and continuous improvement of regulations relating to the Radioisotope Regulation Act

- The NRA will implement review and inspections rigorously and properly, to prevent the occurrence of an event that may seriously undermine safety at facilities covered by its regulations (see 3 for the goals of nuclear security relating to the Radioisotope Regulation Act).
- The NRA will collect the latest knowledge and findings inside and outside of Japan, and important items for safety are reflected into the regulatory standards as necessary. And by actively applying the graded approach, the NRA will continuously improve its regulatory system and operation thereof.

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

- Based on the lessons learned from TEPCO's Fukushima Daiichi NPS accident, the matters found in the routine emergency drills, and the latest knowledge and findings, the NRA will continuously improve the NRA Guide for Emergency Preparedness and Response, and in coordination with the Nuclear Disaster Management Bureau, Cabinet Office, will reflect them in manuals.

(4) Development and operation of the crisis management system

- With regard to the crisis management system, the NRA will maintain its emergency preparedness, for example, by appropriately allocating personnel for responding to an emergency, and improve and operate related manuals and equipment for communication network. The NRA will maintain and improve its emergency response capability by organizing and implementing emergency drills on the assumption of various scenarios such as a complex disaster and a severe accident and by actively participating in training and drills held by local public bodies. Based on what the IRRS pointed out, the NRA will conduct emergency response training on the assumption of an emergency during radioactive material transportation, in coordination with related ministries and agencies and will improve transportation-related emergency response capability.
- In addition to the implementation of nuclear operators' emergency drills based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, the NRA will implement emergency response drills and training on the assumption of various scenarios not limited to accident scenarios assumed in examinations, in order to maintain and improve nuclear operators' emergency response capability.
- The NRA will further strengthen medical systems in anticipation of a nuclear disaster.

(5) Implementation of radiation monitoring

- The NRA will monitor the levels of radiation and radioactive materials in the environment and provide information on measurement results in cooperation with related parties.
- Through training for emergency monitoring, the NRA will strengthen the emergency monitoring systems of NPP sites.

## 9. Actual Record of the NRA Commission Meetings

**(From April 1, 2019 to March 31, 2020)**

| Number | Date | Deliberation Topic |
|---|---|---|
| 1 | 4.3 | ・Permission for change in reactor installation of Units 3 and 4 at Genkai NPS (Kyushu |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | Electric Power Company), designated as Specialized Safety Facilities (draft)<br>・Appointment of the Radiation Council members (draft)<br>・Appointment of commissioners for emergency response measures (draft)<br>・Problems regarding preventive activities of headquarters identified at Fukushima Daini NPS (TEPCO Holdings)<br>・Progress of Strategic Program for Promoting Regulatory Radiation Safety Research<br>・Implementation of meeting for opinion exchange between External Advisors and the NRA |
| 2<br>*1 | 4.8 | ・Revision of the review standard for the physical protection |
| 3 | 4.10 | ・The method of confirming the analysis result in the review of a construction plan for a commercial power reactor<br>- Method of confirmation based on analysis error in aseismatic evaluation -<br>・Study results of meetings of the “Study Team on Administration of Stabilized Iodine Tablets” and future plans<br>・Formulation policy for NRA Annual Report for FY2018 (draft)<br>・Establishment of the Office for Public Records Management and Information Technology and the promotion of the electronic management of administrative documents<br>・Outline of the results of the Advisory Group on Nuclear Security (AdSec), IAEA |
| 4 | 4.17 | ・Consultation with Minister of Agriculture, Forestry and Fisheries regarding PET medical care in veterinary medicine (draft)<br>・Reorganization of monitoring teams relating to the JAEA (draft)<br>・Results of collecting reports on the eruptive volume of the Daisen-Namatake tephra of Daisen Volcano<br>・Results of site inspections for users of nuclear fuel materials in FY2018 |
| 5 | 4.24 | ・Response to the 8th Exchange of Opinions with Chief Nuclear Officers of Licensees of Major Nuclear Facility Operators -Regarding the Atomic Energy Association (ATENA) -<br>・Response to the 8th Exchange of Opinions with Chief Nuclear Officers of Licensees of Major Nuclear Facility Operators - Regarding Specialized Safety Facility -<br>・Requesting public opinions on the draft of the revision of the “Nuclear Emergency Response Guidelines” and the “Distribution and Administration of Stabilized Iodine Tablets”<br>・Details of the revocation of the subsidy to Kyoto University and measures to be taken<br>・Progress by the “Study Team on Evaluation of Ground Motions without Identification of Seismic Sources” |
| 6 | 5.8 | ・Results of nuclear material physical protection inspections in FY2018 and results of checking protective measures for nuclear fuel material transportation in FY2018 (draft)<br>・Appointment of the members of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee (draft)<br>・Requesting public opinions on the draft of the revision of the “Nuclear Emergency Response Guidelines” and the “Distribution and Administration of Stabilized Iodine Tablets”<br>・Revision of ordinances related to the revision of the Industrial Standardization Act (JIS Act), and implementation of procedures of public comments on the revision<br>・Revision of ordinance for the omission of seals and personal information in reports received by the NRA and implementation of procedures of public comments on the revision<br>・Evaluation on accidents, failures, and others of radioisotopes licensee in FY2018<br>・Results of FY2018 on-site inspections for designated bodies for information processing |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | and designated bodies for safeguards inspections |
| 7 | 5.15 | ・Situation of reviewing conformity to the New Regulatory Requirements of commercial power reactors<br>・Situation of reviewing conformity to the New Regulatory Requirements of facilities for handling radioisotopes<br>・Evaluation of the report on the contamination in controlled area of the number two development office for plutonium fuel at JAEA's Nuclear Fuel Cycle Engineering Research Institute and measures to be taken<br>・Operational safety inspections in the fourth quarter of FY2018<br>・Revision of the review report on the application for change in reactors installation at the Ohi NPS (Kansai Electric Power Company) (Units 3 and 4)<br>・Results of the implementation of Safeguards Activities in Japan in 2018<br>・Results of the preparatory meeting for the follow-up mission of the Integrated Regulatory Review Service by IAEA<br>・Outline of the results of the 4th meeting of the Working Group for Safety Culture (WGSC) of the Committee on Nuclear Regulatory Activities (CNRA), OECD/NEA |
| 8 | 5.22 | ・Draft of the review report on application for change in reactor installation of Units 6 and 7 at Kashiwazaki Kariwa NPS (TEPCO Holdings) (draft)<br>- Changes based on the revision of ordinances and modification of water intrusion prevention equipment -<br>・Results of requesting public comments on revision of ordinances related to an order obligating security measures for specified radioisotopes and formulation of the ordinances (first revision)<br>・Requesting public comments for the draft of the revision of internal regulations related to obligating security measures for specified radioisotopes (second revision)<br>・Requesting public comments on the revision of notifications relating to PET medical care in veterinary medicine<br>・Results of FY2018 on-site inspections of registered certification organizations, etc.<br>・Situation of review on application for change in reactor installation of Units 3 and 4 at the Genkai NPS (Kyushu Electric Power Company) - Modification of spent fuel pool storage capacity and installation of a dry storage facility spent fuel -<br>・Overview of the results of International Nuclear Safety Advisory Group (INSAG) of IAEA |
| 9 | 5.23 | ・Opinion exchange between the NRA and the Hokkaido Electric Power Company's management |
| 10 | 5.29 | ・Results of checking protective measures for nuclear fuel material transportation in FY2018 (additional explanations regarding issues pointed out by the NRA on May 8, 2019)<br>・Future regulatory approach to re-evaluation of the eruptive volume of Daisen-Namatake tephra of Daisen Volcano<br>・Evaluation of the report on the contamination in controlled area of the number two development office for plutonium fuel at JAEA's Nuclear Fuel Cycle Engineering Research Institute and measures to be taken (draft) |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | ・Directions for review of regulation to TEPCO's Fukushima Daiichi NPS (draft)<br>・Direction for the annual evaluation of the of safety research projects<br>・Future policy for re-examination of the placement of the real-time dose measuring systems (draft)<br>・Publication of data from the "emergency radiation monitoring information sharing and announcement system" during ordinary times<br>・NRA Annual Report for FY2018 (draft)<br>・Outline of the results of an International Nuclear Regulators Association (INRA) meeting |
| 11 | 6.5 | ・Development of the interpretation of relevant regulations relating to technical evaluation of fitness-for-service codes and the results of requesting public comments on the development (draft)<br>・The Plan for Conducting of Technical Evaluation of Codes and Standards<br>・Formulation of review standards for clearance measurement and assessment methods and requesting public comments on the formulation<br>・The response to the possible failures of alarm system at power reactor facilities (report)<br>・Appointment of the National Research and Development Agency Council members |
| 12 | 6.12 | ・Draft of the review report on application for change in reactor installation of Units 1, 2, 3 and 4 at Takahama NPS, (Kansai Electric Power Company) (draft)<br>- The modifications of site area and geometry, and the sharing of spent resin treatment device and others -<br>・Actual procedures for the construction of specialized safety facility not completed within the statutory deadline<br>・For the formulation of the mid-term goals for the next term of the NRA<br>・Revision of ordinances related to the revision of the Industrial Standardization Act (JIS Act) and the results of requesting public comments on the revision<br>・Revision of ordinance for the omission of seals and personal information in reports received by the NRA and the results of requesting public comments on the revision<br>・Results of evaluation for safety research (draft) (intermediate and ex-post facto evaluations)<br>・Formulation of Operating Manual for the Emergency Response Support System (ERSS)<br>・Arbitrary decisions in the fourth quarter of FY2018 |
| 13 | 6.19 | ・Instruction relating to re-evaluation of the eruptive volume of Daisen-Namatake tephra of Daisen Volcano based on Paragraph 1 of Article 43-3-23 of the Reactor Regulation Act<br>・The handling of reviews and inspections related to re-evaluation of the eruptive volume of Daisen-Namatake tephra of Daisen Volcano<br>・Evaluation of the report received from the TEPCO Holdings on the abnormality of an emergency diesel generator (B) in its Kashiwazaki-Kariwa NPS, Unit 1, and measures to be taken<br>・Permission for changes in the reactor installations of Tokyo Electric Power Company Holdings' Kashiwazaki-Kariwa NPS, Units 6 and 7 (draft) - Changes based on the revision of ordinances and the modification of water intrusion prevention equipment - |
| 14 | 6.26 | ・Draft of the review report on application for change in reactor installation of Units 1, 2, 3 and 4 at Takahama NPS (Kansai Electric Power Company), and application for change in reactor installation at Tokai Daini NPS (Japan Atomic Power Company) (draft) - Measures for maintaining functions of confining radioactive materials of fuel cladding materials at the time of earthquake -<br>・Evaluation of the report on the contamination in a controlled area of the number two Development Office for Plutonium Fuel at JAEA's Nuclear Fuel Cycle Engineering |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | Research Institute and measures to be taken (draft)<br>・Direction for reviewing approval of operational safety program change related to the installation of Specialized Safety Facilities (draft)<br>・Review of organization for supervision and evaluation of TEPCO's Fukushima Daiichi NPS<br>・Nuclear operators' responses to inappropriate acts by manufacturers |
| 15<br>*2 | 7.2 | ・Draft of the review report of the application for change in reactor installation to Kyoto University's Institute for Integrated Radiation and Nuclear Science (research reactor) (draft) |
| 16 | 7.3 | ・Revisions of the "Nuclear Emergency Response Guidelines" and the "Distribution and Administration of Stabilized Iodine Tablets"<br>・Report received from Kansai Electric Power Company on "Countermeasures for tsunamis That may not be Accompanied by Tsunami Warning"<br>・Future review direction of the conformity of reprocessing facilities (Japan Nuclear Fuel Limited) to the New Regulatory Requirements<br>・Review results of application for change in reactor installation to Kyoto University's Institute for Integrated Radiation and Nuclear Science (research reactor) (draft)<br>・"Fields of and Policy on the Implementation of Safety Research to be Promoted" (draft)<br>・Rules (draft) for development of NRA regulations related to the implementation of the act for development of relevant act to optimize measures relating to the limitation of the rights of adult wards<br>・Publication of "Safeguards Statement for 2018" of the IAEA<br>・Report on the results of the Debriefing Session of Emergency Drills by licensees |
| 17 | 7.10 | ・Permission for changes in reactor installation of Units 1, 2, 3 and 4 at Takahama NPS (Kansai Electric Power Company) (draft)<br>- The modifications of site area and geometry, and the sharing of spent resin treatment device and others -<br>・Eighth National Report of Japan on the Convention on Nuclear Safety (draft)<br>・Technical evaluations of the Japan Electric Association's "A Method of Checking the Fracture Toughness of a Reactor Pressure Vessel during a In-Service Period" and "A Method of Determining the Fracture Toughness Reference Temperature T0 of Ferrite Steel" (draft)<br>・Kansai Electric Power Company's responses relating to "Countermeasures for Tsunamis That may not be Accompanied by Tsunami Warning" |
| 18 | 7.17 | ・Revision of the Nuclear Emergency Response Guidelines<br>・Revision of ordinances relating to pit disposal and trench disposal and requesting public comments on the revision<br>・Additional opinion requesting public comments on rules(draft) for development of NRA regulations related to implementation of the act for development of relevant act to optimize measures relating to the limitation of the rights of adult wards |
| 19 | 7.24 | ・Permission for change in reactor installation at Tokai Daini NPS (Japan Atomic Power Company) (draft) - Measures for maintaining functions of confining radioactive materials of fuel cladding materials at the time of earthquake -<br>・Formulation of internal regulations related to obligating security measures for specified radioisotopes and requesting public comments for the formulation<br>・Revision of notification on PET medical care in veterinary medicine and the results of requesting public comments on the revision<br>・Progress of Strategic Program for Promoting Regulatory Radiation Safety Research |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | ・Errors in the FY2017 examination for certification as a second-class radiation protection supervisor |
| 20 | 7.31 | ・Comments of external experts on NRA's Administrative Review<br>・Kansai Electric Power Company's responses relating to "Countermeasures for Tsunamis That may not be Accompanied by Tsunami Warning" and future direction based on the responses (draft)<br>・Permission for change in the reactor installation of Units 1, 2, 3 and 4 at Takahama NPS (Kansai Electric Power Company) (draft) - The modifications of site area and geometry, and the sharing of spent resin treatment device -<br>・Permission for changes in reactor installation of Units 1, 2, 3 and 4 at Takahama NPS (Kansai Electric Power Company) (draft) - Measures for maintaining functions of confining radioactive materials of fuel cladding materials at the time of earthquake -<br>・Partial revision of Review Standards Applicable to Operational Safety Program of Commercial Power Reactors and Auxiliary Facilities and requesting public comments for the revision - Utilization of a specialized safety facility in case of a serious accident -<br>・Development (stage 1) of laws and regulations for implementation of the new inspection program (nuclear regulatory inspections) and requesting public comments for the development<br>・Overview of the results of discussions with the government of Canada and the U.S. |
| 21 | 8.2 | ・Advance reference materials (ARMs) submitted to a follow-up mission of the IAEA's Integrated Regulatory Review Service (IRRS) |
| 22 | 8.6 | ・Opinion exchange between the NRA and Recyclable-Fuel Storage Company's management |
| 23 | 8.21 | ・NRA opinions on the "Draft cabinet office order for partially revising the cabinet office order on off-site centers for emergency response measures based on the Act on Special Measures Concerning Nuclear Emergency Preparedness"<br>・Draft of the review report on application for change in reactor installation of Units 1, 2, 3 and 4 at Takahama NPS (Kansai Electric Power Company) (draft) - Installation of permanent DC power supply facility (third system) at the station and the partial modifications of equipment for severe accident and related system -<br>・Draft of the review report on application for change in reactor installation of Units 3 and 4 at Genakai NPS,(Kyushu Electric Power Company) (draft) - The renewal of a reactor safety protection instrumentation panel -<br>・Formulation of rules (draft) for development of NRA regulations related to implementation of the act for development of relevant act to optimize measures relating to the limitation of the rights of adult wards and the results of requesting public comments on the formulation<br>・Policy evaluation report of implementation measures in FY2018 and a pre-analysis table of implementation measures of Policy evaluation report for FY 2019<br>・Future direction of assessing the probability of an aircraft crash in the review of conformity of reprocessing facilities (Japan Nuclear Fuel Limited) to the New Regulatory Requirements<br>・Operational safety inspections in the first quarter of FY2019<br>・Review for approval of design and construction methods of fire extinguishing equipment of nuclear facility (NSRR) of JAEA's Nuclear Science Research Institute |
| 24 | 8.28 | ・Performance evaluation of the National Institutes for Quantum and Radiological Science and Technology in FY2018 (draft)<br>・Performance evaluation (under co-management with the NRA) of JAEA in FY2018 and the 3rd mid-to-long term goal interim period (draft)<br>・Study result of "Study Team on Evaluation for Ground Motions without Identification of |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | Seismic Sources" |
| 25 | 8.28 | ・Opinion exchange between the NRA and the Kansai Electric Power Company's management |
| 26 | 9.3 | ・Opinion exchange between the NRA and the Chubu Electric Power Company's management |
| 27 | 9.4 | ・Examination on continuous improvement of limiting condition of operation (LCO) in accordance with the states of nuclear facilities<br>・Continuous research and analysis of the accident at the TEPCO's Fukushima Daiichi NPS<br>・Partial revision (draft) of the test and research reactor operational safety program examination standard, formulation of an operational guideline (draft) for periodically assessing a test and research reactor facility, and requesting public comments on these - Incorporation of evaluation concerning site characteristics including external hazards -<br>・NRA's budget demands for FY2020, and demands of organization and the number of agency personnel plan for FY2020 |
| 28 | 9.11 | ・Formulation of review standard for clearance measurement and assessment methods and the results of requesting public comments on the formulation<br>・Regulatory action in response to the study result of "Study Team on Evaluation of Ground Motions without Identification of Seismic Sources"<br>・Direction for continuous research and analysis of the accident at TEPCO's Fukushima Daiichi NPS<br>・Outline of the results of the seventh meeting of Japan-France Regulatory Authorities Meeting |
| 29<br>*3 | 9.13 | ・Measures against a common cause failure caused by a digital safety protection circuit software of a nuclear power reactor facility |
| 30 | 9.18 | ・NRA opinions on the "Plan of Nuclear Energy Disaster Prevention Drill for FY2019"<br>・Development of guidelines for review of regulations based on the Act on the Regulation of Radioisotopes, etc. |
| 31 | 9.25 | ・Permission for change in reactor installation of Units 1, 2, 3 and 4 at Takahama NPS (Kansai Electric Power Company) (draft)<br>- Installation of permanent DC power-supply facility (third system) at the station and the partial modifications of equipment for severe accident and related system -<br>・Permission for change in reactor installation of Units 3 and 4 at Genkai NPS (Kyushu Electric Power Company) (draft)<br>- Renewal of a reactor safety protection instrumentation panel -<br>・Development (Stage 2) of laws and regulations for implementation of the new inspection program (nuclear regulatory inspections) and requesting public comments for the development<br>・Results of investigating the omission of application for approval of designs and construction methods for the nuclear facility (NSRR) of JAEA's Nuclear Science Research Institute and other test and research reactor facilities<br>・Outline of IAEA General Conference, International Nuclear Regulators Association (INRA), and other meetings and France business trip report |
| 32 | 9.26 | ・Discussions with the chairmen of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee (recent deliberation status of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee) |
| 33 | 10.2 | ・Revision of ordinances relating to pit disposal and trench disposal and the results of requesting public comments on the revision<br>・Partial revision of Review Standards Applicable to Operational Safety Program of |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | Commercial Power Reactor and Auxiliary Facilities and the results of requesting public comments on the revision - Utilization of a specialized safety facility in case of a serious accident -<br>・Results of requesting public comments on development (cabinet order in Stage 1) of laws and regulations for implementation of the new inspection program (nuclear regulatory inspections)<br>Formulation of relevant cabinet orders for implementing the new inspection program (nuclear regulatory inspection) (draft)<br>・Additional requesting public comments on development (ordinances and implementation procedures in Stage 1) of laws and regulations for implementation of the new inspection program (nuclear regulatory inspections)<br>・Situation of the trial operation for the new inspection program<br>・The establishment of review team meeting regarding measures against a common cause failure of a digital safety protection system of nuclear power reactor facility |
| 34 | 10.9 | ・Revision of proposed modifications of medium-to long-term targets and evaluation axis of the National Institutes for Quantum and Radiological Science and Technology<br>・Advance reference materials (ARMs) submitted to a follow-up mission of the IAEA's Integrated Regulatory Review Service (IRRS)<br>・Situation of the collapse of cooling tower in the Japan Materials Testing Reactor (JMTR) at the JAEA's Oarai Research and Development Institute and direction of responses to the collapse<br>・Situation of reviewing reprocessing facilities (Japan Nuclear Fuel Limited) for conformity to the New Regulatory Requirements |
| 35 | 10.15 | ・Opinion exchange between the NRA and the Kyushu Electric Power Company's management |
| 36 | 10.16 | ・Procedure for the prior use of the rod-shaped fuel storage facility II of nuclear reactor facility (STACY) of the JAEA's Nuclear Science Research Institute<br>・Modification of the method of using a storage shed in checking the integrity of drum cans at the waste treatment site of the JAEA's Nuclear Science Research Institute<br>・Partial revision of the Guidelines for Assessing the Impacts of Volcanic Activities on Nuclear Power Stations and requesting public comments on the revision (draft) - Review to further concretize and clarify the guideline -<br>・Development of ordinance for changes in the equivalent dose limit for the lens of the eye and implementation of procedures of public comments on the development<br>・Partial revision of the rules on the requirements and appointments of external advisors from overseas and appointments of the advisors<br>・Outline of the results of the Advisory Group on Nuclear Security (AdSec), IAEA<br>・Actual procedures for the construction of specialized safety facility not completed within the statutory deadline (part II) |
| 37<br>*4 | 10.17 | ・Decision on the petition for stay of execution and the formal objection to change in operational safety program for Sendai NPS (Kyushu Electric Power Company) |
| 38 | 10.23 | ・Draft of the review report on application for change in reactor installation of Units 3 and 4 at Genakai NPS (Kyushu Electric Power Company) (draft)<br>- Modification of storage capacity of the spent fuel storage facility and the sharing of the steam generator depository -<br>・Errors in the revised ordinances for pit disposal and trench disposal and the redetermination of ordinances to correct the errors<br>・Temporary measures taken based on event reported based on the Act of the collapse of cooling tower in the Japan Materials Testing Reactor (JMTR) at the JAEA's Oarai |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | Research and Development Institute<br>・Continuous improvement of regulatory requirements by reflecting examination experiences and past record<br>・Mid-term goals for the next term of the NRA (1st)<br>・Arbitrary decisions in the first quarter of FY2019 |
| 39 | 10.30 | ・Registration of the Nuclear Safety Technology Center as a “registered periodic training organization for Specified Radioisotope Security Managers”<br>・Mid-term goals for the next term of the NRA (2nd)<br>・Document submitted by Kyushu Electric Power Company regarding the construction of the specialized safety facility not completed within the statutory deadline and actions taken for it<br>・The partial revision of relevant ordinances and notifications related to review of regulations to TEPCO’s Fukushima Daiichi NPS and requesting public comments on the revision<br>・Operational safety inspections in the second quarter of FY2019 |
| 40 | 11.6 | ・Draft of the review report on application for change in reactor installation of Units 3 and 4 at Ohi NPS (Kansai Electric Power Company) (draft)<br>- Installation of emergency response station -<br>・Future development of regulatory standards requirements for mid-depth disposal and uranium waste disposal<br>・Findings of the NRA regional office on decommissioning work of TEPCO’s Fukushima Daiichi NPS<br>・Outline of the results of the 5th meeting of the Working Group for Safety Culture (WGSC) of Committee on Nuclear Regulatory Activities (CNRA), OECD/NEA<br>・Implementation of meeting for opinion exchange between External Advisors and the NRA |
| 41<br>*5 | 11.6 | ・Decisions on the petition for stay of execution and the formal objection to the approval of change in operational safety program at Sendai NPS (Kyushu Electric Power Company) |
| 42 | 11.13 | ・Partial revision of the test and research reactor operational safety program examination standard and formulation of an operational guideline for periodically assessing a test and research reactor facility, and the result of requesting public comments on these<br>- Incorporation of evaluation concerning site characteristics including external hazards -<br>・Mid-term goals for the next term of the NRA (3rd)<br>・Situation of reviewing conformity to the New Regulatory Requirements for commercial power reactors<br>・Situation of reviewing conformity to the New Regulatory Requirements of facilities for handling radioisotopes |
| 43 | 11.20 | ・Draft of the review report on application for change in reactor installation of Units 3 and 4 at Genkai NPS (Kyushu Electric Power Company) (draft)<br>- Installation of permanent DC power supply facility (third system) -<br>・Permission for change in reactor installation of Units 3 and 4 at Genkai NPS (Kyushu Electric Power Company) (draft)<br>- Modification of the storage capacity of the spent fuel storage facility and the sharing of the steam generator depository -<br>・Development of the interpretation of relevant ordinance relating to technical evaluation for errata relating to codes that had been cited in the examination standards and requesting public comments on the development |
| 44 | 11.27 | ・Draft of the review report on application for change in reactor installation of Unit 2 at Onagawa NPS (Tohoku Electric Power Company) (draft) |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | ・Review of the clearance rules<br>・Future efforts for implementation of nuclear regulatory inspections<br>・The handling of finding in inspection related to facilities for handling radioisotopes under the new inspection program<br>・Situation of management of administrative documents<br>・Outline of the results of meetings of the International Commission on Radiological Protection (ICRP) |
| 45 | 11.28 | ・Opinion exchanges between the NRA and Chugoku Electric Power Company's management |
| 46 | 12.4 | ・Revision of a Notification on Technical Details for Off-Site Transportation of Nuclear Fuel Material, etc. and implementation of procedures of public comments on the revision<br>・Results of requesting public comments on revision of ordinance for changes in the equivalent dose limit of the lens of the eye and consultation to the Radiation Council (draft)<br>・"Study team on seismic isolation of buildings and structures"<br>・Outline of the results of the 12th China-Japan-Korea Top Regulators' Meeting (TRM)<br>・In response to the 10th Exchange of Opinions with Chief Nuclear Officers of Licensees of Major Nuclear Facility Operators |
| 47 | 12.11 | ・Draft of the review report on application for change in reactor installation of Unit 1, 2, 3, and 4 at Takahama NPS (Kansai Electric Power Company), Unit 3 at Mihama NPS (Kansai Electric Power Company), Unit 3 and 4 at Ohi NPS (Kansai Electric Power Company), Unit 3 at Ikata NPS (Shikoku Electric Power Company), Units 1 and 2 at Sendai NPS (Kyushu Electric Power Company) and Units 3 and 4 at Genkai NPS (Kyushu Electric Power Company) (draft)<br>- Modifications based on the new regulations for protection against noxious gases -<br>・Permission for change in reactor installation of Units 3 and 4 at Ohi NPS (Kansai Electric Power Company) (draft)<br>- Installation of emergency response station -<br>・Approval of the decommissioning plan of Units 1 and 2 at Ohi NPS (Kansai Electric Power Company) (draft)<br>・Approval of change in the decommissioning plan of Units 1 and 2 at Mihama NPS (Kansai Electric Power Company) (draft)<br>・Correction of the answer toward submitted opinion obtained by requesting public comments on revision of ordinance for changes in the equivalent dose limit of the lens of the eye<br>・Implementation of public hearing opinions (1st) from the licensees under the Act on Regulations of Radioisotopes, etc. regarding the development of guidelines for review of regulations based on the Act<br>・Operation of pre-service inspections based on the interim measure for the new inspection program (nuclear regulatory inspections)<br>・Arbitrary decisions in the second quarter of FY2019 |
| 48<br>*6 | 12.16 | ・The public announcement of the IAEA's International Physical Protection Advisory Service (IPPAS) mission report and follow-up mission report<br>・Status of responses to recommendations in the IPPAS follow-up mission report |
| 49 | 12.18 | ・Partial revision of the Guidelines for Assessing the Impacts of Volcanic Activities on Nuclear Power Stations and the results of requesting public comments on the revision - Review of the guideline for more clarity -<br>・Revision of the NRA Management Rules (draft) |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | ・Requesting public comments on revision of the Nuclear Emergency Response Guidelines (clarification of initial responses upon a disaster during nuclear fuel material transportation)<br>・Requesting public comments on the revision of the Nuclear Emergency Response Guidelines and related ordinances (Review of the Emergency Action Level [EAL])<br>・Decision categories of internal regulations of the new inspection program<br>・Reports to and approvals from the NRA regarding safety significance assessments |
| 50 | 12.25 | ・Permission for change in reactor installation of Units 3 and 4 at Genkai NPS (Kyushu Electric Power Company) (draft)<br>- Installation of permanent DC power supply facility (third system) -<br>・Evaluation of the report received from Kansai Electric Power Company on damage of steam generator tubes of Unit 4 of Takahama NPS and measures to be taken (draft)<br>・Formulation and revision of laws and ordinances for implementing the new inspection program (nuclear regulatory inspections) and requesting public comments on the these (concerning commercial power reactor facilities) (draft)<br>・Necessary development of internal regulations for implementing the new inspection program (nuclear regulatory inspections) and requesting public comments on the development<br>・Direction of revision of the ordinances for the Act on Regulations of Radioisotopes, etc.<br>- Ensuring the reliability of radiation measurement -<br>・Setting of important themes of FY2020 Radiation Safety Research Promotion Project and public offering of new projects<br>・Measures for improving the review of test and research nuclear reactor facility<br>・NRA's proposed supplementary budget for FY2019, and proposed budget and plan for organization and the number of agency personnel for FY2020<br>・Mid-term goals for the next term of the NRA (4th) |
| 51 | 1.8 | ・Mid-term goals for the next term of the NRA (5th) |
| 52 | 1.15 | ・Direction for study on the continuous improvement of regulatory requirements by reflecting examination experiences and past record - Development of a plan for reviewing the regulatory requirements for commercial power reactors -<br>・Partial revision of ordinances and notifications related to review of regulations to TEPCO's Fukushima Daiichi NPS and the result of requesting public comments on these<br>・Development of the interpretation of relevant ordinance relating to technical evaluation for errata relating to codes that had been cited in the examination standards and the results of requesting public comments on the development<br>・Formulation of regulatory requirements for mid-depth disposal<br>- Direction based on the results of hearing opinions from the Federation of Electric Power Companies -<br>・Situation of management of administrative documents (report on progress) |
| 53 | 1.16 | ・Opinion exchange between the NRA and the TEPCO holdings Company's management |
| 54 | 1.22 | ・Partial revision of the ordinance on the Use of Internationally Controlled Materials and requesting public comments on the revision (draft)<br>・Situation of the Integrated Regulatory Review Service (IRRS) by IAEA's |
| 55 | 1.23 | ・Opinion exchange between the NRA and the Hokuriku Electric Power Company's management |
| 56<br>*7 | 1.24 | ・Draft of the review report on items relating to the installation of specialized safety facility in the application for change in reactor installation of Units 3 and 4 at Ohi NPS (Kansai Electric Power Company) (draft) |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | ・Answers to preliminary questions prior to the eighth Review Meeting of the Contracting Parties to the Convention on Nuclear Safety (draft) |
| 57 | 1.29 | ・Permission for change in reactor installation of Units 1, 2, 3 and 4 at Takahama NPS (Kansai Electric Power Company), Unit 3 at Mihama NPS (Kansai Electric Power Company), and Units 3 and 4 at Ohi NPS (Kansai Electric Power Company), Unit 3 at Ikata NPS (Shikoku Electric Power Company), and Units 1 and 2 at Sendai NPS (Kyushu Electric Power Company) and Units 3 and 4 at Genkai NPS (Kyushu Electric Power Company) (draft)<br>- Modifications based on the new regulations for protection against noxious gases -<br>・Draft of the review report on application for change in reactor installation of Units 3 and 4 at Ohi NPS (Kansai Electric Power Company) (draft) - Specialized safety facility and permanent DC power supply facility (third system) at the station -<br>・Results of evaluation for safety research (draft) (interim assessment and prior assessment)<br>・Measures for improving the examination for nuclear power facilities as a whole (draft)<br>・Direction for exchanging technical views with ATEN at the working level for aging deterioration management (draft)<br>・Radiation exposure management for personnel engaged in the accident investigation at TEPCO's Fukushima Daiichi NPS |
| 58 | 1.29 | ・Opinion exchange between the NRA and the Japan Atomic Power Company's management |
| 59<br>*8 | 2.4 | ・Answers to preliminary questions prior to the eighth Review Meeting of the Contracting Parties to the Convention on Nuclear Safety (draft) (2nd) |
| 60 | 2.4 | ・Opinion exchange between the NRA and the Tohoku Electric Power Company's management |
| 61 | 2.5 | ・Results of requesting public comments on the revision of the Nuclear Emergency Response Guidelines (clarification of initial emergency responses relating to disaster prevention measures for the transportation of nuclear fuel material, etc.)<br>・Results of requesting public comments on the revisions of the Nuclear Emergency Response Guidelines and relevant ordinances (Revision of Emergency Action Level [EAL])<br>・Formulation and revision of laws and ordinances for implementing the new inspection program (nuclear regulatory inspections) and the results of requesting public comments on these (other than commercial power reactor facilities) (draft)<br>・Mid-term goals for the next term of the NRA (6th)<br>・Revision of Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS<br>・Document submitted by Kansai Electric Power Company regarding the construction of specialized safety facilities for Units 3 and 4 at Takahama NPS, not completed within the statutory deadline<br>・Operational safety inspections in the third quarter in FY2019 |
| 62<br>*9 | 2.10 | ・Answers to preliminary questions prior to the eighth Review Meeting of the Contracting Parties to the Convention on Nuclear Safety (draft) (3rd) |

