

**FY 2014**

# **Annual Report**

(Provisional English Translation)

**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).

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## Chapter 1 Introduction

### Section 1 Organization of the NRA

The Nuclear Regulation Authority (NRA) was established in September 2012, in response to the March 11, 2011, accident at the Fukushima Daiichi Nuclear Power Station owned by the Tokyo Electric Power Company (hereinafter referred to as “*TEPCO’s Fukushima Daiichi NPS*”). Based on the lessons learned from this accident, the NRA unitarily undertook an administrative role related to nuclear regulations and nuclear security, as well as a role related to technical aspect of nuclear emergency preparedness and response that were previously under the jurisdiction of other related administrative agencies. These include the formulation of Nuclear Emergency Response Guidelines based on both the provisions of the Atomic Energy Basic Act (Act No. 186 of 1955) and the Act on Special Measures Concerning Nuclear Emergency Preparedness (Act No. 156 of 1999). From April 2013, the NRA has been responsible for the administration of safeguards based on international commitments, radiation monitoring, and regulations on the use of radioisotopes. On March 1, 2014, the Incorporated Administrative Agency, the Japan Nuclear Energy Safety Organization (hereinafter referred to as the “*Japan Nuclear Energy Safety Organization*” or “*JNES*”), and all of its activities were integrated into the NRA to enhance the new agency’s overall expertise.

**Table 1 Major NRA Activities**

- |   |
|---|
| <ol style="list-style-type: none"><li>(1) Ensuring safety of nuclear energy activities (Regulations on nuclear energy-related business and facilities, and on the use of nuclear fuel material)</li><li>(2) Regulating the physical protection of nuclear material (nuclear security) and coordination among relevant ministries and agencies on related matters.</li><li>(3) Coordination among relevant ministries and agencies concerning radiation monitoring</li><li>(4) Enhancing human resources to ensure nuclear energy safety</li><li>(5) Investigating the causes of nuclear reactor accidents and resultant damage</li><li>(6) Formulation of the Nuclear Emergency Response Guidelines</li><li>(7) Regulating safeguards based on international commitments</li><li>(8) Preventing radiation hazards (regulations on radioisotopes, etc.)</li><li>(9) Implementation of radiation monitoring</li></ol> |
|---|

\* Affairs mentioned in (7) to (9) have been under the jurisdiction of the NRA since April 2013.

## 1. Organizational Philosophy of the NRA

At the 22nd NRA Commission Meeting of FY 2012, the NRA established its core values and principles to fulfill its mission of protecting the public and the environment through rigorous and reliable regulations of nuclear activities. The NRA established five guiding principles for NRA activities, concerning its independence, effectiveness, transparency, expertise, and readiness.

**Table 2-1 NRA's Core Values and Principles**

<p>Bearing in mind that:</p> <ul style="list-style-type: none"><li>- The NRA was established to absorb and learn the lessons of the Fukushima Daiichi nuclear accident of March 11, 2011;</li><li>- Such nuclear accidents should never be allowed to happen again;</li><li>- Restoring public trust, in Japan and abroad, in the nation's nuclear regulatory organization is of utmost importance and;</li><li>- 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;</li></ul> <p>Determined that:</p> <ul style="list-style-type: none"><li>- 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;</li></ul> <p>We hereby solemnly pledge our full commitment and unwavering efforts to the foregoing.</p> <p><b>Mission</b></p> <p>Our fundamental mission is to protect the public and the environment through rigorous and reliable regulation of nuclear activities.</p> <p><b>Guiding Principles for Activities</b></p> <p>We in the NRA and its supporting Secretariat shall perform our duties diligently acting in accordance with the following principles.</p> <ol style="list-style-type: none"><li>(1) Independent Decision Making We shall make decisions independently, based on the latest scientific and technological information, free from any outside pressure or bias.</li><li>(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.</li><li>(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.</li><li>(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.</li><li>(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.</li></ol>
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## 2. Chairman and Commissioners

The NRA is composed of the Chairman and four Commissioners (Table 2-2). In FY 2014, the NRA held 65 NRA Commission Meetings for discussion, evaluation and decision-making.

On September 18, 2014, Commissioners Kunihiko Shimazaki and Kenzo Oshima completed their terms of office and retired. On September 19, 2014, new Commissioners Satoru Tanaka and Akira Ishiwatari were appointed. At the 28th NRA Commission Meeting of FY 2014, the NRA Commission decided the order to subrogate the chairmanship.

**Table 2-2 Terms of Office of the Chairman and Commissioners**

	Up to September 18, 2014	From September 19, 2014 on
Chairman	Shunichi Tanaka (5 years)	Shunichi Tanaka (5 years)
Commissioner (deputy to the Chairman)	Kunihiko Shimazaki (2 years)	Toyoshi Fuketa (3 years)
Commissioner (second substitute for the Chairman)	Toyoshi Fuketa (3 years)	Satoru Tanaka (5 years)
Commissioner (Third substitute for the Chairman)	Kayoko Nakamura (3 years)	Kayoko Nakamura (3 years)
Commissioner (Fourth substitute for the Chairman)	Kenzo Oshima (2 years)	Akira Ishiwatari (5 years)

## 3. Organization of the Secretariat of the NRA

The Secretariat of the NRA is responsible for the organization's administrative affairs, and the NRA Human Resource Development Center (facilities) is responsible for human resources development and training activities. As of the end of March 2015, the number of staff was 964. The FY 2014 budget (after revision) was 63,172<sup>1</sup> million yen (see table 3 and figure 1).

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<sup>1</sup> These amounts include the Reconstruction Agency's special account for reconstruction after the Great East Japan Earthquake.

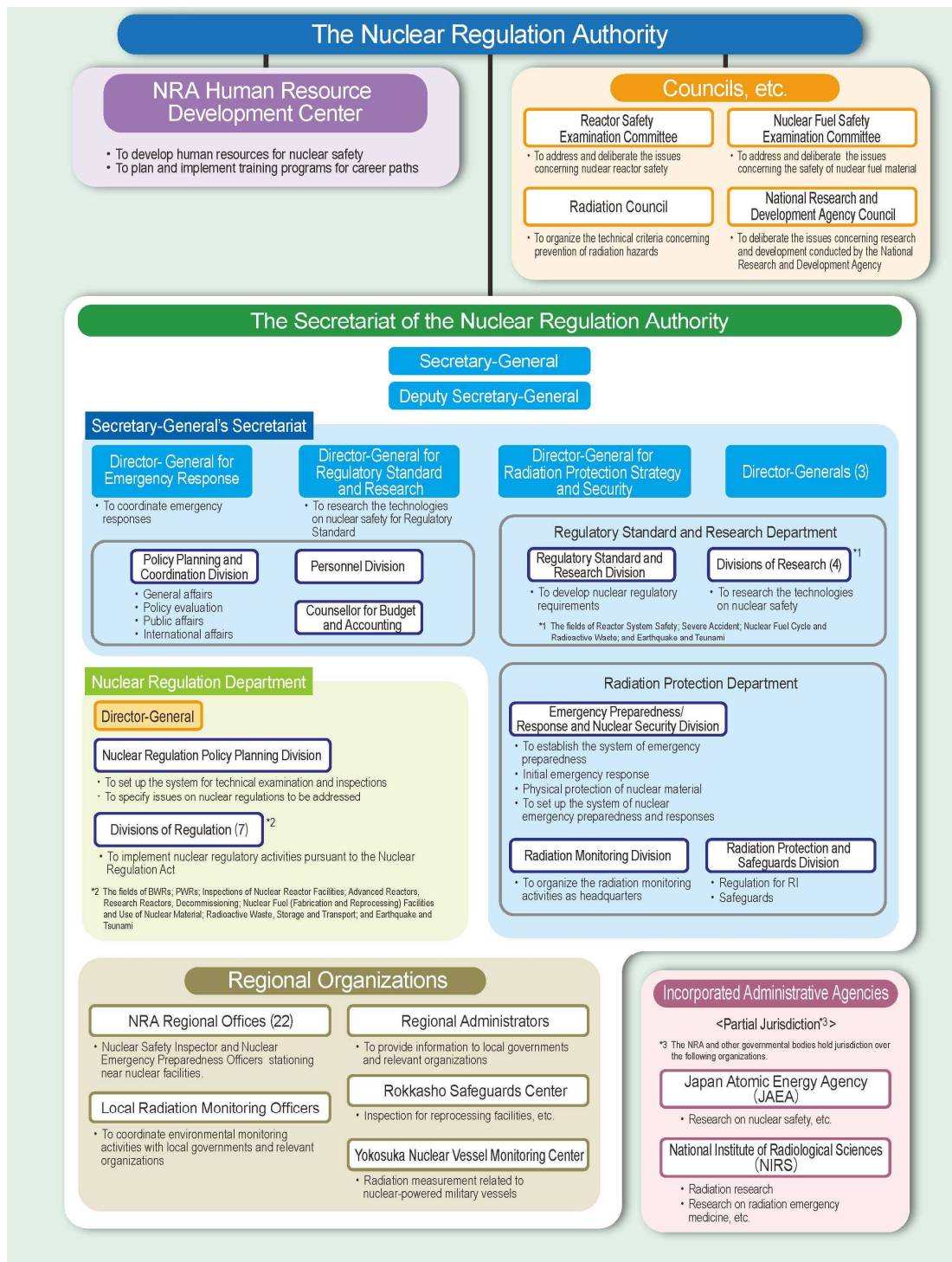
**Table 3 Breakdown of NRA FY 2014 Budget (after Revision)**

(in million yen)

	FY 2014 budget (after budget revision)
General account	8,956
Special account for energy measures	48,765
Special account for reconstruction after the Great East Japan Earthquake*	5,451
Total	63,172

\* The entire budget is allocated to the Reconstruction Agency.





### Nuclear Regulation Department

Director-General

#### Nuclear Regulation Policy Planning Division

- To set up the system for technical examination and inspections
- To specify issues on nuclear regulations to be addressed

#### Divisions of Regulation (7)<sup>\*2</sup>

- To implement nuclear regulatory activities pursuant to the Nuclear Regulation Act

<sup>\*2</sup> The fields of BWRs; PHWRs; Inspections of Nuclear Reactor Facilities; Advanced Reactors; Research Reactors; Decommissioning; Nuclear Fuel (Fabrication and Reprocessing) Facilities and Use of Nuclear Material; Radioactive Waste, Storage and Transport; and Earthquake and Tsunami

### Regional Organizations

#### NRA Regional Offices (22)

- Nuclear Safety Inspector and Nuclear Emergency Preparedness Officers stationing near nuclear facilities.

#### Local Radiation Monitoring Officers

- To coordinate environmental monitoring activities with local governments and relevant organizations

#### Regional Administrators

- To provide information to local governments and relevant organizations

#### Rokkasho Safeguards Center

- Inspection for reprocessing facilities, etc.

#### Yokosuka Nuclear Vessel Monitoring Center

- Radiation measurement related to nuclear-powered military vessels

### Incorporated Administrative Agencies

<Partial Jurisdiction<sup>\*3</sup>>

<sup>\*3</sup> The NRA and other governmental bodies hold jurisdiction over the following organizations.

#### Japan Atomic Energy Agency (JAEA)

- Research on nuclear safety, etc.

#### National Institute of Radiological Sciences (NIRS)

- Radiation research
- Research on radiation emergency medicine, etc.

**Figure 1 NRA Organization (as of March 31, 2015)**

## **Section 2 Major Activities in FY 2014**

The NRA focused on rebuilding public trust in nuclear regulatory activities aimed at protecting the public and the environment through rigorous and reliable regulation. We adhered to our organizational principles including impartial, neutral and independent decision making based on the latest scientific and technological information; taking care to consult a wide range of experts and avoid a self-centered focus; discarding the previous ineffective approach to regulatory work and stressing the importance of a field-oriented approach to achieve genuinely effective regulations; and ensuring thorough and transparent information disclosure on regulations. Specifically, the NRA emphasized improving communication with local communities where nuclear power stations are located, through different forms of presentation including video roundups at the conclusion of conformity reviews to regulatory requirements. The organization hosted an Integrated Regulatory Review Service (IRRS) mission from the IAEA<sup>2</sup> to help improve its nuclear regulatory practices. It continues to engage with international advisers to strengthen its own nuclear regulations.

The NRA reviewed applications from 11 licensees for permission to modify their combined 24 power reactor installations and from 8 licensees to change their combined 16 nuclear fuel facilities. The NRA approved changes in reactor installation of Units 1 and 2 of the Sendai Nuclear Power Station of the Kyushu Electric Power Co., Inc. (hereinafter referred to as "*Sendai NPS*") on September 10, 2014. It later approved the construction plan for Unit 1 on March 18, 2015. It issued approval for Units 3 and 4 of the Takahama Power Station, Kansai Electric Power Co., Inc. (hereinafter referred to as "*Takahama Power Station*") on February 12, 2015. In order to address the issues of possible active fault problems at some power stations where the former Nuclear and Industrial Safety Agency had already determined that additional investigation would be required, the NRA organized expert working group of independent experts recommended by four related academic societies. It also conducted field examinations and evaluations of those potential active faults. The expert working group finalized evaluation reports on Tsuruga and Tohoku Electric Power Co., Inc. Higashidori NPSs and submitted them to the NRA Commission before the expert working group was closed. To further encourage licensees to strengthen their safety operations, the NRA held a series of discussions. By the end of May

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<sup>2</sup> International Atomic Energy Agency

2015, starting with the CEO of the Kyushu Electric Power Co., Inc. in October 2014, the NRA exchanged views with the CEOs of eight nuclear licensees.

As the government regulatory organization, the NRA supervised and directed TEPCO's Fukushima Daiichi NPS. It monitored radiation in surrounding areas to facilitate quick and safe decommissioning and solve related contaminated water problems. The NRA developed "Measures for Mid-term Risk Reduction" (February 2015) to establish key safety priorities and to clearly distinguish completed measures from ongoing and planned measures. This document will be regularly reviewed to reflect the current state of risk reduction.

The NRA continues to collect the latest scientific and technological information to achieve the highest global standards of nuclear regulatory practices. It conducted safety studies in cooperation with national and international research institutions. The NRA recruited both new graduates and experienced personnel as needed and in June 2014 it developed basic policies on human resources to improve personnel skills. These include knowledge building, transfer of accumulated expertise to younger personnel and use of a plant simulator for training.