| Number | Date | Deliberation Topic |
|---|---|---|
| 63 | 2.12 | ・Formulation of ordinances based on report from the Radiation Council on the regulation relating to changes in the equivalent dose limit for the lens of the eye (draft)<br>・Report from the Radiation Council<br>・The mid-to-long term plan (draft) of the National Institute for Quantum and Radiological Science and Technology<br>・Registration of the Radiation Management Institute Inc. as a “registered package confirmation organization” (draft)<br>・Revision of Measures for Mid-term Risk Reduction at TEPCO’s Fukushima Daiichi NPS (2nd)<br>・Formulation of the implementation procedures for Implementation Plan Pertaining to Specified Nuclear Facilities at the Fukushima Daiichi NPS (2nd) |
| 64 | 2.19 | ・Opinion exchange between the NRA and the Federation of Electric Power Companies regarding formulation of regulatory requirements for mid-depth disposal<br>・Formulation of the implementation procedures for safeguards inspection (draft)<br>・Results of evaluation for safety research (draft) (interim assessment and prior assessment) (2nd)<br>・Measures for improving the examination for nuclear power facilities as a whole (draft) (2nd)<br>・Reinforcement of organizational structure of TEPCO Holdings’ Fukushima Daiichi Decontamination and Decommissioning Engineering Company<br>・Outline of the results of the IAEA’s nuclear security international conference |
| 65 | 2.19 | ・Opinion exchange between the NRA and the JAEA’s management |
| 66<br>*10 | 2.25 | ・Direction for the review of measures for preventing the over-pressurization failure of containment vessels of BWR plants (draft)<br>・Selection of the Radiation Council members<br>・Selection of the Reactor Safety Examination Committee’s members |
| 67 | 2.26 | ・Permission for change in reactor installation of Unit 2 at Onagawa NPS (Tohoku Electric Power Company) (draft)<br>・Permission for change in reactor installation of Units 3 and 4 at Ohi NPS (Kansai Electric Power Company) (draft)<br>- Installation of specialized safety facility and permanent DC power supply facility (third system) at the station -<br>・Revision of Notification on Technical Details for Off-Site Transportation of Nuclear Fuel Material , etc. , and the results of requesting public comments on the revision<br>・Revision of Measures for Mid-term Risk Reduction at TEPCO’s Fukushima Daiichi NPS (3rd) |
| 68 | 3.4 | ・Reply to hearing opinions on the “designation of off-site centers”<br>・Basic plan for policy evaluation (draft)<br>・Release of the NRA’s initiatives (March 11 report) (draft)<br>・Measures for Mid-term Risk Reduction at TEPCO’s Fukushima Daiichi NPS (ver. March 2020) (draft) (4th)<br>・Guideline for judgment on safety significance used for the new inspection program (nuclear regulatory inspections) (draft)<br>・Verification of the validity of nuclear operators’ Probabilistic Risk Assessment (PRA) models used for nuclear regulatory inspections (draft)<br>・Study results of the Technical Information Committee on the knowledge of “long-term evaluation for the Median Tectonic Line (MTL) fault zone ranging from the eastern edge |

| Number | Date | Deliberation Topic |
|---|---|---|
| | | of the Kongo mountains to Yufuin (2nd version)"<br>・Result of hearing opinions from nuclear operators regarding the study results of "Study Team on Evaluation of Ground Motions without Identification of Seismic Sources" and direction of revision of requirements based on the result |
| 69 | 3.11 | ・Partial revision of the Rules for the Use, etc. of International Controlled Material and the results of requesting public comments on the revision (draft)<br>・Revision of the NRA Organization Order<br>・Review of the clearance rules and requesting public comments on the review<br>・The reinforcement of measures against a common cause failure of a digital safety protection circuit of nuclear power reactor facility - Report on the study results of the review team -<br>・Measures taken in response to the IAEA's Integrated Regulatory Review Service<br>・Management review for FY2019 |
| 70<br>*11 | 3.12 | ・Direction for review of preventing the over-pressurization failure of containment vessels of BWR plants (draft) (2nd) |
| 71<br>*12 | 3.17 | ・Decisions on the request for administrative review of and the petition for stay of execution of permission for change in reactor installation at Tokai Daini NPS (Japan Atomic Power Company) |
| 72 | 3.18 | ・Achievements of Nuclear Energy Disaster Prevention Drill conducted in FY2019<br>・Approval of the decommissioning plans of Unit 1 at Onagawa NPS (Tohoku Electric Power Company) and Unit 2 at Genkai NPS (Kyushu Electric Power Company) (draft)<br>・Approval of the decommissioning plan of the engineering work at the JAEA's Ningyo-toge Environmental Engineering Center (draft)<br>・Appointment of the Radiation Council members (draft)<br>・Appointment of the Reactor Safety Examination Committee members (draft)<br>・Management review for FY2019 (2nd)<br>・Results of reviewing application for operational safety program change at Sendai NPS (Kyushu Electric Power Company)<br>・Results of examination and deliberation of Subcommittee of Volcano Monitoring under the Reactor Safety Examination Committee<br>- Report on "measure to judge significant changes in observation data" during volcano monitoring - |
| 73 | 3.23 | ・Immediate plan for the accident investigation at TEPCO's Fukushima Daiichi NPS<br>・The reinforcement of measures against a common cause failure of a digital safety protection circuit of nuclear power reactor facility (2nd) - Additional report on the study results of the review team -<br>・Result of hearing opinions from nuclear operators regarding the study result of the "Study Team on Evaluation of Ground Motions without Identification of Seismic Sources" and direction of revision of requirements based on the result |
| 74 | 3.25 | ・Draft of the review report on application for change in reactor installation of JAEA's Oarai Research and Development Institute (Kita Area) (change of HTTR (High-Temperature engineering Test Reactor)) (draft)<br>・Draft of operational guideline of inspections used for the new inspection program (nuclear regulatory inspection)<br>・Verification of the validity of nuclear operators' Probabilistic Risk Assessment (PRA) models used for nuclear regulatory inspections (2nd)<br>・The progress of Strategic Program for Promoting Regulatory Radiation Safety Research |

| Number | Date | Deliberation Topic |
|---|---|---|
| 75 | 3.30 | ・Necessary revision of internal regulations for implementation of the new inspection program (nuclear regulatory inspections) and the results of requesting public comments on the revision (draft)<br>・Revision of the NRA Administrative Document Management Guidelines<br>・Annual Strategic Plan for FY2020 (draft)<br>・Future direction of reviewing the Emergency Action Level (EAL)<br>・Arbitrary decisions in the third quarter of FY2018 |

*1 The 2nd meeting in FY2019 was closed to the public to prevent endangering public safety by disclosing information relating to physical protection from a person(s) who might ultimately attempt to sabotage nuclear facilities with such information.

*2 The 15th meeting in FY2019 was closed to the public to prevent endangering public safety by disclosing information relating to physical protection from a person(s) who might ultimately attempt to sabotage nuclear facilities with such information.

*3 The 29th meeting in FY2019 was closed to the public to prevent endangering public safety by disclosing information relating to physical protection from a person(s) who might ultimately attempt to sabotage nuclear facilities with such information.

*4 The 37th meeting in FY2019 was closed to the public because the meeting examined suitability and propriety of disposition implemented by NRA themselves. Opening of examination to the public could disturb hearing of honest opinions from the persons involved in the disposition, and as a result, the original function of formal objection that performs fair and neutral decision through simple procedure might be obstructed.

*5 The 41st meeting in FY2019 was closed to the public because the meeting examined suitability and propriety of disposition implemented by NRA themselves. Opening of examination to the public could disturb hearing of honest opinions from the persons involved in the disposition, and as a result, the original function of formal objection that performs fair and neutral decision through simple procedure might be obstructed.

*6 The 48th meeting in FY2019 was closed to the public to prevent endangering public safety by disclosing information relating to physical protection from a person(s) who might ultimately attempt to sabotage nuclear facilities with such information.

*7 The 56th meeting in FY2019 handled information on inspections of Specialized Safety Facilities and prior questions from other countries for the 8th Convention on Nuclear Safety review meeting, so it was closed to the public for security purpose and the reason of maintaining trustful relationships with those countries.

*8 The 59th meeting in FY2019 was closed to the public for the reason of maintaining trustful relationships with other countries since the meeting concerned prior questions from those countries for the 8th Convention on Nuclear Safety review meeting.

*9 The 62nd meeting in FY2019 was closed to the public for the reason of maintaining trustful relationships with other countries since the meeting concerned prior questions from those countries for the 8th Convention on Nuclear Safety review meeting.

*10 The 66th meeting in FY2019 handled information on inspections of Specialized Safety Facilities and selected the Council members and the Examination Committees' members, so it was closed to the public for security purpose and the possibility that the information disclosure could endanger personal rights and benefits, and disturb ensuring fair and smooth personnel affairs for selecting the Council members and the Examination Committee members.

*11 The 70th meeting in FY2018 was closed to the public considering the viewpoint of security because it handled the review process of the Specialized Safety Facilities.

*12 The 71st meeting in FY2019 was closed to the public because the meeting examined suitability and propriety of disposition implemented by NRA themselves. Opening of examination to the public could disturb hearing of honest opinions from the persons involved in the disposition, and as a result, the original function of formal objection that performs fair and neutral decision through simple procedure might be obstructed.

## 10. List of decisions made in the NRA

**(From April 1, 2019 to March 31, 2020)**

| Date of determination | Decision made in Committee |
|---|---|
| 4.3 | ・Permission for change in reactors installation at Genkai NPS (Kyushu Electric Power Company) (Units 1 and 2)<br>・Appointment of Radiation Council members (as of June 15, 2019)<br>・Appointment of commissioners for emergency response measures (as of June 1, 2019) |
| 4.8 | ・Revision of the review standard for the physical protection |
| 4.17 | ・Consultation with the Minister of Agriculture, Forestry and Fisheries regarding PET medical care in the Veterinary Practice Act |
| 5.8 | ・Appointment of the members of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee |
| 5.22 | ・Hearing opinions on application for change in reactor installation at Kashiwazaki-Kariwa NPS (Units 6 and 7)<br>・Ordinances for development of NRA ordinances related to the partial implementation of amendment act (the act for partial revision of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors in order to reinforce safety measures in nuclear use<br>・Notification for development of the NRA notifications related to the partial implementation of amendment act (the act for partial revision of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors in order to reinforce safety measures in nuclear use<br>・The partial revision of the standard for examining design certification operational rules and of the method of checking periodical training operational rules of registered certification organizations, etc. |
| 5.29 | ・Giving an opportunity for justification to Kansai Electric Power Company<br>・Partial revision of Basic Policy on Safety Research by the NRA<br>・Determination and announcement of NRA Annual Report for FY2018 |
| 6.5 | ・Partial revision of the interpretation of relevant regulations relating to technical evaluation of Fitness-For-Service Code |
| 6.12 | ・Hearing opinions on application for change in reactor installation at Takahama NPS (Units 1, 2, 3 and 4) (sharing of spent resin treatment device)<br>・Revision of ordinances related to the revision of the Industrial Standardization Act (JIS Act)<br>・Partial revision of ordinance for the omission of seals and personal information in reports received by the NRA |
| 6.19 | ・Instruction relating to re-evaluation of the eruptive volume of Daisen-Namatake tephra from Daisen Volcano based on Paragraph 1 of Article 43-3-23 of the Reactor Regulation Act<br>・Evaluation of the report received from the TEPCO Holdings on the abnormality of an emergency diesel generator (B) of Unit 1 at Kashiwazaki-Kariwa NPS, and measures to be taken<br>・Permission for change in reactors installation at Kashiwazaki-Kariwa NPS (TEPCO Holdings) (Units 6 and 7) |
| 6.26 | ・Hearing opinions on application for change in reactor installation at Takahama NPS (Units 1, 2, 3 and 4)<br>・Hearing opinions on application for change in reactor installation at Tokai Daini NPS<br>・Evaluation of the report on the contamination in controlled area of the number two development office for plutonium fuel at JAEA's Nuclear Fuel Cycle Engineering Research Institute and measures to be taken |
| 7.3 | ・Revision of the Nuclear Emergency Response Guidelines |

| Date of determination | Decision made in Committee |
|---|---|
| | ・Hearing opinions on application for change in reactor installation to Kyoto University's Institute for Integrated Radiation and Nuclear Science (research reactor) |
| 7.10 | ・Eighth National Report of Japan on the Convention on Nuclear Safety |
| 7.24 | ・Permission for change in reactor installation at Tokai Daini NPS<br>・Revision of internal regulations related to obligating security measures for specified radioisotopes<br>・The partial revision of the "review standards applicable to the treatment of the Nuclear Regulation Authority based on the Act on the Prevention of Radiation Hazards due to Radioisotopes" related to obligating security measures for specified radioisotopes<br>・Partial revision of NRA Administrative Document Management Guidelines<br>・Notification to partially revise the notification that designates chemical agents in Article 1, item (iv) of the Enforcement Order concerning the Act on the Prevention of Radiation Hazards due to Radioisotopes |
| 7.31 | ・Permission for change in reactor installation at Takahama NPS (Kansai Electric Power Company) (Units 1, 2, 3 and 4) (sharing of spent resin treatment device and others)<br>・Permission for change in reactor installation at Takahama NPS (Units 1, 2, 3 and 4) (maintenance of functions of confining fuel cladding materials at time of earthquake) |
| 8.21 | ・Hearing opinions relating to the revision of the cabinet office order on off-site centers for emergency response measures based on the Act on Special Measures Concerning Nuclear Emergency Preparedness (answers)<br>・Permission for change in reactor installation at Takahama NPS (Kansai Electric Power Company) (Units 1, 2, 3 and 4) (Installation of permanent DC power supply facility (third system) at the station)<br>・Hearing opinions on application for change in reactor installation at Genkai NPS (Units 3 and 4)<br>・Rules for development NRA regulations relating to implementation of the act for development of relevant act to optimize measures relating to the limitation of the rights of adult wards<br>・Policy evaluation report of implementation measures in FY2018 and a pre-analysis table of implementation measures of policy evaluation report for FY2019 |
| 8.28 | ・Performance evaluation (under co-management with the NRA) of the National Institutes for Quantum and Radiological Science and Technology in FY2018<br>・Evaluation of the JAEA's operations (under co-management with the NRA) in FY2018 and the 3rd mid-term goal interim period |
| 9.11 | ・Review standards for clearance measurement and evaluation methods |
| 9.18 | ・Hearing of opinion on the plan of Nuclear Energy Disaster Prevention Drill for FY2019 (answers) |
| 9.25 | ・Permission for change in reactor installation at Takahama NPS (Units 1, 2, 3 and 4) (Installation of permanent DC power supply facility at the station)<br>・Permission for change in reactor installation at Genkai NPS (Units 3 and 4) (renewal of a reactor safety protection instrumentation panel) |
| 10.2 | ・Revision of ordinances relating to pit disposal and trench disposal<br>・Partial revision of Review Standards Applicable to Operational Safety Program of Commercial Power Reactors and Auxiliary Facilities - Utilization of a specialized safety facility in case of a serious accident -<br>・Cabinet order for development of the cabinet order related to the partial implementation of Act on Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors in order to reinforce safety measures in nuclear use and cabinet order for setting the date of the implementation (petition) |
| 10.9 | ・Revision of proposed modification of operational goals (mid-to-long term goals) to be achieved by the National Institute for Quantum and Radiological Science and Technology |

| Date of determination | Decision made in Committee |
|---|---|
| | and evaluation axis for it |
| 10.23 | ・Hearing opinions on application for change in reactor installation at Genkai NPS (Units 3 and 4) (modification of spent fuel storage system capacity)<br>・Correction of the revised ordinances for pit disposal and trench disposal |
| 10.30 | ・Registration of the Nuclear Safety Technology Center as a “registered periodic training organization for Specified Radioisotope Security Managers” |
| 11.6 | ・Hearing opinions on application for change in reactor installation at Ohi NPS (Units 3 and 4) (Installation of an emergency response station)<br>・Decision on the formal objection and the petition for stay of execution to the approval of change in operational safety program at Sendai NPS (Kyushu Electric Power Company) |
| 11.13 | ・Partial revision of the test and research reactors operational safety programs examination standard - Incorporation of evaluation concerning site characteristics including external hazards -<br>・Operational guideline for periodically assessing the test and research reactor facility - Incorporation of evaluation concerning site characteristics including external hazards - |
| 11.20 | ・Hearing opinions on application for change in reactor installation at Genkai NPS (Units 3 and 4) (Installation of permanent DC power supply facility (third system) at the station)<br>・Permission for change in reactor installation at Genkai NPS (Units 3 and 4) (modification of spent fuel storage system capacity) |
| 11.27 | ・Hearing opinions on application for change in reactor installation at Onagawa NPS (Unit 2) |
| 12.4 | ・Formulation of standards for equivalent dose limit of the crystalline lens of the eye on the basis of ordinance for enforcing the Act on Regulations of Radioisotopes, etc. (inquiry) |
| 12.11 | ・Hearing opinions on application for change in reactor installation at Takahama NPS (Kansai Electric Power Company) (Units 1, 2, 3 and 4) (backfitting for protection against noxious gas)<br>・Hearing opinions on application for change in reactor installation at Mihama NPS (Units 3 and 4) (backfitting for protection against noxious gas)<br>・Hearing opinions on application for change in reactor installation at Ohi NPS (Units 3 and 4) (backfitting for protection against noxious gas)<br>・Hearing opinions on application for change in reactor installation at Ikata NPS (Shikoku Electric Power Company) (Unit 3) (backfitting for protection against noxious gas)<br>・Hearing opinions on application for change in reactor installation at Sendai NPS (Kyushu Electric Power Company) (Units 1 and 2) (backfitting for protection against noxious gas)<br>・Hearing opinions on application for change in reactor installation at Genkai NPS (Kyushu Electric Power Company) (Units 3 and 4) (backfitting for protection against noxious gas)<br>・Permission for change in reactor installation at Ohi NPS (Units 3 and 4) (Installation of emergency response station)<br>・Approval of the decommissioning plan of Unit 1 at Ohi NPS<br>・Approval of the decommissioning plan of Unit 2 at Ohi NPS<br>・Approval of change in the decommissioning plan of Units 1 and 2 at Mihama NPS |
| 12.18 | ・Partial revision of the Guidelines for Assessing the Impacts of Volcanic Activities on Nuclear Power Stations<br>・Full revision of the NRA’s Management Rules |
| 12.25 | ・Permission for change in reactor installation at Genkai NPS Units 3 and 4) (Installation of permanent DC power supply facility (third system) at the station)<br>・Evaluation of the report on damage of a steam generator tubes of Unit 4 of Takahama NPS (Kansai Electric Power Company) and measures to be taken<br>・Development of laws and ordinances for implementing the new inspection program (nuclear regulatory inspections) (ordinances and implementation procedures in stage 1 and 2) |

| Date of determination | Decision made in Committee |
|---|---|
| 1.15 | ・Partial revisions of ordinances and notifications related to review of the regulation of TEPCO's Fukushima Daiichi NPS<br>・Development of the interpretation of relevant ordinance relating to technical evaluation for errata relating to codes that had been cited in the examination standards |
| 1.29 | ・Permission for change in reactor installation at Takahama NPS (Kansai Electric Power Company) (Units 1, 2, 3 and 4) (backfitting for protection against noxious gases)<br>・Permission for change in reactor installation at Mihama NPS (Unit 3) (backfitting for protection against noxious gases)<br>・Permission for change in reactor installation at Ohi NPS (Units 3 and 4) (backfitting for protection against noxious gases)<br>・Permission for change in reactor installation at Ikata NPS (Shikoku Electric Power Company) (Unit 3) (backfitting for protection against noxious gases)<br>・Permission for change in reactor installation at Sendai NPS(Kyushu Electric Power Company) (Units 1 and 2) (backfitting for protection against noxious gases)<br>・Permission for change in reactor installation at Genkai NPS (Kyushu Electric Power Company) (Units 3 and 4) (backfitting for protection against noxious gases)<br>・Hearing opinions on application for change in reactor installation at Ohi NPS (Units 3 and 4) |
| 2.5 | ・Ordinance for partial Revision of the Nuclear Emergency Response Guidelines<br>・Revision of the Nuclear Emergency Response Guidelines and the ordinance that stipulates events to be reported by a nuclear emergency preparedness manager base on the Act on Special Measures Concerning Nuclear Emergency Preparedness<br>・Development of laws and ordinances for implementing the new inspection program (for nuclear regulatory inspections) (other than commercial power reactor facilities among those in stage 2)<br>・Determination and announcement of the mid-term goals for the second term of the NRA |
| 2.12 | ・Formulation of Regulation for Enforcement of the Act on the Regulations of Radioisotopes, etc. based on report from the Radiation Council on the regulation for changes in the equivalent dose limit for the lens of the eye (draft)<br>・Revision of the National Institute for Quantum and Radiological Science Technology's plan for achieving its mid-to-long term goals (mid-to-long term plan)<br>・Registration of the Radiation Management Institute, Inc. as a "registered package confirmation organization" and notification of the registration to the institute and public notification through official gazette |
| 2.19 | ・Implementation procedures for safeguard inspections on the basis of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors |
| 2.26 | ・Permission for change in reactors installation at Onagawa NPS (Units 2)<br>・Permission for change in reactors installation at Ohi NPS (Units 3 and 4)<br>・Revision of Notification on Technical Details for Off-Site Transportation of Nuclear Fuel Materials, etc. |
| 3.4 | ・Reply to hearing opinions on the "designation of off-site centers"<br>・The NRA basic plan for policy evaluation, NRA plan for the conduct of ex-post evaluation in FY2020, the results of policy evaluation and the reflection of the results in policies planning and development (Publication in FY2019)<br>・"NRA's initiatives" (March 11 report) |
| 3.11 | ・Ordinance for partially revising the Rules for the Use, etc. of International Controlled Material<br>・Ordinance for partial revision of the NRA Organization Order |
| 3.17 | ・Request for administrative review of the determination of the results of requesting public comments on the review report on the permission for change in reactors installation at Tokai Daini NPS (Japan Atomic Power Company) |

| Date of determination | Decision made in Committee |
|---|---|
| | ・Request for administrative review of and petition for stay of execution to the permission for change in reactors installation at Tokai Daini NPS (Japan Atomic Power Company)<br>・Request for administrative review of and petition for stay of execution to the approval of operation period extension at Tokai Daini NPS (Japan Atomic Power Company) |
| 3.18 | ・Approval of the decommissioning plan of Unit 1 at Onagawa NPS<br>・Approval of the decommissioning plan of Unit 2 at Genkai NPS<br>・Appointment of the Radiation Council members (as of April 4, 2020)<br>・Appointment of the Reactor Safety Examination Committee members |
| 3.25 | ・Hearing opinions on application for change in reactor installation of the JAEA's Oarai Research and Development Institute (Kita Area) (change of HTTR (High-Temperature Engineering Test Reactor)) |
| 3.30 | ・Necessary development of internal regulations for implementing the new inspection program (nuclear regulatory inspections)<br>・NRA Annual Strategic Plan for FY2020 |

## 11. Opinion Exchange with Licensees

### (1) Exchange of Opinions with Chief Executive Officers (CEOs) on Safety Improvements

| Date | Nuclear Licensees |
|---|---|
| May 23, 2019 | Hokkaido Electric Power Co., Inc. |
| August 6, 2019 | Recyclable-Fuel Storage Company |
| August 28, 2019 | Kansai Electric Power Co., Inc. |
| September 3, 2019 | Chubu Electric Power, Co., Inc. |
| October 15, 2019 | Kyushu Electric Power, Co., Inc |
| November 28, 2019 | Chugoku Electric Power, Co., Inc |
| January 16, 2020 | Tokyo Electric Power Company Holdings, Inc. |
| January 23, 2020 | Hokuriku Electric Power Company |
| January 29, 2020 | Japan Atomic Power Company |
| February 4, 2020 | Tohoku Electric Power Co., Inc. |
| February 19, 2020 | Japan Atomic Energy Agency |

### (2) Exchange of Opinions with Chief Nuclear Officers (CNOs) of Licensees of Major Nuclear Facility Operators

| Date | Nuclear Licensees | Main Issues of Discussions |
|---|---|---|
| April 17, 2019 | Kansai Electric Power, Chubu Electric Power, TEPCO Holdings, Kyushu Electric Power, Shikoku Electric Power, Federation of Electric Power Companies | ・Regarding the Atomic Energy Association (ATENA)<br>・Regarding the status of activities for installing specialized safety facilities |
| July 23, 2019 | Kansai Electric Power, Chubu Electric Power, TEPCO Holdings, Atomic Energy Association (ATENA) | ・A voluntary guide (draft) for introducing cyber security measures<br>・Trend of and improvement measures against emergency diesel generator (EDG) failure |

| | | |
|---|---|---|
| December 2, 2019 | Chubu Electric Power, TEPCO Holdings, Kyushu Electric Power, Atomic Energy Association (ATENA) | ・Efforts for aging deterioration management for safe and long operation |

### (3) Visits to Nuclear Power Stations by NRA Commissioners

| | Date | Purpose | Place of Visit (NPS, etc.) | Commissioner in Charge |
|---|---|---|---|---|
| 1 | April 13, 2019 | On-site inspection | Ikata PS, Shikoku Electric Power | Chairman Fuketa<br>Commissioner Ban |
| 2 | April 18–19, 2019 | On-site inspection | Fukushima Daiichi NPS, TEPCO Holdings | Commissioner Yamanaka<br>Commissioner Ban |
| 3 | May 11, 2019 | On-site inspection | Fukushima Daiichi NPS, TEPCO Holdings | Chairman Fuketa |
| 4 | May 31, 2019 | On-site investigation | Mihama PS, Kansai Electric Power | Commissioner Ishiwatari |
| 5 | June 7, 2019 | On-site investigation | Ohi PS, Kansai Electric Power | Commissioner Yamanaka |
| 6 | June 14, 2019 | On-site investigation | Oarai Research and Development Institute, Japan Atomic Energy Agency | Commissioner Yamanaka |
| 7 | July 18, 2019 | On-site investigation | Recyclable-Fuel Storage Company, Recycle Fuel Storage Center | Commissioner Yamanaka |
| 8 | July 19, 2019 | On-site inspection | Japan Atomic Energy Agency, Tono Geoscience Center | Commissioner Tanaka |
| 9 | July 26, 2019 | On-site inspection | Oarai Research and Development Institute, Japan Atomic Energy Agency | Commissioner Tanaka |
| 10 | August 1, 2019 | On-site inspection | Fukushima Daiichi NPS, TEPCO Holdings | Commissioner Ban |
| 11 | August 1, 2019 | On-site investigation | Ohi PS, Kansai Electric Power | Commissioner Ishiwatari |
| 12 | August 7, 2019 | On-site investigation | Nuclear Science Research Institute, Japan Atomic Energy Agency | Commissioner Yamanaka |
| 13 | August 8, 2019 | On-site inspection | Horonobe Underground Research Center, Japan Atomic Energy Agency | Chairman Fuketa |
| 14 | August 29–30, 2019 | On-site inspection | Facilities for protecting the residents in Shimane and Tottori Prefectures | Commissioner Ban |
| 15 | August 30, 2019 | On-site investigation | Prototype Advanced Converter Reactor “Fugen,” Prototype Fast Breeder Reactor “Monju,” Japan Atomic Energy Agency | Commissioner Yamanaka |
| 16 | September 20, 2019 | On-site investigation | Shimane NPS | Commissioner Ishiwatari |
| 17 | October 3–4, 2019 | On-site inspection | Sendai NPS | Commissioner Yamanaka |
| 18 | October 3–4, 2019 | On-site investigation | Reprocessing Facility, Japan Nuclear Fuel Ltd. | Commissioner Ishiwatari |

| | Date | Purpose | Place of Visit (NPS, etc.) | Commissioner in Charge |
|---|---|---|---|---|
| 19 | November 15, 2019 | On-site investigation | Tomari NPS | Commissioner Ishiwatari |
| 20 | November 22, 2019 | On-site inspection | Toshiba Energy Systems & Solutions Corporation, Nuclear Engineering Laboratory | Commissioner Tanaka |
| 21 | November 30, 2019 | On-site inspection | Shimane NPS | Chairman Fuketa |
| 22 | January 23, 2020 | On-site inspection | National Institutes for Quantum and Radiological Science and Technology's Advanced Radiation Emergency Medical Support Center | Chairman Fuketa |
| 23 | January 31, 2020 | On-site inspection | Fukushima Daiichi NPS | Commissioner Ban |
| 24 | February 15, 2020 | On-site inspection | Sendai NPS | Chairman Fuketa |

## 12. Meetings and Opinion Exchange with Local Parties

### (1) Meetings with Local Governments in FY2019

| Date | Meeting with | NRA representative |
|---|---|---|
| May 21, 2019 | Deputy Governor of Shiga Prefecture | Deputy Director-General |
| May 27, 2019 | Governor of Shimane Prefecture | Secretary-General |
| June 3, 2019 | Governor of Ehime Prefecture | Secretary-General |
| June 28, 2019 | Tomari Village Mayor and three town and village mayors | Deputy Director-General |
| June 28, 2019 | Mihama Town Mayor | Deputy Director-General |
| July 29, 2019 | Kashiwazaki City Mayor | Deputy Director-General |
| July 31, 2019 | Kasuga City Mayor | Deputy Director-General |
| August 6, 2019 | Tsuruga City Mayor, four city, town and village mayors, two deputy town mayors, and others | Deputy Director-General |
| August 7, 2019 | Governor of Kagoshima Prefecture | Secretary-General |
| August 9, 2019 | Governor of Tottori Prefecture | Secretary-General |
| November 11, 2019 | Tsuruga City councilors and three town councilors | Deputy Director-General |
| November 12, 2019 | Governor of Shimane Prefecture | Secretary-General |
| November 27, 2019 | Tomari Village Mayor and three town and village mayors | Deputy Director-General |

### (2) Visits of nuclear facilities by NRA Commissioners and Exchange of opinions with local parties

| Date | Description | Examples of Attendees | Attendance of Commissioners in charge |
|---|---|---|---|
| April 13, 2019 | Opinion exchange with local parties concerned on regulatory issues relating to nuclear facilities | Ehime Prefecture Governor, Ikata Town Mayor, Yawatahama City Mayor, Ozu City Mayor, Seiyo City Mayor, Uwajima City Mayor, Uchiko Town Mayor and others | Chairman Fuketa<br>Commissioner Ban |

| | | | |
|---|---|---|---|
| February 15, 2019 | Opinion exchange with local parties concerned on regulatory issues relating to nuclear facilities | Kagoshima Prefecture Governor, Satsumasendai City Mayor, Ichikikushikino City Mayor, Akune City Mayor, Aira City Mayor, Satsuma Town Mayor, Nagashima Town Mayor, and others | Chairman Fuketa<br>Commissioner Ishiwatari |

## (3) On-site Opinion Exchange between the NRA Secretariat and Local Parties Concerned

| Date | Venue | Name of meeting/session | Main attendees |
|---|---|---|---|
| September 3 – 25, 2019 (6 times) | Aomori Prefecture | Opinion exchange meetings on nuclear power (Kuroishi City, Yokohama Town, Gonohe Town, Fujisaki Town, Sotogahama Town, and Ajigasawa Town) | Local residents |
| October 28, 2019 | Aomori Prefecture | Aomori Prefecture Nuclear Policy Committee | Group representatives, experts, local residents and others |
| November 5, 2019 | Aomori Prefecture | FY2019 3rd meeting of Aomori Prefecture Nuclear Facilities Environmental Radiation Monitoring and Evaluation Council, Monitoring Subcommittee | Experts |
| May 15, 2019 – February 5, 2020 (4 times) | Aomori Prefecture | Explanation of Operational Safety Inspection results to Aomori reporters' association | Aomori reporters' association |
| May 15, 2019 – March 30, 2020 (4 times) | Aomori Prefecture | Report of Operational Safety Inspection results | Municipalities with NPP sites |
| September 10, 2019 | Aomori Prefecture | Planning and Crisis Management Committee (for intra-prefecture research), Aomori Prefectural Assembly (Higashidori Off-Site Center) | Members of the Prefectural Assembly |
| September 26, 2019 | Aomori Prefecture | Higashidori Junior High school social studies training | Local residents |
| June 7, 2019 – March 23, 2020 (6 times) | Miyagi Prefecture | The Panel on the Safety of Unit 2 of the Onagawa NPS | Experts |
| May 14, 2019 – February 5, 2020 (4 times) | Fukushima Prefecture | Prefectural Council for Ensuring the Safety of Reactor Decommissioning | Residents, representatives of organizations |
| June 14, 2019 – February 12, 2020 (3 times) | Fukushima Prefecture | Fukushima Prefecture Labor Safety and Health Subcommittee | Local governments, experts |
| June 14 – December 5, 2019 (3 times) | Fukushima Prefecture | Fukushima Prefecture Decommissioning Safety Monitoring Council | Local governments, experts |
| July 1, 2019 – February 19, 2020 (3 times) | Fukushima Prefecture | Fukushima Prefecture Council on Decommissioning and Contaminated Water | Heads of local governments, representatives of organizations |
| July 16 – October 9, 2019 (2 times) | Fukushima Prefecture | Naraha Nuclear Facility Monitoring Committee | Experts |
| September 3, 2019 – February 27, 2020 | Fukushima Prefecture | Fukushima Prefecture Environmental Monitoring Evaluation Subcommittee | Local governments, experts |

| Date | Venue | Name of meeting/session | Main attendees |
|---|---|---|---|
| (3 times) | | | |
| April 10, 2019 – February 5, 2020 (11 times) | Niigata Prefecture | Regional Panel for Ensuring Transparency of Kashiwazaki-Kariwa NPS | Experts, local governments, licensees |
| April 10, 2019 – January 30, 2020 (7 times) | Niigata Prefecture | Municipal Study Group on Nuclear Safety Measures | Experts, local governments, licensees |
| May 17, 2019 – February 7, 2020 (5 times) | Niigata Prefecture | Liaison meeting on technology for the environmental radiation monitoring of the NPP surrounding area in Niigata Prefecture | Local governments, licensees |
| May 21, 2019 – September 11, (5 times) | Niigata Prefecture | Working group of Kashiwazaki Kariwa Region nuclear disaster prevention council | Local governments, licensees |
| August 23, 2019 | Niigata Prefecture | Summer school on nuclear emergency preparedness | Heads of local governments, local governments, licensees |
| August 27, 2019 | Niigata Prefecture | Regular meeting for monitoring and assessing the environment of the NPP surrounding area in Niigata Prefecture | Heads of local governments, local governments, academic experts, concerned organizations and licensees |
| November 8 – November 9, 2019 | Niigata Prefecture | Niigata Prefecture Nuclear Emergency Drill (field training) | Heads of local governments, local governments, experts |
| December 16, 2019 | Niigata Prefecture | Nuclear emergency drill review meeting | Local governments, local public institutions and licensees |
| January 27, 2020 | Niigata Prefecture | Kashiwazaki City disaster prevention conference | Heads of local governments, experts |
| April 26, 2019 | Ibaraki Prefecture | Tokai Village disaster prevention conference | Ministry of Land, Infrastructure, Transport and Tourism prefectural police department and others |
| May 27, 2019 | Ibaraki Prefecture | Meeting on environmental radiation monitoring plan | Prefectural government |
| July 19 – December 9, 2019 (3 times) | Ibaraki Prefecture | Advisory committee for the Ibaragi Prefecture Environmental Radiation Monitoring Committee | Prefectural government, related municipalities and residents |
| August 23, 2019 – February 10, 2020 (3 times) | Ibaraki Prefecture | Reporting of operational safety inspection results and opinion exchange | Prefectural government and related municipalities |
| August 26, 2019 – February 20, 2020 (2 times) | Tokyo | Ibaragi Prefecture Environmental Radiation Monitoring Committee | Prefectural government, related municipalities and experts |
| February 18, 2020 | Ibaraki Prefecture | Local chief executive meeting for NPP site area (Tokai-mura) | Heads of local governments, the Cabinet Office and the Agency for Natural Resources and Energy |
| January 20, 2020 | Kawasaki City | FY2019 Kawasaki Nuclear Facility Safety Committee (Secretariat meeting) | Three entities (Toshiba ESS, Tokyo City University and Hitachi Ltd. Ozenji Center), local governments (crisis |

| Date | Venue | Name of meeting/session | Main attendees |
|---|---|---|---|
| | | | management office, ward officials, health bureau, waterworks bureau, hospital bureau, fire department, and crisis management officials) and regulatory office |
| February 12, 2020 | Kawasaki City | FY2019 Kawasaki Nuclear Facility Safety Committee (plenary meeting) | Three business operators, local governments (vice city mayor, ward officials, hospital bureau, fire department, and crisis management officials) and regulatory office |
| July 16, 2019 | Kanagawa Prefecture | Kanagawa Prefecture Environmental Radiation Monitoring Committee | Two business operators (GNFJ and Toshiba ESS), committee members, municipalities (general affairs and crisis management office, and Kawasaki and Yokosuka municipal officials) and regulatory office |
| July 16, 2019 | Kanagawa Prefecture | Kanagawa Prefecture Environmental Radiation Monitoring Committee | Local governments, licensees, experts |
| April 15 – October 10, 2019 (2 times) | Ishikawa Prefecture | Shika Nuclear Power Station Safety Promotion Committee | Heads of local governments, representatives of residents |
| April 15, 2019 – January 29, 2020 (4 times) | Ishikawa Prefecture | Joint Meeting of Akasumi Area Committee and Safety Promotion Liaison Committee | Heads of local governments, representatives of residents |
| May 15, 2019 – February 5, 2020 (4 times) | Ishikawa Prefecture | Explanatory meeting on operational safety inspection results | Ishikawa Prefectural Government staff |
| May 15, 2019 – February 5, 2020 (4 times) | Ishikawa Prefecture | Explanatory meeting on operational safety inspection results | Shika Town Office staff |
| July 1, 2019 – January 28, 2020 (3 times) | Ishikawa Prefecture | Ishikawa Prefecture Nuclear Environmental Safety Control Council | Experts, local governments |
| August 8, 2019 – January 15, 2020 (3 times) | Fukui Prefecture | Fukui Prefecture Nuclear Environmental Safety Control Council | Members of the Prefectural Assembly, heads of local governments, representatives of organizations |
| November 27, 2019 | Fukui Prefecture | Fukui Prefecture Expert Committee | Experts |
| October 11, 2019 | Fukui Prefecture | Mihama Town Council plenary meeting | Members of the Municipal Assembly |
| July 22 – December 4, 2019 (2 times) | Fukui Prefecture | Ohi Town special committee meeting on NPP-related measures | Members of the Municipal Assembly |

| Date | Venue | Name of meeting/session | Main attendees |
|---|---|---|---|
| December 13, 2019 | Fukui Prefecture | Takahama Town special committee meeting on NPP-related measures | Members of the Municipal Assembly |
| February 20, 2020 | Fukui Prefecture | Wakasa Nuclear Power Station Environmental Safety Council | Members of the Municipal Assembly, representatives of residents |
| November 28, 2019 | Fukui Prefecture | Obama Nuclear Power Station Environmental Safety Council | Members of the Municipal Assembly, representatives of organizations |
| October 11, 2019 | Fukui Prefecture | Meeting with the All-Fukui Anti-Nuclear Liaison Association | Citizen group |
| May 15, 2019 – February 5, 2020 (4 times) | Fukui Prefecture | Fukui Prefecture NPP liaison meeting | Local governments |
| July 29, 2019 | Shiga Prefecture | Shiga Prefecture Nuclear Safety Liaison Council | Local governments, experts, etc. |
| April 6, 2019 | Osaka Prefecture | Public opening of the Kumatori Off-site Center | Local residents |
| May 31, 2019 | Osaka Prefecture | FY2019 First meeting of Kumatori Radiation Disaster Prevention Liaison Committee | Local governments, licensees |
| July 26, 2019 | Osaka Prefecture | 67th Kumatori Nuclear Issue Council | Vice Chairperson of the Municipal Assembly, community representatives, licensees |
| August 7, 2019 | Osaka Prefecture | FY2019 Izumisano Nuclear Issue Council | Members of the Municipal Assembly, representatives of residents |
| August 8, 2019 | Osaka Prefecture | 1st Osaka prefectural environmental radiation assessment meeting | Local governments, experts |
| November 6, 2019 | Osaka Prefecture | Izumisano City Civil Protection Council meeting | Heads of local governments, local governments, experts |
| November 17, 2019 | Osaka Prefecture | Environment Festival 2019 | Local residents |
| May 21, 2019 – February 7, 2020 (4 times) | Okayama Prefecture | Explanation on the Operational Safety Inspection results | Tottori Prefectural Government staff, Kagamino Town Office staff and Misasa Town Office staff |
| May 23, 2019 – February 12, 2020 (4 times) | Okayama Prefecture | Explanation on the Operational Safety Inspection results | Okayama Prefectural Government staff |
| July 1, 2019, November 11, 2019 (2 times) | Okayama Prefecture | Opinion exchange on fire protection | Tsuyama Area Firefighting Union |
| June 18, 2019 | Shimane Prefecture | FY2019 Matsue Disaster Prevention Council | Local governments, designated local administrative organs, designated local public services |
| February 3, 2020 | Shimane Prefecture | Matsue City Council meeting for NPP-related environmental safety measures | Heads of local governments, Members of Municipal Assemblies, representatives of residents |
| August 23, 2019 – March 24, 2020 | Ehime Prefecture | Ikata Nuclear Power Station Environment and Safety Management Committee, Environmental Safety Subcommittee | Experts |

| Date | Venue | Name of meeting/session | Main attendees |
|---|---|---|---|
| (2 times) | | | |
| February 18, 2020 | Ehime Prefecture | Expert Subcommittee on Nuclear Energy, Ikata Nuclear Power Station Environment and Safety Management Committee | Experts |
| August 23, 2019, March 24, 2020 (2 times) | Ehime Prefecture | Ikata Nuclear Power Station Environmental Safety Control Committee | Heads of local governments, local governments, experts |
| June 13, 2019, September 18, 2019 (2 times) | Ehime Prefecture | Ikata Environmental Monitoring Committee | Heads of local governments, Members of the Municipal Assembly, representatives of residents |
| July 25, 2019, January 29, 2020 (2 times) | Saga Prefecture | Saga Prefecture Nuclear Environmental Safety Liaison Committee | Heads of local governments, representatives of residents |
| May 28, 2019 – February 4, 2020 (4 times) | Saga Prefecture | Saga Environment Radioactivity Technology meeting | Experts, etc. |
| June 4, 2019, March 27, 2020 (2 times) | Saga Prefecture | Saga Atomic Energy Security Expert Committee meeting | Experts |
| July 16, 2019 – March 13, 2020 (4 times) | Kagoshima Prefecture | Kagoshima Radiation Monitoring Technology Committee meeting | Local governments, licensees, experts, etc. |
| May 17, 2019 – February 18, 2020 (4 times) | Kagoshima Prefecture | Satsuma Sendai City Nuclear Safety Measures Liaison Council | Heads of local governments, Members of Municipal Assemblies, representatives of residents |
| August 16, 2019, January 27, 2020 (2 times) | Kagoshima Prefecture | Nuclear Safety Measures Liaison Council | Heads of local governments, licensees, etc. |
| November 26, 2019 | Kagoshima Prefecture | Disaster Prevention Expert Committee for Nuclear Safety and Evacuation Planning | Experts, local governments and others |
| *In addition to those stated in the table, meetings of working groups of local nuclear preparedness councils and committees on radiation supervision or monitoring are occasionally held in related prefectures, and the personnel of the NRA Secretariat attend. | | | |

## 13. Consultation and Opinion Exchange with Japanese and Foreign Experts

### (1) Opinion Exchange with Foreign Experts

| Date | Expert | Commissioner |
|---|---|---|
| April 1, 2019 | Richard A. Meserve, External Advisor<br>Dana Drábová, External Advisor<br>Andy Hall, External Advisor<br>Philippe Jamet, External Advisor | Chairman Fuketa, Commissioner Tanaka, Commissioner Yamanaka, Commissioner Ban, Commissioner Ishiwatari |
| May 16, 2019 | William D. Magwood, IV, Director General of OECD/NEA | Chairman Fuketa |
| May 21, 2019 | Daniel Iracane, Deputy Director General of OECD/NEA | Chairman Fuketa |

| | | |
|---|---|---|
| July 9, 2019 | Section Head Miroslav Pinak, Radiation Safety & Monitoring Section, Radiation, Transport and Waste Safety Division, Nuclear Safety & Security Department, IAEA | Commissioner Ban |
| August 6, 2019 | William D. Magwood, IV, Director General of OECD/NEA<br>Division Head Yonhee Hah, Division of Radiological Protection and Human Aspects of Nuclear Safety, OECD/NEA<br>Division Head Rebecca Tadesse, Division of the Radioactive Waste Management and Decommissioning, OECD/NEA<br>Division Head Tatiana Ivanova, Division of Nuclear Science, OECD/NEA | Chairman Fuketa<br>Commissioner Ban |
| October 24, 2019 | President of Republic of Armenia (Armenia) | Chairman Fuketa |
| November 5, 2019 | Richard A. Meserve, External Advisor<br>Dana Drábová, External Advisor<br>Andy Hall, External Advisor<br>Philippe Jamet, External Advisor | Chairman Fuketa,<br>Commissioner Tanaka,<br>Commissioner Yamanaka,<br>Commissioner Ban,<br>Commissioner Ishiwatari |
| December 19, 2019 | Borislava Betandijieva Metcalf, Secretary of UNSCEAR | Chairman Fuketa<br>Commissioner Ban |
| February 4, 2020 | Section Head Miroslav Pinak, Radiation Safety & Monitoring Section, Radiation, Transport and Waste Safety Division, Nuclear Safety & Security Department, IAEA | Commissioner Ban |
| February 17, 2020 | IAEA board of governors and others | Commissioner Tanaka |
| February 17, 2020 | Muroya Nobuhiro, Deputy Director General of OECD/NEA | Chairman Fuketa |
| February 27, 2020 | Rafael Mariano Grossi, Director-General, IAEA | Chairman Fuketa |

## (2) Opinion Exchange with Foreign Regulators

| Date | Participant | Commissioner |
|---|---|---|
| July 21, 2019 – July 27, 2019 | Kristine Svinicki, Chairman of U.S. Nuclear Regulatory Commission (NRC)<br>Rumina Velshi, President of Canadian Nuclear Safety Commission (CNSC) | Chairman Fuketa |
| September 3, 2019 – September 4, 2019 | 7th Japan-France Regulatory Authorities Meeting<br>Doroszczuk, President of the French Nuclear Safety Authority (ASN), Commissioners, Sylvie Cadet-Mercier, Evrad, and Lashaume | Commissioner Tanaka |
| September 16, 2019 – September 20, 2019 | IAEA plenary meeting and bilateral meetings with the following: the Indonesian nuclear regulatory body BAPTEN, the Finnish Radiation and Nuclear Safety Authority (STUK), the Swedish Radiation Safety Authority (SSM), the French Alternative Energies and Atomic Energy Commission (CEA), the French Nuclear Safety Authority (ASN), the Spanish Nuclear Safety Council (CSN), the Canadian Nuclear Safety Commission (CNSC), the Vietnam Agency for Radiation and Nuclear Safety (VARANS), the Nuclear Safety & Security Commission of the Republic of Korea (NSSC), the Swiss Federal Nuclear Safety Inspectorate (ENSI) and the International Nuclear Regulators Association (INRA (nuclear regulators from the U.S. Britain, France, Germany, Canada, Spain, Sweden and the Republic of Korea)) | Chairman Fuketa |
| November 28, 2019 | 12th Top Regulators' Meeting on Nuclear Safety among the People's Republic of China (China), Japan and the Republic of Korea (ROK) (TRM) (Beijing, China) | Commissioner Ban, |

| | | |
|---|---|---|
| | China: Administrator Liu, Ministry of Ecology and Environment (MEE)/National Nuclear Safety Administration (NNSA)<br>ROK: Executive Commissioner and Secretary General Jang, Nuclear Safety and Security Commission (NSSC) | |

## 14. Results of the FY2019 Internal Audit Conducted in Accordance with the NRA Management Rules and the Status of Improvement

### 1. Purpose of FY2019 Internal Audit of Management System, and Others

**(1) Purpose**

Based on the NRA Management Rules, Article 39, the NRA conducted the division audits and theme-based audits to verify the appropriateness and effectiveness of its management system.

**(2) Perspective of management system internal audit**

**Division audit: The Radiation Protection Group's Radiation Monitoring Division (including the Environmental Radiation Protection Office)**

The Radiation Monitoring Division is in charge of many radiation monitoring projects (commissioned research projects, subsidy projects, etc.). The NRA conducted internal audit of the management system (hereinafter referred to as "internal audit") of the division to check whether it is appropriately managing such projects.

**Theme-based audits: improvement of the operational management of NRA Regional Offices**

In this fiscal year, in order to follow up on the tasks identified through theme-based audits (for improving the operational management of the NRA Regional Offices) in FY2017 and audit the Regional Offices' management, the NRA carried out internal audits of the Tokai and Oarai Regional Offices as well as the Kamisaibara Regional Office.

[Tasks identified through theme-based audits in FY2017]

[1] With a view to starting a new inspection program and facilitating participation in the training implemented by the staff of NRA Regional Offices at the NRA Secretariat, it was necessary to study the training method and support the Regional Offices' work rotation efficiency improvement.

[2] To support NRA Regional Office staff's information gathering and self-improvement, it was necessary to promote opinion exchanges and information sharing, and the supplement reference documents necessary for them, in light of their needs and interest.

[3] In order for the NRA Regional Offices to effectively and efficiently carry out multiple heteronomous operations with a small-sized staff system, efforts for strengthening the functions for coordination and adjustments between the related divisions, departments, sections, etc. were urgently needed.

## 2. Results of Internal Audits

Through the internal audits, the NRA identified one issue that require improvement[48], five issues for which improvement is desired[49] and three good practices[50].

### (1) Results of division audit (Radiation Monitoring Division)

[1] One issue requiring improvement

R 1: A delay in the posting through homepage of the nuclear operator interview records and regulation-related documents submitted by the nuclear operators.

Because the online posting of the records of interviews with nuclear operators and regulation-related documents submitted by the nuclear operators were delayed by about one year, the NRA identified this problem as an issue that requires improvement and urged the Division to make improvements.

[2] Three issues which improvement is desirable

S 1: Improving a system for contract operations in grant business and outsourced surveys

Because some teams and persons in charge are overly burdened with work for adjusting budget-related work according to the regional situations, and also the monitoring, maintenance and management works, the NRA proposed the improvement of the system for supporting contract-related general affairs work to mitigate workloads.

S 2: Streamlining contract operations

To mitigate workloads relating to the inspection and maintenance of equipment such as monitoring cars and a running survey (vehicle survey) system equipped at each Nuclear Power Off-site Center, the NRA proposed a further efficiency in contract operations such as promoting blanket contracts, and not individual contracts.

S 3: Planned human resources development for radiation monitoring

In order to secure stable human resources for radiation monitoring work, the NRA will implement appropriate staffing and improve the radiation monitoring training.

[3] Two good practices

GP 1: Improving operational efficiency by systematizing initial responses to the port call of a nuclear warship

Until FY2017, port calls by U.S. nuclear warships were notified from the Ministry of Foreign Affairs to the NRA Secretariat, where its staff members recorded the port calls in

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[48] An issue requiring improvement (recommendation): An issue corresponding to the NRA Management Rules, Article 41, may be as follows:

- An issue that violates or may violate the law
- An issue that does not satisfy an operational requirement
- Other than these, an issue which the general manager thinks requires improvement

[49] An issue whose improvement is desirable (suggested): an issue for which improvement is desired in terms of operational effectiveness and appropriateness

[50] Good practice (GP): A case which can be referred to outside the audited or inspected divisions

formats and reported them to those engaged in environmental radioactivity surveys. From FY2018, however, the NRA introduced a system of notifying to those engaged in the environmental radioactivity surveys on the basis of the contents of the notification from the Ministry of Foreign Affairs. The target of new system is to improve reliability.

Until FY2017 before the system was introduced, the related work required about 1 hour to complete on average, but in FY2018, the time decreased to about 15 minutes on average, contributing to more work efficiency.

GP 2: Improvement of work quality by reinforcing training in divisions and offices

The Radiation Monitoring Division carried out training for operating an emergency radiation monitoring information sharing system as part of preparations for emergencies and also multiple training courses for new staff members in the division and office in order to learn basic monitoring knowledge and techniques, building a continuous improvement in the division and office.

The NRA confirmed that the senior specialists of nuclear emergency preparedness have been visiting NRA Regional Offices to transmit their knowledge and learn how to make adjustments with the local governments and nuclear operators and how to provide them instructions and advice through on-the-job training, thereby continuously improving their work quality.

**(2) Results of theme-based audits (Audit implementation period: July 2019 to January 2020)**

**1) Results of FY2017 internal audit follow-up**

It was confirmed that the NRA Secretariat's relevant divisions, departments, sections, etc. have been enhancing support they provide to the NRA's Regional Offices.

[1] Regarding the NRA Secretariat's training methods and the job rotation efficiency of the NRA Regional Offices

The NRA Human Resource Development Center has been periodically updating the training programs and publicly announcing the updates.

[2] Regarding opinion exchanges and information sharing according to the on-site needs and the supplementation of reference documents necessary for the NRA Regional Offices

A video conference system has been utilized, and improvements in response to the needs of the NRA Regional Offices, such as opinion exchanges and information sharing on new inspection program, have been made.

[3] Enhancement of coordination and adjustment of functions among relevant divisions, departments, sections, etc.

The Policy Planning and Coordination Division has established a mechanism for sharing the schedules of relevant divisions, departments, sections, etc. with the NRA Regional Offices to promote efficiency for job coordination.

**2) Results of auditing the management of NRA's Tokai and Oarai Regional Offices**

[1] Issues requiring improvement: none

[2] One issue which improvement is desirable

S 4: In order to reduce the travel time and traffic accident risk on the way to and from the Tokai and Oarai Regional Offices, the NRA proposed the daily operations be conducted by a more efficient utilization of the information system.

[3] One good practice

GP 3: The NRA has confirmed that the NRA Regional Offices' directors are exercising their leadership by promoting participation in the training or revising flexible work sharing.

Others (special note)

・Unlike other regional offices where multiple staff members are in charge of commercial power reactor facilities, each staff member of the Tokai and Oarai Regional Offices is in charge of multiple facilities, and the Regional Offices are running short of nuclear operation inspectors.

**3) Results of auditing the management at the NRA's Kamisaibara Regional Office**

[1] Issues requiring improvement: none

[2] One issue which improvement is desirable

S 5: The NRA proposed the development of licensing-related documents to the nuclear operation inspector office of the Ningyo-toge Environmental Engineering Center.

[3] Good practice: none

Others (special note)

・It is necessary to clarify the method and standard for judging whether the new inspection program guideline should be applied mutatis mutandis to each nuclear fuel facility.

## 3. Improvement Status

Based on the internal audit results, the audited divisions and those in charge of identified tasks are improving their operations. Major improvements are as follows:

**(1) Status of the improvement of division audits (Radiation Monitoring Division)**

・Regarding a delayed online announcement (through the website) of nuclear operator interview records and regulation-related documents submitted by nuclear operators, the summary of the interview records and the documents submitted by nuclear operators were publicly announced.

・Regarding the improvement of the system for subsidy projects and commissioned research

contracts, relevant divisions such as the Personnel Division started to improve the system.

**(2) Status of the improvement of theme-based audits**

- Regarding the personnel shortage at the NRA's Tokai and Oarai Regional Offices, the NRA assigned two nuclear operation inspectors to them in January 2020.
- With regard to the clarification of a standard meant for applying the new inspection program guideline to nuclear fuel facilities, the Nuclear Fuel Facility Oversight Section classified the nuclear fuel facilities on the basis of their functions, and clarified the guideline application standard on the basis of opinions of the NRA Regional Offices obtained through nuclear safety inspector meetings and director meetings.

## 4. Evaluation of the Effectiveness of Management Systems

Judging from the internal audit results and considering the internal audit viewpoints[51], the management systems of the audited organizations (divisions and others) can be evaluated as effectively functioning in general.

**(1) The progress of the annual strategic plan (priority plan) and the annual operational plan**

- Because the one issue that required improvement has been addressed and the improvement of operational effectiveness has been worked out, the audited divisions and others are implementing their overall operations appropriately.

**(2) Cultivation and maintenance of safety culture**

- As indicated by the facts that the Radiation Monitoring Division is implementing its original training and the NRA Regional Offices are promoting participation in the training, organizational efforts to promote "learning" seems taking root and the cultivation and maintenance of safety culture has been ensured.

**(3) Exercise of leadership**

- With the managerial personnel playing a central role, work efficiency and sharing have been flexibly reviewed and "learning" has been promoted as described in (2) above. Thus, it can be said that the managerial personnel are exercising leadership required of them.

**(4) Appropriate resource allocation necessary to achieve the annual operational plan**

- Given that necessary measures such as the improvement of the system for accounting services and contracts, and the filling of vacancies at regional offices, the NRA evaluates that the resource allocation has been improved as required.

[51] The internal audit viewpoints are provided in the NRA Management Rules, Article 39, Paragraph 4.

## 15. Record of responses to formal objections in FY2019

| | Formal objection | Date of determination | Contents of determination |
|---|---|---|---|
| 1 | Formal objection to the approval of changes in operational safety program of Kyushu Electric Power Company's Sendai NPS | November 6, 2019 | Dismissed |
| 2 | Formal objection to the approval of changes in operational safety program of Kyushu Electric Power Company's Sendai NPS | November 6, 2019 | Dismissed |
| 3 | Application for permission to the changes in reactor installation of the Japan Atomic Power Company's Tokai Daini NPS | March 17, 2020 | Dismissed |
| 4 | Application for reviewing the public comment results of the review report on a change in reactor installation of the Japan Atomic Power Company's Tokai Daini NPS | March 17, 2020 | Rejected |
| 5 | Application for the extension of operation period of the Japan Atomic Power Company's Tokai Daini NPS | March 17, 2020 | Dismissed |

## Reference 2: Implementation of various International Treaties on Nuclear Safety (Related to Chapter 1, Section 3)

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) The Convention on Nuclear Safety

This convention targets nuclear power plants and intends to globally achieve and maintain high-level nuclear safety. The purpose includes to establish and maintain radiation protection at nuclear facilities, to prevent an accident with radiological consequences, and to mitigate their consequences in the event of a nuclear accident. According to the Convention, the NRA has been implementing activities (so-called "review process") every three years such as (1) preparing a national report, (2) conducting a peer review among contracting countries and (3) participating in contracting countries' meeting (review meeting).