To enhance nuclear security measures, in January 2015, the NRA established guidelines to develop an effective nuclear security culture. Also, we hosted an International Physical Protection Advisory Service (IPPAS) mission from the IAEA in February 2015 and will address its subsequent report and recommendations at an appropriate time.

To improve nuclear emergency preparedness and response and radiation monitoring, in 2012, the NRA formulated Nuclear Emergency Response Guidelines under the Act on Special Measures Concerning Nuclear Emergency Preparedness, and is continuing to strengthen these measures. It began a review of the nuclear emergency response scheme for TEPCO's Fukushima Daiichi NPS in October 2014 and revised the above-mentioned Guidelines in April 2015 to reflect received public comments. In addition, it added five Local Radiation Monitoring Offices in nuclear-facility hosting prefectures to enhance the emergency monitoring scheme. As a part of the post-accident response, the NRA conducted ongoing radiation monitoring based on the "Comprehensive Radiation Monitoring Plan", mainly in Fukushima Prefecture and surrounding terrestrial and oceanic areas and disseminated the resultant data nationally and internationally in a transparent manner.

## **Chapter 2 Activities for Building More Trust in the NRA**

To fulfill its mission of protecting the public and the environment through rigorous and reliable regulation of nuclear activities, the NRA continued to address different policy issues. It adhered to its organizational principles including impartial, neutral and independent decision making based on the latest scientific and technological information; consulting with a wide range of experts to avoid self-righteousness; discarding the previous ineffective approach to regulatory work and stressing the importance of a field-oriented approach; and ensuring thorough and transparent information disclosure on regulations.

### **Section 1 Ensuring Independence, Neutrality, Transparency and Enhancing Communications**

#### **1. Ensuring Independence and Enhancing Communication**

Independent decision-making is vital for effective regulation and is emphasized by many global nuclear regulatory organizations as one of the most significant factors of their own organizational philosophy. However, regulatory organizations must avoid becoming 'isolated' and making indulgent and self-centered decisions. Therefore, the NRA, which was established as a highly independent, so-called Article 3 Authority, states not only that "we shall make decisions independently, based on scientific and technological information, free from any outside pressure or bias" but also that "we shall be open to all opinions and advice from Japan and the international community and avoid both self-isolation and self-righteousness" in its Guiding Principles for Activities defined in FY 2012.

In line with these principles, we continue to make decisions in an impartial, neutral, and independent manner from scientific and technological viewpoints. We continue to hold study meetings with external experts, other professionals and operators, drawing on their knowledge.

To promote better communications, a prompt and more efficient response and transparency in emergencies, the NRA held a series of meetings between regulatory authority and regulated parties.

The NRA sought public comments in 14 areas, including those covered by the Administrative Procedure Act (Act No. 88 of 1993) and others not covered by the Act; continued to revise the Nuclear Emergency Response Guidelines, and publicized the results.

The NRA in FY 2014 continued to operate a Website page and call center receiving on average 6 comments and questions daily on the website and 15 at the call center.

After an amendment of a permit for the Sendai NPS, the NRA outlined the reason for its permission at five local briefing sessions in municipalities in Kagoshima where the Sendai NPS is located. After a permit amendment for the Takahama NPS, the NRA produced a presentation video which was broadcast via the Takahama cable television network and posted on the NRA Website. In response to requests from local municipalities, the NRA also briefed local councils.

## **2. Ensuring Neutrality**

To restore trust in nuclear regulation, it is vital to ensure the neutrality of personnel involved in the decision making process. Therefore, the NRA Commission defined a Code of Conduct related to Ethics for the NRA Chairman and Commissioners at the 1st NRA Commission Meeting of FY 2012 (September 19, 2012). The Code stipulates that the Chairman and Commissioners cannot receive donations from nuclear operators during their term of office and that they disclose any donations they received in the three years immediately prior to assuming office. Further, they must disclose any situation involving their students finding jobs with nuclear operators. Details about Commissioners Satoru Tanaka and Akira Ishiwatari who were newly appointed in September 19, 2014, was disclosed on their arrival. The information about the Chairman and other incumbent Commissioners was disclosed at the time of presenting personnel proposals to the Diet.

The 4th NRA Commission Meeting of FY 2012 (October 10, 2012) agreed on the “Requirements for Ensuring Transparency and Neutrality when the NRA Takes Advice from External Experts as a Reference in Making a Decision on Nuclear Safety Regulations, etc. for Electric Utilities.” This regulation requires a thorough disclosure on the relationship between electric utilities and external experts whenever these experts outline views on nuclear regulation and other relevant issues. When initially reviewing the safety of individual electricity facilities or when re-reviewing earlier assessments of individual facilities, personnel may be selected as external experts only if they have not served as executives of the relevant electric utilities in the last three years, if they have not personally received 500,000 yen or more as remuneration

during one fiscal year, or if they have not been involved in earlier examinations of said individual facilities. (The Requirements were revised in March 2013, to include nuclear fuel cycle facilities). Similar requirements were established for the appointment of Reactor Safety Examination Committee members, Nuclear Fuel Safety Examination Committee members, and Radiation Council members.

In FY 2014, as was the case in FY 2013, self-reported personal data on the members of various study meetings was disclosed on the NRA Website.

### **3. Ensuring Transparency in Decision-Making**

To restore trust in nuclear regulation it is essential to ensure transparency in decision-making. To clarify processes and discussions leading to final decisions, the NRA determined a “Policy on Ensuring Operational Transparency of the NRA” at the inaugural NRA Commission Meeting of FY 2012 (September 19, 2012). It outlined the basic policies for (a) building an information release system not subject to disclosure request requirements, (b) thoroughly adhering to disclosing discussions, and (c) thoroughly adhering to the principle of administration based on written documents. The Policy further provides that the details of discussions, minutes, and reference materials used at the meetings of the NRA Commission, Committees, and Study Teams, should, in principle, be disclosed.

In accordance with this Policy, the NRA Commission in FY 2014, as before, prepared summaries of all meetings on nuclear regulation attended by three or more members and interviews between NRA Chairman, NRA Commissioners, or officials of the NRA Secretariat and the regulated parties. The summaries were then announced together with the names of the attendees and the reference materials used. The summaries of significant meetings and interviews were reported to the NRA Commission Meetings. Two or more members attended each of the interviews with the regulated parties regardless of whether or not the interviews related to regulatory matters, and the schedules of the interviews and the status of their implementation were made public.

As was the case in FY 2013, the NRA held the NRA Commission Meetings and other study meetings in public in accordance with the “Policy on Ensuring Operational Transparency of the NRA” and the “Operational Guidelines for NRA Commission Meetings.” The NRA Commission Meetings and other study meetings were broadcast live on YouTube and Niconico internet video sites, whenever possible. Otherwise, recorded videos and abridged

editions of those meetings that were not broadcast live were released. In addition, for the convenience of video viewers, the reference materials used at Commission Meetings and other study meetings were posted on the NRA Website in the same way as in FY 2013, so that these materials would be available as soon as each meeting started. The minutes of Commission Meetings were posted on the NRA Website the following day, and those of various other study meetings around one week after a meeting.

As was the case in FY 2013, the regular press conference was held by NRA Chairman once a week, and regular press briefings by Secretariat of the NRA were held twice a week. Unscheduled press conferences were held as necessary. A total of 148 press conferences were held in FY 2014. Press conferences were also broadcast live and recorded videos were released in the same manner as for Commission Meetings and various other study meetings. The minutes of press conferences by NRA Chairman were posted on the NRA Website on the same day, whenever possible, and those of the regular press briefings of Secretariat of the NRA the following day.

## Section 2 Organizational reform between the NRA and Nuclear Disaster Management Bureau of the Cabinet Office

On October 14, 2014, the responsibilities for developing a local nuclear emergency preparedness scheme, which had been undertaken by NRA personnel doubling as Cabinet Office personnel, were transferred to the dedicated Director General for Nuclear Disaster Management and his/her team of the Cabinet Office. The position was created to improve the central government's overall nuclear emergency preparedness system. In addition, the NRA abolished the existing Radiation Protection Department and created a new position, Director-General for Radiation Protection Strategy and Security, in the Secretary-General's Secretariat with the mission of supervising nuclear security and physical and radiation protection tasks (see Figure 1).

Furthermore, the NRA created five positions to reinforce the nuclear emergency monitoring system in the neighboring areas of NPSs on January 15, 2015.

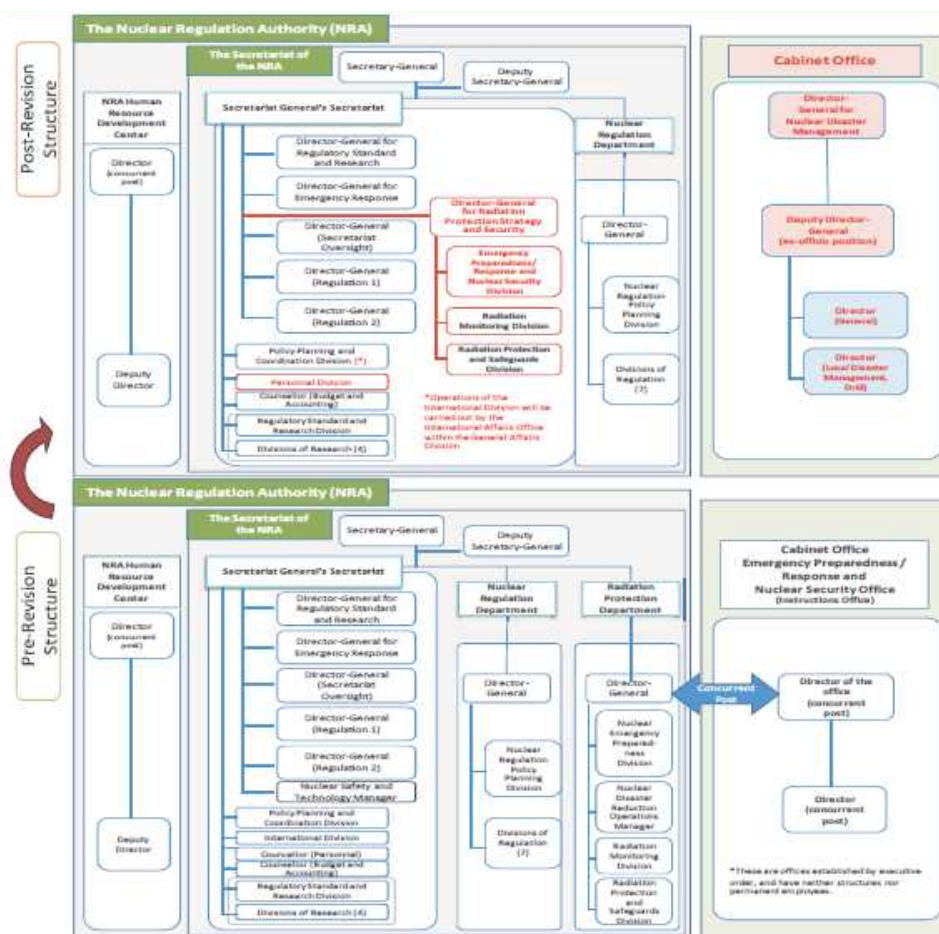


Figure 2 Organizational reform aimed to improve nuclear emergency monitoring system



### Section 3 Establishment of the management system

The NRA established Nuclear Regulation Authority Management Rules at the 22nd NRA Commission Meeting for FY 2014 (September 3, 2014) in order to fulfill its objectives defined in the Act for Establishment of the Nuclear Regulation Authority, to ensure nuclear energy safety and to build an effective management system integrating relevant elements such as quality management and security management.

The NRA implemented the new rules at a trial basis for six months starting October 1, 2014 to verify their suitability and validity before fully implementing the management system on April 1, 2015.

In preparation for the full operations, the NRA set up the mid-term goals (during a five-year period starting FY 2015) at its 56th Commission Meeting of FY 2014 (February 12, 2015) and developed annual strategic plans for FY 2015 in its 65th Commission Meeting of FY 2014 (March 25, 2015).

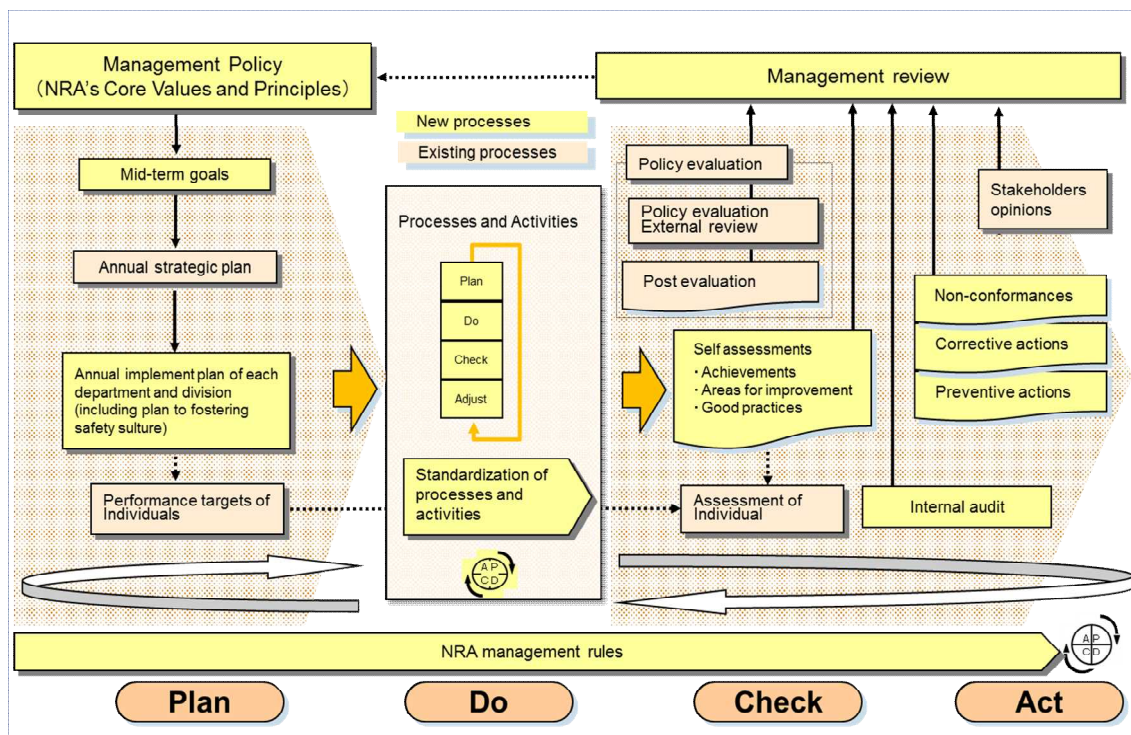


Figure 3 Management system in the NRA

## **Section 4 Coordination and collaboration with international organizations and nuclear regulatory bodies**

The NRA undertook measures to enhance nuclear regulation through active collaboration and cooperation with international organizations and overseas nuclear regulatory organizations. The NRA forcefully disseminated information on regulatory activities based on lessons learned from the accident at TEPCO's Fukushima Daiichi NPS, on international safety standards, and its nuclear regulatory efforts in line with the latest scientific and technological information. The NRA incorporated information, lessons learned and regulatory practices from other overseas organizations.