(Past major activities under the Convention on Nuclear Safety)

| Periods | Outlines |
|---|---|
| August 2013 | Submission of Japan's 6th National Report |
| March to April, 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 to April, 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 |

#### (2) The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

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 re-processing 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 is intended to ensure radiation protection during all stages of spent fuel and radioactive waste management, to prevent an accident with a radiological consequences and to mitigate their consequences in the event of an accident. According to the Convention, the NRA has been conducting activities (so-called "review process") every three years: (1) preparing a national report, (2) conducting a peer review among contracting countries and (3) participating in a meeting with contracting countries ("review meeting").

(Past major activities under the Joint Convention on Nuclear Waste)

| Periods | Outlines |
|---|---|
| October 2014 | Submission of Japan's 5th National Report for the 5th Review Meeting |
| May 2015 | The 5th Review Meeting of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management contracting countries meeting under the Joint Convention on Nuclear Waste (participated by commissioner Tanaka Satoru and others) |
| October 2017 | Submission of Japan's 6th National Report for the 6th Review Meeting |
| May to June, 2018 | The 6th Review Meeting of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management contracting countries meeting under the Joint Convention (participated by commissioner Tanaka Satoru 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 countries under the Early Notification Convention and the Assistance Convention are held every two years. The most recent meeting of the countries was held in June 2018, in which NRA staff participated along with the Ministry of Foreign Affairs.

### (4) The Convention on the Physical Protection of Nuclear Material, its revision, and the International Convention for the Suppression of Acts of Nuclear Terrorism

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 revised Physical Protection Convention took effect on Japan in May 2016 and the targets of protection based on the convention were expanded to include domestic uses of nuclear materials for peaceful purposes, storage and transportation, and nuclear facilities.

The Nuclear Terrorism Prevention Convention is intended to strengthen international cooperation for taking effective and feasible measures to prevent nuclear terrorism, and prosecute and punish the suspect(s) on the basis of the recognition that nuclear terrorism will lead to a serious consequence and will threaten international peace and safety. The NRA is involved in the implementation of the convention for which Japan made signature.

## 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 an aim of promoting peaceful uses of nuclear power, and has 171 member countries as of March 2020. Its secretariat is located in Vienna and the director-general is Rafael Mariano Grossi. A general conference is held every year. In the FY2019 general conference, the Japanese government delegation represented by the Minister of State for Nuclear Emergency Preparedness and including NRA Chairperson participated.

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, the 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, of which NRA Commissioner Yamanaka is a member), the Advisory Group on Nuclear Security (AdSec, of which NRA Commissioner Tanaka is a member) and others.

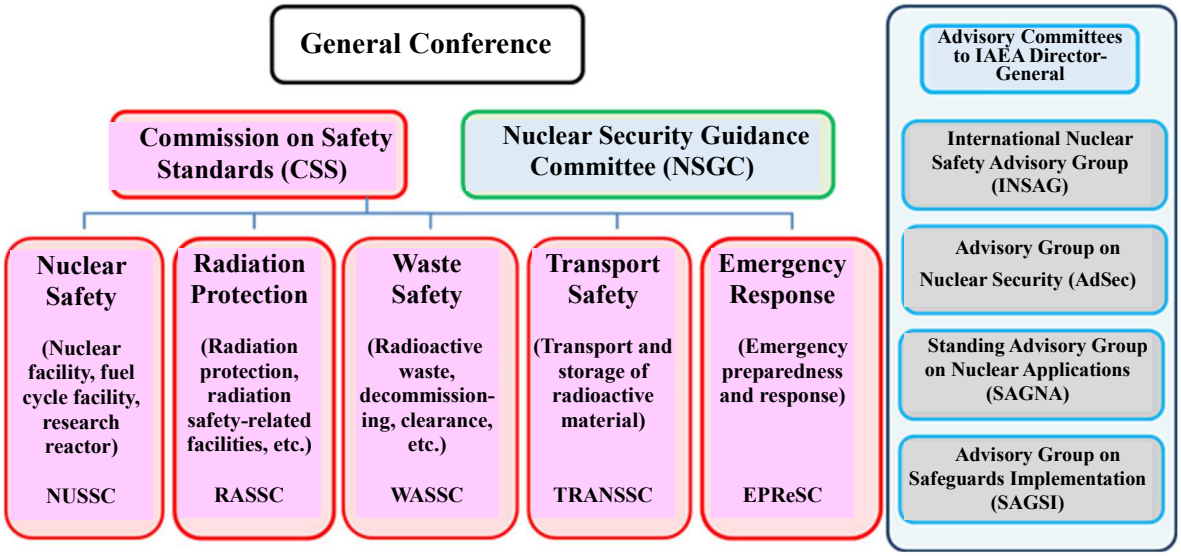



**Figure iii. Major IAEA Committees in which the NRA participates**

Under the IAEA, Regulatory Cooperation Forum (RCF), which is a regulatory cooperation framework for cooperation among regulatory bodies and held annual General Conference, Steering Committee meeting or support meeting, the biannual meetings of the Asia Nuclear Safety Network (ANSN), which is a cooperative framework for enhancing the safety of nuclear

facilities in Asia, the biannual meetings of the Self-Assessment Coordination Group (SACG) and other meetings. Japan has been actively participating in and contributing to worldwide efforts for improving nuclear safety (participation for example through the roles of Steering Committee vice-chairperson, and SACG chairperson and vice-chairperson) and endeavoring to collect technological information and share knowledge and findings through the IAEA's cooperative projects.

(IAEA's major cooperative projects in which the NRA participates)

| Project names | Outlines |
|---|---|
| EESS-EBP | It develops detailed guides to the IAEA safety standards for external events. |
| IGALL | It formulates technological and practical guidelines for the aging 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 in order to evaluate the method and mutual comparison of the analytical findings. |

In response to requests from member countries, the IAEA has been conducting peer reviews including those by the Integrated Regulatory Review Service (IRRS), which comprehensively reviews wide-ranging issues such as nuclear regulatory legal system and organizations. The NRA invited an IRRS mission in January 2016, an IRRS follow-up mission in January 2020, an International Physical Protection Advisory Service (IPPAS) mission (for reviewing the situation of nuclear security measures) in February 2015 and an IPPAS follow-up mission from November to December 2018.

### (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 33 member countries as of March 2020) is headquartered in Paris and its activities are deliberated in steering committee meetings held biannually. 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 their activities.

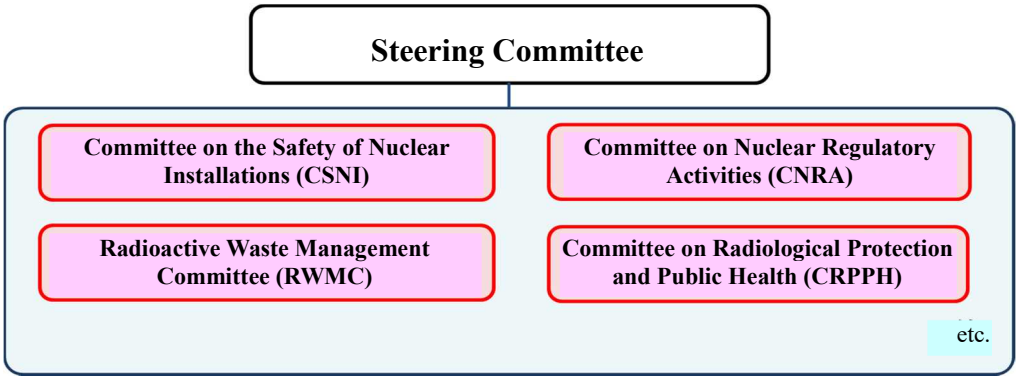



**Figure iv. Major OECD/NEA committees relating to the NRA**

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 | Outlines |
|---|---|
| MDEP/PG | This is a program for multilateral discussions concerning the design evaluation, codes/standards and inspections of advanced reactors and for sharing regulatory experiences regarding the safety regulation of advanced reactors. |
| BSAF | This project has been analyzing the causes of the accident at Tokyo Electric Power Company's Fukushima Daiichi NPS, factors that contributed to radioactive material release to the environment, radioactive material diffusion paths and others as well as implementing benchmark analyses of severe accident phenomena. |
| HYMERES | This is a project for testing and analyzing the behaviors of hydrogen generated in a containment vessel during a severe accident. |

### (3) Record of NRA chairperson and committee members' participation in meetings held by international organizations

| Schedules | Names and locations of meetings held by international organizations | Related commissioners |
|---|---|---|
| April 4 to 5, 2019 | IAEA AdSec[52] (Vienna) | Commissioner Tanaka |
| May 7 to 9, 2019 | OECD/NEA/CNRA[53] WGSC[54] (Madrid) | Commissioner Ban |
| May 15 to 16, 2019 | IAEA INSAG[55] (Vienna) | Commissioner Yamanaka |
| September 16, 2019 | IAEA's 63rd general conference (Vienna) | Chairman Fuketa |

[52] Advisory Group on Nuclear Security
[53] Committee on Nuclear Regulatory Activities
[54] Working Group on Safety Culture
[55] International Nuclear Safety Advisory Group

| Schedules | Names and locations of meetings held by international organizations | Related commissioners |
|---|---|---|
| October 10 to 11, 2019 | AdSec (Vienna) | Commissioner Tanaka |
| October 29 to 31, 2019 | OECD/NEA/CNRA WGSC (Paris) | Commissioner Ban |
| November 22 to 24, 2019 | ICRP[56]'s 4th committee meeting (Adelaide) | Commissioner Ban |
| February 10 to 14, 2020 | IAEA International Conference on Nuclear Security (Vienna) | Commissioner Tanaka |

**(4) Record of participation in International Nuclear Regulators Association (INRA) meetings**

| Periods | Main participants from the NRA |
|---|---|
| May 2013 | Chairman Tanaka and Commissioner Fuketa |
| September 2013 | Chairman Tanaka |
| April 2014 | Chairman Tanaka |
| September 2014 | Chairman Tanaka |
| May 2015 | Chairman Tanaka |
| September 2015 | Director-General for Technical Affairs, Yasui |
| May 2016 | Commissioner Tanaka (Satoru) |
| September 2016 | Chairman Tanaka |
| May 2017 | Secretary-General Yasui |
| September 2017 | Secretary-General Yasui |
| May 2018 | Secretary-General Yasui |
| September 2018 | Chairman Fuketa |
| May 2019 | Secretary-General Yasui |
| September 2019 | Chairman Fuketa |

**(5) Record of participation in Western European Nuclear Regulators Association (WENRA) meetings**

| Periods | Main participants from the NRA |
|---|---|
| April 2016 | Secretary-General Shimizu |
| October 2016 | Commissioner Ban |
| April 2017 | Commissioner Ban |
| October 2017 | Senior Coordinator for International Collaborations, Hirano |
| April 2018 | Director of Nuclear Policy Planning Division, Ichimura |
| November 2018 | Director of Nuclear Policy Planning Division, Ichimura |
| April 2019 | Director of Nuclear Policy Planning Division, Ichimura |
| October 2019 | Director-General Kaneko |

[56] International Commission on Radiological Protection

**(6) Record of participation to the Top Regulators Meeting on Nuclear Safety among Japan, China and the ROK (TRM)**

| Periods | Main participants from the NRA |
|---|---|
| November 2012 | Commissioner Oshima |
| November 2013 | Commissioner Oshima |
| September 2014 | Chairman Tanaka and Commissioner Oshima |
| October 2015 | Commissioner Ban |
| November 2016 | Secretary-General Shimizu |
| December 2017 | Commissioner Yamanaka |
| November 2018 | Commissioner Yamanaka |
| November 2019 | Commissioner Ban |

## 3. Bilateral Cooperation

Organizations having signed a bilateral cooperation agreement or memorandum with the NRA (as of the end of March 2020)

| Countries | Organizations |
|---|---|
| U.S. | Nuclear Regulatory Commission (NRC)<br>Department of Energy (DOE) |
| France | Nuclear Safety Authority (ASN) |
| England | 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. External Advisors from Overseas

External Advisors and their careers

| | |
|---|---|
| Richard Meserve | Former chairman of the U.S. Nuclear Regulatory Commission (NRC)<br>Chairperson of International Nuclear Safety Advisory Group (INSAG), IAEA |
| Dana Drabova | Director-General of the Czech Republic (Czech) State Office for Nuclear Safety (SUJB[57])<br>Former chairperson of CSS[58], IAEA |
| Andy Hall | Former Chief Nuclear Inspector of the UK Office for Nuclear Regulation (ONR)<br>Former chairperson of ENSREG[59] |
| Philippe Jamet | Former commissioner of the Nuclear Safety Authority (ASN), France<br>Former director of the Division of Nuclear Installation Safety, IAEA |
| Randall Gauntt | Former director of the Severe Accident Analysis Department, Sandia National Laboratory, the USA |

Dates of External Advisors meetings and major agendas

| Dates | Major agendas |
|---|---|
| April 1, 2019 | Back fitting rule and implementation by the NRA<br>Disposal/Clearance of waste including natural radionuclides |
| November 5, 2019 | International standards and national regulation<br>Communication with stakeholders |

[57] State Office for Nuclear Safety, Czech Republic
[58] Commission on Safety Standards
[59] European Nuclear Safety Regulators Group

## Reference 3: Rigorous and Proper Implementation of Regulation of Nuclear Facilities (Chapter 2)

### 1. Status of Application for Review of Commercial Power Reactors

| Applicant | Targeted power reactor | Application types | Receipt date | Review meetings (number) | On-site inspections (number) | Date of approval |
|---|---|---|---|---|---|---|
| Hokkaido Electric Power Co., Inc. | Tomari NPS (Units 1, 2) | Installation change<br>Construction plan<br>Operational safety program change | July 8, 2013 | 1 | — | — |
| | Tomari NPS (Unit 3) | Installation change<br>Construction plan<br>Operational safety program change | July 8, 2013 | 5 | 1 | — |
| | ◆Tomari NPS (Unit 3) | Installation change | December 18, 2015 | — | — | — |
| Tohoku Electric Power Co., Inc. | Onagawa NPS (Unit 2) | Installation change<br>Construction plan<br>Operational safety program change | December 27, 2013 | 24 | — | February 26, 2020<br>— |
| | Higashidori NPS (Unit 1) | Installation change<br>Construction plan<br>Operational safety program change | June 10, 2014 | 4 | — | — |
| Tokyo Electric Power Company Holdings, Inc. | Kashiwazaki-Kariwa NPS (Units 6 and 7) | Installation change<br>Construction plan<br>Operational safety program change | September 27, 2013 | 3 | — | December 27, 2017<br>— |
| | ◆ Kashiwazaki-Kariwa NPS (Units 6 and 7) | Installation change | December 15, 2014 | 3 | — | — |
| Chubu Electric Power Co., Inc. | Hamaoka NPS (Unit 3) | Installation change | June 16, 2015 | 7 | — | — |
| | Hamaoka NPS (Unit 4) | Installation change<br>Construction plan<br>Operational safety program change | February 14, 2014<br>January 26, 2015[*1] | 7 | — | — |
| Hokuriku Electric Power Company | Shika NPS (Unit 2) | Installation change<br>Construction plan<br>Operational safety program change | August 12, 2014 | 3 | — | — |
| | Ohi NPS (Units 3 and 4) | Installation change<br>Construction plan | July 8, 2013 | — | — | May 24, 2017<br>August 25, 2017 |

| Applicant | Targeted power reactor | Application types | Receipt date | Review meetings (number) | On-site inspections (number) | Date of approval |
|---|---|---|---|---|---|---|
| Kansai Electric Power Co., Inc. | | Operational safety program change | | | | September 1, 2017 |
| | ◆Ohi NPS (Units 3 and 4) | Installation change | March 8, 2019 | 13 | 2 | February 26, 2020 |
| | | Construction plan | March 6, 2020 | | | — |
| | Takahama NPS (Units 3 and 4) | Installation change | July 8, 2013 | — | — | February 12, 2015 |
| | | Construction plan | | | | August 4, 2015 (Units 3) October 9, 2015 (Units 4) |
| | | Operational safety program change | | | | October 9, 2015 |
| | ◆Takahama NPS (Units 3 and 4) | Installation change | December 25, 2014 | 3 | — | September 21, 2016 |
| | | Construction plan | April 26, 2017 | | | August 7, 2019 |
| | Takahama NPS (Units 1 and 2, (3, 4)) | Installation change | March 17, 2015 | 1 | — | April 20, 2016 |
| | | Construction plan | July 3, 2015 | | | June 10, 2016 (Units 1 and 2) |
| | | Operational safety program | July 31, 2019 | | | — |
| | ◆Takahama NPS (Units 1 and 2, (3, 4)) | Installation change | December 22, 2016 | 7 | – | March 7, 2018 |
| | | Construction plan[*3] | March 8, 2018 November 16, 2018 March 15, 2019 May 31, 2020 | | | April 25, 2019 September 13, 2019 October 24, 2019 February 20, 2020 |
| | Mihama NPS (Unit 3) | Installation change | March 17, 2015 | 2 | — | October 5, 2016 |
| | | Construction plan | November 26, 2015 | | | October 26, 2016 |
| | | Operational safety program change | March 17, 2015 | | | February 27, 2020 |
| | ◆Mihama PS (Unit 3) | Installation change | April 20, 2018 | 15 | 1 | — |
| The Chugoku Electric Power Co., Inc. | Shimane NPS (Unit 2) | Installation change | December 25, 2013 | 49 | 1 | — |
| | | Construction plan | | | | |
| | | Operational safety program change | | | | |
| | ◆Shimane NPS (Unit 2) | Installation change | July 4, 2016 | — | — | — |

| Applicant | Targeted power reactor | Application types | Receipt date | Review meetings (number) | On-site inspections (number) | Date of approval |
|---|---|---|---|---|---|---|
| | Shimane NPS (Unit 3) | Installation change | August 10, 2018 | — | — | — |
| Shikoku Electric Power Co., Inc. | Ikata NPS (Unit 3) | Installation change | July 8, 2013 | — | — | July 15, 2015 |
| | | Construction plan | | | | March 23, 2016 |
| | | Operational safety program change | | | | April 19, 2016 |
| | ◆Ikata NPS (Unit 3) | Installation change | January 14, 2016 | 10 | — | October 4, 2017 |
| | | Construction plan[*3] | December 7, 2017<br>March 16, 2018<br>May 11, 2018<br>August 13, 2018<br>July 11, 2019 | | | March 25, 2019<br>December 24, 2019<br>March 27, 2020<br>October 10, 2019<br>March 27, 2020 |
| Kyushu Electric Power Co., Inc. | Genkai NPS (Units 3 and 4) | Installation change | July 8, 2013 | — | — | January 18, 2017 |
| | | Construction plan | | | | August 25, 2017 (Unit 3)<br>September 14, 2017 (Unit 4) |
| | | Operational safety program change | | | | September 14, 2017 |
| | Sendai NPS (Units 1 and 2) | Installation change | July 8, 2013 | — | — | September 10, 2014 |
| | | Construction plan | | | | March 18, 2015 (Unit 1)<br>May 27, 2015 (Unit 2) |
| | | Operational safety program change | | | | May 27, 2015 |
| | ◆Genkai NPS (Units 3 and 4) | Installation change | December 20, 2017 | 4 | — | April 3, 2019 |
| | | Construction plan | May 16, 2019 (Unit 3)<br>June 18, 2019 (Unit 4)<br>September 19, 2019<br>January 17, 2020 | | | November 28, 2019 (Units 3, 4)<br>March 4, 2020 |
| | ◆Sendai NPS | Installation change | December 17, 2015 | 6 | — | April 5, 2017 |

| Applicant | Targeted power reactor | Application types | Receipt date | Review meetings (number) | On-site inspections (number) | Date of approval |
|---|---|---|---|---|---|---|
| | (Units 1 and 2) | | | | | |
| | | Construction plan*3 (Unit 1) | May 24, 2017<br>August 8, 2017<br>March 9, 2018 | | | May 15, 2018<br>July 26, 2018<br>February 18, 2019 |
| | | Construction plan*3 (Unit 2) | July 10, 2017<br>August 8, 2017<br>March 9, 2018 | | | August 10, 2018<br>August 31, 2018<br>April 12, 2019 |
| | | Operational safety program | August 2, 2019 | | | March 25, 2020 |
| Japan Atomic Power Company | Tokai Daini NPS | Installation change | May 20, 2014 | — | — | September 26, 2018 |
| | | Construction plan | | | | October 18, 2018 |
| | | Operational safety program change | | | | |
| | ◆Tokai Daini NPS | Installation change | September 24, 2019 | 3 | — | — |
| | Tsuruga NPS (Unit 2) | Installation change | November 5, 2015 | 3 | — | — |
| | | Operational safety program change | | | | |
| Electric Power Development Co., Ltd. (J-Power) | Oma NPS*2 | Installation change | December 16, 2014 | 5 | — | — |
| | | Construction plan | | | | |

・Several applications may be reviewed at one session of the review meeting.

・The number of review meetings mainly attended by members of the NRA is mentioned as a rule.

・The number of on-site investigations implemented by the members of the NRA is mentioned, and that implemented only by the staff of the secretariat of the NRA is excluded.

・The numbers of review meeting and on-site investigation represent the number of times held in FY2019

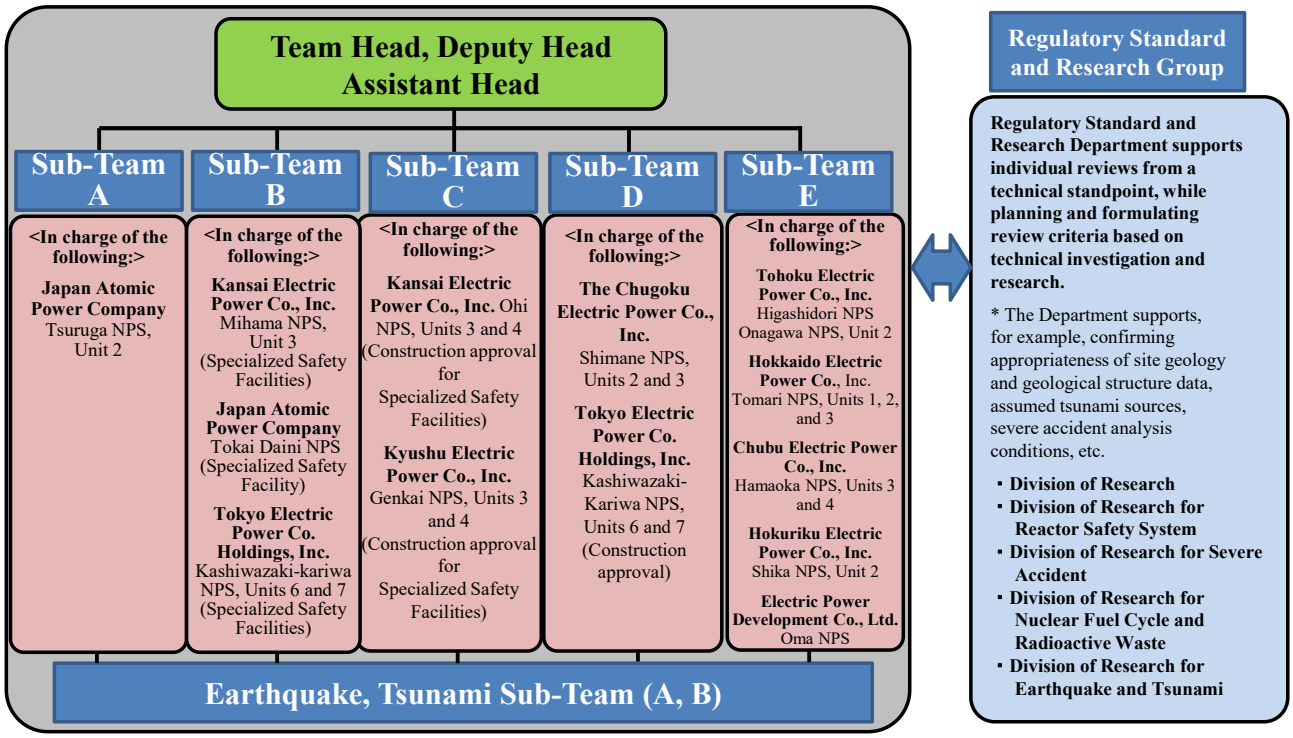
◆：Application concerning specialized safety facility

*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 the contents concerning specialized safety facility.

*3：The construction plan is divided into several phases and separate applications are submitted.

## 2. System of Conformity Review of Nuclear Power Stations to New Regulatory Requirements (Figure v)



## 3. Status of Inspection in Major Nuclear Facilities

(From April 1, 2019 to March 31, 2020)

**Tomari NPS,** Hokkaido Electric Power Co., Inc.

All reactor operations were shut down during the following periods.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | From April 22, 2011 (under implementation) | |
| | Unit 2 | From August 26, 2011 (under implementation) | |
| | Unit 3 | From May 5, 2012 (under implementation) | |
| Operational Safety Inspection | 1st time | April 15 – June 21, 2019 | No particular safety concerns |
| | 2nd time | July 4 – September 19, 2019 | No particular safety concerns。 |
| | 3rd time | October 1—December 20, 2019 | No particular safety concerns |
| | 4th time | January 8 – March 30, 2020 | Inspection results being summarized. |

**Higashidori NPS,** Tohoku Electric Power Co., Inc.

All reactor operations were shut down during the following periods.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | From February 6, 2011 (under implementation) | |
| Operational Safety Inspection | 1st time | April 15 – June 21, 2019 | No particular safety concerns. |
| | 2nd time | July 16 – September 20, 2019 | No particular safety concerns. |
| | 3rd time | October 7 – December 13, 2019 | No particular safety concerns. |
| | 4th time | January 14 – March 30, 2020 | Inspection results being summarized. |

**Onagawa NPS**, Tohoku Electric Power Co., Inc.

All reactor operations were shut down during the following periods.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | September 10, 2011 – March 18, 2020 | Inspection regarded as completed upon the approval of the decommissioning plan |
| | Unit 2 | From November 6, 2010 (under implementation) | |
| | Unit 3 | From September 10, 2011 (under implementation) | |
| Operational Safety Inspection | 1st time | April 15 – June 21, 2019 | One operational safety program violation found (monitoring) |
| | 2nd time | July 16 – September 20, 2019 | No particular safety concerns. |
| | 3rd time | October 15 – December 20, 2019 | No particular safety concerns. |
| | 4th time | January 14 – March 30, 2020 | Inspection results being summarized. |

**Fukushima Daiichi NPS**, Tokyo Electric Power Company Holdings, Inc.

All reactor operations were shut down during the following periods. Based on the Electric Business Act, Units 1 through 4 and Units 5 and 6 were decommissioned on January 31, 2014, respectively. On November 7, 2012, they were designated as "Specified Nuclear Facilities." On December 7 of the same year, the NRA received the "Implementation Plan with Regard to Fukushima Daiichi NPS's Specified Nuclear Facilities" On August 14, 2013, the NRA approved the Implementation Plan.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 5 | From January 3, 2011 (under implementation) | |
| | Unit 6 | From August 14, 2010 (under implementation) | |

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Inspection that is conducted once within one year after starting use of nuclear power reactor facility defined by implementation plan and periodically conducted to investigate capabilities of the nuclear power reactor facility concerned | Periodic Facility Inspection | | |
| | 5th time | August 10, 2018 – June 28, 2019 | Inspection results: good |
| | 6th time | August 7, 2019 – March 10, 2020 | Inspection results: good |
| Inspection of implementation status of measures for safety defined in implementation plan | 1st time | April 8 – June 20, 2019 | No particular safety concerns. |
| | 2nd time | July 8 – September 24, 2019 | Two implementation plan violations found (monitoring) |
| | 3rd time | October 7 – December 19, 2019 | No particular safety concerns. |
| | 4th time | January 14 – March 19, 2020 | Inspection is underway. |
| | Operational Safety Inspection deemed necessary to conduct safety actions | | |
| | | February 8, 2019 – March 31, 2020 | Inspection is underway. |

**Fukushima Daini NPS**, Tokyo Electric Power Company Holdings, Inc.

All reactor operations were shut down during the following periods.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | (Shut-down) | Inspection start schedule of Units 1 through 4 is not yet determined because implementation of inspection is difficult due to impact of Great East Japan Earthquake. (Implementation schedule change of periodic inspection based on the law was approved.) |
| | Unit 2 | (Shut-down) | |
| | Unit 3 | (Shut-down) | |
| | Unit 4 | (Shut-down) | |
| Operational Safety Inspection | 1st time | April 11 – June 21, 2019 | No particular safety concerns. |
| | 2nd time | July 5 – September 24, 2019 | No particular safety concerns. |
| | 3rd time | October 4 – December 24, 2019 | No particular safety concerns. |
| | 4th time | January 7 – March 19, 2020 | Inspection results being summarized. |

**Kashiwazaki-Kariwa NPS**, Tokyo Electric Power Company Holdings, Inc.

All reactor operations were shut down during the following periods.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | From August 6, 2011 (under implementation) | |
| | Unit 2 | From February 19, 2007 (under implementation) | |
| | Unit 3 | From September 19, 2007 (under implementation) | |
| | Unit 4 | From February 11, 2008 (under implementation) | |
| | Unit 5 | From January 25, 2012 (under implementation) | |
| | Unit 6 | From March 26, 2012 (under implementation) | |
| | Unit 7 | From August 23, 2011 (under implementation) | |
| Operational Safety Inspection | 1st time | April 11 – June 26, 2019 | No particular safety concerns. |
| | 2nd time | July 5 – September 26, 2019 | No particular safety concerns. |
| | 3rd time | October 3 – December 25, 2019 | No particular safety concerns. |
| | 4th time | January 16 – March 23, 2020 | Inspection results being summarized. |

**Tokai Power Station**, The Japan Atomic Power Co.

Under decommissioning procedures (Areas other than the Reactor Area under removal procedure).

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Operational Safety Inspection | 1st time | April 8 – September 13, 2019 | No particular safety concerns. |
| | 2nd time | October 3, 2019 – March 11, 2020 | Inspection results being summarized. |

**Tokai Daini Power Station**, The Japan Atomic Power Co.

All reactor operations were shut down during the following periods.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | | From May 21, 2011 (under implementation) | |
| Operational Safety Inspection | 1st time | April 5 – June 27, 2019 | No particular safety concerns. |
| | 2nd time | July 3 – September 13, 2019 | No particular safety concerns. |
| | 3rd time | October 3 – December 19, 2019 | No particular safety concerns. |
| | 4th time | January 9 – March 27, 2020 | Inspection results being summarized. |

**Hamaoka NPS,** Chubu Electric Power Co., Inc.

During the following periods, Units 1 and 2 were under decommissioning procedures (during the period of demolition work of facilities around nuclear reactor area), and Units 3 through 5 were shut down.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 3 | From November 29, 2010 (under implementation) | |
| | Unit 4 | From January 25, 2012 (under implementation) | |
| | Unit 5 | From March 22, 2012 (under implementation) | |
| Operational Safety Inspection | 1st time | April 5 – June 21, 2019 | No particular safety concerns. |
| | 2nd time | July 3 – September 19, 2019 | No particular safety concerns. |
| | 3rd time | October 2 – December 23, 2019 | No particular safety concerns. |
| | 4th time | January 7 – March 25, 2020 | Inspection results being summarized. |

Shika NPS, Hokuriku Electric Power Company

All reactor operations were shut down during the following periods.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | From October 8, 2011 (under implementation) | |
| | Unit 2 | From March 11, 2011 (under implementation) | |
| Operational Safety Inspection | 1st time | April 9 – June 21, 2019 | No particular safety concerns. |
| | 2nd time | July 2 – September 30, 2019 | No particular safety concerns. |
| | 3rd time | October 1 – December 24, 2019 | No particular safety concerns. |
| | 4th time | January 8 – March 27, 2020 | Inspection results being summarized. |

**Tsuruga NPS**, The Japan Atomic Power Co.

During the following period, Unit 1 has been under decommissioning procedures (during the preparation period for demolition work of facilities including nuclear reactor), and Unit 2 was shut down.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | December 2, 2019 – March 3, 2020 | Inspection results: Good |
| | Unit 2 | From August 29, 2011 (under implementation) | |
| Operational Safety Inspection | 1st time | April 4 – June 25, 2019 | No particular safety concerns. |
| | 2nd time | July 4 – September 30, 2019 | No particular safety concerns. |
| | 3rd time | October 8 – December 26, 2019 | No particular safety concerns. |
| | 4th time | January 9 – March 27, 2020 | Inspection results being summarized. |

**Mihama NPS**, Kansai Electric Power Company Inc.

During the following periods, Units 1 and 2 were under decommissioning procedures (during the preparation period for dismantling work). Unit 3 was shut down.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | January 21 – May 9, 2019<br>December 17, 2019 – March 3, 2020 | Inspection results: Good |
| | Unit 2 | January 22 – May 9, 2019<br>December 18, 2019 – March 3, 2020 | Inspection results: Good |
| | Unit 3 | From May 14, 2011 (under implementation) | |
| Pre-service Inspection | Unit 3 | From January 15, 2018 (under implementation) | |
| Operational Safety Inspection | 1st time | April 4 – June 26, 2019 | No particular safety concerns. |
| | 2nd time | July 8 – September 7, 2019 | No particular safety concerns. |
| | 3rd time | October 4 – December 20, 2019 | No particular safety concerns. |
| | 4th time | January 8 – March 23, 2020 | Inspection results being summarized. |

**Ohi NPS**, Kansai Electric Power Company Inc.

During the following periods, the operations of Units 1 and 2 reactors were under suspension, Unit 3 reactor was activated on June 26, 2019 and Unit 4 reactor was activated on September 13, 2019.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | December 10, 2010 – January 18, 2020 | Inspection regarded as completed upon the approval of the decommissioning plan |
| | Unit 2 | December 16, 2011 – January 18, 2020 | Inspection regarded as completed upon the approval of the decommissioning plan |
| | Unit 3 | April 11 – July 23, 2019 | Inspection results: Good |
| | Unit 4 | July 4 – October 4, 2019 | Inspection results: Good |
| Operational Safety Inspection | 1st time | April 4 – July 5, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 3) | | |
| | | April 10 – April 15, 2019 | No particular safety concerns. |
| | | April 12 – April 16, 2019 | No particular safety concerns. |
| | | April 19 – April 29, 2019 | No particular safety concerns. |
| | | June, 6 – June 13, 2019 | No particular safety concerns. |
| | | June 11 – June 18, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | April 24, May 27, June 27, 2019 | No particular safety concerns. |
| | 2nd time | July 1 – October 4, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 3) | | |
| | | June 21 – July 4, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 4) | | |
| | | July 4 – July 19, 2019 | No particular safety concerns. |
| | | July 8 – July 16, 2019 | No particular safety concerns. |
| | | July 12 – July 18, 2019 | No particular safety concerns. |
| | | August 23 – August 29, 2019 | No particular safety concerns. |
| | | August 29. – September 5, 2019 | No particular safety concerns. |
| | | September 9 – September 19, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | July 25, August 23, September 9, 2019 | No particular safety concerns. |
| | 3rd time | October 1 – December 24, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | October 31, December 3, December 25, 2019 | No particular safety concerns. |
| | 4th time | January 6 – March 30, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | November 26, 2019 – March 10, 2020 | Inspection results being summarized. |
| | | January 21, February 21, March 25, 2020 | Inspection results being summarized. |
| | | March 2 – March 19, 2020 | Inspection results being summarized. |

**Takahama PS**, Kansai Electric Power Company, Inc.

During the following periods, the operations of Units 1 and 2 reactors were under suspension, Unit 3 reactor was shut down on January 6, 2020 and Unit 4 reactor was activated on January 30, 2020.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | From January 10, 2011 (under implementation) | |
| | Unit 2 | From November 25, 2011 (under implementation) | |
| | Unit 3 | From January 6, 2020 (under implementation) | |
| | Unit 4 | September 18, 2019 – February 26, 2020 | Inspection results: Good |
| Pre-service Inspection | Unit 1 | From November 14, 2016 (under implementation) | |
| | Unit 2 | From November 14, 2016 (under implementation) | |
| Operational Safety Inspection | 1st time | April 8 – June 21, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | June 12 – June 13, 2019 | No particular safety concerns. |
| | | April 8 – June 21, 2019 | No particular safety concerns. |
| | 2nd time | July 8 – September 30, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 4) | | |
| | | September 17 – September 20, 2019 | No particular safety concerns. |
| | | September 20 – September 26, 2019 | No particular safety concerns. |
| | | September 25 – September 30, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | July 8 – September 30, 2019 | No particular safety concerns. |
| | 3rd time | October 7 – December 20, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 4) | | |
| | | December 23 – December 24, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | October 7 – December 20, 2019 | No particular safety concerns. |
| | 4th time | January 14 – March 19, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Unit 3) | | |
| | | January 6 – January 8, 2020 | Inspection results being summarized. |
| | | January 21 – January 22, 2020 | Inspection results being summarized. |
| | | January 24 – January 30, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Unit 4) | | |
| | | January 6 – January 10, 2020 | Inspection results being summarized. |
| | | January 10 – January 16, 2020 | Inspection results being summarized. |
| | | January 24 – February 5, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | January 6 – March 30, 2020 | Inspection results being summarized. |

| | |
|---|---|
| Other | ・On September 8, 2019, a deviation from operational limit (i.e. limiting conditions for operation: LCO) occurred at Unit 4, which later recovered from it on the same day. |

**Shimane NPS**, The Chugoku Electric Power Co., Inc.

During the following period, Unit 1 has been under decommissioning procedures (during the preparation period for demolition work), and Units 2 and 3 were shut down.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | February 22 – July 17, 2019 | Inspection results: Good |
| | Unit 2 | From January 27, 2012 (under implementation) | |
| Pre-service Inspection | Unit 3 | Pre-service inspection in the construction stage under implementation | |
| Operational Safety Inspection | 1st time | April 15 – June 26, 2019 | No particular safety concerns. |
| | 2nd time | July 1 – October 1, 2019 | One operational safety program violation (monitoring) found |
| | 3rd time | October 2 – December 23, 2019 | No particular safety concerns. |
| | 4th time | January 9 – March 26, 2020 | Inspection results being summarized. |

**Ikata PS**, Shikoku Electric Power Co., Inc.

During the following periods, Unit 1 was under decommissioning (in preparation for demolition work), Unit 2 operation was under suspension, and Unit 3 reactor was shut down on December 26, 2019.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | April 9 – July 31, 2019 | Inspection results: Good |
| | Unit 2 | From January 13, 2012 (under implementation) | |
| | Unit 3 | From December 26, 2019 (under implementation) | |
| Operational Safety Inspection | 1st time | April 8 – June 21, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 3) | | |
| | | May 27 – June 3, 2019 | No particular safety concerns. |
| | | May 14 – June 14, 2019 | No particular safety concerns. |
| | 2nd time | July 8 – September 25, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 3) | | |
| | | July 10 – July 29, 2019 | No particular safety concerns. |
| | 3rd time | October 7 – December 18, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 3) | | |
| | | October 7 – October 16, 2019 | No particular safety concerns. |
| | | December 11 – December 16, 2019 | No particular safety concerns. |
| | | October 1 – December 4, 2019 | No particular safety concerns. |
| | 4th time | January 7 – March 23, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Unit 3) | | |
| | | December 24, 2019 – January 7, 2020 | Inspection results being summarized. |
| | | December 27, 2019 – January 10, 2020 | Inspection results being summarized. |
| | | January 10 – January 20, 2020 | Inspection results being summarized. |
| | | January 23 – February 7, 2020 | Inspection results being summarized. |

| | |
|---|---|
| Others | ・On September 5, 2019, a deviation from operational limit (i.e. limiting conditions for operation: LCO) occurred at Unit 3, which later recovered from it the same day. |

**Genkai NPS**, Kyushu Electric Power Co., Inc.

During the following periods, Unit 1 was under decommissioning (in preparation for demolition work), Unit 2 reactor operation was under suspension, and Unit 3 reactor was activated on July 20, 2019 and Unit 4 reactor was activated on October 22, 2019.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | February 4 – May 30, 2019<br>January 14 – March 10, 2020 | Inspection results: Good |
| | Unit 2 | January 29, 2011 – March 18, 2020 | Inspection regarded as completed upon the approval of the decommissioning plan |
| | Unit 3 | May 13 – August 20, 2019 | Inspection results: Good |
| | Unit 4 | August 16 – November 20, 2019 | Inspection results: Good |
| Operational Safety Inspection | 1st time | April 5 – June 17, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 3) | | |
| | | May 10 – May 17, 2019 | No particular safety concerns. |
| | | May 15 – May 23, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | March 21 – June 20, 2019 | No particular safety concerns. |
| | 2nd time | July 4 – September 13, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 3) | | |
| | | June 26 – July 5, 2019 | No particular safety concerns. |
| | | July 2 – July 12, 2019 | No particular safety concerns. |
| | | July 12 – July 19, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 4) | | |
| | | August 14 – August 21, 2019 | No particular safety concerns. |
| | | August 15 – August 28, 2019 | No particular safety concerns. |
| | | August 23 – September 2, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | June 21 – September 20, 2019 | No particular safety concerns. |
| | 3rd time | October 4 – December 16, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 4) | | |
| | | September 27 – October 7, 2019 | No particular safety concerns. |
| | | October 4 – October 15, 2019 | No particular safety concerns. |
| | | October 15 – November 5, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | September 21 – December 20, 2019 | No particular safety concerns. |
| | 4th time | January 8 – March 18, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Unit 3) | | |
| | | March 2 – March 11, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Unit 4) | | |
| | | February 3 – February 13, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Units 3 and 4) | | |
| | | January 27 – March 26, 2020 | Inspection results being summarized. |
| | | March 17 – March 26, 2020 | Inspection results being summarized. |

**Sendai NPS**, Kyushu Electric Power Co., Inc.

During the following periods, the reactors of Units 1 and 2 reactors were started up on October 3, 2019 and December 24, 2019 respectively.

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | Unit 1 | July 27 – November 1, 2019 | Inspection results: Good |
| | Unit 2 | October 18, 2019 – January 23, 2020 | Inspection results: Good |
| Operational Safety Inspection | 1st time | April 9 – June 25, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 2) | | |
| | | May 9, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 1 and 2) | | |
| | | April 15 – April 24, 2019 | No particular safety concerns. |
| | | May 13 – May 22, 2019 | No particular safety concerns. |
| | | April 9 – June 27, 2019 | No particular safety concerns. |
| | 2nd time | July 8 – September 25, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 1) | | |
| | | July 25 – July 30, 2019 | No particular safety concerns. |
| | | July 29 – August 6, 2019 | No particular safety concerns. |
| | | August 2 – August 13, 2019 | No particular safety concerns. |
| | | September 6 – September 20, 2019 | No particular safety concerns. |
| | | September 6 – September 25, 2019 | No particular safety concerns. |
| | | September 27 – October 16, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 1 and 2) | | |
| | | July 1 – August 28, 2019 | No particular safety concerns. |
| | 3rd time | October 8 – December 23, 2019 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Unit 2) | | |
| | | October 16 – October 23, 2019 | No particular safety concerns. |
| | | October 21 – October 29, 2019 | No particular safety concerns. |
| | | October 25 – November 5, 2019 | No particular safety concerns. |
| | | November 29 – December 10, 2019 | No particular safety concerns. |
| | | December 2 – December 13, 2019 | No particular safety concerns. |
| | | December 20, 2019 – January 9, 2020 | No particular safety concerns. |
| | Operational safety inspection for important actions for safety (Units 1 and 2) | | |
| | | October 24, 2019 | No particular safety concerns. |
| | 4th time | January 6 – March 18, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Units 1 and 2) | | |
| | | January 6 – March 31, 2020 | Inspection results being summarized. |
| | | February 26 – March 4, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Unit 1) | | |
| | | March 16 – March 31, 2020 | Inspection results being summarized. |
| | Operational safety inspection for important actions for safety (Unit 2) | | |
| | | December 20, 2019 – January 9, 2020 | Inspection results being summarized. |

**Prototype Fast Breeder Reactor Monju**, Japan Atomic Energy Agency

Under decommissioning (fuel removal)

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | | January 31, 2019 – February 14, 2020 | Inspection results: Good |
| Operational Safety Inspection | 1st time | April 8 – June 26, 2019 | No particular safety concerns. |
| | 2nd time | July 3 – September 25, 2019 | No particular safety concerns. |
| | 3rd time | October 7 – December 25, 2019 | No particular safety concerns. |
| | 4th time | January 7 – March 26, 2020 | Inspection results being summarized. |

**Advanced Converter Reactor Fugen**, Japan Atomic Energy Agency

Under decommissioning (dismantling work is in progress for the facilities outside the reactor area)

| | | Implementation Period | Result/Remarks |
|---|---|---|---|
| Periodic Facility Inspection | | November 27, 2019 – March 27, 2020 | Inspection results: Good |
| Operational Safety Inspection | 1st time | April 4 – June 25, 2019 | No particular safety concerns. |
| | 2nd time | July 4 – September 30, 2019 | No particular safety concerns. |
| | 3rd time | October 8 – December 26, 2019 | No particular safety concerns. |
| | 4th time | January 7 – March 25, 2020 | Inspection results being summarized. |

* The Reactor Regulation Act stipulates to conduct the operational safety inspection four times per year. (For the nuclear power reactor facilities that get the authorization of decommissioning plan, the operational safety inspection shall be conducted four times or less per year.)

For example, “3rd time” in the table means the third operational safety inspection in FY2019.

## 4. Status of Application for Review of Nuclear Fuel Facilities

(From April 1, 2019 to March 31, 2020)

| Applicant | Facility | Receipt date | Review meetings (number) | On-site investigations (number) | Date of permission |
|---|---|---|---|---|---|
| Japan Nuclear Fuel Limited | Reprocessing Facility | License modification and operational safety programs change: January 7, 2014<br>Design and construction methods<br>(Main facility, No. 1): May 31, 2018<br>(Main facility, No. 2): July 13, 2018<br>(Main facility, No. 3) (spent fuel reception and storage facilities (No.1)): October 5, 2018<br>(Main facility, No. 4) (solid waste disposal facility (No. 1)): October 29, 2018 | 26 | 1 | — |
| | MOX Fuel Fabrication Facility | License modification: January 7, 2014<br>Design and construction methods<br>(No. 1) (No. 2): November 9, 2018<br>(No. 3) (No. 4): December 27, 2018(No. 5) (No. 6):March 29, 2019 | 14 | 1 | — |
| | Uranium Enrichment Facility | License modification: May 14, 2013<br>Operational safety programs change: January 7, 2014<br>Design and construction methods<br>(No. 1): September 7, 2018<br>Design and construction methods<br>(No. 2):April 24, 2019<br>Design and construction methods<br>(No. 3):September 10, 2019 | 3 | — | Approval of license modification: May 17, 2017<br>Approval of operational safety programs change: March 13, 2020<br>Approval of design and construction methods<br>(No. 1):June 19, 2019<br>(No. 2):December 26, 2019<br>(No. 3):March 26, 2020 |
| | Radioactive Waste Interim Storage Facility | License modification<br>Operational safety programs change<br>January 7, 2014<br>Design and construction methods<br>(No. 1):May 31, 2017<br>(No. 2):October 5, 2018 | 12 | 1 | — |
| | Waste Disposal Facility | License modification<br>August 1, 2018 | 10 | — | — |
| Recyclable-Fuel Storage Company | Spent Fuel Interim Storage Facility | Permit of operational safety programs: March 29, 2013<br>License modification: January 15, 2014<br>Design and construction methods<br>(No. 1): March 22, 2016 | 11 | — | — |
| Mitsubishi Nuclear Fuel | Uranium Fuel Fabrication Facility | License modification and operational safety programs change: January 31, 2014<br>Design and construction methods<br>(No. 1): November 30, 2017<br>(No. 2): June 25, 2018<br>(No. 3): February 20, 2019<br>(No. 4):March 19, 2019<br>(No. 5):January 21, 2020 | 2 | — | Approval of license modification: November 1, 2017<br>Approval of operational safety programs change March 28, 2019<br>Approval of design and construction methods<br>(No. 1): June 19, 2018 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | (No. 2):August 9, 2019<br>(No. 3):April 11, 2019<br>(No. 4):March 27, 2020 |
| Japan Atomic Energy Agency (JAEA) | Radioactive Waste Interim Storage Facility | License modification: February 7, 2014<br>Operational safety program change: March 14, 2014<br>Design and construction methods<br>(No. 1): September 25, 2017<br>(No. 2): February 28, 2018<br>(No. 3) (No. 4) (partial renewal of instrumentation and control system facility)<br>December 26, 2018 | 5 | 1 | Approval of license modification: August 22, 2018<br><br><br><br>(No. 4) (partial renewal of instrumentation and control system facility)<br>March 27, 2020 |
| | JRR-3 | Installation change and operational safety program change: September 26, 2014<br>Design and construction methods<br>(No. 1) (No. 2)<br>September 3, 2019<br>(No. 3): October 12, 2018<br><br>(No. 4) (No. 5)<br>November 1, 2018<br>(No. 6) (No. 7)<br>November 30, 2018 November 30, 2018<br>(No. 8)<br>February 5, 2019<br>(No. 9) (No. 10)<br>April 2, 2019<br>(No.11)<br>August 8, 2019<br>(No.12)<br>November 20, 2019<br>(partial renewal of reactivity control panel)<br>February 5, 2019 | 13 | 1 | Installation change permit:<br>November 7, 2018<br>Permission for design and construction method<br>(No. 2)<br>April 24, 2019<br>(No. 3): March 14, 2019<br>(No. 4)<br>April 5, 2019<br>(No. 5): March 14, 2019<br>(No. 6)<br>April 25, 2019<br>(No. 7)<br>January 22, 2020<br>(No. 8)<br>June 3, 2019<br>(No. 9)<br>October 23, 2019<br>(partial renewal of reactivity control panel)<br>June 3, 2019 |
| | HTTR (High-temperature engineering test reactor) | Installation change and operational safety program change: November 26, 2014, October 17, 2018*<br>Design and construction methods<br>(No. 1): February 9, 2018<br>(No. 2): July 11, 2018<br>(No. 3): November 16, 2018<br>(No. 4):<br>March 30, 2020 *2 | 4 | 1 | — |
| | Radioactive Waste Treatment Facility of Nuclear Science Research Institute | Installation change: February 6, 2015<br>Design and construction methods<br><br>(No. 1): November 14, 2017<br><br>(No. 2): March 12, 2018<br>(No. 3): June 1, 2018<br>(No. 4): August 29, 2018<br>(No. 5) (No. 5): October 4, 2018<br>(No. 6): November 29, 2018<br>(No. 7) (No. 8) (No. 9)<br>June 5, 2019<br>(No. 10) (No. 11)<br>July 4, 2019 | 4 | 1 | Installation change permit:<br>October 17, 2018<br>Approval of design and construction methods<br>(No. 1): December 17, 2018<br>(No. 2)<br>April 8, 2019<br><br>(No. 5)<br>April 25, 2019 |

| | | | | | |
|---|---|---|---|---|---|
| | | (Partial renewal of process monitors)<br>September 18, 2018 | | | (Partial renewal of process monitors)<br>December 12, 2019 |
| | JMTR (Materials Testing Reactor) | Decommissioning plan<br>September 18, 2019<br>Operational safety program change<br>October 1, 2019 | 3 | — | — |
| | TCA (tank-type critical assembly) | Decommissioning plan<br>April 26, 2019<br>Operational safety program change<br>November 15, 2019 | 2 | — | — |
| | NSRR (Nuclear Safety Research Reactor) | Installation change: March 31, 2015<br>Design and construction methods<br>(No. 1): July 4, 2017<br>(No. 2): August 4, 2017<br>(No. 3): August 24, 2017<br>(No. 4): October 13, 2017<br>(No. 5): December 13, 2017<br>(No. 5): Modification approval application: November 29, 2018<br>(No. 6)<br>September 17, 2019<br>(No. 7)<br>November 27, 2019<br>Operational safety program change:<br>March 6, 2018 | 3 | — | Installation change permit:<br>January 31, 2018<br>Approval of design and construction methods<br>(No. 1) February 20, 2018<br>(No. 2) February 26, 2018<br>(No. 3) February 15, 2018<br>(No. 4) April 20, 2018<br>(No. 5) July 10, 2018<br>(No. 5) Approval of license modification:<br>April 26, 2019<br>(No. 6)<br>February 4, 2020<br>(No. 7)<br>February 4, 2020<br>Approval of operational safety program change:<br>March 22, 2018 |
| | STACY (Static Experiment Critical Facility) | Installation change: March 31, 2015<br>Design and construction methods<br>(No. 1): August 9, 2016<br>(Fuel fabrication): August 1, 2017<br>(No. 2): August 10, 2017<br>(Seismic retrofit of Experiment Building A): November 29, 2017<br>(No. 3): March 29, 2019<br>(installation of rod-shaped fuel storage facility II)<br>April 16, 2019<br>(system separation from TRACY)<br>June 21, 2019<br>(No. 4)<br>November 20, 2019<br>Operational safety program change<br>August 9, 2016 | 8 | — | Installation change permit:<br>January 31, 2018<br>Approval of design and construction methods<br>(No. 1): March 29, 2018<br>(Fuel rod fabrication):<br>May 30, 2018<br>(No. 2)<br>March 27, 2020<br>(Seismic retrofit of Experiment Building A):<br>July 5, 2018<br>(installation of rod-shaped fuel storage facility II)<br>December 23, 2019<br><br>Approval of operational safety program change:<br>March 1, 2018 |
| | Experimental Fast Reactor Facility | Installation change and operational safety program change: March 30, 2017 | 7 | — | — |
| Nuclear Fuel Industries, Ltd | Uranium Fuel Fabrication Facility (Tokai Works) | License modification<br>Operational safety programs change:<br>(No. 1):February 14, 2014<br>Operational safety program change<br>(No. 2):July 24, 2019<br>Design and construction methods<br>(No. 1) (No. 2) (No. 3): February 9, 2018<br>(No. 4):March 26, 2019 | 2 | — | Approval of license modification: December 20, 2017<br>Approval of operational safety programs change:<br>(No. 1):December 3, 2018<br>(No. 2):March 17, 2020<br>Approval of design and construction methods<br>(No.1) (No.2): May 22, 2018<br>(No.3): May 28, 2018<br>(No. 4):March 13, 2020 |

| | | | | | |
|---|---|---|---|---|---|
| | Uranium Fuel Fabrication Facility (Kumatori Works) | License modification<br>Operational safety programs change: April 18, 2014<br>Design and construction methods<br>(No. 1): October 22, 2018<br>(No. 2):July 25, 2019<br>(No. 3):December 2, 2019 | 2 | — | Approval of license modification:<br>March 28, 2018<br>Approval of operational safety programs change:<br>June 11, 2019<br>Approval of design and construction methods (No. 1):October 8, 2019<br>(No. 2):December 2, 2019 |
| Global Nuclear Fuel Japan | Uranium Fuel Fabrication Facility | License modification: July 24, 2013<br>Operational safety programs change: April 18, 2014<br>Design and construction methods<br>(No. 1): May 19, 2017<br>(No. 2):April 19, 2019<br>(No. 3):October 18, 2019 | 3 | — | Approval of license modification: April 5, 2017<br>Approval of operational safety programs change:<br>July 2, 2019<br>Approval of design and construction methods<br>(No. 1): January 30, 2019<br>(No. 2):November 5, 2019<br>(No. 3):March 13, 2020 |
| Kyoto University | KUR (Kyoto University Research Reactor) | Installation change and operational safety program change: September 30, 2014, October 5, 2016**<br>Design and construction methods<br>(No. 1): September 14, 2016<br>(No. 2): December 27, 2016<br>(No. 3): January 25, 2017<br>(Lightning-protection system): February 17, 2017<br>(No.4): March 31, 2017<br>(No.5): June 2, 2017<br>(Leakage warning system at waste treatment facility): July 7, 2017<br>(measures for preventing the freezing of elevated water tanks) November 22, 2019<br>Operational safety program change: November 22, 2019 | 1 | — | Approval of installation change: September 21, 2016<br>Approval of operational safety program change: February 28, 2017<br>Approval of design and construction methods<br>(No. 1): February 15, 2017<br>(No. 2): February 24, 2017<br>(No. 3): June 12, 2017<br>(Lightning-protection system): March 30, 2017<br>(No.4): June 12, 2017<br>(No.5): July 14, 2017<br>(Leakage warning system at waste treatment facility): July 27, 2017<br>(measures for preventing the freezing of elevated water tanks)<br>March 12, 2020<br>Approval of operational safety program change: March 17, 2020 |
| | KUCA (Kyoto University Critical Assembly) | Installation change: September 30, 2014<br>Operational safety program change: September 30, 2014, May 27, 2016**<br>Design and construction methods<br>(No. 1): July 26, 2016<br>(No. 2): December 27, 2016<br>(Upgrading nuclear instrumentation cables): December 27, 2016<br>(Seismic reinforcement of the number 1 solid waste storehouse): December 27, 2016<br>(Lightning-protection system): February 17, 2017<br>(Leakage warning system of wastewater tank): June 2, 2017<br>(external event assessment) November 22, 2019<br>Operational safety program change: November 22, 2019 | 1 | — | Approval of installation change: May 11, 2016<br>Approval of operational safety program change: June 15, 2017, August 29, 2016<br>Approval of design and construction methods<br>(No. 1): February 15, 2017<br>(No. 2): April 25, 2017<br>(Upgrading nuclear instrumentation cables): February 24, 2017<br>(Seismic reinforcement of the number 1 solid waste storehouse): February 1, 2017<br>(Lightning-protection system): April 20, 2017 |

| | | | | | |
|---|---|---|---|---|---|
| | | Installation change (KUR stockpile restriction)<br>April 25, 2019<br>Installation change (low enrichment of KUCA fuel)<br>May 31, 2019 | | | (Leakage warning system of wastewater tank): June 13, 2017<br>(external event assessment)<br>March 12, 2020<br>Approval of operational safety program change: March 17, 2020<br>Approval of installation change (KUR stockpile restriction)<br>September 19, 2019 |
| Kindai University | Kindai University Nuclear Reactor | Installation change and operational safety program change: October 20, 2014<br>Design and construction methods<br>(No. 1): June 30, 2016<br>(No. 2): August 4, 2016<br>(No. 3): October 13, 2016<br>(partial renewal of control rod drive mechanism)<br>October 25, 2018<br>(partial modification of reactor)<br>November 22, 2019 | 2 | — | Installation change permit: May 11, 2016<br>Approval of operational safety program change: February 28, 2017<br>Approval of design and construction methods<br>(No. 1) (No. 2): October 13, 2016<br>(No. 3): February 7, 2017<br>(partial renewal of control rod drive mechanism)<br>January 15, 2019<br>(partial modification of reactor)<br>December 23, 2019 |
| Toshiba Nuclear Engineering Laboratory | Toshiba Nuclear Critical Assembly (NCA) | December 23, 2019 | — | — | — |
| Japan Atomic Power Company | Tokai Low Level Waste Disposal Facility | Permit of Business: July 16, 2015 | 4 | — | — |

・There is no facility that received designation or approval of business of refining facility or Category 1 waste disposal facility as of March 3l, 2020.

・The numbers of review meetings and on-site investigations represent the number of times held in FY2019

・Several applications may be reviewed at one session of the review meeting.

・The number of on-site investigations implemented by the members of the NRA is mentioned, and that implemented only by the staff of the secretariat of the NRA is excluded.

*1 An application for changes to the operational safety programs filed on November 26, 2014 was withdrawn on October 17, 2018 and re-filed on the same day.

*2 An application for approval of design and construction methods filed on March 26, 2019 was withdrawn on March 30, 2019 and re-filed on the same day.

*3 An application for permission for operational safety programs modification filed on September 30, 2014 was withdrawn on May 27, 2016 and re-filed on October 5, 2016.