### **1. Collaboration with International Organizations (IAEA and OECD/NEA)**

The NRA shared domestic activities and information through attendance at conferences organized by international organizations such as the IAEA, OECD (Organization for Economic Co-operation and Development) /NEA (Nuclear Energy Agency) and dispatched experts abroad, and incorporated the results to improve nuclear regulatory practices at home.

(1) Attendance at conferences organized by the IAEA, OECD/NEA and other international organizations.

The Commissioners attended a series of international meetings mentioned below and shared the findings and lessons learned from the accident at TEPCO's Fukushima Daiichi NPS with the international community and exchanged views and information to help to contribute to nuclear safety on a global scale.

**Table 4 Participation of NRA Commissioners in various conferences**

<b>Dates</b>	<b>Conferences</b>	<b>Attended by</b>
April 8, 2014	International Conference on Global Nuclear Safety Enhancement (Tokyo) convened by OECD/NEA	Chairman Tanaka Commissioners Fuketa and Oshima
September 22, 2014	IAEA General Conference (Vienna, Austria)	Chairman Tanaka
October 21 and 22, 2014	The International Nuclear Safety Group (INSAG) (Vienna) convened by the IAEA	Commissioner Fuketa
October 23 and 24, 2014	Meeting of the International Technical Advisory Group (ITAG), on Japan's Comprehensive Report on Conditions at TEPCO's Fukushima Daiichi Nuclear Power Station (Vienna), convened by the IAEA	Commissioner Fuketa
November 3 and 4, 2014	IAEA Commission on Safety Standards (CSS) (Vienna)	Commissioner Fuketa
December 1 to 3, 2014	International Conference on Occupational Radiation Protection, organized by the IAEA and co-sponsored by the ILO (International Labour Organization) (Vienna)	Commissioner Nakamura
December 4, 2014	Visit to the IAEA Environment Laboratories (Monaco)	Commissioner Nakamura
February 23 and 24, 2015	ITAG (Vienna)	Commissioner Fuketa
March 9, 2015	Bureau meeting of Committee on the Safety of Nuclear Installations (CSNI) of OECD/NEA (United States)	Commissioner Fuketa
March 10, 2015	Bureau meeting of the Joint The Committee on Nuclear Regulatory Activities (CNRA) of OECD/NEA and CSNI (United States)	Commissioner Fuketa

(2) Exchange of views with the IAEA Director General and the OECD/NEA Director-General

NRA Chairman Tanaka held discussions with IAEA Director General Amano on several occasions, including at the IAEA general conference in September 2014. He also exchanged views with OECD/NEA Director-General William D. Magwood in November 2014 and February 2015.

The Chairman specifically highlighted the NRA's organizational reform and the ongoing review of New Regulatory Requirements. He expressed the NRA's commitment to continue close cooperation with international organizations.

(3) OECD/NEA-sponsored International Conferences in Japan

(i) OECD/NEA International Conference on Global Nuclear Safety Enhancement

"The OECD/NEA International Conference on Global Nuclear Safety

Enhancement" was held in Tokyo on April 8, 2014, a year which marked the 50th anniversary of Japan joining the OECD. The conference was held as part of many commemorative events to mark the anniversary and it reviewed the progress of international efforts to improve nuclear safety and regulation enhancement. NRA Chairman Tanaka gave an opening speech. Commissioner Fuketa made a presentation as did representatives and experts from other overseas regulatory authorities. Commissioner Oshima served as chair in the sessions.

(ii) Seventh Asian Regional Conference on the Evolution of the System of Radiological Protection

The OECD Nuclear Energy Agency Committee on Radiation Protection and Public health (CRPPH) held the "Seventh Regional Conference on the Evolution of the System of Radiological Protection" in cooperation with the Ministry of Education, Culture, Sports, Science and Technology, the NRA and the National Institute of Radiological Sciences in Tokyo January 8-9, 2015. The conference focused on radiological protection issues arising from the TEPCO's Fukushima Daiichi NPS accident and sharing knowledge and experience between various stakeholders in Asia and other regions. Commissioner Nakamura made an opening address.

(4) Situation of preparation for IAEA Integrated Regulatory Review Service (IRRS) missions

The IAEA has dispatched Integrated Regulatory Review Service (IRRS) missions at the request from member states to review and evaluate the legal and regulatory infrastructure, organizational arrangements and various themes for nuclear regulation. In December 2013, the NRA requested a mission towards the end of 2015 and established a preparatory office in May 2014. The same month, an IAEA workshop on development of IRRS self-assessment materials was held in Tokyo, and IAEA staff gave briefings on the objectives and contents of IRRS missions, considerations, and procedures for the self-assessments. After the workshop, the NRA started to prepare self-assessment materials which will be reviewed by the IRRS mission, which included the self-assessment report and action plans which is identified through the self-assessment process.

(5) IAEA International Physical Protection Advisory Service (IPPAS)

The International Physical Protection Advisory Service (IPPAS) is a review conducted by the IAEA in member States to examine protective measures on nuclear materials and present recommendations. A series of preparatory meetings were held in Tokyo June 30-July 1, 2014, and the IPPAS mission visited Japan in February 16 -27, 2015 (For more details, see chapter 6).

(6) Communication on marine monitoring programs including one project conducted in cooperation with the IAEA

As a part of its international communication program, the NRA regularly releases marine monitoring results<sup>3</sup> from areas surrounding TEPCO's Fukushima Daiichi NPS and other areas (F1 Issues, Sea Area Monitoring). The NRA and IAEA have compared the results of sea water analysis done by IAEA and Japanese laboratories and conduct a proficiency test with laboratories under the agreement on cooperation of marine monitoring in Japan (For more details, see chapter 7).

## **2. Implementation of international treaties on nuclear safety**

(1) Convention on Nuclear Safety

The convention covers nuclear power stations to maintain high levels of nuclear safety throughout the world. It contains provisions for establishing and maintaining radiation protection in nuclear facilities, to prevent accidents leading to radiation fallout, and mitigating the consequences should any accident happen. The NRA is responsible for (a) developing national reports, (b) conducting peer reviews among member States, and (c) attending meetings of Contracting Parties (review meetings) and undertaking other activities ("convention processes").

The latest sixth national report, submitted in August, 2013, highlighted the NRA organization, its New Regulatory Requirements for nuclear facilities implemented in July 2013, and the organization's activities under the new Nuclear Emergency Response Guidelines.

The sixth review meeting was held in Vienna, Austria, on March 24 to April 4, 2014, to examine national reports. A Japanese government delegation consisting of delegates from the NRA, the Ministry of Foreign Affairs, and

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<sup>3</sup> <http://www.nsr.go.jp/english/f1issues/index.html>

nuclear operators attended the meeting. In the review of the National Report of Japan, other State Parties praised Japan's activities, including the establishment of an independent and stronger regulatory organization (the NRA), the adoption of stricter regulatory requirements, and the introduction of back fitting to existing nuclear plants. The sixth review meeting also highlighted the following challenges: stabilization of the site status of TEPCO's Fukushima Daiichi NPS, treatment of contaminated water, implementation of back fitting measures and safety improvement, the enhancement of a safety culture among operators' through ongoing dialogue, improvement of the management system and human resources development, and the enhancement of inspection functions. The NRA is now aggressively working to meet those challenges during the next convention (seventh) process (2014 to 2017).

(2) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention)

The convention deals with safety in managing spent fuels and radioactive wastes from nuclear power stations and research reactors. Its aim is to achieve and maintain a high standard of global safety in spent fuel and radioactive waste management, ensuring an effective defenses against potential hazards during all stages of management of such materials, preventing accidents with radiological consequences, and mitigating consequences should any accident happen.

The NRA is responsible for preparing the national reports required by the convention and conducting peer reviews in cooperation with other relevant authorities (Ministry of Foreign Affairs and Ministry of Economy, Trade and Industry).

In October 2014, it submitted the fifth national report, which addressed the organization and functions of the NRA, laws and regulation and new nuclear energy regulatory requirements and NRA activities to regulate spent fuels and radioactive wastes.

(3) The Convention on Early Notification of a Nuclear Accident and Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency  
The Convention on Early Notification provides the framework for notifying potentially affected states and the IAEA of any nuclear accident with

radiological consequences beyond national borders, while the Convention on Assistance deals with the framework for international collaboration of assistance in a radiological emergency.

The meeting of contracting parties (meeting of competent authorities) to the Convention on Early Notification and the Convention on Assistance is held every two years, the latest being held in May 2014. Officials principally from the Ministry of Foreign Affairs, and other officials from the NRA attended.

(4) The Convention on the Physical Protection of Nuclear Material and the International Convention for the Suppression of Acts of Nuclear Terrorism

The Convention on the Physical Protection requires its contracting parties to provide protective measures for nuclear material during international transportation and the protection of nuclear materials against unlawful seizure or use. In July 2005, the convention was revised, and the protection obligation was extended to cover domestic use, storage and transport of nuclear materials to be used for peaceful purposes (for more details, see chapter 6).

The International Convention for the Suppression of Acts of Nuclear Terrorism underlines that any act of nuclear terrorism may pose a threat to international peace and security. The treaty is aimed at enhancing international state cooperation in devising and adopting effective and practical measures for the prevention of such acts and for the prosecution and punishment of perpetrators. Japan is a contracting party and the NRA is implementing the convention on its behalf.

### **3. Cooperation with Foreign Nuclear Regulatory Authorities**

(1) The International Nuclear Regulators Association (INRA)

The International Nuclear Regulators Association (INRA) is a forum for regulators from major nuclear hosting countries to discuss a wide range of safety regulation issues. It was established in 1997 and its current members include Japan, U.S.A., France, U.K., Germany, Canada, Sweden, Spain, and South Korea.

It meets bi-annually and its 34<sup>th</sup> conference was held April 28-30, 2014 at Germany's Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). NRA Chairman Tanaka gave a briefing about the NRA's capacity building through the integration of the Japan

Nuclear Energy Safety Organization, through New Regulatory Requirements and efforts to control the aftermath of the Fukushima Daiichi NPS accident. During the IAEA General Conference in September 2014, the 35th meeting was held at the residence of the Ambassador of the German Permanent Mission to the IAEA in Vienna, Austria. NRA Chairman Tanaka highlighted various topics on nuclear regulation.

(2) Regional cooperation: Top Regulators' Meeting on Nuclear Safety Among China, Japan and Korea (TRM) Mechanism

Since 2008 Japan, China and South Korea have held annual meetings to discuss regional cooperation on nuclear safety. In September 2014, Japan chaired the seventh meeting in Tokyo. The three countries decided to set up a working group for information exchange during both normal and emergency operations and another working group on human resources development. It was a good opportunity to deepen mutual cooperation.

An additional mechanism known as "TRM Plus" was created to allow other countries to join the three-country forum. On September 3, 2014, the NRA sponsored the first meeting in Tokyo, followed by a second meeting in Seoul in November under the sponsorship of Korea Ministry of Foreign Affairs.

(3) Bilateral cooperation: Preparation of cooperation documents

By the end of FY2013, the NRA had concluded memorandums of understanding with nine nuclear regulators (eight countries). In FY 2014, it concluded memorandums of understanding on exchange of regulatory information with German regulator BMUB (Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety), the Vietnam Agency for Radiation and Nuclear Safety (VARANS), the Turkish Atomic Energy Authority (TAEK) and the State Nuclear Power Safety Inspectorate of the Republic of Lithuania (VATESI) in connection with the IAEA General Conference in September 2014. The NRA exchanges information and views on nuclear regulation through these bilateral mechanisms.

(4) Bilateral meetings

As a part of Japan's cooperation with the United States, NRA Chairman Tanaka met with the Chairman of the Nuclear Regulatory Commission



(NRC), and the Secretary General of the US Department of Energy (DOE) Director in Washington in July 2014. The NRC and NRA also organized a Japan-U.S. Steering Committee meeting (technical meeting) in Tokyo in December 2014 to share information including the current situation at the Fukushima Daiichi NPS and future cooperation. In March, 2015, the NRA held a Japan-US Steering Committee meeting in connection with a Regulatory Information Conference (RIC) hosted by the NRC. Commissioner Fuketa attended both meetings. As a part of its cooperation with France, the Director-General for Emergency Response was an observer in a national emergency response drill at Belleville NPS in France in May 2014. In September 2014, a Japan-France information exchange meeting was held between Commissioner Oshima and a French Nuclear Safety Authority (ASN) Commissioner in Paris. In October 2014, a second meeting between Japanese and French regulatory authorities was held in Tokyo and Commissioner Satoru Tanaka and a French ASN Commissioner discussed the New Regulatory Requirements and the current conditions of TEPCO's Fukushima Daiichi NPS.

As a part of its cooperation with the United Kingdom, the NRA held a regulatory information exchange meeting in Tokyo in June 2014, under an arrangement on regulatory information exchange concluded with the Office for Nuclear Regulation (ONR). In October 2014, the CEO (Chief Executive Officer) of ONR visited Japan for talks with NRA Chairman Tanaka and discussed the progress of the Generic Design Assessment (GDA) process, desirable information disclosure and development of an emergency plan reflecting lessons learned from TEPCO's Fukushima Daiichi NPS accident.

As for cooperation with China and Korea, the NRA in September 2014, had an information exchange session with the Nuclear and Radiation Safety Center (NSC), a Chinese technological assistance agent, about the operating experience of nuclear power plants in Tokyo. In November 2014, it participated in an emergency preparedness drill at Kori NPS in Korea.

As part of its cooperation with Sweden, the NRA held a technical information exchange meeting on severe accidents under an arrangement on regulatory information exchange with the Swedish Radiation Safety Authority (SSM) in October 2014. In February 2015, Commissioner Satoru Tanaka discussed future cooperation with SSM Director General, Mats Persson in Sweden.