## 5. Numbers of Reviews and Inspections of Nuclear Facilities

(From April 1, 2019 to March 31, 2020)

### (a) Status of the Reviews and Inspections of Commercial Power Reactors

| Facility type | | No. of cases |
|---|---|---|
| Commercial nuclear power reactors (45 facilities)<br>(Under decommissioning procedures: 9 facilities) | Installation permit change | 18 |
| | Notification of installation permit change | 34 |
| | Approval of construction plan | 69 |
| | Approval of change to construction plan | 29 |
| | Notification of construction plan | 2 |

| | | |
|---|---|---|
| | Extension of review period relating to notification of construction plan | 1 |
| | Pass in pre-service inspection | 46 |
| | Approval of fuel assembly design | 0 |
| | Pass in fuel assembly inspection | 22 |
| | Evaluation for the implementation system of the welding licensee Inspection | 26 |
| | Evaluation for regular operator inspections | 3 |
| | Completion periodic facility inspection | 15 |
| | Approval of operational safety programs or approval of changes | 28 |
| | Operational safety inspection | 146 |
| | Notification of evaluation of safety improvement | 4 |
| | Approval of extension of the operation period | 0 |
| | Approval of change to decommissioning plan | 4 |
| | Check of method and implementation system for determining assignment of responsible facility licensee | 11 |
| | Approval of the trial use of reactor | 6 |
| | Approval of partial use | 10 |
| | Instruction of omission of pre-service inspection | 17 |
| | Instruction for omission of fuel assembly inspection | 5 |
| | Approval of the Implementation Plan change | 21 |
| | Approval of partial use of Specified Nuclear Facilities | 4 |
| | Completion of pre-service inspection on Specified Nuclear Facilities | 25 |
| | Completion of welding inspection on Specified Nuclear Facilities | 17 |
| | Completion of welding inspection for imports of Specified Nuclear Facilities | 0 |
| | Completion of Periodic Facility Inspection on Specified Nuclear Facilities | 2 |
| | Inspection of implementation status of measures for safety defined in the Implementation Plan | 5 |
| Commercial power reactors in the research and development phase (Under decommissioning procedures: 2 facilities) | Installation change permit | 0 |
| | Notification of installation change | 0 |
| | Completion of periodic facility inspection | 1 |
| | Approval of operational safety program or its approval of changes | 3 |
| | Operational safety inspection | 8 |
| | Approval of change to decommissioning plan | 2 |
| | Notification of minor change to decommissioning plan | 2 |

## (b) Status of Reviews and Inspections of Nuclear Fuel Facilities

| Type of facility | | No. of cases |
|---|---|---|
| Fuel fabrication facility (6 facilities) (Under construction: 1 facility) | Approval of license modification | 0 |
| | Approval of changes to design and construction methods | 0 |
| | Approval of design and construction methods | 11 |
| | Pass in pre-service inspection | 0 |
| | Approval of welding method | 0 |
| | Approval of operational safety programs change | 4 |
| | Operational safety inspection | 24 |
| | Installation change permit (Approval) | 1 |

| | | |
|---|---|---|
| Test nuclear reactor facility (22 facilities) (Under decommissioning procedures: 10 facilities) | Approval of a design and construction method or approval of changes | 20 |
| | Completion of periodic facility inspection | 3 |
| | Completion of pre-service inspection | 10 |
| | Approval of welding method | 1 |
| | Approval of operational safety program or approval of changes | 6 |
| | Operational safety inspection | 38 |
| | Approval of decommissioning plan | 1 |
| | Approval of change to decommissioning plan | 0 |
| Spent fuel interim storage facility (Under construction: 1 facility) | Pass in welding inspection | 0 |
| | Approval of welding method | 0 |
| | Type certificate or approval of change | 2 |
| | Type designation or approval of change | 0 |
| Reprocessing facility (2 facilities) (Under decommissioning procedures: 1 facility) | Approval of design and construction method | 0 |
| | Approval of modification of design and construction method | 0 |
| | Acceptance of pre-service inspection | 1 |
| | Approval of welding method | 0 |
| | Approval of decommissioning plan | 4 |
| | Approval of change to decommissioning plan | 1 |
| | Approval of operational safety programs change | 8 |
| Category 2 waste disposal facilities (2 facilities) | Confirmation of waste package | 10 |
| | Approval of operational safety program change | 0 |
| | Operational safety inspection | 8 |
| Radioactive Waste Interim Storage Facility (2 facilities) | Approval of design and construction methods | 1 |
| | Pass in welding inspection | 3 |
| | Approval of welding method | 0 |
| | Approval of operational safety programs or approval of changes | 0 |
| | Operational safety inspection | 8 |
| Facilities where nuclear fuel materials are used (11 facilities) | Approval of change of use | 6 |
| | Pass in facility inspection | 12 |
| | Approval of operational safety programs or approval of changes | 9 |
| | Operational safety inspection | 44 |
| | Approval of decommissioning plan | 0 |
| | Confirmation of decommissioning measure completion | 0 |
| Off-site disposal and transportation of nuclear fuel material, etc. | Confirmation of off-site disposal | 0 |
| | Packaging design approval | 2 |
| | Packaging approval | 3 |
| | Confirmation of off-site transportation | 8 |
| | Confirmation of radioactive concentration | 4 |

・There is no facility that received permit of business of refining facility or Category 1 waste disposal facility as of March 3l, 2020.

*Approvals of welding methods in fuel fabrication facility and reprocessing facility were granted in a single application.

## 6. Status of Application and Approval of Operation Period Extension

| Applicant | Targeted power reactor | Receipt date | Review meeting (No. of times) | Date of approval | Date at which 40 years have elapsed after operation started |
|---|---|---|---|---|---|
| Kansai | Unit 1 of the | April 30, 2015 | — | June 20, 2016 | July 7, 2016*1 |

| Applicant | Targeted power reactor | Receipt date | Review meeting (No. of times) | Date of approval | Date at which 40 years have elapsed after operation started |
|---|---|---|---|---|---|
| Electric Power Co., Inc. | Takahama NPS | | | | |
| | Unit 2 of the Takahama NPS | April 30, 2015 | — | June 20, 2016 | July 7, 2016*1 |
| | Unit 3 of the Mihama NPS | November 26, 2015 | — | November 16, 2016 | November 30, 2016 |
| Japan Atomic Power Company | Tokai Daini NPS | November 24, 2017 | — | November 7, 2018 | November 27, 2018 |

・Since no plant has filed an application for operation period extension, no review meeting was held in FY2019.

*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 Operational Safety Program Change concerning Plant Life Management

| Applicant | Targeted power reactor | Receipt date | Review meeting (No. of times) | Date of approval | Date at which 30 years or 40 years elapse after operation started |
|---|---|---|---|---|---|
| Hokkaido Electric Power Co., Inc. | Unit 1 of the Tomari NPS (30 years) (only maintaining cold shutdown) | June 18, 2018 | —*4 | May 27, 2019 | June 22, 2019 |
| | Unit 2 of the Tomari NPS (30 years) (only maintaining cold shutdown) | March 19, 2020 | —*4 | — | April 12, 2021 |
| Tohoku Electric Power Co., Inc. | Unit 1 of the Onagawa NPS (30 years) (only maintaining cold shutdown) | November 6, 2013 | —*4 | May 21, 2014 | June 1, 2014 |
| Tokyo Electric Power Company Holdings, Inc. | Unit 1 of the Fukushima Daini NPS (30 years) (only maintaining cold shutdown) | July 31, 2013 | —*4 | January 22, 2014 | February 3, 2014 |
| | Unit 2 of the Fukushima Daini NPS (30 years) (only maintaining cold shutdown) | October 31, 2018 | —*4 | January 30, 2019 | —*2 |
| | Unit 3 of the Fukushima Daini NPS (30 years) (only maintaining cold shutdown) | June 20, 2014 | —*4 | June 10, 2015 | June 21, 2015 |
| | Unit 4 of the Fukushima Daini NPS (30 years) (only maintaining cold shutdown) | August 23, 2016 | —*4 | August 16, 2017 | August 25, 2017 |
| | Unit 1 of the Kashiwazaki-Kariwa NPS (30 years) (only maintaining cold shutdown) | September 16, 2014 | —*4 | September 14, 2015 | September 18, 2015 |
| | Unit 2 of the Kashiwazaki-Kariwa NPS (30 years) (only maintaining cold shutdown) | September 26, 2019 | 1 | — | September 28, 2020 |
| | Unit 5 of the Kashiwazaki-Kariwa NPS (30 years) (only maintaining cold shutdown) | April 5, 2019 | 2 | February 27, 2020 | April 10, 2020 |
| Chubu Electric Power Co., Inc. | Unit 3 of the Hamaoka NPS (30 years) (only maintaining cold shutdown) | August 25, 2016 | —*4 | August 16, 2017 | August 28, 2017 |
| Kansai Electric | Unit 1 of the Takahama NPS | November 12, | —*4 | November 12, | November 14, 2014 |

| Applicant | Targeted power reactor | Receipt date | Review meeting (No. of times) | Date of approval | Date at which 30 years or 40 years elapse after operation started |
|---|---|---|---|---|---|
| Power Co., Inc. | (40 years)<br>(only maintaining cold shutdown) | 2013 | | 2014 | |
| | Unit 3 of the Takahama NPS<br>(30 years)<br>preconditioned | January 15, 2014 | — | November 18, 2015*3 | January 17, 2015 |
| | Unit 4 of the Takahama NPS<br>(30 years)<br>(operation preconditioned) | June 3, 2014 | — | November 18, 2015*3 | June 5, 2015 |
| | Unit 2 of the Takahama NPS<br>(40 years)<br>(only maintaining cold shutdown) | November 11, 2014 | —*4 | April 8, 2015 | November 14, 2015 |
| Kansai Electric Power Co., Inc. | Unit 1 of the Takahama NPS<br>(40 years)<br>(operation preconditioned) | April 30, 2015 | — | June 20, 2016 | July 7, 2016*1 |
| | Unit 2 of the Takahama NPS<br>(40 years)<br>(operation preconditioned) | April 30, 2015 | — | June 20, 2016 | July 7, 2016*1 |
| | Unit 1 of the Mihama NPS<br>(only maintaining cold shutdown) | September 29, 2015 | —*4 | November 17, 2015 | —*2 |
| | Unit 3 of the Mihama NPS<br>(40 years)<br>(operation preconditioned) | November 26, 2015 | — | November 16, 2016 | November 30, 2016 |
| The Chugoku Electric Power Co., Inc. | Unit 1of the Shimane NPS<br>(40 years)<br>(only maintaining cold shutdown) | September 27, 2013 | —*4 | February 26, 2014 | March 29, 2014 |
| | Unit 2 of the Shimane NPS<br>(30 years)<br>(operation preconditioned) | February 7, 2018 | — | —*3 | February 10, 2019 |
| Kyushu Electric Power Co., Inc. | Unit 1 of the Sendai NPS<br>(30 years)<br>(operation preconditioned) | December 18, 2013 | — | August 5, 2015*3 | July 4, 2014 |
| | Unit 1 of the Genkai NPS<br>(40 years)<br>(only maintaining cold shutdown) | October 10, 2014 | —*4 | June 10, 2015 | October 15, 2015 |
| | Unit 2 of the Sendai NPS<br>(30 years)<br>(operation preconditioned) | November 21, 2014 | — | November 18, 2015 | November 28, 2015 |
| Japan Atomic Power Company | Unit 2 of the Tsuruga NPS<br>(30 years)<br>(only maintaining cold shutdown) | February 15, 2016 | —*4 | February 2, 2017 | February 17, 2017 |
| | Tokai Daini NPS<br>(40 years)<br>(operation preconditioned) | November 24, 2017 | — | November 7, 2018 | November 27, 2018 |

・The numbers of review meetings represent the number of times held in FY2019.

*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.

*2 The change of the long-term maintenance management policy due to the review of technical evaluation concerning the aging degradation of reactor facilities.

*3 The review of aging management measures is implemented based on the conformity review to New Regulatory Requirements, on the basis of the policy approved in the NRA.

*4 Based on the policy approved in the NRA, the Secretariat of the NRA performs the review of the plants to which only an evaluation on the precondition of maintenance for a cold shutdown is performed and reports the results to the NRA to seek the approval. From June 11, 2015, they will be operated in accordance with the NRA Document Management Procedures (September 19, 2012) based on discussions at the NRA Commission Meeting held on June 10, 2015.

## 8. Status of Application and Approval of Decommissioning Plans

| Type of facility | Applicant | Facility | Date of application | Date of approval |
|---|---|---|---|---|
| Fuel facility (1 facility) | Japan Atomic Energy Agency | Ningyo-toge Environmental Engineering Center | September 28, 2018 | — |
| Test nuclear reactor facility (Under decommissioning procedures: 10 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 | — |
| | | Deuterium Critical Assembly (DCA), Oarai Research and Development Institute | May 12, 2006 | October 20, 2006 |
| | | Japan Materials Test Reactor (JMTR), Oarai Research and Development Institute | September 18, 2019 | — |
| | | First Nuclear Ship “Mutsu,” Aomori Research and Development Center | March 31, 2006 | October 20, 2006 |
| | University of Tokyo | University of Tokyo Reactor (Yayoi) | June 29, 2012 | August 24, 2012 |
| | Rikkyo University | Rikkyo University Reactor | May 30, 2006 | June 1, 2007 |
| | Goto Educational Corporation | TCU Reactor, Atomic Energy Research Laboratory, Tokyo City University | May 30, 2006 | June 5, 2007 |
| | 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 | — |
| | | Toshiba Training Reactor (TTR-1) | March 31, 2006 | May 22, 2007 |
| Commercial power reactors (Under decommissioning procedures: 13 facilities) | Japan Atomic Power Company | Tokai NPS | March 10, 2006 | June 30, 2006 |
| | | Unit 1 of the Tsuruga NPS | February 12, 2016 | April 19, 2017 |
| | Tohoku Electric Power Co., Inc. | Unit 1 of the Onagawa NPS | July 29, 2019 | March 18, 2020 |
| | Chubu Electric Power Co., Inc. | Units 1 and 2 of the Hamaoka NPS | June 1, 2009 | November 18, 2009 |
| | Kyushu Electric Power Co., Inc. | Unit 1 of the Genkai NPS | December 22, 2015 | April 19, 2017 |
| | | Unit 2 of the Genaki NPS | September 3, 2019 | March 18, 2020 |
| | Kansai Electric Power Co., Inc. | Units 1 and 2 of the Mihama NPS | February 12, 2016 | April 19, 2017 |
| | | Units 1 and 2 of the Ohi NPS | December 11, 2019 | February 26, 2020 |
| | The Chugoku Electric Power Co., Inc. | Unit 1 of the Shimane NPS | July 4, 2016 | April 19, 2017 |
| | Shikoku Electric Power Co., Inc. | Unit 1 of the Ikata NPS | December 26, 2016 | June 28, 2017 |
| | | Unit 2 of the Ikata NPS | October 10, 2018 | — |
| Commercial | Japan Atomic Energy | Prototype Advanced Converter | November 7, | February 12, |

| Type of facility | Applicant | Facility | Date of application | Date of approval |
|---|---|---|---|---|
| power reactors in the research and development phase (Under decommissioning procedures: 2 facilities) | Agency | Reactor | 2006 | 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 |

## 9. Status of Reviews and Inspections under the Radioisotope Regulation Act

(From April 1, 2019 to March 31, 2020)

| Licensee | Type of permissions and notifications | Number |
|---|---|---|
| Permission users (Number of places: 2168) | Permission (approval) of use | 17 |
| | Permission (approval) of change for permission of use | 223 |
| | Approval of merger or split of corporations | 8 |
| | Notification of discontinuation of use, etc. | 62 |
| | On-site inspections | 162 |
| Notification users (Number of places: 439) | Notification of use | 13 |
| | Notification of change for notification of use | 41 |
| | Notification of discontinuation of use, etc. | 42 |
| | On-site inspections | 10 |
| Notification users of approved devices with a certification label (Number places: 5012) | Notification of use of approved devices with certification label | 794 |
| | Notification of change concerning use of approved devices with certification label | 696 |
| | Notification of discontinuation of use, etc. | 723 |
| | On-site inspections | 0 |
| Notification sellers (Number of places: 313) | Notification of selling business | 8 |
| | Notification of change for notification of selling business | 49 |
| | Notification of discontinuation of use, etc. | 13 |
| | On-site inspections | 2 |
| Notification lessors (Number of places: 158) | Notification of lessor business | 1 |
| | Notification of change for notification of lessor business | 23 |
| | Notification of discontinuation of use, etc. | 4 |
| | On-site inspections | 1 |
| Permission waste management licensees (Number of places: 7) | Permission of change for managing waste | 2 |
| | Notification of managing waste for discontinuation, etc. | 0 |
| | On-site inspections | 0 |
| Off-site transport of radioisotopes | Approval of a containers to be transported | 12 |
| Registered certification organizations, etc. (Number of registered organizations: 17) | On-site inspection of registered certification organizations, registered inspection organizations, registered periodic confirmation organizations, registered package confirmation organizations, registered radioactivity concentration confirmation organizations, registered examination organizations, registered qualifications training organizations, and registered periodic training organizations | 9 |

## Reference 4: Oversight of Efforts toward the Decommissioning of Reactors at TEPCO's Fukushima Daiichi NPS (Chapter 3)

### 1. Approval and Inspection for Specified Nuclear Facilities (TEPCO Fukushima Daiichi NPS)

(From April 1, 2019 to March 31, 2020)

| Type of Approval/Inspection | No. of cases |
|---|---|
| Approval of changes in the Implementation Plan | 21 |
| Completion of pre-service inspection | 25 |
| Approval of test use | 0 |
| Approval of partial use | 4 |
| Instruction of omission of pre-service inspection | 0 |
| Completion of welding inspection | 17 |
| Completion of welding inspection for imports | 0 |
| Completion of periodic facility inspection | 2 |
| Operational safety inspection | 5 |

## Reference 5: Information on Safety Research (Chapters 4 and 6)

### 1. FY2019 Safety Research

| No. | Research area | Project | Period |
|---|---|---|---|
| 1 | External events | Research on reliability improvement for seismic hazard assessment | FY2017–FY2019 |
| 2 | | Research on reliability improvement for tsunami hazard assessment | FY2017–FY2020 |
| 3 | | Research on assessment methods for earthquake activity records | FY2017–FY2019 |
| 4 | | Study on the method of evaluating the activity of faults using fault fracture material | FY2013–FY2019 |
| 5 | | Research for accumulating knowledge of large-scale eruption process | FY2019－FY2023 |
| 6 | | Research on fragility of facilities and equipment related to earthquakes, tsunamis and other external events | FY2017–FY2020 |
| 7 | Fire protection | Safety Research on Fire Protection Regulations for Nuclear Power Plants | FY2017– FY2020 |
| 8 | Human and organizational factors | Regulatory research for systematically analyzing human and organizational factors on the basis of ergonomics | FY2019－FY2022 |
| 9 | Risk evaluation | Development of PRA methods and their application to regulation | FY2017–FY2021 |

| | | | |
|---|---|---|---|
| 10 | Severe accident (LWR) | Experiments on important physicochemical phenomena under severe accident of LWR | FY2015–FY2019 |
| 11 | | Development of simulation codes for physicochemical phenomena including large uncertainties under severe accident of LWR | FY2017–FY2022 |
| 12 | | Development of analysis methodologies for the containment failure and probabilistic assessment of risks associated with accident of LWR | FY2017–FY2022 |
| 13 | | Accident progression analysis for severe accident sequence groups | FY2017–FY2019 |
| 14 | Nuclear and thermal-hydraulic characteristics | Study on best-estimate thermal-hydraulic evaluation for nuclear power plants | FY2019－FY2022 |
| 15 | Nuclear fuel | Study on fuel integrity for advancement of regulation | FY2007－FY2020 |
| 16 | | Evaluation study on fuel failure impact on reactor core coolability under accident conditions | FY2019－FY2023 |
| 17 | Materials and structures (including aging degradation) | Study on integrity of irradiated materials for light water reactors | FY2006–FY2019 |
| 18 | | Research on Ultimate Endurance Evaluation of Containments in Severe Accident Conditions | FY2017–FY2021 |
| 19 | | Study on long-term integrity of polymer materials for electrical equipment | FY2017–FY2019 |
| 20 | Specified Nuclear Facilities | Development of methods for evaluating debris criticality in Fukushima Daiichi NPS units | FY2014–FY2021 |
| 21 | Fuel cycle facilities | Advanced risk assessment methods for fuel manufacturing and reprocessing facilities | FY2017–FY2020 |
| 22 | Radioactive waste disposal facilities | Methods for investigating long-term natural events that can have impacts on waste disposal and methods for evaluating long-term changes of barrier characteristics | FY2017–FY2020 |
| 23 | Decommissioning and clearance | Technologies used for evaluation of radioactivity concentration in radioactive waste | FY2017–FY2020 |
| 24 | Nuclear emergency response | Use of risk information for emergency action level (EAL) | FY2017–FY2019 |
| 25 | Nuclear emergency response, radiation control and regulation | “Strategic Program for Promoting Regulatory Radiation Safety Research” | FY2017– |

## Reference 6: Enhancement of Nuclear Security (Chapter 5)

### 1. Approval and Inspection for Physical Protection Programs

(From April 1, 2019 to March 31, 2020)

| | |
|---|---|
| Approvals of changes of the Physical Protection Program | 149 (breakdown)<br>Uranium Fuel Fabrication Facility: 12<br>Research and Test Reactor: 17<br>Commercial Power Reactor: 66<br>Power Reactor in a Research and Development Phase: 3<br>Spent Fuel Storage Facility: 2<br>Reprocessing Facility: 3<br>Radioactive Waste Interim Storage Facility: 3<br>Facilities using nuclear fuel: 38<br>Specified Nuclear Facility: 5 |
| Inspection of compliance with the Physical Protection Program | 56 (breakdown)<br>Uranium Fuel Fabrication Facility: 7<br>Research and Test Reactor: 7<br>Commercial Power Reactor: 17<br>Power Reactor in a Research and Development Phase: 2<br>Spent Fuel Storage Facility: 1<br>Reprocessing Facility: 2<br>Radioactive Waste Interim Storage Facility: 2<br>Facilities using nuclear fuel: 17<br>Specified Nuclear Facility: 1 |

**Reference 7: Activities of Committees, Councils, Review Meetings, Study Teams, etc.**

* Meeting records as of the end of FY2019

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
(4) Radiation Council
(5) National Research and Development Agency Council

2. Review Meetings

(1) Review Meeting on Conformity to the New Regulatory Standards
(2) Review Meeting on Decommissioning of Nuclear Facilities
(3) Review Meeting on the Methods of Measuring and Evaluating Radioactive Concentration in Materials Used in Nuclear Facilities
(4) Review Meeting on Container for Transportation and Specified Container for Spent Fuel Facilities

3. Study Teams

(1) Technical Study Team on Environmental Radiation Monitoring
(2) Safety Oversight Team for Tokai Reprocessing Facility and Other Facilities
(3) Safety Oversight Team for Prototype Fast Breeder Reactor Monju Decommission
(4) Oversight Team for Supervising the Back End Measures of the Japan Atomic Energy Agency
(5) Study Team on Oversight Program (regarding inspection system
(6) Study Team on Evaluation of Ground Motions without Identification of Seismic Sources
(7) Study Team on Seismic Isolation of Buildings and Structures
(8) Study Team for Technical Evaluation of Method of Checking Reactor Pressure Vessel Fracture Toughness during Service Period
(9) Study Team on Measures against Common Cause Failure of Digital Safety Protection Systems in Nuclear Power Reactor Facilities

4. Committees for Specific Research and Study

(1) Commission on Supervision and Evaluation of Specified Nuclear Facilities
(2) Committee on Accident Analysis of the Fukushima Daiichi Nuclear Power Station
(3) Fukushima Daiichi NPS Decommissioning and Accident Investigation Liaison and Coordination Meeting
(4) Technical Information Committee
(5) Technical Evaluation Committee

5. Other Meetings

(1) NRA Policy Evaluation Meeting
(2) Expert Meeting on NRA's Administrative Project Review - FY2019
(3) Meeting on Hearing Opinions of Business operators regarding New Regulatory Requirements
(4) Research Promotion Committee, Research Evaluation Committee, and Debriefing Meeting of Research Results
(5) Working Level Exchange of Technical Opinions
(6) Public Meeting on Response to Accidents and Troublesome Events at Nuclear Facilities
(7) Debriefing Session of Emergency Drills by Nuclear Operators
(8) Meeting for Reviewing the Emergency Action Level (EAL)

## 1. Committees and Councils

### (1) Reactor Safety Examination Committee

Overview

The Reactor Safety Examination Committee (RSEC) was established to investigate and deliberate matters relating to reactor safety upon request 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 advice on their activities from a scientific and technical point of view while maintaining independence from the NRA.

Currently, the RSEC has four matters for investigation and deliberation delegated by the NRA. The RSEC has established the Subcommittee on Volcano Monitoring, which addresses matters on volcanic activities, and the Subcommittee on Reactor Safety Fundamentals, which addresses matters other than those addressed by the Subcommittee on Volcano Monitoring, both handling those delegated by the NRA.

At the 41st FY2015 NRA Commission on February 5, 2014, the NRA adopted RSEC establishment policies based on the Act for Establishment of the Nuclear Regulation Authority. Based on these policies, the RSEC held its first examination meeting on May 12, 2014 and has been holding RSEC meetings regularly since then.

In FY2019, the RSEC held two meetings of the Subcommittee on Reactor Safety Fundamentals and three meetings of the Subcommittee on Volcano Monitoring. At the 32nd NRA Extraordinary Meeting (September 26, 2019), the Committee Chairman reported the latest deliberation status.

**Members of the Committee**

| | | |
|---|---|---|
| Examination Commissioners | Uchiyama Mayuki | Professor, Department of Radiology, Jikei University School of Medicine |
| | Oigawa Hiroyuki | Deputy Head, Nuclear Science Department, Japan Atomic Energy Agency (JAEA)<br>Director, Nuclear Science Institute, JAEA |
| | Tadahiro Katsuda | Professor, School of Law, Meiji University |
| | Kanda Reiko | Director, Center for Radiation Protection Knowledge, National Institute of Radiological Sciences, National Institutes for Quantum and Radiological Science and Technology |
| | Sekimura Naoto ◎ | Vice-President, the University of Tokyo<br>Professor, Nuclear Engineering and Management, Graduate School of Engineering, the University of Tokyo |
| | Takada Tsuyoshi | Professor, Department of Architecture, Graduate School of Engineering, the University of Tokyo |
| | Takahashi Makoto | Professor, Technology and Social Systems, Graduate School of Engineering, Tohoku University |
| | Nagai Kousuke | Professor, Institute for Materials Research, Tohoku University<br>Director of the affiliated International Research Center for Nuclear Materials Science |
| | Nakagawa Toshiko | Professor, Electric and Electronic Communication Engineering |

| | | |
|---|---|---|
| | | Department, Faculty of Engineering, Tokyo City University |
| | Nakajima Ken | Professor, Institute for Integrated Radiation and Nuclear Science, Kyoto University |
| | Hohara Shinya | Associate Professor, Atomic Energy Research Institute, Kinki University |
| | Matsuo Akiko | Professor, Faculty of Science and Technology, Keio University |
| | Maruyama Yu | Deputy Director, Nuclear Safety Research Center, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency (JAEA) |
| | Matsumura Ken | Affiliate Professor, Faculty of Engineering, Tokyo City University |
| | Yoshida Hiroko | Associate Professor, Graduate School of Pharmacy, Tohoku University |
| | Yoshihashi Sachiko | Associate Professor, Facility for Nuclear Materials, Nagoya University |
| | Yoneoka Yuko | Executive Director and Director General, Japan Accreditation Board |

* Double circle ◎ indicates chairperson.

**Members of the Subcommittee on Reactor Safety Fundamentals**

| | | |
|---|---|---|
| Examination commissioners | Uchiyama Mayuki | Professor, Department of Radiology, Jikei University School of Medicine |
| | Oigawa Hiroyuki | Deputy Head, Nuclear Science Department, Japan Atomic Energy Agency (JAEA)<br>Director, Nuclear Science Institute, JAEA |
| | Katsuta Tadahiro | Professor, School of Law, Meiji University |
| | Kanda Reiko | Director, Center for Radiation Protection Knowledge, National Institute of Radiological Sciences, National Institutes for Quantum and Radiological Science and Technology |
| | Sekimura Naoto ◎ | Vice-President, the University of Tokyo<br>Professor, Nuclear Engineering and Management, Graduate School of Engineering, the University of Tokyo |
| | Takada Tsuyoshi | Professor, Department of Architecture, Graduate School of Engineering, the University of Tokyo |
| | Takahashi Makoto | Professor, Technology and Social Systems, Graduate School of Engineering, Tohoku University |
| | Nagai Yasuyoshi | Professor, Institute for Materials Research, Tohoku University<br>Head of the affiliated International Research Center for Nuclear Materials Science |
| | Nakagawa Toshiko | Professor, Electric and Electronic Communication Engineering Department, Faculty of Engineering, Tokyo City University |
| | Nakajima Ken | Professor, Institute for Integrated Radiation and Nuclear Science, Kyoto University |
| | Hohara Shinya | Associate Professor, Atomic Energy Research Institute, Kinki University |
| | Matsuo Akiko | Professor, Faculty of Science and Technology, Keio University |
| | Maruyama Yu | Deputy Director, Nuclear Safety Research Center, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency (JAEA) |
| | Muramatsu Ken | Affiliate Professor, Faculty of Engineering, Tokyo City University |
| | Yoshida Hiroko | Associate Professor, Graduate School of Pharmacy, Tohoku University |
| | Yoshihashi Sachiko | Associate Professor, Facility for Nuclear Materials, Nagoya University |
| | Yoneoka Yuko | Executive Director and Director General, Japan Accreditation Board |

* Double circle ◎ indicates chairperson.

**Members of the Subcommittee on Volcano Monitoring (term terminated on March 29, 2020)**

| | | |
|---|---|---|
| Examination commissioners | Kobayashi Tetsuo | Professor Emeritus, Kagoshima University (attended until the 8th meeting) |
| | Murakami Makoto | Specially Appointed Professor, Institute of Seismology and Volcanology, Faculty of Science, Hokkaido University (attended until the 8th meeting) |
| Temporary commissioners | Okura Takahiro | Professor, Aso Volcanological Laboratory, Institute for Geothermal Sciences, Graduate School of Science, Kyoto University (attended until the 8th meeting) |
| | Miyamachi Hiroki | Professor, Department of Earth and Environmental Science, Faculty of Science, Kagoshima University (attended until the 8th meeting) |
| Expert commissioners | Shinohara Hiroshi | Prime Senior Researcher, Research Institute of Earthquake and Volcano Geology, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology (attended until the 8th meeting) |
| | Tanada Takakazu | Special Researcher, Principal Chief Researcher of the Volcano Disaster Resilience Research Division, National Research Institute for Earth Science and Disaster Resilience (attended until the 8th meeting) |

## (2) Nuclear Fuel Safety Examination Committee

### Overview

The Nuclear Fuel Safety Examination Committee (NFSEC) was established based on the Act for Establishment of the Nuclear Regulation Authority to investigate and deliberate matters related to nuclear fuel safety upon directed by the NRA. 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 advice on their activities from a scientific and technical point of view while maintaining independence from the NRA.

The NFSEC currently has three issues for investigation and deliberation as delegated by the NRA.

At the 41st FY2015 NRA Commission Meeting on February 5, 2014, the NRA adopted NFSEC establishment policies based on the Act for Establishment of the Nuclear Regulation Authority. Based on these policies, the NFSEC held its first examination meeting on May 12 the same year and has been holding NFSEC meetings regularly since then.

In FY2019, the NFSEC held three meetings. At the 32nd NRA Extraordinary Meeting (September 26, 2019), the Committee Chairman reported the latest deliberation status.

**Members of the Committee**

| | | |
|---|---|---|
| Examination commissioners | Unesaki Hironobu | Professor, Institute for Integrated Radiation and Nuclear Science, Kyoto University |
| | Enokida Yoichi | Professor, Graduate School of Engineering, Nagoya University |
| | 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 |
| | Sawada Kayo | Assistant Professor, Institute of Materials and Systems for Sustainability, Nagoya University |
| | Sumi Minako | Vice Director, Radiation Oncology Department, Cancer Institute Hospital of JFCR |
| | Takagi Ikuji | Professor, Department of Nuclear Engineering, Graduate School of Engineering, Kyoto University |
| | Takada Tsuyoshi | Professor, Department of Architecture, Graduate School of Engineering, the University of Tokyo |
| | Nakamura Takehiko | Director, Nuclear Safety Research Center, Sector of Nuclear Safety Research and Emergency Preparedness, Japan Atomic Energy Agency (JAEA) |
| | Matsuo Akiko | Professor, Faculty of Science and Technology, Keio University |
| | Yamamoto Akio ◎ | Professor, Department of Applied Energy Science, Graduate School of Engineering, Nagoya University |
| | Yoshida Hiroko | Associate Professor, Graduate School of Pharmacy, Tohoku University |
| | Yoshihashi Sachiko | Associate Professor, Facility for Nuclear Materials, Nagoya University |

* Double circle ◎ indicates chairperson.

### (3) Joint Review Meetings of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee

| RSEC meetings | NFSEC meetings | Date | Agendas |
|---|---|---|---|
| 5th meeting of the Subcommittee on Reactor Safety Fundamentals | 23rd Joint meeting | July 5 | ・Status of the review of the inspection system<br>・Status of the NRA Secretariat's review of the inspection system<br>・Nuclear operators' opinions on the review of the inspection system<br>・Status of screening and technological information to be considered |
| - | 24th joint meeting | Sept. 9 | ・Advance reference materials (ARMs) to be submitted to the IAEA Integrated Regulatory Review Service (IRRS) follow-up mission |
| 6th joint meeting of the Subcommittee on Reactor Safety Fundamentals | 25th joint meeting | Dec. 23 | ・Status of reviewing the inspection system<br>・NRA Secretariat's situation of reviewing the inspection system<br>・Nuclear operators' opinions on the review of the inspection system<br>・Status of screening and technological information to be considered |

### Meetings of the Subcommittee on Volcano Monitoring

| No. | Date | Agendas |
|---|---|---|
| 6th | November 27 | ・NRA's evaluation of commercial power reactor establishers' volcano monitoring results<br>・Measure to judge significant changes in observation data<br>・Others |
| 7th | February 6 | ・Draft report on "measure to judge significant changes in observation data" during volcano monitoring and others |

| No. | Date | Agendas |
|---|---|---|
| 8th | March 6 | ・Draft report on “measure to judge significant changes in observation data” during volcano monitoring<br>・Research regarding the accumulation of knowledge, e.g. regarding large-scale eruption process<br>・Others |

Investigations and deliberations delegated by the NRA to the Reactor Safety Examination Committee (RSEC) and the Nuclear Fuel Safety Examination Committee (NFSEC)

| |
|---|
| ・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 report the results to the NRA including advice.<br>[Instruction to the RSEC/NFSEC in February 2014] |
| ・Deliberate on the NRA’s evaluation of the results of volcano monitoring conducted by reactor establishers, and examine and deliberate on the NRA’s criteria for judging the necessity of reactor operation suspension.<br>[Instruction to the RSEC in December 2015] |
| ・Assess the NRA’s responses to the issues pointed out by the IAEA Integrated Regulatory Review Service (IRRS) in January 2016 and advise the NRA.<br>[Instruction to the RSEC/NFSEC in March 2016] |
| ・Examine and deliberate on required specific regulatory oversight, evaluations and administrative actions, including the use of risk information and experiences in ensuring safety and on organizational arrangements (e.g. human resources development system for inspectors and the qualification system) required for oversight and evaluations by regulator and report study and deliberation results to the NRA, in order to operate the new oversight and evaluation systems resulting from inspection system review.<br>[Instruction to the RSEC/NFSEC in February 2017] |

### (4) Radiation Council

**Overview**

In FY2019, four general meetings of the Radiation Council were held that discussed the incorporation of the 2007 ICRP recommendations into the domestic system, compiled an “Interim Report on How to Proceed with Future Deliberations on the Dose Limit and Measurement Frequency for Female Radiation Workers (Including a Dose Limit for Pregnant Radiation Workers)” and an “Interim Report on How to Proceed with Future Deliberations on an Effective Dosage Coefficient, a Concentration Limit in Exhaust Gas, Air, Effluent or Discharged Water and the Usage of an Effective Dose” and deliberated on technical standards inquired by the directors of relevant ministries and agencies on the basis of March 2018 opinions regarding the “On a Modality of the Radiation Protection for the Lens of the Eyes.” The Radiation Council confirmed validity of the technical standards.

**Members of the Committee**

| | | |
|---|---|---|
| Commissioners | Uwamino Yoshitomo | Contract Researcher, RIKEN Nishina Center for Accelerator-Based Science |
| | Ohno Kazuko | Professor, Department of Radiological Technology Faculty of Medical Science, Kyoto College of Medical Science |
| | Oda Keiji | Executive Vice President, Kobe University and Professor, Kobe University Graduate School of Maritime Sciences |
| | Kai Michiaki | Professor, Human Biology Division, Department of Health Sciences, Oita University of Nursing and Health Sciences |
| | Kamiya Kenji ◎ | Vice President, Hiroshima University<br>Vice President, Fukushima Medical University |
| | Karasawa Kumiko | Administrator and Medical School Dean, Tokyo Women's Medical University<br>Professor, Department of Radiation Oncology, Faculty of Medicine, Tokyo Women's Medical University |
| | Kanda Reiko | Director, Center for Radiation Protection Knowledge, National Institute of Radiological Sciences, National Institutes for Quantum and Radiological Science and Technology |
| | Kishimmoto Atsuo | Professor, Ethical, Legal and Social Issue Core, Osaka University Institute for Datability Science |
| | Takada Chie | Senior Principal Engineer and General Manager, Radiation Dosimetry and Instrumentation Section, Nuclear Fuel Cycle Engineering Laboratories, Sector of Nuclear Fuel, Decommissioning and Waste Management Technology Development, Japan Atomic Energy Agency |
| | Futatsugawa Shoji ○ | Executive Director, Japan Radioisotope Association |
| | Matsuda Naoki | Professor, Atomic Bomb Disease Institute, Nagasaki University |
| | Yokoyama Sumi | Associate Professor, School of Health Sciences, Fujita Health University |
| | Yoshida Hiroko | Associate Professor, Radioisotope Research and Education Center, Graduate School of Pharmacy, Tohoku University |

*Double circle (◎) indicates chairperson, and circle (○) indicates the deputy to the chairperson.

**Meetings of the Radiation Council**

| No. | Date | Agendas |
|---|---|---|
| 145th | June 17 | ・Incorporation of 2007 ICRP Recommendations (dose limit for female radiation workers)<br>・Incorporation of 2007 ICRP Recommendations (medical examination)<br>・A report on the situation of a study on the recycling of removed soil in Fukushima Prefecture<br>・Others |
| 146th | Sept. 27 | ・Incorporation of 2007 ICRP Recommendations (dose limit for female radiation workers)<br>・Incorporation of 2007 ICRP Recommendations (an effective dose coefficient, a concentration limit in exhaust gas, air, effluent or discharged water and the usage of an effective dose)<br>・Others |

| No. | Date | Agendas |
|---|---|---|
| 147th | Dec. 23 | ・Regarding the revision of technical standard for equivalent dose limit for lens of eye (inquiry)<br>・Interim report on how to proceed with future deliberations on the dose limit and measurement frequency for female radiation workers (report)<br>・Others |
| 148th | Jan. 24 | ・Regarding the revision of technical standard for equivalent dose limit for lens of eye<br>・Incorporation of 2007 ICRP Recommendations (an effective dose coefficient, a concentration limit in exhaust gas, air, effluent or discharged water and the usage of an effective dose)<br>・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 opinion regarding part of work by the National Institutes for Quantum and Radiological Science and Technology (QST) and the Japan Atomic Energy Agency (JAEA) before providing them with instructions regarding their mid-to-long term goals and assess their performance. Therefore, the NRA established the National Research and Development Agency Council on April 10, 2015 as the council for R&D.

In FY2019, sub-committee meetings of the QST were held twice to hear opinions including performance evaluation of the QST.

In addition, JAEA sub-committee meetings were held twice to hear opinions including performance evaluation of the JAEA.

**Members of the Committee**

| | | |
|---|---|---|
| Commissioners | Kai Michiaki | Professor, Environmental Health Science, Human Biology Division, Oita University of Nursing and Health Science |
| | Kamiya Kenji ○ | Vice President, Hiroshima University<br>Director, Radiation Emergency Medicine Promotion Center<br>Vice President, Fukushima Medical University<br>Director, Radiation Medical Science Center for the Fukushima Health Management Survey |
| | Koshizuka Seiichi ◎ | Professor, School of Engineering, the University of Tokyo |
| | Yamanishi Hirokuni | Director, Atomic Energy Research Institute, Kinki University |
| | Yamamoto Akio | Professor, Department of Applied Energy Science, Graduate School of Engineering, Nagoya University |
| | Hirose Yuko | Executive Producer, Editorial Office, BS Nippon Corporation |

*Double circle (◎) indicates chairperson, and circle (○) indicates the deputy to the chairperson.

**Members of Subcommittees**

・Subcommittee of the National Institutes for Quantum and Radiological Science and Technology

| | | |
|---|---|---|
| Commissioners | Kai Michiaki | Professor, Environmental Health Science, Human Biology Division, Oita University of Nursing and Health Science |
| | Kamiya Kenji | Vice President, Hiroshima University<br>Director, Radiation Emergency Medicine Promotion Center<br>Vice President, Fukushima Medical University<br>Director, Radiation Medical Science Center for the Fukushima Health Management Survey |
| | Yamanishi Hirokuni | Director, Atomic Energy Research Institute, Kinki University |

・Subcommittee of the Japan Atomic Energy Agency

| | | |
|---|---|---|
| Commissioners | Koshizuka Seiichi | Professor, Graduate School of Engineering, the University of Tokyo |
| | Yamamoto Akio | Professor, Department of Applied Energy Science, Graduate School of Engineering, Nagoya University |
| | Hirose Yuko | Executive Producer, Editorial Office, BS Nippon Corporation |

**Meetings of each subcommittee**

・Subcommittee of the National Institutes for Quantum and Radiological Science and Technology

| No. | Date | Agendas |
|---|---|---|
| 8th | July 19 | ・FY2018 performance assessment of the National Institutes for Quantum and Radiological Science and Technology (hearing from the National Institutes for Quantum and Radiological Science and Technology)<br>・Others |
| 9th | Aug. 9 | ・FY2018 performance assessment of the National Institutes for Quantum and Radiological Science and Technology (summary assessment)<br>・Others |

・Subcommittee of the Japan Atomic Energy Agency

| No. | Date | Agendas |
|---|---|---|
| 10th | July 24 | ・Selection of chairperson and nomination of deputy chairperson of the Subcommittee of the Japan Atomic Energy Agency<br>・Written decisions of the 8th and 9th subcommittee meetings<br>・Performance in FY2018<br>・Technical support to nuclear safety regulatory administration and budget and personnel required for safety research<br>・Performance during the 3rd mid-to-long term goal interim period<br>・Others |
| 11th | Aug. 6 | ・Summarization of opinions on performance in FY2018<br>・Summarization of opinions on performance during the 3rd mid-to-long term goal interim period |

**2. Review Meetings**

**(1) Review Meeting on Conformity to the New Regulatory Standards**

**Overview**

Based on the new regulatory standards for nuclear power plants that took effect on July 8, 2013 and the new regulatory standards for nuclear fuel facilities that took effect on December 18, 2013, applications for permission for change in reactor installation 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 FY2019, 156 review meetings were held for the examinations of nuclear power plants and 79 meetings were held for the examinations of nuclear fuel facilities. Also in FY 2019, three review meetings were held to examine applications for changing operational safety programs relating to the aging degradation countermeasures, submitted by nuclear operators.

**Members of Review Meetings**

**・Review Meeting on Conformity to the New Regulatory Requirements for Nuclear Power Plants**

| | | |
|---|---|---|
| NRA Commissioners | Ishiwatari Akira | NRA Commissioner |
| | Yamanaka Shinsuke | NRA Commissioner |
| Secretariat of the NRA | Yamada Tomoho | Director-General for Radiation Protection Strategy and Security (attended until the 741st meeting as Director-General, Nuclear Regulation Department) |
| | Yamagata Hiroshi | Director-General for Emergency Response |
| | Taguchi Tatsuya | Director for Nuclear Regulation (in charge of examining commercial power reactors) |
| | Oasada Kaoru | Director, Division of Licensing for Earthquake and Tsunami Measures |
| | Naito Hiroyuki | Director for Regulation of Nuclear Facilities |
| | Koyamada Takumi | Director for Regulation of Nuclear Facilities |
| | Fujimori Akihiro | Nuclear Regulation Research Officer |
| | Samukawa Takumi | Director for Regulation of Nuclear Facilities (attended until the 734th meeting) |
| | Watanabe Keiichi | Director for Regulation of Nuclear Facilities |
| | Iwata Junichi | Nuclear Regulation Research Officer |
| | Kawasaki Kenji | Nuclear Regulation Research Officer |
| | Yamaguchi Michio | Nuclear Regulation Research Officer |
| | Amano Naoki | Nuclear Regulation Research Officer |
| | Ikeda Masaaki | Director General for Technical Research and Examination |

**・Review Meeting on Conformity to the New Regulatory Requirements for Nuclear Fuel Facilities**

| | | |
|---|---|---|
| NRA Commissioners | Tanaka Satoru | NRA Commissioner |
| | Yamanaka Shinsuke | NRA Commissioner |
| | Ishiwatari Akira | NRA Commissioner |
| Secretariat of the NRA | Yamada Tomoho | Director-General, Nuclear Regulation Department (attended until the 277th meeting) |
| | Ichimura Kazuya | Director-General, Nuclear Regulation Department (attending since the 294th meeting) |
| | Yamagata Hiroshi | Director-General for Emergency Response (attending since the 289th meeting) |
| | Aoki Masahiro | Director-General for Nuclear Regulation (attended until the 288th meeting) |
| | Kataoka Hiroshi | Director-General for Nuclear Regulation (attended until the 284th meeting) |
| | Ono Yuji | Director, Division of Licensing for Research Reactors, Use of Nuclear Material and Specified Nuclear Facilities |
| | Kinjo Shinji | Director, Division of Oversight of Nuclear Fuel Related Facilities and Research Reactors (attended until the 284th meeting) |
| | Hasegawa Kiyomitsu | Director, Division of Licensing for Nuclear Fuel Facilities |
| | Oasada Kaoru | Director, Division of Licensing for Earthquake and Tsunami Measures |
| | Oshima Toshiyuki | Director for Regulation of Nuclear Facilities (attending since the 274th meeting) |
| | Aoyama Katsunobu | Nuclear Regulation Research Officer (attended until the 293rd meeting) |
| | Ishii Toshimitsu | Planning and Research Officer (attending since the 297th meeting) |
| | Shibutani Tomoki | Director for Regulation of Nuclear Facilities (attended until the 298th meeting) |

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|---|---|---|
| | Shima Masakazu | Planning and Research Officer (attending since the 345th meeting) |
| | Togasaki Yasushi | Director for Regulation of Nuclear Facilities |
| | Miyawaki Yutaka | Nuclear Regulation Research Officer (attended until the 284th meeting) |
| | Koyamada Takumi | Director for Regulation of Nuclear Facilities |
| | Naito Hiroyuki | Director for Regulation of Nuclear Facilities |
| | Hosono Yukio | Planning and Research Officer |
| | Kosaku Yasuo | Planning and Research Officer (attending since the 294th meeting) |

**・Review Meeting on Technical Evaluation of Aging Management of Nuclear Power Plants**

| | | |
|---|---|---|
| Secretariat of the NRA | Yamada Tomoho | Director-General for Radiation Protection Strategy and Security (attended until the 17th meeting, as Director-General, Nuclear Regulation Department) |
| | Yamagata Hiroshi | Director-General for Emergency Response |
| | Taguchi Tatsuya | Director for Nuclear Regulation (in charge of examining commercial power reactors) |
| | Ikeda Masaaki | Director General for Technical Research and Examination |
| | Fujimori Akihiro | Nuclear Regulation 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 examine the decommissioning plans of the nuclear facilities. In FY2019, the Review Meetings were held 12 times on nuclear power plants and 14 times on nuclear fuel facilities.

**The Members of Review Meetings**

**・Review Meeting on Decommissioning Plan for Nuclear Power Reactor Facilities**

| | | |
|---|---|---|
| NRA Commissioner | Yamanaka Shinsuke | NRA Commissioner |
| Secretariat of the NRA | Yamada Tomoho | Director-General for Radiation Protection Strategy and Security (attended until the 6th meeting as Director-General, Nuclear Regulation Department) |
| | Yamagata Hiroshi | Director-General for Emergency Response |
| | Taguchi Tatsuya | Director for Nuclear Regulation (in charge of examining commercial power reactors) |
| | Fujimori Akihiro | Nuclear Regulation Research Officer |

**・Review Meeting on Decommissioning Plan for Nuclear Fuel Facilities**

| | | |
|---|---|---|
| NRA Commissioners | Tanaka Satoru | NRA Commissioner |
| | Yamanaka Shinsuke | NRA Commissioner |
| Secretariat of the NRA | Yamagata Hiroshi | Director-General for Emergency Response (attending since the 6th meeting) |
| | Aoki Masahiro | Director-General for Nuclear Regulation (attended until the 5th |

| | | |
|---|---|---|
| | | meeting) |
| | Ono Yuji | Director, Division of Licensing for Research Reactors, Use of Nuclear Material and Specified Nuclear Facilities (attending since the 3rd meeting) |
| | Togasaki Yasushi | Director for Regulation of Nuclear Facilities (attending since the 3rd meeting) |
| | Hosono Yukio | Planning and Research Officer (attending since the 3rd meeting) |

### (3) Review Meeting on the Methods of Measuring and Evaluating Radioactive Concentration in Materials Used in Nuclear Facilities

**Overview**

Review Meeting on the methods of measuring, and evaluating radioactive concentration in materials used in nuclear facilities are held with the attendance of a study team consisting of NRA Secretariat staff. Two Review Meetings for Clearance were held in FY2019.

**Members of Review Meetings**

**・Review Meeting on the Methods of Measuring and Evaluating Radioactive Concentration in Materials Used in Nuclear Facilities**

| | | |
|---|---|---|
| Secretariat of the NRA | Yamagata Hiroshi | Director-General for Emergency Response (attending since the 2nd meeting) |
| | Aoki Masahiro | Director-General for Nuclear Regulation (attended until the 1st meeting) |
| | Ono Yuji | Director, Division of Licensing for Research Reactors, Use of Nuclear Material and Specified Nuclear Facilities (attending since the 2nd meeting) |
| | Hasegawa Kiyomitsu | Director, Division of Licensing for Nuclear Fuel Facilities (attended until the 1st meeting) |
| | Shibutani Tomoki | Director for Regulation of Nuclear Facilities |
| | Yamada Norikazu | Senior Officer for Technical Research and Examination |

### (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 NRA Secretariat staff. In FY2019, one review meeting was held.

**Members of Review Meetings**

**・Review Meeting on Container for Transportation and Specified Container for Spent Fuel Facilities**

| | | |
|---|---|---|
| Secretariat of NRA | Aoki Masahiro | Director-General for Nuclear Regulation |
| | Hasegawa Kiyomitsu | Director, Division of Licensing for Nuclear Fuel Facilities |
| | Aoyama Katsunobu | Nuclear Regulation Research Officer |

## 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 a monitoring skill. In order to continuously study monitoring technology, the Technical Study Team on Environmental Radiation Monitoring consisting of Commissioner Nobuhiko Ban and external experts was formed, under which a meeting was held in FY2019 (for more details, see Chapter 6, Section 2-6).

**Members of Study Team**

| | | |
|---|---|---|
| NRA Commissioner | Ban Nobuhiko | NRA Commissioner |
| External experts | Aono Tatsuo | Team Leader, Environmental Radiation Dynamics Research Team, Fukushima Project Headquarters, Advanced Radiation Emergency Medical Center, National Institutes for Quantum and Radiological Science and Technology |
| | Iimoto Takeshi | Professor, the University of Tokyo |
| | Takahashi Tomoyuki | Associate Professor, Kyoto University Research Reactor Institute |
| | Tagami Keiko | Team Leader, Environmental Transfer Parameter Research Team, Fukushima Project Headquarters, Advanced Radiation Emergency Medical Center, National Institutes for Quantum and Radiological Science and Technology |
| | Takeishi Minoru | Analytical Technology Development Advisor, Fukushima Environmental Safety Center, Sector of Fukushima Research and Development, Japan Atomic Energy Agency |
| | Momose Takumaro | Deputy Director-General, Nuclear Fuel Cycle Engineering Laboratories, Japan Atomic Energy Agency |
| | Yamazawa Hiromi | Professor, Nagoya University |
| | Takegahara Hitoshi | Director, Aomori Prefectural Nuclear Power Safety Center |
| Secretariat of NRA | Yamada Tomoho | Director-General for Radiation Protection Strategy and Security |
| | Nagasaka Yuichi | Director, Radiation Monitoring Division |
| | Okonogi Yuji | Director for Institutional, Radiation Monitoring Division |
| | Tomisaka Takashi | Director, Environmental Radioactivity Office |
| | Okuma Kazuhiro | Director, Radiation Protection Policy Planning Division |

### (2) Safety Oversight Team for the Tokai Reprocessing Facility

**Overview**

Ten meetings of this oversight team, consisting of an NRA Commissioner, NRA Secretariat staff and others, were held in FY2019 to continuously check the state of implementing measures for risk reduction such as vitrification, safety measures and decommissioning at the Tokai reprocessing facility, Nuclear Fuel Cycle Engineering Laboratories, Japan Atomic Energy Agency (JAEA).

**The Members of Study Team**

| | | |
|---|---|---|
| NRA Commissioner | Tanaka Satoru | NRA Commissioner |
| Secretariat of the NRA | Aoki Masahiro | Director-General for Nuclear Regulation (attended until the 32nd meeting) |
| | Yamagata Hiroshi | Director-General for Emergency Response (attending since the 33rd meeting) |
| | Kinjo Shinji | Director for Nuclear Regulation (in charge of nuclear fuel facility oversight) (attended until the 28th meeting) |
| | Ono Yuji | Director, Division of Licensing for Research Reactors, Use of Nuclear Material and Specified Nuclear Facilities (attending since the 29th meeting) |
| | Miyawaki Yutaka | Nuclear Regulation Research Officer (in charge of examining reprocessing and raw fuel processing) (attended until the 28th meeting) |
| | Hosono Yukio | Planning and Research Officer (attending since the 29th meeting) |

### (3) Safety Oversight Team for Prototype Fast Breeder Reactor Monju Decommission

**Overview**

This safety oversight team, consisting of NRA Commissioners, NRA Secretariat staff and others, was formed in January 2017 in order to continuously check the state of decommissioning of the JAEA's Fast Breeder Reactor Monju and its activities. In FY2019, eight meetings were held under the team.

**Members of Study Team**

| | | |
|---|---|---|
| NRA Commissioners | Tanaka Satoru | NRA Commissioner (attended until the 19th meeting) |
| | Yamanaka Shinsuke | NRA Commissioner (attending since the 20th meeting) |
| Secretariat of the NRA | Aoki Masahiro | Director-General for Nuclear Regulation (attended until the 22nd meeting) |
| | Yamagata Hiroshi | Director-General for Emergency Response (attending since the 23rd meeting) |
| | Miyamoto Hisashi | Director for Nuclear Regulation (in charge of examining research reactors) (attended until the 16th meeting) |
| | Ono Yuji | Director, Division of Licensing for Research Reactors, Use of Nuclear Material and Specified Nuclear Facilities (attending since the 17th meeting) |
| | Hasegawa Kiyomitsu | Director, Division of Licensing for Nuclear Fuel Facilities (attended until the 19th meeting) |
| | Hosono Yukio | Planning and Research Officer (attending since the 17th meeting) |
| | Nishimura Masami | Regional Administrator |

### (4) Oversight Team for Supervising the Back End Measures of the Japan Atomic Energy Agency

**Overview**

The team, consisting of an NRA Commissioner, NRA Secretariat staff and others, was formed

in April 2019 to address wide-ranging issues relating to the entire JAEA's back-end measures, such as aging facilities, decommissioning and radioactive waste management. In FY2019, four meetings were held under the team.

**Members of Study Team**

| | | |
|---|---|---|
| NRA | Tanaka Satoru | NRA Commissioner |
| Secretariat of the NRA | Yamagata Hiroshi | Director-General for Emergency Response |
| | Ono Yuji | Director, Division of Licensing for Research Reactors, Use of Nuclear Material and Specified Nuclear Facilities |
| | Togasaki Yasushi | Director for Regulation of Nuclear Facilities |
| | Maeda Toshikatsu | Director for Regulation of Nuclear Facilities |
| | Hosono Yukio | Planning and Research Officer |
| | Sugawara Hiroyuki | Planning and Research Officer (attending since the 3rd meeting) |

**(5) Study Team on Oversight Program (regarding inspection system)**

**Overview**

Six meetings (14th to 19th meetings) of this study team, consisting of an NRA Commissioner, external experts and others, were held in FY2019 to address issues on the nuclear facility inspection system - issues pointed out by IRRS report - and discuss the direction for improving the inspection system. Moreover, the meetings of a working group that was formed under the study team and consists of the working-level officials of regulatory organizations and nuclear operators were held eight times (26 to 33rd meetings) in FY2019 to review the inspection system in detail.

**Members of the recent study team meeting (held on March 10, 2020)**

| | | |
|---|---|---|
| NRA Commissioner | Yamanaka Shinsuke | NRA Commissioner |
| External experts | Katsuta Tadahiro | Associate Professor, School of Law, Meiji University |
| | Sekimura Naoto | Professor, School of Engineering, the University of Tokyo |
| | Takahashi Shigeru | Professor, Faculty of Law, Hosei University |
| | Yoneoka Yuko | Director of center accredited by Managing Director of the Japan Accreditation Board |
| Secretariat of the NRA | Kaneko Shuichi | Director-General for Policy Planning and Coordination, Secretary-General's Secretariats |
| | Koganeya Toshiyuki | Director, Division of Oversight of Nuclear Power Plants |
| | Hirano Masashi | Senior Coordinator for International Collaborations, Office for International Affairs |
| | Takeyama Shoji | Director for Nuclear Regulation (in charge of commercial power reactor oversight), Nuclear Regulation Department |
| | Kadono Toshiyuki | Director for Nuclear Regulation (in charge of nuclear fuel facility oversight), Nuclear Regulation Department |
| | Sugimoto Takanobu | Director for Nuclear Regulation (in charge of special inspections), Nuclear Regulation Department |
| | Shima Masakazu | Senior Oversight Instructor, Oversight Planning and Coordination Division |
| | Watanabe Kenichi | Deputy Director, Oversight Planning and Coordination Division |

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| | Itoh Nobuya | Deputy Director, Oversight Planning and Coordination Division |
| | Yoshino Masaharu | Planning and Research Officer, Division of Oversight of Nuclear Power Plants |
| | Kumagai Naoki | Senior Oversight Instructor, Division of Oversight of Nuclear Fuel-Related Facilities and Research Reactors |
| | Takasu Yoji | Senior Oversight Instructor, Division of Specified Oversight |
| | Kosaka Atsuhiko | Planning and Research Officer, Division of Specified Oversight |
| | Nunoda Hirofumi | Director, Oversight Evaluation Office, Oversight Planning and Coordination Division |

### (6) Study Team on Evaluation of Ground Motions without Identification of Seismic Sources

**Overview**

Three meetings of the study team, consisting of an NRA Commissioner, external experts and NRA Secretariat staff, were held in FY2019 with the purpose of clarifying a commonly applicable method of determining "ground motions without identification of seismic sources" (ground motions of Mw below 6.5), which are considered as design basis ground motions to be taken into account at nation-wide nuclear power plants from a seismological perspective.

**Members of the Study Team**

| | | |
|---|---|---|
| NRA Commissioner | Ishiwatari Akira | NRA Commissioner |
| External experts | Tohda Shinji | Professor, Disaster Science Division, International Research Institute of Disaster Science, Tohoku University |
| | Hisada Yoshiaki | Professor, Director of Research Center for Urban Disaster Mitigation, Kogakuin University |
| | Fujiwara Hiroyuki | Director, Multi-Hazard Risk Assessment Research Division, National Research Institute for Earth Science and Disaster Resilience |
| | Miyake Hiroe | Associate Professor, Center for Integrated Disaster Information Research, Interfaculty Initiatives in Information Studies, the University of Tokyo |
| | Murono Yasutaka | JR Director, R&D Promotion Division, Railway Technical Research Institute |
| | Yamaoka Koshun | Professor, Earthquake and Volcano Research Center, Graduate School of Environmental Studies, Nagoya University |
| Secretariat of the NRA | Sakurada Michio | Deputy Secretary-General for Technical Affairs (Director, Regulatory Standard and Research Department) |
| | Yamada Tomoho | Director-General, Nuclear Regulation Department (until July 8, 2019) |
| | Oasada Kaoru | Director, Division of Licensing for Earthquake and Tsunami Measures |
| | Kobayashi Koichi | Director, Division of Research for Earthquake and Tsunami (until March 31, 2019)<br>Chief Officer for Technical Research and Examination, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department (since April 1, 2019) |
| | Shunichiro Mita | Nuclear Regulation Research Officer, Division of Licensing for Earthquake and Tsunami Measures, Nuclear Regulation Department |
| | Kawauchi Hidefumi | Senior Officer for Technical Research and Examination, Division of Research for Earthquake and Tsunami, Regulatory Standard and |

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|---|---|---|
| | | Research Department (until July 11, 2019)<br>Director for Nuclear Regulation (in charge of earthquake and tsunami), Regulatory Standard and Research Department (since July 12, 2019) |
| | Iijima Toru | Senior Officer for Technical Research and Examination, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |
| | Kobayashi Genyu | Chief Officer for Technical Research and Examination, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |
| | Mamada Yutaka | Chief Officer for Technical Research and Examination, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |
| | Tani Naoyuki | Chief Safety Examiner, Division of Licensing for Earthquake and Tsunami Measures, Nuclear Regulation Department |
| | Saguchi Koichiro | Chief Safety Examiner, Division of Licensing for Earthquake and Tsunami Measures, Nuclear Regulation Department |
| | Fujita Masatoshi | Officer for Technical Research and Examination, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |
| | Tajima Reiko | Officer for Technical Research and Examination, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |

**(7) Study Team on Seismic Isolation of Buildings and Structures**

**Overview**

A meeting of the Study Team, consisting of NRA Commissioners, external experts and NRA Secretariat staff, was held in FY2019. The purposes of the Study Team are as follows:

1) To rationally and efficiently implement the examinations of the installation of seismic isolation in buildings and structures for commercial power reactor facilities.