As a part of its cooperation with Finland, Commissioner Satoru Tanaka met with the Director General of the Radiation and Nuclear Safety Authority (STUK) in Finland in February 2015. Additionally, Chairman Tanaka discussed future cooperation with the IAEA Director General, OECD/NEA Director General, NRC Chairman, German BMUB (The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety) Minister, the TAEK Director General, and the VARANS (Vietnam Agency for Radiation and Nuclear Safety) Director General in connection with the IAEA General Conference held in Vienna in September 2014. He also met the representatives of DOE (United States), ONR (United Kingdom), ROSTEKHNADZOR (Russia), SSM (Sweden), FANR (the Federal Authority for Nuclear Regulation, UAE), who attended the IAEA conference. In addition, the NRA received courtesy calls by senior officials from foreign nuclear regulatory authorities and exchanged views.

(5) Human resources development

The NRA, through the NRA Human Resource Development Center and the Secretariat of the NRA, held practical training sessions for VARANS staff on nuclear regulation in Tokyo, on September 2 to October 16 and on December 1 to 18, 2014, under the memorandum between Japan and Viet Nam. It held a seminar on June 9-12, 2014 and November 10 -13 in Hanoi, Viet Nam. The NRA sponsored a seminar in Ankara, Turkey, for TAEK personnel on October 15-16, 2014 through its secretariat and the NRA Human Resource Development Center under the memorandum between Japan and Turkey.

#### **4. View exchange with External Advisers**

The NRA has three international experts who have acted as external advisors for leading nuclear regulatory authorities in the United States, the United Kingdom, and France (see table 5). The advisers visited Japan in June and November 2014, and exchanged views with Chairman Tanaka and Commissioners. As a part of its efforts to share information with the public, the NRA has made the advisers written views available since FY 2014. NRA Chairman Tanaka and his Commissioners also exchanged views with the advisers in connection with their overseas work and visits to Japan.

**Table 5 External Advisers<sup>4</sup>**

Andre-Claude Lacoste	Former Chairman of the ASN Led the Integrated Regulatory Review Service (IRRS) of the IAEA to Japan in 2007
Richard A. Meserve	Former Chairman of the NRC Chairman of the IAEA International Nuclear Safety Group (INSAG)
Michael Weightman	Former Executive Head of the ONR Led the IAEA Expert Team on Investigation into the Accident at TEPCO's Fukushima Daiichi NPS in 2011

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<sup>4</sup> Titles are those as of March 31, 2015.

**Table 6 External advisers' summarized recommendations  
(Discussions were held in June 2014, and their recommendations became  
publicly available in July 2014)**

Topics	Recommendations
(1) Restart	The establishment of the accuracy and completeness of the arguments for safe restart in the documents is necessary for the NRA's safety-assessment work. We urge the NRA and the operators to ensure public awareness of the reality that the restart of some of the plants may not proceed exactly as planned. The plants have not operated for an extended period and it is likely that some problems associated with the long shutdown period will arise.
(2) Fukushima Daiichi Decommissioning	It is important that resources be focused on addressing major hazards. Need to commence releasing water from storage that meets release criteria.
(3) Offsite Emergency Response	One of the lessons from the Fukushima accident is that sheltering should be considered as a response to an accident
(4) Japan Nuclear Safety Institute (JANSI)	The principle responsibility for safety rests with licensees. The operators need to make the necessary commitment to change and to build a healthy safety culture through mutual reinforcement of each other's efforts. JANSI is a vehicle to assist operators in the establishment of an appropriate safety culture.
(5) Export	The NRA should not undertake to confirm the safety or reliability of components or systems that are exported. We believe that the NRA can play an important role in assisting the receiving-country regulator in evaluating components or systems that have been exported from Japan.

**Table 7 International advisers' summarized recommendations  
(View exchange sessions were held in November 2014 and publicly  
available in February 2015)**

<b>Topics</b>	<b>Recommendations</b>
(1) Fukushima Daiichi Decommissioning	Water that meets release criteria should be released instead of continuing to be accumulated at the site. An effort should be made to develop, explain, and implement a risk-based strategy to decommissioning
(2) Restart of Reactors	We compliment the NRA on the significant progress that is being made in evaluating the various applications for reactor restart. It is likely that some problems will be encountered during restart because of the extended time during which the reactors have not operated. Such interruptions should be seen to reflect the fact that the restart is proceeding in a cautious and safe manner.
(3) Organizational issues	On the one hand, it is essential that the regulatory authority is accountable to its stakeholders for both its decisions and processes. A comprehensive review of the early years of the NRA's activities is appropriate. On the other hand, it is equally important that the regulator be free from political influence. We suspect that the maintenance of a clearly independent regulator is likely to be essential for the restoration of public confidence in nuclear power. Moreover, given the importance of establishing a stable regulatory system, we are mindful of the disruption that is likely to attend any governmental reshuffling of the NRA's reporting line.
(4) Human Resources	We are concerned that the agency is short-handed – there simply are insufficient numbers of staff with the necessary capabilities. We hope that incentives can be provided that enable the recruitment high-quality staff and that barriers to recruitment, such as the no-return policy, can be eliminated. We recognize that these matters may not be fully under NRA's control.
(5) Safety-Security Interface	It is essential that there be an integrated chain of command in the protected area of a nuclear plant so as to assure that actions taken to maintain safety and those to assure security are coordinated and integrated with each other. This can be a challenge because the culture and background of those involved in safety are typically quite different from those involved in security matters. Because the NRA has responsibility for both safety and security, it must assure that the appropriate integration is occurring.
(6) Seismic and Tsunami Risk	It is important that the NRA's evaluation be guided by the best scientific judgment that can be brought to bear. These are areas in which there is significant scientific capacity among Japanese researchers. But because of the large number of sites that must be evaluated, we suspect that it may be appropriate to supplement that skills that can be marshalled from the Japanese scientific community with expertise from abroad.
(7) Radiation dose for workers	The International Commission on Radiological Protection (ICRP) has advised that "a high dose received in an accident should not necessarily preclude a worker from returning to radiation work." Because the matter may not be completely clear, we understand that the ICRP may provide some further guidance on this matter. In the meantime, it may be appropriate to use exception authority in appropriate cases and with informed consent to allow skilled workers to continue in their jobs,

## **Section 5 A 'Whistleblower' System at Nuclear Facilities**

In order to detect legal and regulatory violations by nuclear operators at an early stage and to help prevent nuclear disasters, the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (Act No. 166 of 1957, hereafter referred to as the "*Reactor Regulation Act*") provides for an "allegation (whistleblower) system concerning safety information of nuclear facilities." Under this system the NRA investigates charges made by employees and others concerning potential violations and, if necessary, issues directives to the relevant operators or takes other corrective measures.

To ensure the neutrality and transparency of investigations conducted by the NRA Secretariat, a Nuclear Facility Safety Information Allegation Committee consisting of external experts was set up to process complains as promptly as possible. Attentions have been paid to protect 'whistleblowers', and the operational status of the system is disclosed. At the end of FY 2014, one case had been completed. There were no other cases pending.

## **Chapter 3 Comprehensive Implementation of Regulations at Nuclear Facilities**

### **Section 1 Continuous Improvement of the Regulation System, Reactor Regulation Act**

#### **1. Status of Review of the Regulation System**

##### **(1) Study of method of operational safety inspection**

After receiving instructions to strengthen regulations covering operational safety programs for nuclear power facilities (hereafter referred to as “*operational safety inspection*”) at the 25th NRA Commission Meeting of FY 2012 (Jan. 30, 2013), the Secretariat of NRA examined the situation on operational safety inspection, taking into consideration opinions of the Secretariat of NRA staff and comments from the outside. Results of its examination was reported at the 5th and 17th NRA Commission Meetings of FY 2013 (May 8, Jul. 31, 2013), classifying as the short-term issues and the mid-and-long term issues. Specific responses to short-term issues, including the prioritization of inspections, have already begun.

Concerning mid-term and long-term issues, the following three policies to improve measures covering commercial power reactors (excluding those under decommissioning procedures) at the first NRA Commission Meeting of FY 2014 (Apr. 2, 2014) were outlined:

- (i) Operational Safety Inspections: to identify actual safety conditions and determine whether there is a violation, unannounced inspections will be held, potential problems and issues identified prior to the inspection, and the relevant operators documents, examined to determine the true situation. The licensee will receive no prior warning.
- (ii) In operational safety inspections, current safety activities and the implementation of education and training programs have been identified through on-site inspections, record reviews and face-to-face meetings. In addition to these measures, meetings with management and general employees will be held and participation in education, training and review activities will be undertaken to assess their effectiveness and the overall degree of understanding of relevant laws, regulations and operational safety programs.
- (iii) Regulated resources should be more effectively managed by continuously evaluating any potential problem surrounding safety achievements and activities and focusing on inspections to probe any

weak points at each facility. For this purpose, by taking the concept utilizing the indicator and risk information concerning safety in addition to safety achievements so far utilized into the regulations, the objectivity of regulations will be heightened, and the technique for realizing this will be examined.

Based on the suggested policies relating to mid-term and long-term issues, the development of inspection procedures and the evaluation of trial operations and trial results in operational safety inspections have been performed for items (i) and (ii). As for item (iii), the enlargement of the indicators has been examined.

In addition, it was decided to deal with nuclear power facilities similar to procedures for commercial power reactor facilities (excluding those under decommissioning procedures) while taking into account features specific to each facility.

(2) Review of regulations relating to occupational exposure during emergency work

Following the Fukushima accident, radiation dose limits for emergency workers was temporarily raised from 100 mSv to 250 mSv. And similar situations may arise in the future. Thus, at the 18th NRA Commission Meeting of FY 2014 (Jul. 30, 2014), the NRA examined regulations concerning potential radiation exposure during emergencies. At the 45th NRA Commission Meeting of FY 2014 (Dec. 10, 2014), the NRA examined the regulations of both domestic and relevant overseas organizations, and draft ordinance and notice amendments were prepared. They included stipulations that emergency workers should be limited to those that have been provided information on occupational exposure, that have expressed intention to participate, and that had already undergone necessary training; and that in addition to the effective dose limit of 100 mSv, dose limit of 250 mSv will be set in case that radioactive materials were released off-sites or the threat of a release to off-sites was recognized as high. The NRA began public comment process on May 21, 2015.

(3) Study team on monitoring volcanic activity around nuclear power facilities

Whenever any abnormal volcanic activity is monitored around nuclear power facilities, the NRA must take action, including the possibility of shutting down



a reactor. A study team to monitor such eventualities was established in the 20th NRA Commission Meeting of FY 2014 (Aug. 20, 2014). In FY 2014, five study team meetings were held, with the participation of a volcanologist, to collect and discuss data including information on earlier large eruptions.

## **2. Status of Examination in the Reactor Safety Examination Committee, the Nuclear Fuel Safety Examination Committee, and the Radiation Council**

On May 12, 2014, the NRA requested the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee to analyze information on accidents and malfunctions both domestically and overseas and examined the trend of foreign regulations. Also the NRA requested them to issue advice based on this analysis.

The Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee held a joint committee meeting, naming a chairman and agreeing a methodology for future meetings. At its second meeting, the joint committee examined the issue of “corrosion in fire protection piping due to air and water interaction.”, a particular example in the United States. At its third meeting, the joint committee reviewed overseas operational experiences. At the fourth joint committee, an operational provision for the establishment of committee working groups within the Examination Committees was amended, and the issue of “potential circuit failure-induced secondary fires or equipment damage” was considered. All committee results were submitted to the NRA and in FY 2014 no changes or amendments were needed in the Regulatory Requirements.

The Technical Information Committee of the NRA Secretariat forwarded the committee findings respectively to the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee.

Following the previous FY, in the Technical Information Committee, such information was examined and arranged, and the necessary reviews were performed for one phase Conditions in Electric power system so far examined to amend the Regulatory Guide of NRA Ordinance on Standards for the Location, Structure, and Equipment of Commercial Power Reactors and the Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor Facilities.

It is stipulated in the Act on Technical Standards for Prevention of Radiation Hazards (Act No.162 of 1958) that the Radiation Council shall be inquired by the chief of the relevant administrative body and shall examine the 'Technical Standards' governing the prevention of radiation hazards. In 2014, the status of inquiry and reporting after the TEPCO's Fukushima Daiichi NPS accident and the state of deliberation so far performed concerning the acceptance of the ICRP 2007 recommendation were reviewed. In addition, because the NRA started the examination of regulations concerning radiation exposure during the emergency phase, subsequent hearings by the relevant bodies were conducted to determine how TEPCO dealt with the radiation dose limits for emergency workers just after the accident.

## **Section 2 Status of Review and Inspection of Domestic Nuclear Power Facilities**

### **1. Conformity Review of Commercial Power Reactors and Nuclear Fuel Facilities**

After the NRA introduced New Regulatory Requirements on July 8, 2013, 11 commercial operators submitted applications to change reactor installations at 15 nuclear power stations (Table 8) by FY 2014. Review meetings were held 113 times. Discussions centered on issues such as design basis ground motion, design basis tsunami, basis preventive design against tornadoes, internal overflows, and internal fires. Accident-prevention procedures and measures to prevent core damage and breakage of containment vessels were evaluated.

Draft review reports concerning changes in reactor installation at units 1 and 2 of the Sendai NPS and units 3 and 4 at the Takahama Power Station, were organized on the basis of the discussions in the review meeting. Scientific and technical suggestions covering the ability of operators and the construction of reactors and other facilities were included in the draft review reports which the NRA requested from the Minister of Economy, Trade and Industry and the Japan Atomic Energy Commission. The NRA subsequently approved the changes in reactor installation for units 1 and 2 of the Sendai NPS in the 23rd NRA Commission Meeting of FY 2014 (September 10, 2014) and for units 3 and 4 of the Takahama Power Station in the 56th NRA Commission Meeting of FY 2014 (February 12, 2015). In addition, the construction plan of unit 1 of the Sendai NPS was approved in the 63rd NRA Commission Meeting of FY 2014 (March 18, 2015). The application for a pre-service inspection for unit 1 of the Sendai NPS was received on March 19, 2015 and the pre-service inspection was started on March 30 of the same year.

Applications for design changes to meet the challenge of specified severe accidents were submitted by 3 operators covering 6 plants of 3 NPSs (Table 8). These applications were under review.

After the New Regulatory Requirements covering nuclear fuel facilities went into effect on Dec. 18, 2013, 8 operators submitted applications for installation changes for 19 facilities (Table 9) by FY 2014. They included 2 applications for uranium fuel fabrication facilities and 9 applications for nuclear research and test reactor facilities. These applications are now under review by the NRA. In FY 2014, 40 review meetings attended by the NRA were held to review the status of reprocessing facilities including those of Japan Nuclear Fuel,

Limited and the MOX fuel fabrication facilities (Reprocessing Facility of Japan Nuclear Fuel, Limited), the uranium fuel fabrication facilities (Enrichment and Disposal Facility of Japan Nuclear Fuel, Limited) and the nuclear research and test reactor facilities (Japan Atomic Energy Agency JRR-3).

In parallel with the Conformity Review, current status is being confirmed that fuel fabrication facilities handling uranium hexafluoride at positive pressure do not pose significant risks to the public from radiation exposure or chemical impact.

**Table 8 Status of Applications for Review of Commercial Power Reactors**

Applicant	Targeted power reactor	Receipt date	Number of times of review meetings	Number of times of on-site investigations	Date of approval
Hokkaido Electric Power Co., Inc.	Tomari NPS (Units 1 and 2)	Installation change. Construction plan Operational safety program change July 8, 2013	12	1	—
	Tomari NPS (Unit 3)	Installation change Construction plan Operational safety program change July 8, 2013	13	1	—
Tohoku Electric Power Co., Inc.	Onagawa NPS (Unit 2)	Installation change Construction plan Operational safety program change December 27, 2013	36	1	—
	Higashidori NPS (Unit 1)	Installation change Construction plan Operational safety program change June 10, 2014	2		—
Tokyo Electric Power Company	Kashiwazaki Kariwa NPS (Units 6 and 7)	Installation change Construction plan Operational safety program change September 27, 2013	34	3	—
	◆Kashiwazaki Kariwa NPS (Units 1, 6 and 7)	Installation change December 15, 2014	3		—
Chubu Electric Power Co., Inc.	Hamaoka NPS (Unit 4)	Installation change Construction plan Operational safety program change February 14, 2014 January 26, 2015 (* 1)	29		—
Hokuriku Electric Power Company	Shika NPS (Unit 2)	Installation change Construction plan Operational safety program change August 12, 2014	2		—

Applicant	Targeted power reactor	Receipt date	Number of times of review meetings	Number of times of on-site investigations	Date of approval
Kansai Electric Power Co., Inc.	Ohi Power Station (Units 3 and 4)	Installation change Construction plan Operational safety program change July 8, 2013	13		—
	Takahama Power Station (Units 3 and 4)	Installation change Construction plan Operational safety program change July 8, 2013	26		Installation approval February 12, 2015
	◆Takahama Power Station (Units 3 and 4)	Installation change December 25, 2014	1		—
	Takahama Power Station (Units 1 and 2 (3 and 4))	Installation change March 17, 2015			—
	Mihama Power Station (Unit 3)	Installation change Operational safety program change March 17, 2015			—
Chugoku Electric Power Co., Inc.	Shimane NPS (Unit 2)	Installation change Construction plan Operational safety program change December 25, 2013	36	2	—
Shikoku Electric Power Co., Inc.	Ikata Power Station (Unit 3)	Installation change Construction plan Operational safety program change July 8, 2013	30	1	—
Kyushu Electric Power Co., Inc.	Genkai NPS (Units 3 and 4)	Installation change Construction plan Operational safety program change July 12, 2013	10		—
	Sendai NPS (Units 1 and 2)	Installation change Construction plan Operational safety program change July 8, 2013	13	1	Installation approval September 10, 2014 Construction plan approval (Unit 1) March 18, 2015

Applicant	Targeted power reactor	Receipt date	Number of times of review meetings	Number of times of on-site investigations	Date of approval
The Japan Atomic Power Company	Tokai Daini NPS	Installation change Construction plan Operational safety program change May 20, 2014	8		—
J-Power	Oma NPS (*2)	Installation change Construction plan December 16, 2014	4		—

- Several applications may be reviewed at any one session of the review meeting.
- The number of review meetings mainly attended by members of the NRA is noted as a rule.
- The number of on-site investigations implemented by the members of the NRA is noted, and those implemented only by the staff of the secretariat of the NRA are excluded.

◆: Application concerning Specialized Safety Facility

\*1: Application for installation change of nuclear power reactor dated February 14, 2014 was withdrawn on January 26, 2015 and submitted again in order to add dry storage facility for spent fuel.

\*2: This application includes the contents concerning Specialized Safety Facility

**Table 9 Status of Application of Nuclear Fuel Facility**

<b>Applicant</b>	<b>Facility</b>	<b>Receipt date</b>	<b>Number of times of review meetings or reviews implemented by Secretariat of the NRA</b>	<b>Number of times of on-site investigations</b>	<b>Date of approval</b>
Japan Nuclear Fuel Limited	Reprocessing facility	Installation change Operational safety program change January 7, 2014	21 <sup>*1</sup>	1	—
	MOX fuel fabrication facility	Installation change January 7, 2014	15 <sup>*1</sup>	1	—
	Uranium enrichment facility	Installation change Operational safety program change January 7, 2014	4 <sup>*2</sup>		—
	Waste interim storage facility	Business change January 7, 2014	53 <sup>*3</sup>	1	—
Recyclable-Fuel Storage company	Spent fuel interim storage facility	Business change January 15, 2014	52 <sup>*3</sup>		—
Mitsubishi Nuclear Fuel Co., Ltd.	Uranium fuel fabrication facility	Installation change Operational safety program change January 31, 2014	3 <sup>*2</sup>		—



Applicant	Facility	Receipt date	Number of times of Review Meetings or reviews implemented by Secretariat of the NRA	Number of times of on-site investigations	Date of approval
Japan Atomic Energy Agency	Waste interim storage facility	Business change February 7, 2014	28 <sup>*3</sup>		—
	JRR-3	Installation change Operational safety program change September 26, 2014	6 <sup>*2</sup>	1	—
	HTTR (High-temperature engineering test reactor)	Installation change Operational safety program change November 26, 2014	4 <sup>*2</sup>	1	—
	Waste Treatment Facility of Nuclear Science Research Institute	Installation change February 6, 2015	1 <sup>*2</sup>		—
	JMTR (Materials testing reactor)	Installation change Operational safety program change March 27, 2015	-		—
	NSRR	Installation change March 31, 2015	-		—
	STACY (Static Experiment Critical Facility)	Installation change March 31, 2015	-		—
Nuclear Fuel Industries, Ltd.	Uranium fuel fabrication facility (Tokai Works)	Installation change Operational safety program change February 14, 2014	4 <sup>*2</sup>		—
	Uranium fuel fabrication facility (Kumatori Works)	Installation change Operational safety program change April 18, 2014	1 <sup>*2</sup>		—
Global Nuclear Fuel Japan	Uranium fuel fabrication facility	Installation change Operational safety program change April 18, 2014	2 <sup>*2</sup>		—

Applicant	Facility	Receipt date	Number of times of Review Meetings or reviews implemented by Secretariat of the NRA	Number of times of on-site investigations	Date of approval
Kyoto University	KUR (Kyoto University Research Reactor)	Installation change Operational safety program change September 30, 2014	8 <sup>*2</sup>	1	—
	KUCA (Kyoto University Critical Assembly)	Installation change Operational safety program change September 30, 2014	19 <sup>*3</sup>	1	—
Kinki University	Kinki University nuclear reactor	Installation change Operational safety program change October 20, 2014	7 <sup>*3</sup>	1	—

- Several applications may be reviewed at one session of the review meeting.
- It was decided by the NRA that the reviews of nuclear fuel facilities are to be promoted by classifying the review meeting into the following categories considering the magnitude of impact provided by the facility in the event of an accident:
  - \*1 Review meeting attended by NRA members
  - \*2 Review meeting held by the secretariat of the NRA as a rule.
  - \*3 Review implemented by the secretariat of the NRA without holding the review meeting
- The number of on-site investigations implemented by the NRA is noted, and those implemented only by the secretariat of the NRA is excluded.

## **2. Review of Aging Management**

The Reactor Regulation Act requires operators to conduct a technical evaluation of aging management and to develop a long-term maintenance policy to implement appropriate corrective measures, namely any needed revisions to operational safety programs. In the 17th NRA Commission Meeting (Jul. 31, 2013) and the 35th NRA Commission Meeting (Dec. 11, 2013) of FY 2013, the NRA agreed a detailed review process in which the NRA Secretariat shall review facilities where aging management has been evaluated only on the precondition of maintenance for a cold shutdown. A team consisting of the responsible Director-General and other NRA Secretariat staff will hold a meeting and review plants in which aging management has been evaluated on the precondition of continued operation. Review results will be reported to the Commission meeting for approval.

During FY 2014, 3 operators submitted applications for 3 plants for which only an evaluation on the precondition of maintenance for a cold shutdown was performed. 3 operators submitted applications for 3 facilities on the precondition of continued operation (among these applications, as for unit 1 of TEPCO's Kashiwazaki Kariwa NPS, only the portion on the precondition of maintenance for a cold shutdown will be reviewed). The NRA approved the applications for operational safety program changes concerning aging management submitted by unit 1 of the Onagawa NPS of the Tohoku Electric Power Co., Inc. (approved on May 21, 2014), unit 1 of the Takahama Power Station (approved on Nov. 12, 2014) and unit 2 of the Takahama Power Station (approved on Apr. 8, 2015) for which only evaluations on the precondition of maintenance for cold shutdown were performed. In addition, unit 1 of the Sendai NPS and units 3 and 4 of the Takahama Power Station were evaluated on the precondition of continued operation. The NRA established the review meeting on Technical Evaluation of Aging Management of Nuclear Power Plants and started to review those 2 applications in January 2014, having held a total of 7 meetings.

**Table 10 Status of Application for Approval of Operational Safety Programs  
Change concerning Plant Life Management**

<b>Operator</b>	<b>Receipt date</b>	<b>Reactor</b>	<b>Date at which 30 years or 40 years elapse after operation start</b>	<b>Date of approval</b>
Tohoku-Electric Power Co., Inc.	November 6, 2013	Unit 1 of Onagawa NPS (30 years) (only maintaining cold shutdown)	June 1, 2014	May 21, 2014
Tokyo Electric Power Company	July 31, 2013	Unit 2 of Fukushima Daini NPS (30 years) (only maintaining cold shutdown)	February 3, 2014	January 22, 2014
	June 20, 2014	Unit 3 of Fukushima Daini NPS (30 years) (only maintaining cold shutdown)	June 21, 2015	
	September 16, 2014	Unit 1 of Kashiwazaki Kariwa NPS (30 years) (operation preconditioned)	September 18, 2015	
Kansai Electric Power Co. Inc.	November 12, 2013	Unit 1 of Takahama Power Station (40 years) (only maintaining cold shutdown)	November 14, 2014	November 12, 2014
	January 15, 2014	Unit 3 of Takahama Power Station (30 years) (operation preconditioned)	January 17, 2015	
	June 3, 2014	Unit 4 of Takahama Power Station (30 years) (operation preconditioned)	June 5, 2015	
	November 11, 2014	Unit 2 of Takahama Power Station (40 years) (only maintaining cold shutdown)	November 14, 2015	April 8, 2015
The Chugoku Electric Power Co. Inc.	September 27, 2013	Unit 1 of Shimane NPS (40 years) (only maintaining cold shutdown)	March 29, 2014	February 26, 2014
Kyushu Electric Power Co. Inc.	December 18, 2013	Unit 1 of Sendai NPS (30 years) (operation preconditioned)	July 4, 2014	
	October 10, 2014	Unit 1 of Genkai NPS (40 years) (only maintaining cold shutdown)	October 15, 2015	
	November 21, 2014	Unit 2 of Sendai NPS (30 years) (operation preconditioned)	November 28, 2015	

### 3. Status of Inspection in Major Nuclear Power Facilities

The NRA established 22 Regional Offices near nuclear facilities and stationed nuclear operational safety inspectors and other officers there. The on-site nuclear operational safety inspectors generally conduct periodic operational safety inspections of each facility to determine the status of compliance with operational safety programs. They undertake daily patrols on nuclear facilities, assess operational conditions and attend ordinary testing to assess the overall status of each facility. In nuclear power facilities, they undertake and assess operational safety inspections for important actions for safety, pre-service inspections to check whether construction was carried out in conformity with the approved construction plan, and periodic facility inspections during which the inspectors directly observe periodic licensee inspections. This is to verify conformity to stated technical standards after facilities become operational.

The NRA received an application for a pre-service inspection of unit 1 of the Sendai NPS on March 19, 2015 and began the pre-service inspection on March 30 of the same year.

The status of inspections of major nuclear facilities from April 1, 2014 to March 31, 2015 is shown in table 11.

**Table 11 Status of Inspections of Major Nuclear Facilities  
(From April 1, 2014 to March 31, 2015)**

<b>Tomari NPS, Hokkaido Electric Power Co., Inc.</b>			
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	May 26 to June 6, 2014	No particular safety concerns
	2nd time	August 25 to September 5, 2014	No particular safety concerns
	3rd time	November 25 to December 5, 2014	No particular safety concerns
	4th time	February 23 to March 6, 2015	Inspection results being summarized.

<b>Higashidori NPS, Tohoku Electric Power Co., Inc.</b>			
All reactor operations were shut down during the following periods.			
Periodic facility inspection Operational safety inspection		Implementation period	Result / Remarks
	Unit 1	From February 6, 2011 (under implementation)	
	Operational safety inspection for important actions for safety (Unit 1)		
		May 14 to June 20, 2014	No particular safety concerns
	1st time	June 9 to June 20, 2014	No particular safety concerns
	2nd time	September 1 to September 12, 2014	No particular safety concerns
	3rd time	November 25 to December 5, 2014	No particular safety concerns
	4th time	February 16 to February 27, 2015	Inspection results being summarized.
Others	Fracture zone on the site under investigation from November 2012.		