2) To complete the examination guideline that is based on the NRA's revision of the seismic isolation stipulation among the current standards and rules and that was drafted by the NRA Secretariat.

3) To discuss technical matters relating to seismically-isolated structure.

**Members of the Study Team**

| | | |
|---|---|---|
| NRA Commissioners | Yamanaka Shinsuke | NRA Commissioner |
| | Ishiwatari Akira | NRA Commissioner |
| External experts | Kikuchi Masaru | Professor, Division of Architectural and Structural Design, Faculty of Engineering, Hokkaido University |
| | Hisada Yoshiaki | Professor, Director of Research Center for Urban Disaster Mitigation, Kogakuin University |
| | Furuya Osamu | Professor, Division of Mechanical Engineering, School of Science and Engineering, Tokyo Denki University |
| Secretariat of the NRA | Ohmura Tetsuo | Director-General for Nuclear Regulation (Director, Regulatory Standard and Research Department) |
| | Kawauchi Hidefumi | Director, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |
| | Oasada Kaoru | Director, Division of Licensing for Examining and |

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|---|---|---|
| | | Tsunami Measures Nuclear Regulation Department (Licensing) |
| | Nagura Shigeki | Nuclear Regulation Research Officer, Division of Licensing for Earthquake and Tsunami Measures, Nuclear Regulation Department |
| | Ezaki Junichi | Planning and Research Officer, Division of Licensing for Earthquake and Tsunami Measures, Nuclear Regulation Department |
| | Miura Nobuaki | Chief Safety Examiner, Division of Licensing for Earthquake and Tsunami Measures, Nuclear Regulation Department |
| | Inoue Takashi | Chief Safety Examiner, Division of Licensing for Earthquake and Tsunami Measures, Nuclear Regulation Department |
| | Ohashi Morito | Principal Researcher, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |
| | Yamazaki Hiroaki | Chief Researcher, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |
| | Saruta Masaaki | Chief Researcher, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |
| | Kobayashi Koichi | Chief Researcher, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |
| | Hidaka Shinjiro | Chief Researcher, Division of Research for Earthquake and Tsunami, Regulatory Standard and Research Department |

### (8) Study Team for Technical Evaluation of Method of Checking Reactor Pressure Vessel Fracture Toughness during Service Period

**Overview**

In order to perform the technical evaluation of a method for checking reactor pressure vessel fracture toughness during an in-service period, meetings under the Study Team consisting of NRA Secretariat staff, external experts and others were held five times in FY2019.

**Members of the Study Team**

| | | |
|---|---|---|
| NRA Commissioner | Yamanaka Shinsuke | NRA Commissioner |
| External experts | Ohata Tsutomu | Professor, Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University |
| | Okita Taira | Associate Professor, Research into Artifacts Center for Engineering, School of Engineering, the University of Tokyo |
| | Kasada Ryuta | Professor, Institute for Materials Research, Tohoku University |
| Nuclear Safety Research Center, Japan Atomic Energy Agency | Onizawa Kunio | Nuclear Safety Research Center |
| | Takamizawa Yu | Researcher, Materials and Water Chemistry Research Group, Material and Structure Safety Research Division |
| Secretariat of the NRA | Ohmura Tetsuo | Director, Regulatory Standard and Research Department |
| | Toyama Makoto | Director, Regulatory Standard and Research Division, Regulatory Standard and Research Department |
| | Sasaki Haruko | Director for Policy Planning and Coordination, Regulatory Standard and Research Division, Regulatory |

| | | |
|---|---|---|
| | | Standard and Research Department |
| | Hojo Tomohiro | Officer for Technical Research and Examination, Division of Research for Reactor System Safety, Regulatory Standard and Research Department |
| | Tsukabe Nobuyuki | Deputy Management Director, Division of Licensing for Nuclear Power Plants, Nuclear Regulation Department |
| | Fujisawa Hiromi | Technical Consultant |
| | Funada Tatsuo | Technical Consultant |

### (9) Study Team on Measures against Common Cause Failure of Digital Safety Protection Systems in Nuclear Power Reactor Facilities

**Overview**

In order to proceed with a specific examination on measures against the common cause of failure of digital safety protection system at nuclear power reactor facilities, meetings under the Study Team consisting of an NRA Commissioner and NRA Secretariat staff were held four times in FY2019.

**Members of the Study Team**

| | | |
|---|---|---|
| NRA Commissioner | Yamanaka Shinsuke | NRA Commissioner |
| Secretariat of the NRA | Ohmura Tetsuo | Director-General for Nuclear Regulation Policy |
| | Yamada Tomoho | Director-General for Radiation Protection Strategy and Security |
| | Toyama Makoto | Director, Regulatory Standard and Research Division |
| | Nishizaki Takanori | Planning Officer, Regulatory Standard and Research Division |
| | Narita Tatsuji | Deputy Director, Regulatory Standard and Research Division |
| | Yamada Souhei | Section Chief, Regulatory Standard and Research Division |
| | Ogiso Zenichi | Technical Consultant |
| | Hirano Masashi | Senior Coordinator for International Collaborations, Office for International Affairs, Policy Planning and Coordination Division |
| | Imase Masahiro | Senior Expert on Nuclear Regulation, Division of Research for Reactor System Safety |
| | Sekine Masashi | Officer for Technical Research and Examination, Division of Research for Reactor System Safety |
| | Kawasaki Kenji | Nuclear Regulation Research Officer, Division of Licensing for Nuclear Power Plants |
| | Terui Hiroyuki | Safety Examiner, Division of Licensing for Nuclear Power Plants |
| | Murakami Gen | Deputy Management Director, Division of Oversight of Nuclear Power Plants |
| | Maruyama Naoki | Director for Nuclear Regulation (in charge of nuclear security) |
| | Oku Hirotaka | Deputy Management Director, Division of Nuclear Security |
| | Satoh Shigerou | Deputy Management Director, Division of Nuclear Security |

## 4. Committees for Specific Research and Study

### (1) Commission on Supervision and Evaluation of Specified Nuclear Facilities

**Overview**

Ten meetings of the Commission on Supervision and Evaluation of the Specified Nuclear Facilities, consisting of an NRA Commissioner, officials of the NRA Secretariat, and external experts, were held in FY2019 to evaluate the schedule management and safety measures for decommissioning work of TEPCO's Fukushima Daiichi NPS and to give necessary advice.

**Members of the Committee**

| | | |
|---|---|---|
| NRA Commissioners | Ban Nobuhiko | NRA Commissioner |
| | Tanaka Satoru | NRA Commissioner |
| External experts | Iguchi Tetsuo | Professor, Department of Energy Engineering, Graduate School of Engineering, Nagoya University (attending since the 73rd meeting) |
| | Kittaka Yoshinori | Professor, Graduate School of Urban Environmental Sciences, Tokyo Metropolitan University |
| | Tanaka Seiichiro | President, Tanaka Corporation (attending since the 73rd meeting) |
| | 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 |
| | Yamagata Hiroshi | Director-General for Emergency Response (attended until the 72nd meeting) |
| | Kaneko Shuichi | Director-General for Nuclear Regulation Policy (attending since the 73rd meeting) |
| | Minamiyama Rikio | Regional Administrator (in charge of Fukushima) |
| | Takeuchi Atsushi | 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 (attending since the 76th meeting) |
| | Kinoshita Tomoyuki | Deputy Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station (attended until the 74th meeting) |
| | Hayashida Hideaki | Deputy Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station (attending since the 74th meeting) |
| | Kato Junya | Special Facility Examiner, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station (attended until the 74th meeting) |
| | Kobayashi Ryusuke | Director, NRA Regional Office for Fukushima Daiichi Nuclear Power Station |
| | Aoki Hiroomi | Officer for Technical Research and Examination, Division of Research for Nuclear Fuel Cycle and Radioactive Waste (attending since the 73rd meeting) |
| | Yasui Masaya | Special International Negotiator for Nuclear Regulation |

| | | |
|---|---|---|
| | | (attending since the 73rd meeting) |

### (2) Committee on Accident Analysis of the Fukushima Daiichi Nuclear Power Station

**Overview**

Five meetings of the Commission on Supervision and Evaluation of the Specified Nuclear Facilities, consisting of an NRA Commissioner, officials of the NRA Secretariat, and external experts and researchers of Japan Atomic Energy Agency were held in FY2019 to examine the TEPCO's Fukushima Daiichi NPS accident analysis issues from technical aspect based on the information obtained from on-site investigation.

**Members of the Committee**

| | | |
|---|---|---|
| NRA | Fuketa Toyoshi | NRA Chairman |
| External experts | Maekawa Osamu | Senior Technical Advisor, Nuclear Damage Compensation and Decommissioning Facilitation Corporation |
| | Muta Hitoshi | Associate Professor, Department of Nuclear Safety Engineering, Faculty of Engineering, Tokyo City University |
| | Ninokata Hisashi | Professor Emeritus, Tokyo Institute of Technology (attended the 11th meeting) |
| Secretariat of the NRA | Sakurada Michio | Deputy Secretary-General for Technical Affairs |
| | Kaneko Shuichi | Director-General for Nuclear Regulation Policy |
| | Yasui Masaya | Special International Negotiator for Nuclear Regulation |
| | Hirano Masashi | Senior Coordinator for International Collaborations |
| | Nagase Fumihisa | Director, Divisions of Research for Reactor System Safety |
| | Kajimoto Mitsuhiro | Technical Consultant, Division on Research for Severe Accident |
| | Takeuchi Atsushi | 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 |
| | Kawasaki Kenji | Nuclear Regulation Research Officer, Division of Licensing for Nuclear Power Plants |
| Japan Atomic Energy Agency | Maruyama Yu | Vice Director, Nuclear Safety Research Center |
| | Yonomoto Kousuke | Director, Office for Planning and Coordination and Office for Analysis of Event and Regulatory Information |
| | Sugiyama Tomoyuki | Division , Risk Analysis and Applications Research Division, Nuclear Safety Research Center |

### (3) Fukushima Daiichi NPS Decommissioning and Accident Investigation Liaison and Coordination Meeting

**Overview**

Three meetings of the Fukushima Daiichi NPS Decommissioning and Accident Investigation Liaison and Coordination Meeting, consisting of the Secretariat of the NRA, which has been conducting related research and analysis, as well as the Agency for Natural Resources and Energy, the Nuclear Damage Compensation and Decommissioning Facilitation Corporation and Tokyo

Electric Power Company, which are responsible for the decommissioning work were held in FY2019 to coordinate the works relating to accident analysis and decommissioning work.

**Members of the Meeting**

| | | |
|---|---|---|
| Agency for Natural Resources and Energy | Shinkawa Tatsuya | Director-General for Nuclear Accident Disaster Response |
| | Tsuchiya Hiroshi | Director, Nuclear Accident Response Office |
| | Okamoto Masaki | Director for Nuclear Energy Policy, Nuclear Accident Response Office |
| | Hata Yumiko | Director for International Issues/Waste Management of Fukushima Daiichi NPS, Nuclear Accident Response Office |
| | Tanaka Yusuke | Deputy Director, 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 Nuclear Regulation Policy |
| | Takeuchi Atsushi | Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station |
| | Iwanaga Kouhei | Director for Planning and Coordination, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station |
| | Hayashida Hideaki | Deputy Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station |
| | Kihara Shouji | Deputy Director, Office for Accident Measures of Fukushima Daiichi Nuclear Power Station |
| Nuclear Damage Compensation and Decommissioning Facilitation Corporation | Ikenoue Sanroku | Managing Director |
| | Maekawa Osamu | Senior Technical Adviser |
| | Wakabayashi Koji | Senior Technical Adviser |
| Tokyo Electric Power Company Holdings | Fukuda Toshihiko | Vice President, Fukushima Daiichi Decontamination and Decommissioning Engineering Company |
| | Ishikawa Masumi | Director, Project Planning Department, Fukushima Daiichi Decontamination and Decommissioning Engineering Company |
| | Mizokami Shinya | Manager, Safety Analysis and Assessment Group, Project Planning Division, Fukushima Daiichi Decontamination and Decommissioning Engineering Company |

### (4) 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 month 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. Five meetings of the Committee were held in FY2019.

**The Members of the Committee**

(As of April 1, 2019)

| | |
|---|---|
| NRA | NRA Commissioner (1) |
| Secretariat of the NRA | Deputy Secretary-General for Technical Affairs |
| Secretary-General's Secretariats | Director-General for Emergency Response |
| | Director-General for Nuclear Regulation Policy (two persons) |
| | Director, Office for International Affairs, Policy Planning and Coordination Division |
| | Senior Coordinator for International Collaborations |
| Regulatory Standard and Research Department | Regulatory Standard and Research Division Director |
| | Director, Division of Research (in charge of Reactor System Safety) |
| | Director, Division of Research (in charge of Severe Accident) |
| | Director, Division of Research (in charge of Nuclear Fuel Cycle and Radioactive Waste ) |
| | Director, Division of Research (in charge of earthquake and tsunami) |
| Nuclear Regulation Department | Director-General, Nuclear Regulation Department |
| | Director, Nuclear Regulation Policy Planning Division |
| Divisions of Licensing | Director for Nuclear Regulation (in charge of examining commercial power reactors) |
| | Director for Nuclear Regulation (in charge of examining research reactors) |
| | Director for Nuclear Regulation (in charge of examining nuclear fuel facilities) |
| | Director for Nuclear Regulation (in charge of examining measures against earthquake and tsunami) |
| Division of Oversight | Director, Oversight Planning and Coordination Division |
| | Director for Nuclear Regulation (in charge of commercial power reactor oversight) |
| | Director for Nuclear Regulation (in charge of special inspections) |
| | Director for Nuclear Regulation (in charge of nuclear fuel facility oversight) |
| Japan Atomic Energy Agency | Director, Regulatory & International Information Analysis Office |
| Secretariat | Nuclear Regulation Policy Planning Division, Nuclear Regulation Department<br>(The Oversight Planning and Coordination Division and the Regulatory Standard and Research Division cooperate with the Nuclear Regulation Policy Planning Division depending on the agenda.) |

* When the agenda of the meeting relates to knowledge and findings concerning radiation protection, relevant divisions within the Radiation Protection Department attend the committee meeting.

(As of September 4, 2019)

| NRA | NRA Commissioner (1) |
|---|---|
| Secretariat of the NRA | Deputy Secretary-General for Technical Affairs |
| Secretary-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, Office for International Affairs, Policy Planning and Coordination Division |
| | Senior Coordinator for International Collaborations |
| | Director of Emergency Preparedness and Response Office, Policy Planning and Coordination Division |
| Regulatory Standard and Research Department | Director, Regulatory Standard and Research Division |
| | Coordination Officer for Regulatory Fundamental Technology |
| | Director, Division of Research (in charge of Reactor System Safety) |
| | Director, Division of Research (in charge of Severe Accident) |
| | Director, Division of Research (in charge of Nuclear Fuel Cycle and Radioactive Waste) |
| | Director, Division of Research (in charge of earthquake and tsunami) |
| Nuclear Regulation Department | Director-General, Nuclear Regulation Department |
| | Director, Nuclear Regulation Policy Planning Division |
| Divisions of Licensing | Director for Nuclear Regulation (in charge of examining commercial power reactors) |
| | Director for Nuclear Regulation (in charge of examining research reactors) |
| | Director for Nuclear Regulation (in charge of examining nuclear fuel facilities) |
| | Director for Nuclear Regulation (in charge of examining measures against earthquake and tsunami) |
| Division of oversight | Director, Oversight Planning and Coordination Division |
| | Director for Nuclear Regulation (in charge of commercial power reactor oversight) |
| | Director for Nuclear Regulation (in charge of special inspections) |
| | Director for Nuclear Regulation (in charge of nuclear fuel facility oversight) |
| Japan Atomic Energy Agency | Chief Engineer, Regulatory & International Information Analysis Office |
| Secretariat | Director, Regulatory Standard and Research Division, Regulatory Standard and Research Department<br>(The Oversight Planning and Coordination Division cooperates depending on the agenda.) |

* When the agenda of the meeting relates to knowledge and findings concerning radiation protection, relevant divisions within the Radiation Protection Department attend the committee meeting.

### (5) 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, nine meetings of the following six Technical Evaluation Committees were held in FY2019.

**Members of each Technical Evaluation Committee**

**Technical Evaluation Committee on Plant Safety**

| | | |
|---|---|---|
| External experts | Kitada Takanori | Professor, Division of Sustainable Energy and Environment Engineering, School of Engineering, Osaka University |
| | Yamaji Tetsushi | Associate Professor, Cooperative Major in Nuclear Energy, School of Advanced Science and Engineering, Faculty of Science and Engineering, Waseda University |
| | Gofuku Akio | Professor, Graduate School of Interdisciplinary Science and Engineering in Health Systems, Faculty of Engineering, Okayama University |

**Technical Evaluation Committee on Nuclear Fuel**

| | | |
|---|---|---|
| External experts | Arima Tatsumi | Assistant Professor, Department of Applied Quantum Physics and Nuclear Engineering, Graduate School of Engineering, Kyushu University |
| | Kurosaki Ken | Professor, Research Center for Safe Nuclear System, Institute for Integrated Radiation and Nuclear Science, Kyoto University |

**Technical Evaluation Committee on Material Technology**

| | | |
|---|---|---|
| External experts | Kasahara Naoto | Professor, Nuclear Engineering and Management, School of Engineering, the University of Tokyo |
| | Kanematsu Manabu | Professor, Department of Architecture, Faculty of Science and Technology, Tokyo University of Science |
| | Matsumoto Akira | Professor, Department of Electrical Engineering and Computer Science, Graduate School of Engineering and Science, Shibaura Institute of Technology |
| | Mochizuki Masato | Professor, Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University |

**Technical Evaluation Committee on Severe Accident**

| | | |
|---|---|---|
| External experts | Itoi Tatsuya | Associate Professor, Department of Architecture, Graduate School of Engineering, the University of Tokyo |
| | Muta Hitoshi | Associate Professor, Cooperative Major in Nuclear Energy, Graduate School of Integrative Science and Engineering, Tokyo City University |
| | Morita Kouji | Professor, Department of Applied Quantum Physics and Nuclear Engineering, Graduate School of Engineering, Kyushu University |

**Technical Evaluation Committee on Nuclear Fuel Cycle**

| | | |
|---|---|---|
| External experts | Enokida Yoichi | Professor, Materials, Physics and Energy Engineering, Graduate School of Engineering, Nagoya University |
| | Kikura Hironari | Associate Professor, Laboratory for Advanced Nuclear Energy, Tokyo Institute of Technology |
| | Matsumura Ken | Affiliate Professor, Department of Nuclear Safety Engineering, Faculty of Engineering, Tokyo City University |

**Technical Committee on Earthquake and Tsunami**

| | | |
|---|---|---|
| External experts | Iwata Tomotaka | Professor, Disaster Prevention Research Institute, Kyoto University |
| | Sakai Naoki | Director, Office for Strategic Planning, Center for Advanced Research Facilities, National Research Institute for Earth Science and Disaster Resilience |
| | Furuya Osamu | Professor, Division of Mechanical Engineering, School of Science and Engineering, Tokyo Denki University |

## 5. Other Meetings

### (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. NRA Policy evaluation Meetings were held twice in FY2019 to collect opinions on NRA's policy evaluation and second mid-term goals.

**Members of the NRA Policy Evaluation Meeting**

| | | |
|---|---|---|
| External experts | Iizuka Yoshinori | President, Japan Accreditation Board<br>Professor emeritus, the University of Tokyo |
| | Ohya Takehiro | Professor, Faculty of Law, Keio University |
| | Kamei Zentaro | Chief Researcher, PHP Research Institute<br>Specially appointed professor, Graduate School of Social Design Studies, Rikkyo University |
| | Shiroyama Hideaki | Professor, Graduate School of Public Policy, the University of Tokyo<br>Professor, Graduate Schools for Law and Politics, the University of Tokyo |
| | Fujita Yukiko | Professor, Faculty of Law, Gakushuin University |
| | Machi Asei | Freelance journalist |

### (2) Expert Meeting on NRA's Administrative Project Review - FY2019

**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. Experts Meetings were held three times in FY2019.

**Members of the Expert Meeting**

| | | |
|---|---|---|
| External experts | Iijima Hirokuni | Professor, Faculty of Economics, Chuo University |
| | Nishigaki Mei | Partner, Avantia GP |
| | Itoh Shin | General Director, Japan Initiative |

### (3) Meeting on Hearing Opinions of Business operators regarding New Regulatory Requirements

**Overview**

This Meeting is held on an irregular basis whenever a necessity arises to publicly hear licensees' opinions on the new regulatory requirements. In FY2019, the meeting was held once regarding the extent of testing welded joints for reactor pressure vessels and twice to set the priority order of the technical assessments.

**Members of the Meeting**

・Meeting on the extent of test on the welded joints of a reactor pressure vessel and others (August 5, 2019)

| | | |
|---|---|---|
| Secretariat of the NRA | Toyama Makoto | Director, Regulatory Standard and Research Division |
| | Sasaki Haruko | Director for Policy Planning and Coordination, Regulatory Standard and Research Division |
| | Kono Katsumi | Chief Officer for Technical Research and Examination, Division of Research for Reactor System Safety |
| | Kojima Masayoshi | Chief Officer for Technical Research and Examination, Division of Research for Reactor System Safety |
| | Arai Kensaku | Officer for Technical Research and Examination, Division of Research for Reactor System Safety |
| | Morita Kenji | Chief Inspector Specialized in Nuclear Facilities, Division of Specified Oversight |
| | Fujisawa Hiromi | Technical Consultant |
| | Funada Tatsuo | Technical Consultant |

・Priority order of the technical assessments in FY2019 (April 18, 2019)

| | | |
|---|---|---|
| Secretariat of the NRA | Tsujihara Hiroshi | Director, Regulatory Standard and Research Division |
| | Oginuma Masayuki | Director for Policy Planning and Coordination, Regulatory Standard and Research Division |
| | Sasaki Haruko | Senior Expert on Nuclear Regulation, Regulatory Standard and Research Division |
| | Hojo Tomohiro | Officer for Technical Research and Examination, Division of Research for Reactor System Safety |
| | Tsutazawa Yuji | Deputy Director, Nuclear Regulation Policy Planning Division, Nuclear Regulation Department |
| | Kosaku Yasuo | Deputy Director, Oversight Planning and Coordination Division, Inspection Group, Nuclear Regulation Department |
| | Kumagai Naoki | Senior Oversight Instructor, Division of Oversight of Nuclear Fuel Related Facilities and Research Reactors, Inspection Group, Nuclear Regulation Department |
| | Fujisawa Hiromi | Technical Consultant |

・Priority order of the technical assessments in FY2020 (February 7, 2020)

| | | |
|---|---|---|
| Secretariat of the NRA | Toyama Makoto | Director, Regulatory Standard and Research Division |
| | Sasaki Haruko | Director for Policy Planning and Coordination, Regulatory Standard and Research Division |
| | Kohno Katsumi | Chief Officer for Technical Research and Examination, Division of Research for Reactor System Safety |
| | Hojo Tomohiro | Officer for Technical Research and Examination, Division of Research for Reactor System Safety |
| | Shimazaki Akio | Deputy Management Director, Division of Specified Oversight |
| | Kawashita Yasuhiro | Planning and Research Officer, Division of Specified Oversight |
| | Kinoshita Tomoyuki | Deputy Director, Division of Oversight of Nuclear Fuel Related Facilities and Research Reactors |
| | Fujisawa Hiromi | Technical Consultant |

**(4) Research Promotion Committee, Research Evaluation Committee, and Debriefing Session of**

## Research Results

### Overview

For the Radiation Safety Research Strategic Promotion Project, which was launched in FY2017, the NRA publicly seeks research project offers for the priority research areas set by the NRA every fiscal year. The Research Promotion Committee held three meetings in FY2019 in order to select research themes for the project, to manage their progress, and to set the priority research areas for the next fiscal year.

In addition, Research Evaluation Committee held three meetings in order to evaluate research plans and research results, and the Debriefing Session of Research Results was held once.

### Members of the Research Promotion Committee and the Research Evaluation Committee

**Research Promotion Committee**

| | | |
|---|---|---|
| NRA Commissioner | Ban Nobuhiko | NRA Commissioner |
| External experts | Ishikawa Tetsuo | Professor, School of Medicine, Fukushima Medial University |
| | Takahashi Tomoyuki | Associate Professor, Kyoto University Research Reactor Institute |
| | Nakamura Yoshihide | Senior Advisor, Japan Radioisotope Association |
| | Furuta Sadaaki | Director, PESCO, Co., Ltd Chubu Office |
| Secretariat of the NRA | Ohkuma Kazuhiro | Director, Radiation Protection Policy Planning Division |
| | Nagasaka Yuichi | Director, Radiation Monitoring Division |
| | Miyamoto Hisashi | Director, Division of Regulation for Radiation |
| | Tanaka Sakura | Director for Policy Planning and Coordination, Radiation Protection Policy Planning Division |
| | Takayama Ken | Director for Policy Planning and Examination, Radiation Protection Policy Planning Division |
| | Okonogi Yuji | Director for Institutional, Radiation Monitoring Division |
| | Omachi Yasushi | Deputy Director, Radiation Protection Policy Planning Division |
| | Kobayashi Shunji | Assistant Manager, Radiation Protection Policy Planning Division |
| | Honma Toshimitsu | Radiation Protection Technology Researcher, Radiation Protection Policy Planning Division |
| | Nakamura Takashi | Senior Technical Consultant, Division of Regulation for Radiation |

**Research Evaluation Committee**

| | | |
|---|---|---|
| External experts | Urabe Itsumasa | Professor, Department of Computer Science, Faculty of Engineering, Fukuyama University |
| | Oda Keiji | Executive Vice President, Kobe University and Professor, Kobe University Graduate School of Maritime Sciences |
| | Suzuki Hajime | Professor and Director, International University of Health and Welfare Clinic |
| | Futatsugawa Shoji | Executive Director, Japan Radioisotope Association |
| | Yoshida Hiroko | Associate Professor, Radioisotope Research and Education Center, Graduate School of Pharmacy, Tohoku University |

### (5) Working-Level Exchange of Technical Views

#### ① Working-Level Exchange of Technical Views concerning aging deterioration management with the Atomic Energy Association (ATENA)

In response to a request by the ATENA, the first working-level meeting between the ATENA and the NRA Secretariat was held on March 6, 2020 to exchange technical views concerning aging deterioration management.

| Situation of meeting | Main contents of technical view exchange |
|---|---|
| 1st meeting (March 6, 2020) | ・Methods of opinion exchanges<br>・Activities for aging degradation management for the safe and long operations of nuclear power plants |

Working-level meetings for exchanging views between nuclear operators and the NRA Secretariat were held on a case-by-case basis, in order to hear the nuclear operators' views regarding nuclear safety, safety technologies, nuclear regulation and others.

○ Opinion exchange meetings for gathering information on volcanic ash distribution at Mount Daisen (volcanic mountain)

### (6) Public Meeting on Response to Accidents and Troublesome Events at Nuclear Facilities

**Overview**

In order to check on the nuclear operators' cause identification and corrective actions of accidents and troubles at their nuclear facilities, public meetings were held seven times and NRA Commissioners Yamanaka and Tanaka participated in them as necessary.

**Members of the Public Meeting**

| | | |
|---|---|---|
| NRA | Yamanaka Shinsuke | NRA Commissioner |
| | Tanaka Satoru | NRA Commissioner |
| Secretariat of the NRA | Kataoka Hiroshi | Director-General for Nuclear Regulation Policy (attended the 8th meeting) |
| | Koganeya Toshiyuki | Director, Division of Oversight of Nuclear Power Plants (attended until the 7th meeting) |
| | Takeyama Shoji | Director, Division of Oversight of Nuclear Power Plants (attending since the 9th meeting) |
| | Kinjo Shinji | Director, Division of Oversight of Nuclear Fuel Related Facilities and Research Reactors (attended the 8th meeting) |

### (7) Debriefing Session of Emergency Drills by Nuclear Operators

**Overview**

Regarding nuclear emergency drills conducted by nuclear operators, a debriefing session was held once in FY2019, led by Commissioners Yamanaka and Tanaka with the aim of strengthening information sharing between NRS and the operators and improving the emergency response capabilities.

**Members of the Debriefing Session**

| | | |
|---|---|---|
| NRA | Yamanaka Shinsuke | NRA Commissioner |
| | Tanaka Satoru | NRA Commissioner |
| Secretariat of the NRA | Yamagata Hiroshi | Director-General for Emergency Response |
| | Aoki Masahiro | Director-General for Nuclear Regulation |
| | Kataoka Hiroshi | Director-General for Nuclear Regulation |
| | Ichimura Tomoya | Director, Nuclear Regulation Policy Planning Division |
| | Taguchi Tatsuya | Director, Division of Licensing for Nuclear Power Plants |
| | Koganeya Toshiyuki | Director, Division of Oversight of Nuclear Power Plants |
| | Ono Yuji | Director, Division of Licensing for Research Reactors, Use of Nuclear Material |
| | Hasegawa Kiyomitsu | Director, Division of Licensing for Nuclear Fuel Facilities |
| | Kinjo Shinji | Director, Division of Oversight of Nuclear Fuel Related Facilities and Research Reactors |
| | Funayama Kyoko | Director, Division of Research for Severe Accident |
| | Kaneko Shuichi | Director, Emergency Preparedness and Response Office |
| | Murata Shinichi | Director, Accidents Response Office |
| | Sugawara Hiroyuki | Director for Policy Planning and Coordination, Emergency Preparedness and Response Office |
| Cabinet Office | Araki Shinichi | Director-General for Nuclear Regulation Policy of Nuclear Emergency Preparedness |
| Japan Atomic Energy Agency | Yoshida Kazuo | Severe Accident Analysis Research Group Nuclear Safety Research Center, Sector of Nuclear Safety Research and Emergency Preparedness |

### (8) Meeting for Reviewing the Emergency Action Level (EAL) and Others

**Overview**

The meeting was held once in FY 2019 to exchange opinions with the nuclear operators on the review of the Emergency Action Level (EAL) of the nuclear power plants and nuclear fuel facilities, etc.

**Members of the meeting**

| | | |
|---|---|---|
| Secretariat of the NRA | Yamagata Hiroshi | Director-General for Emergency Response |
| | Koganeya Toshiyuki | Director, Division of Emergency Preparedness and Response Office |
| | Murata Shinichi | Director, Accidents Response Office |
| | Sugawara Hiroyuki | Director for Policy Planning and Coordination, Emergency Preparedness and Response Office |
| | Kodama Satoshi | Director for Policy Planning and Coordination, Emergency Preparedness and Response Office |