<b>Onagawa NPS, Tohoku Electric Power Co., Inc.</b>			
All reactor operations were shut down during the following periods.			
Periodic facility inspection Operational safety inspection		Implementation period	Result / Remarks
	Unit 1	From September 10, 2011 (under implementation)	
	Unit 2	From November 6, 2010 (under implementation)	
	Unit 3	From September 10, 2011 (under implementation)	
	1st time	June 2 to June 13, 2014	No particular safety concerns
	2nd time	September 1 to September 12, 2014	Violation of operational safety programs (monitoring) recognized.
	Operational safety inspection for important actions for safety (Unit 1)		
		September 12 to October 17, 2014	No particular safety concerns
		November 7 to November 28, 2014	No particular safety concerns
	3rd time	December 1 to December 12, 2014	No particular safety concerns
4th time	February 23 to March 6, 2015	Inspection results being summarized.	
Accident and malfunction	On September 12, 2011, abnormal noise was heard during checks of an overhead crane on the fifth floor of a nuclear reactor building for unit 1. On June 7, 2012, a detailed investigation found damage to bearings inside the traveling section of the crane concerned. On November 21, 2013, the operator reported the cause and measures to correct the problem. On July 2, 2014, the NRA performed an evaluation.		

**Fukushima Daiichi NPS, Tokyo Electric Power Company**

All reactor operations were shut down during the following periods. Based on the Electric Utility Industry Law, units 1 through 4 and units 5 and 6 were decommissioned on April 19, 2012 and January 31, 2014, respectively. On November 7, 2012, they were designated as "Specified Nuclear Facilities." On December 7 of the same year, they received an "Implementation plan" Designation. On August 14, 2013, an "Implementation plan concerning Specified Nuclear Facilities" was approved.

Periodic facility inspection		Implementation period	Result / Remarks
	Unit 5		From January 3, 2011 (under implementation)
Unit 6		From August 14, 2010 (under implementation)	

		Implementation period	Result / Remarks
A periodic inspection is conducted once a year after facility startup. It investigates the safety capabilities of said facility	Facility periodic inspection		
		June 24 to November 28, 2014	Inspection result: Good
Inspection of the status of implementation of actions for safety defined by implementation plan	Operational safety inspection for important actions for safety (Unit 4)*		
		November 13, 2013 to December 25, 2014	No particular safety concerns
	1st time	June 2 to June 13, 2014	No particular safety concerns
	2nd time	September 4 to September 18, 2014	No particular safety concerns
	3rd time	December 3 to December 16, 2014	No particular safety concerns
4th time	February 24 to March 10, 2015	Inspection results being summarized.	

\* Fuel removal work for unit 4 began on November 18, 2013 and was completed on December 22, 2014.

Accident and malfunction	- See Chapter 4 Section 3 "Response to Accident and Malfunction concerning Specified Nuclear Facilities."
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<b>Fukushima Daini NPS, Tokyo Electric Power Company</b>			
All reactor operations were shut down during the following periods.			
		Implementation period	Result / Remarks
Periodic facility inspection	Unit 1	(Shut-down)	An inspection start schedule of units 1 through 4 is not yet determined because of difficulties in the wake of the 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	June 4 to June 17, 2014	No particular safety concerns.
	2nd time	September 1 to September 12, 2014	No particular safety concerns
	3rd time	December 1 to December 12, 2014	Violation of operational safety programs (monitoring) recognized.
	4th time	February 20 to March 5, 2015	Inspection results being summarized.

<b>Kashiwazaki Kariwa NPS, Tokyo Electric Power Company</b>			
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)	Evaluation of integrity of units 2 through 4 against impact of the Niigataken Chuetsu-oki Earthquake in 2007 is being implemented.
	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	Operational safety inspection for important actions for safety (unit 7)		
		March 25 to April 4, 2014	No particular safety concerns
	1st time	June 2 to June 13, 2014	No particular safety concerns
	2nd time	September 1 to September 12, 2014	No particular safety concerns
	3rd time	November 25 to December 8, 2014	No particular safety concerns
	4th time	February 20 to March 6, 2015	Inspection results being summarized.



<b>Tokai Power Station, The Japan Atomic Power Company</b>			
Under decommissioning procedures (Areas other than the Reactor Area under removal procedure)			
		Implementation period	Result / Remarks
Operational safety inspection	1st time	May 20 to May 26, 2014	No particular safety concerns
	2nd time	August 18 to August 22, 2014	No particular safety concerns
	3rd time	November 10 to November 14, 2014	No particular safety concerns
	4th time	February 16 to February 20, 2015	Inspection results being summarized.

<b>Tokai Daini Power Station, The Japan Atomic Power Company</b>			
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	June 4 to June 17, 2014	No particular safety concerns
	2nd time	August 25 to September 5, 2014	No particular safety concerns
	3rd time	November 25 to December 8, 2014	No particular safety concerns
	4th time	February 23 to March 6, 2015	Inspection results being summarized.

**Hamaoka NPS, Chubu Electric Power Co., Inc.**

Under decommissioning procedures for units 1 and 2 (under preparation for demolition work) units 3 through 5 are shut-down during the following periods.

(units 1 and 2 (under decommissioning procedures))

	Implementation period	Result / Remarks
Periodic facility inspection	Unit 1	Outside inspection scope because a decommissioning plan was approved and no nuclear fuel materials exist in the facilities.
	Unit 2	March 7 to July 23, 2014 Inspection results: Good
Operational safety inspection	1st time	June 16 to July 2, 2014 No particular safety concerns
	2nd time	September 1 to September 17, 2014 No particular safety concerns
	3rd time	November 25 to December 11, 2013 No particular safety concerns
	4th time	February 23 to March 11, 2015 Inspection results being summarized.

(units 3 through 5)

	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	June 16 to June 27, 2014 July 2 No particular safety concerns
	Operational safety inspection for important actions for safety (unit 3)	
		June 25 to July 11, 2014 No particular safety concerns
	2nd time	September 1 to September 12, 2014 September 17 No particular safety concerns
	3rd time	November 25 to December 5, 2014 December 11 No particular safety concerns
4th time	February 23 to March 6, 2015 March 10, 11 Inspection results being summarized.	

<b>Shika NPS, Hokuriku Electric Power Company</b>			
All reactor operations were shut down during the following periods.			
Periodic facility inspection		Implementation period	Result / Remarks
	Unit 1	From October 8, 2011 (under implementation)	
Operational safety inspection	Unit 2	From March 11, 2011 (under implementation)	
	1st time	June 2 to June 13, 2014	No particular safety concerns
	2nd time	September 1 to September 12, 2014	No particular safety concerns
	3rd time	December 1 to December 12, 2014	No particular safety concerns
	4th time	March 2 to March 13, 2015	Inspection results being summarized.
Others	Fracture zone in the site under investigation from February 2014.		

<b>Tsuruga Power Station, The Japan Atomic Power Company</b>			
All reactor operations were shut down during the following periods.			
Periodic facility inspection		Implementation period	Result / Remarks
	Unit 1	From January 26, 2011 (under implementation)	
Operational safety inspection	Unit 2	From August 29, 2011 (under implementation)	
	1st time	June 2 to June 13, 2014	No particular safety concerns
	2nd time	September 1 to September 12, 2014	No particular safety concerns
	3rd time	December 1 to December 12, 2014	No particular safety concerns
	4th time	March 2 to March 13, 2015	Inspection results being summarized.
Others	Fracture zone in the site under investigation from November 2012.		

<b>Mihama Power Station, Kansai Electric Power Co. Inc.</b>			
All reactor operations were shut down during the following periods.			
		Implementation period	Result / Remarks
Periodic facility inspection	Unit 1	From November 24, 2010 (under implementation)	
	Unit 2	From December 18, 2011 (under implementation)	
	Unit 3	From May 14, 2011 (under implementation)	
Operational safety inspection	1st time	June 2 to June 13, 2014	No particular safety concerns
	2nd time	August 25 to September 5, 2014	No particular safety concerns
	3rd time	December 1 to December 12, 2014	No particular safety concerns
	4th time	March 2 to March 13, 2015	Inspection results being summarized.

<b>Ohi Power Station, Kansai Electric Power Co. Inc.</b>			
All reactor operations were shut down during the following periods.			
		Implementation period	Result / Remarks
Periodic facility inspection	Unit 1	From December 10, 2010 (under implementation)	
	Unit 2	From December 16, 2011 (under implementation)	
	Unit 3	From September 2 , 2013 (under implementation)	
	Unit 4	From September 15, 2013 (under implementation)	
Operational safety inspection	1st time	June 2 to June 13, 2014	No particular safety concerns
	2nd time	September 1 to September 12, 2014	No particular safety concerns
	3rd time	November 25 to December 5, 2014	No particular safety concerns
	4th time	March 2 to March 13, 2015	Inspection results being summarized.

<b>Takahama Power Station, Kansai Electric Power Co. Inc.</b>			
All reactor operations were shut down during the following periods.			
		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 February 20, 2012 (under implementation)	
	Unit 4	From July 21, 2011 (under implementation)	
Operational safety inspection	1st time	June 2 to June 13, 2014	No particular safety concerns
	2nd time	September 1 to September 12, 2014	No particular safety concerns
	3rd time	November 25 to December 5, 2014	No particular safety concerns
	4th time	March 2 to March 13, 2015	Inspection results being summarized.

<b>Shimane NPS, The Chugoku Electric Power Co. Inc.</b>			
All reactor operations were shut down during the following periods.			
		Implementation period	Result / Remarks
Periodic facility inspection	Unit 1	From November 8 , 2010 (under implementation)	
	Unit 2	From January 27, 2012 (under implementation)	
Pre-service inspection	Unit 3	Pre-service inspection in the construction stage under implementation.	Construction processes up to 3 in the table of Article 17 of the Ordinance on Safety of Nuclear Power Workpieces have already been implemented.
Operational safety inspection	1st time	June 9 to June 20, 2014	No particular safety concerns
	2nd time	September 1 to September 12, 2014	No particular safety concerns
	3rd time	December 1 to December 12, 2014	No particular safety concerns
	4th time	February 23 to March 6, 2015	Inspection results being summarized.

<b>Ikata Power Station, Shikoku Electric Power Co. Inc.</b>			
All reactor operations were shut down during the following periods.			
		Implementation period	Result / Remarks
Periodic facility inspection	Unit 1	From September 4, 2011 (under implementation)	
	Unit 2	From January 13, 2012 (under implementation)	
	Unit 3	From April 29, 2011 (under implementation)	
Operational safety inspection	1st time	June 3 to June 14, 2013	No particular safety concerns
	1st time	June 2 to June 13, 2014	No particular safety concerns
	2nd time	September 1 to September 12, 2014	No particular safety concerns
	3rd time	December 1 to December 12, 2014	Violation of operational safety programs (monitoring) recognized.
	4th time	February 23 to March 6, 2015	Inspection results being summarized.

<b>Genkai NPS, Kyushu Electric Power Co. Inc.</b>			
All reactor operations were shut down during the following periods.			
		Implementation period	Result / Remarks
Periodic facility inspection	Unit 1	From December 1, 2011 (under implementation)	
	Unit 2	From January 29, 2011 (under implementation)	
	Unit 3	From December 11, 2010 (under implementation)	
	Unit 4	From December 25, 2011 (under implementation)	
Operational safety inspection	1st time	June 2 to June 13, 2014	No particular safety concerns
	2nd time	August 28 to September 10, 2014	No particular safety concerns
	3rd time	November 27 to December 12, 2014	No particular safety concerns
	4th time	February 25 to March 10, 2015	Inspection results being summarized.

<b>Sendai NPS, Kyushu Electric Power Co. Inc.</b>			
All reactor operations were shut down during the following periods.			
		Implementation period	Result / Remarks
Periodic facility inspection	Unit 1	From May 10, 2011 (under implementation)	
	Unit 2	From September 1, 2011 (under implementation)	
Pre-service inspection	Unit 1	From March 30, 2015 (under implementation)	
Operational safety inspection	1st time	May 26 to June 6, 2014	No particular safety concerns
	2nd time	August 25 to September 5, 2014	No particular safety concerns
	3rd time	November 25 to December 8, 2014	No particular safety concerns
	4th time	February 23 to March 6, 2015	Inspection results being summarized.

<b>Prototype Fast Breeder Reactor Monju, Japan Atomic Energy Agency</b>			
Reactor operations were suspended during the following periods.			
		Implementation period	Result / Remarks
Pre-service inspection		Pre-service inspection (performance check) was suspended in the construction phase.	
Operational safety inspection	1st time	June 9 to June 20, 2014	No particular safety concerns
	2nd time	September 8 to September 19, 2014	Violation of operational safety programs (monitoring) recognized.
	3rd time	December 3 to December 16, 2014	No particular safety concerns
	4th time	March 2 to March 20, 2015	Inspection results being summarized.
Others	Fracture zones in the site are additionally under investigation from October 2013.		

<b>Reactor Decommissioning R&amp;D Center Fugen, Japan Atomic Energy Agency</b>			
Under decommissioning procedures (during the period of spent fuel removal)			
		Implementation period	Result / Remarks
Periodic facility inspection		September 1, 2014 to January 20, 2015	Inspection results: Good
Operational safety inspection	1st time	May 26 to May 30, 2014	No particular safety concerns
	2nd time	August 25 to August 29, 2014	No particular safety concerns
	3rd time	November 25 to November 28, 2014	No particular safety concerns
	4th time	February 23 to February 27, 2015	Inspection results being summarized.

\*The Reactor Regulation Act stipulates four annual operational safety inspections  
 For example, "3rd time" in the table means the third operational safety inspection in FY 2014.  
 \*Information as of March 31, 2015, is described.

Following a maintenance omission discovered in 2012 at the Prototype Fast Breeder Reactor Monju, the NRA issued an order of measures for operational safety and an order of operational safety program change based on the Reactor Regulation Act to the Japan Atomic Energy Agency on May 29, 2013.

The Japan Atomic Energy Agency reported its action taken in response to the order of measures for operational safety were finished in September and November 2013, but the NRA said the measures were insufficient. On April 16, 2014, the NRA said it was necessary to reconstruct the maintenance management system and to strengthen the maintenance plan.

On October 1, 2014, the Japan Atomic Energy Agency reformed the organizational structure to allow the chairman to directly control Monju, and a support organization for Monju was established to overcome defects in the organization's maintenance management.

During the second operational safety inspection of FY 2014 in September 2014, it was recognized that monitoring cameras failed to detect frequent sodium leakages from February 2013, and that 54 of 180 units were malfunctioning and thus few measures were taken during operational safety inspection implementation. The NRA said this violated operational safety programs (monitoring) and thus the reconstruction of the maintenance management system and the quality assurance system by the Japan Atomic Energy Agency had not improved.

On December 22, 2014, the NRA received a report on the order of measures for operational safety and the order of operational safety programs change and also the application for approval of the operational safety programs change from the Japan Atomic Energy Agency which announced that necessary measures and actions had been taken in accordance with items highlighted in the operational safety inspection (received corrected report concerning the order of measures for operational safety on February 2, 2015). The NRA is proceeding with verification work and the application from the Japan Atomic Energy Agency by conducting hearings and operational safety inspections.



#### 4. Status of Reviews and Inspections of Various Applications

The NRA conducts reviews and inspections based on the Reactor Regulation Act in addition to the Conformity Review concerning New Regulatory Requirements and reviews of the system governing facility aging.

Disposal and transportation outside a commercial power reactor, nuclear fuel facilities, fabrication facilities, nuclear research and test reactors, R&D nuclear power facilities, spent fuel interim storage facilities, reprocessing facilities, waste disposal facilities, waste interim storage facilities, facilities using nuclear fuel materials, plants or the works of nuclear fuel materials are also to be regulated, and necessary reviews and inspections are under implementation.

The implementation status of reviews and inspections from April 1, 2014 to March 31, 2015 is shown in Table 12.

**Table 12 Status of Reviews and Inspections**

Type of facility		No. of cases
Fabrication facilities (6 facilities)	Pass in pre-service inspection	2
	Pass in welding inspection	1
	Approval of operational safety programs or approval of changes	1
	Operational safety inspection	24
Nuclear research and test reactor facilities (6 facilities) (under decommissioning procedure: 8 facilities)	Pass in pre-service inspection	3
	Pass in welding inspection	2
	Operational safety inspection	44
Commercial power reactors(17 facilities) (under decommissioning procedure: 2 facilities)	Permission for change in reactor installation	2
	Approval of construction plan	3
	Notification of construction plan and construction plan change	7
	Pass in pre-service inspection	6
	Pass in fuel assembly inspection	4
	Evaluation for the implementation system of the welding licensee Inspection	21
	Approval of operational safety programs or approval of change	19
	Operational safety inspection	73
	Check of method and implementation system for determining assignment of responsible facility operator	9
	Instruction for omission of pre-service inspection	2
	Instruction for omission of fuel assembly inspection	1
	Approval of implementation plan change	38
	Approval of partial use of Specified Nuclear Facilities	22
	Completion of pre-service inspection on Specified Nuclear Facilities	56
	Completion of welding inspection on Specified Nuclear Facilities	75

	Completion of periodic facility inspection on Specified Nuclear Facilities	1
	Inspection of implementation status of measures for safety defined in implementation plan	5
R&D Nuclear power facilities (under construction: 1 facilities) (under decommissioning procedure: 1 facilities)	Notification of installation change	2
	Notification of construction plan and construction plan change	3
	Pass in pre-service inspection	2
	Periodic facility inspection	1
	Approval of operational safety programs or approval of change	5
	Operational safety inspection	8
Spent fuel interim storage facilities (under construction: 1 facilities)	Approval of welding method	3
Reprocessing facilities (2 facilities)	Approval of methods for design and construction	5
	Pass in pre-service inspection	4
	Approval of operational safety program or approval of change	1
	Operational safety inspection	8
Category 2 waste disposal facilities (2 facilities)	Conformation of waste disposal facilities	2
	Conformation of waste package	9
	Approval of operational safety programs or approval of change	1
	Operational safety inspection	8
Waste interim storage facilities (2 facilities)	Operational safety inspection	8
Facilities using nuclear fuel materials (15 facilities)	Pass in facility inspection	2
	Approval of operational safety programs or approval of change	11
	Operational safety inspection	60
	Check of decommissioning measure completion	5
Off-site disposal and transportation of nuclear fuel materials	Confirmation of off-site disposal	5
	Approval of design of nuclear fuel packages	13
	Approval of transport container	14
	Confirmation of off-site transportation	29
	Approval of methods in measuring and evaluating radioactive concentration	1
	Confirmation of radioactive concentration	1

\*no facility received designation or approval of business of refining facility or Category 1 waste disposal facility as of March 31, 2014.

## **5. Report on Radiation Management**

In an FY 2013 radiation management report, the NRA compiled the status of the management of radioactive waste and those of dose management for radiation workers by each nuclear operator under the provisions of paragraph 1, Article 67 of the Reactor Regulation Act. They include radiation management reports for the first and second halves of FY 2013 published on December 10, 2013 and June 2, 2014, respectively.

All nuclear facilities showed lower levels of radioactive gaseous and liquid waste in FY 2013 than the annual release control target values or three-month average concentration control target values set forth in the operational safety programs for the respective nuclear power facilities. They excluded TEPCO's Fukushima Daiichi NPS that is specified as a Specified Nuclear Facility. Units 5 and 6 of TEPCO's Fukushima Daiichi NPS declared in the implementation plan showed values lower than the annual release control target values concerning radioactive gaseous and liquid waste. In addition, the annual discharge control target values were not set for units 1 through 4. In sections of the nuclear research and test reactors and facilities using nuclear fuel materials for which annual discharge control target values were not specified in the operational safety programs, there were no large variations noted in comparison with earlier readings.

Regarding the status of the management of radioactive solid waste, none of nuclear facilities stored solid waste that exceeded storage capacities.

Exposure doses in all the nuclear facilities experienced by the individual radiation workers in FY 2013 fell below the dose limits (100 mSv per five years and 50 mSv per one year) set forth in the Notification to Establish Dose Limits in Accordance with the Provisions of the NRA Ordinance Concerning the Installation and Operation of Commercial Power Reactors.

Some measured concentrations of radioactive materials in the seawater, seabed soil, marine products, and fishing equipment in the areas around the release outlets of reprocessing facilities, and of other objects specified in the operational safety program during FY 2013, exceeded the normal variation. But these slightly higher readings were not considered the result of any malfunction or other problem with the reprocessing facility judging by the operational status of facilities and the trends of measured values.

### **Section 3 Investigation of Faults at Nuclear Power Station Sites**

At the 2nd NRA Commission Meeting (September 26, 2012) and the 5th NRA Commission Meeting (October 17) of FY 2012, the NRA decided to conduct site inspections and evaluations for 6 nuclear power stations: Ohi Power Station of the Kansai Electric Power Co. Inc. (hereafter "*Ohi Power Station*"), Tsuruga Power Station of the Japan Atomic Energy Agency (hereafter "*Tsuruga Power Station*"), Higashidori NPS, Inc. (hereafter "*Higashidori NPS of Tohoku Electric Power Co.*"), Prototype Fast Breeder Reactor Monju of the Japan Atomic Energy Agency (hereafter "*Prototype Fast Breeder Reactor Monju*"), Mihama Power Station of the Kansai Electric Power Co. Inc. (hereafter "*Mihama Power Station*") and Shika NPS of the Hokuriku Electric Power Company (hereafter "*Shika NPS*"), at which the former Nuclear and Industrial Safety Agency had ordered additional investigations to determine whether faults affecting the premises had been active in recent years.

A five-member expert investigative panel was set up for each NPS, including then NRA Commissioner Shimazaki (currently Commissioner Ishiwatari) and four academic experts in the preparation of investigation plans and the recognition and investigations of active faults. These experts were not involved in earlier safety assessments (including seismic back checks and secondary assessment) for their respective facilities but were independently recommended by four related academic societies, the Japanese Society for Active Fault Studies, the Geological Society of Japan, the Japan Association for Quaternary Research and the Seismological Society of Japan. The panels undertake on-site investigations, hold regular evaluation meetings and prepare draft evaluation reports. A peer review meeting is then held to examine each evaluation report from a different perspective and uncover any logical inconsistencies. Though these results are considered as "important knowledge" any decision concerning conformity to the new NRA regulation standard is performed in the review of the conformity to the new regulation standard.

In FY 2014, investigations of five sites were implemented, in addition to the Ohi Power Station where an evaluation was completed.

#### **1. Tsuruga Power Station**

On May 15, 2013, the Expert Meeting on the Investigation of Fracture Zones in the Site of Tsuruga Nuclear Power Station concluded that at the Tsuruga Power Station a problem directly under unit 2 corresponded to an active

fault according to earthquake-resistant design parameters. It was reported to the 7th NRA Commission Meeting of FY 2013 (May 22). The operator subsequently reported results of additional investigations, and, following a detailed review of the report, the NRA decided to re-examine the necessity of an evaluation review in the expert meeting. That meeting implemented an on-site investigation January 20-21, 2014, held additional evaluation and peer review meetings five times in FY 2014. It submitted reports to the NRA Commission Meeting on March 25, 2015 which stated that any problem such as the D-1 fault directly under unit 2 could trigger future adverse activity.

## **2. Higashidori NPS of Tohoku Electric Power**

The Expert Meeting on the Investigation of Fracture Zones in the Site of Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc. held four evaluation and peer review meetings in FY 2014. At the NRA Commission Meeting on March 25, 2015, the NRA concluded that fracture zones not directly under important facilities is the fault having a possibility of activities in the future and submitted the evaluation report, including both opinions about the possibility of active faults directly under the important facilities.

## **3. Mihama Power Station**

The Expert Meeting on the Investigation of Fracture Zones in the Site of Mihama Power Station held two evaluation meetings in FY 2014 and is continuing to discuss the results of additional investigations by the operator.

## **4. Shika NPS**

The Expert Meeting on the Investigation of Fracture Zones in the Site of Shika Nuclear Power Station held four evaluation meetings in FY 2014 and is continuing to examine the results of additional investigations conducted by the operator.

## **5. Prototype Fast Breeder Reactor Monju**

The Expert Meeting on the Investigation of Fracture Zones in the Site of the Prototype Fast Breeder Reactor "Monju" held two evaluation meetings in FY 2014 and is continuing to examine the results of additional investigations conducted by the operator.

## Section 4 Prevention of Radiation Hazards due to Radioisotopes

### 1. Status of Examinations and Inspections

To prevent radiation hazards resulting from situations such as the use of radioisotopes, the NRA has regulated the use, selling, lease, disposal and other handling of radioisotopes, the use of radiation-generating apparatus, and the disposal or other handling of radioactive contaminants, based on the Act on Prevention of Radiation Hazards due to Radioisotopes (Act No. 167, hereinafter referred to as "*Radiation Hazards Prevention Act*").

During the period from April 1, 2014 to March 31, 2015, the NRA conducted examinations and inspections shown in the following table:

**Table 13 Main Examinations and Inspections  
(From April 1, 2014 to March 31, 2015)**

	Type of permissions and notifications	Number
Permitted users (Number of places: 2,354)	Permission for use (approved)	39
	Permission for change of permitted use (approved)	255
	Approval of corporation merger or division	6
	Notification of abolition	76
	On-site inspection	272
Notified user (Number of places: 545)	Use notification	29
	Notification of change of use notification	54
	Notification of abolition	27
	On-site inspection	0
Users notifying use of specified certified apparatus with indication (Number places: 4,608)	Notification of certified apparatus with indication	1,216
	Notification of change of use of certified apparatus with indication	697
	Notification of abolition	988
	On-site inspection	0
Notified seller (Number of places: 307)	Notification of sales business	11
	Notification of change of notification of sales business	81
	Notification of abolition	13
	On-site inspection	4
Notified rental business operator (Number of places: 156)	Notification of rental business	9
	Notification of change of notification of rental business	29
	Notification of abolition	2
	On-site inspection	0
Notified disposal business operator (Number of places: 7)	Permission for change of disposal business	1
	Notification of abolition	0
	On-site inspection	1
Off-site transportation of radioisotopes	Approval of containers to be transported	10

## **2. Status of Radiation Control**

Based on the provision of paragraph 1, Article 42 of Radiation Hazards Prevention Act and paragraph 3, Article 39 of the Ordinance for Enforcement of the Act, the NRA compiled a radiation control status report for FY 2013 (April 1, 2013 to March 31, 2014). It included the status of the storage and disposal of radioisotopes and that of exposure control for radiation workers reported by each site under the terms of Radiation Hazards Prevention Act.

The storage and disposal of radioisotopes at all sites during FY 2013 did not exhibit a particularly large variation, compared with past situations.

The exposure doses received by individual radiation workers at every site in FY 2013 fell below the dose limits prescribed by the Act (100 mSv per five years and 50 mSv per one year).

## **3. Response to Violation of the Radiation Hazards Prevention Act**

Although the Iida Luminous Paint Co., Ltd., (in liquidation) reported the disposal of radioisotopes in 1996, they, in fact, did not dispose of all radioisotopes. A May 2008, company report revealed this discrepancy and the company was ordered to remove and contain contaminated radioisotopes under the Radiation Hazards Prevention Act. However, since it was not implemented by the specified date, immediate measures to neutralize them were taken based on Article 2 of the Act on Substitute Execution by Administration (Act No. 43, 1948) in November 2008. The corporation concerned completed bankruptcy procedures in January 2010 without implementing a final disposal.

At the 37th NRA extraordinary conference (November 5, 2014), the NRA recognized that the measures taken by the Iida Luminous Paint Co., Ltd., were inadequate and ordered the company to transfer radioactive contaminants to an approved waste disposer or effectively dispose of them itself and to take further measures eradicate radioisotopes contamination based on paragraph 6, Article 28 of the Radiation Hazards Prevention Act. At an extraordinary conference of the 39th NRA of FY 2014 (November 13, 2014), the Authority determined to act under the provisions of the Act on Substitute Execution by Administration because the company had not implemented these measures within the designated time limit.

The NRA then transferred approximately 90 drums of radioactive contaminants from the company site to an approved waste disposer on

December 25, 2014, removed contamination due to radioisotopes, and transferred some 130 other drums of radioactive contaminants on March 20, 2015. The company was also ordered to pay the expenses required by the subrogation after determining the amount and the date for payment.

#### 4. Participation in International Meetings

Based on IAEA international guidelines, the NRA developed technical standards for the prevention of radiation hazards, such as defining dose limits when handling radioisotopes. In addition, the NRA is implementing specific examinations on nuclear security relating to radioisotopes. The NRA participated in the following meetings organized by the IAEA, both to collect information from international organizations and to reflect current Japanese thinking.

**Table 14. Participation in Meetings held by the IAEA, etc.**

Name of conference	Schedule	Place of conference
IAEA Radiation Safety Standards Committee (RASSC) meetings	June 18-20, 2014 (the 36th)	Vienna, Austria
	November 24-27, 2014 (the 37th)	
IAEA Legal and technical expert meeting for promoting international harmony in application of activity protocol for securing safety and security concerning long-term control of radiation source already not used	October 20-23, 2014	
OECD/NEA Committee on Radiation Protection and Public Health (CRPPH) annual meeting	May 21-23, 2014	Paris, France



## Section 5 Activities for Safety Culture Creation

At the 17th NRA Commission Meeting of FY 2014 (July 16, 2014), the NRA proposed to exchange views on safety culture, including stance on safety with licensees and their top management. In a series of follow-up meetings opinions were exchanged on implementing a 'safety culture' throughout the country; the basic approach of the licensees themselves were examined as was the status of the current regulation system and continuous safety improvement.

A series of monthly meetings (Table 15) open to the public was held with the CEOs of major nuclear facilities (see Table 15)

**Table 15 NRA-CEO Meetings and Schedules**

Partner	Actually held date	Schedule
Kyushu Electric Power Co., Inc.	October 29, 2014	
Shikoku Electric Power Co., Inc.	November 26	
Kansai Electric Power Co., Inc.	January 13, 2015	
Hokkaido Electric Power Co., Inc.	January 28	
Tokyo Electric Power Company	February 27	
Chubu Electric Power Co., Inc.	March 18	
Tohoku Electric Power Co., Inc.	April 22	
The Chugoku Electric Power Co., Inc.	May 27	
Hokuriku Electric Power Company		around June
The Japan Atomic Power Company		around July
Japan Nuclear Fuel Limited		around August
Japan Atomic Energy Agency		around September

In the meetings, the following points were discussed:

- Declaration by the CEOs concerning autonomous activities on positive and responsible approach toward safety improvement and fostering safety culture.
- Hearing licensee proposals for improvement of regulation systems. The regulation and review of individual facilities were excluded.
- Ways of thinking about a system and framework concerning the Japan Nuclear Safety Institute (JANSI), voluntary safety improvement organization of licensee side.

## **Chapter 4 Monitoring of Activities toward Decommissioning of TEPCO's Fukushima Daiichi NPS**

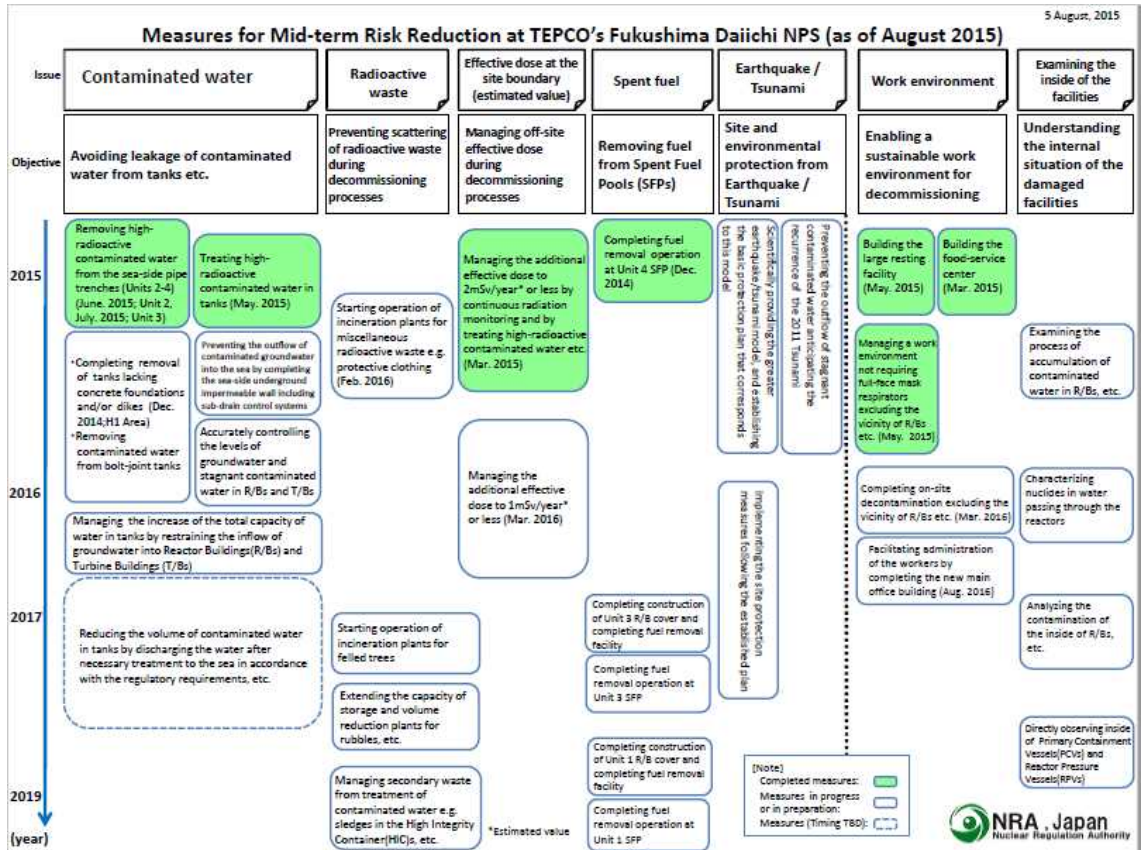
### **Section 1 Measures for Mid-term Risk Reduction**

The status of TEPCO's Fukushima Daiichi NPS is being transferred from one of ongoing emergency responses in the immediate wake of the accident to a situation where TEPCO can focus on decommissioning. The NRA therefore determined the "Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS" (2015 February version) and outlined those targets at the 57th NRA Commission Meeting of FY 2014 (February 18, 2015).

This document was created to clearly distinguish completed measures from ongoing and planned measures by the NRA from the safety viewpoint. Specific measures are highlighted including issues related to radioactive waste (liquid and solid), including discharging water into the sea after necessary treatment, in accordance with the regulatory requirements, effective dose at the site boundary, earthquake and tsunami, work environment, and examining the inside of the facility.

This document will be regularly reviewed to reflect the latest state of risk reduction. An English version of this document has been created and will be uploaded on the website.

Figure 4 Measures for Mid-Term Risk Reduction (2015 February version)



## **Section 2 Approval, inspections, etc. with regard to implement plans for Specified Nuclear Facilities**

In November, 2012, the NRA designated TEPCO's Fukushima Daiichi NPS as a Specified Nuclear Facility to control the situation there in an appropriate manner. The authority outlined safety conservation measures to be implemented for both the safety conservation of the reactor facilities and for the protection of the specified nuclear fuel materials. In December 2012, the NRA received the Implementation Plan with Regard to TEPCO's Fukushima Daiichi NPS's Specified Nuclear Facilities (hereinafter referred to as the "*Implementation Plan*") and approved it in August 2013 after indicating some points to consider. From April 1, 2014 to March 31, 2015, the NRA approved 38 changes in the Implementation Plan, the major ones being:

### (1) Construction of frozen soil type impermeable walls

At the 10th NRA Commission Meeting of FY 2014 (June 4, 2014), the NRA reviewed the overall situation. In March 2014, an application had been made for changes in the Implementation Plan covering construction of frozen soil type impermeable walls (including making holes through the underground facilities on the mountain-side line) to prevent groundwater inflow into the buildings. This was approved on September 17, 2014 after discussions at the 19th to 23rd meetings of the Commission on Supervision and Evaluation of the Specified Nuclear Facilities (hereinafter referred to as the "*Supervision and Evaluation Committee*").

TEPCO asked for, and the NRA approved on April 28, 2015, changes with regard to test freezing of the landside impermeable walls. The NRA, however, specified that said changes should not affect groundwater levels around the buildings, including suspension of freezing in cases when levels fell more than expected.

### (2) Approval of changes in effective doses on site boundary

Since the effective dose (evaluated value) on the site boundary during decommissioning work at TEPCO's Fukushima Daiichi NPS greatly exceeded the level of less than 1 mSv/year in and after April 2013, the NRA in February 2014 ordered a change in the Implementation Plan, including clarification of the time in which the effective dose (evaluated value) limit would be attained. In December 2013, an application (partially corrected in

March 2014 and June 2014) was made to set the effective dose limit of less than 2 mSv/year through the end of March 2015 and to less than 1 mSv/year through the end of March 2016. Based on discussions at the 14th NRA Commission Meeting of FY 2014 (June 25, 2014), it was approved the same day.

TEPCO estimated that the effective dose levels of the RO-concentrated water tanks (direct lines and sky shine lines) were expected to fall from 9.19 mSv/year (as of March 17, 2014) to 0.9 mSv/year (evaluated value at the end of March 2015) by processing retained water via the seven facilities. This included a test facility for an additionally constructed ALPS facility that was approved on August 27, 2014. Based on these estimates, the NRA received the application for changes in the Implementation Plan on March 31, 2015.

(3) Protection against external events such as earthquakes and tsunamis

The August 2013 Implementation Plan outlined measures against earthquakes and tsunamis based on a seismic motion of 600 gal and an outer-rise tsunami of approximately 14-m high --similar levels to those of the earthquake which hit the Tohoku region's Pacific coastline in 2011. However, as the New Regulatory Requirements covering nuclear power stations went into effect in July 2013, seismic motions and the tsunami heights were reconsidered for other nuclear power stations.

Discussions at the 19th NRA Commission Meeting of FY 2014 (August 6, 2014), included implementation of speedy and effective measures to meet the immediate needs at the Fukushima plant, taking into consideration that long-term work would also be needed for decommissioning. The continued risk of earthquakes and tsunamis and the weak state of the power station were evaluated.

Further talks were held at the 26th meeting of the Supervision and Evaluation Committee and TEPCO was directed to review protection measures against earthquakes and tsunamis. The company said it would apply for review a seismic motion of 900 gal horizontally and 600 gal vertically and a tsunami height of 26.3 m.

(4) Water cutoff construction work at buildings connecting sections of seawater piping trenches

Immediate action was required to stop leakage from seaside trenches where highly concentrated contained water is retained. The Implementation Plan to remove the contaminated water from inside the seawater piping trenches, was approved in August 2013.

An application was made on March 5, 2014, for changes in the Implementation plan covering the transfer of contaminated water and this was discussed at the 19th and the 24th to 30th meetings of the Supervision and Evaluation Committee. Discussions included any progress in freezing cutoff work at the connection between the unit 2 seawater piping trench and the building, and the method needed to apply underwater inseparable concrete into the horizontal tunnel section where contaminated water was retained.

On August 5, 2014, an application was received for changes to add the levels of the retained water in the turbine buildings to the operational limits and the water level check targets in accordance with the progress in work to close units 2 and 3 seawater piping trenches. This was approved on October 29, 2014.

(5) Full operation of subdrains and other water treatment facilities

In December 2013, an application was made for changes covering the installation of subdrains and other water collection facilities and the subdrain and other water purification facilities, and was approved on August 6, 2014.

On August 2014, an additional application was made with regard to installation of groundwater drain collection facilities. The application was approved on October 21, 2014, following examinations to check, among others things, whether additional measures were necessary to restrict the quantity of pumped-up water so that the groundwater level would not change in the current shore-protected area,

Performance tests were carried out and designated targets reached. Therefore, in December 2014, an application was made for approval of changes in the Implementation Plan with regard to full operations in which water treated by the subdrain and other water treatment facilities would be controlled and released into the sea. After guarantees that groundwater levels inside the subdrain pits would be controlled to prevent leakage of the

water retained in the buildings and that appropriate drainage controls would be ensured, and based on discussions at the 51st NRA Commission Meeting of FY 2014 (January 21, 2015), the application was approved on the same day.

- (6) Outflow of rainwater from K-drainage channel to the outside of the port  
At the 59th NRA Commission Meeting of FY 2014 (February 27, 2015) it was noted that there had been no appropriate information disclosure that water containing radioactive materials had been trapped on the roof of an entryway of the unit 2 reactor building and that the plant owner, TEPCO, should improve in-house communications. The 33rd meeting of the Supervision and Evaluation Committee therefore issued the following requirements: improving water flows into the drainage channels on the Implementation Plan; continuous measurement of the concentrations and flow rate of the radioactive material and implementation measures to reduce the concentrations of the radioactive materials water in said drainage channels; implementation measures for diffusion restriction in accordance with the contamination properties (repositioning of drainage channels within the port, etc.), and continued monitoring within the port.

From April 1, 2014 to March 31, 2015 TEPCO activities to enforce the Implementation Plan were monitored. There were 5 operational safety inspections, 56 pre-operation inspections, and 75 welding inspections in addition to other regular inspections by on-site nuclear safety inspectors. Spent fuel removal from the spent fuel storage pool of unit 4 started on November 18, 2013 and removal of all 1553 fuel assemblies was completed on December 22, 2014. This was confirmed by an operational safety inspection which measured safety conservation based on the Reactor Regulation Act. At the 47th NRA Commission Meeting of FY 2014 (December 24, 2014) it was noted that work had been completed without any anticipated problems such as dropping spent fuel and getting fuel caught when removed.

The periodic facility inspections were discussed at the 41st NRA Commission Meeting of FY 2014 (November 26, 2014) and it was decided to consider more effective inspection methods taking into consideration the changes in the facilities and the importance thereof based on the inspection result of this time.

**Table 16 Approval of Implementation Plans and inspection status  
(From April 1, 2014 to March 31, 2015)**

Type of approval/inspection	Number
Approval of changes in Implementation Plan	38
Completion of pre-service inspection	56
Approval of test use	0
Approval of partial use	22
Direction of omission of pre-service inspection	0
Completion of welding inspection	41
Completion of welding inspection for imports	34
Completion of periodic facility inspection	1
Operational safety inspection	5



### **Section 3 Responses to accidents and malfunctions in Specified Nuclear Facilities**

Based on Article 25 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, it is required to report to the appropriate minister an overview of measures taken following a nuclear disaster. In accordance with Paragraph 3, Article 62 of the Reactor Regulation Act, nuclear operators are also required to report any accidents or malfunctions in nuclear facilities to the appropriate minister. The NRA therefore required TEPCO to report accidents or malfunctions in TEPCO's Fukushima Daiichi NPS after approval of the Implementation Plan. Based on these Acts, TEPCO reported to the NRA preventive measures taken covering any fallout effects on the stable operation of the facilities, leakage of contaminated water outside the system, and other possible impacts.

Following are the measures taken covering accidents and malfunctions based on Paragraph 3 of Article 62 of the Reactor Regulation Act.

#### **(1) Inflow of stagnant water into the incineration building**

On April 13, 2014, TEPCO reported that they had diverted stagnant and highly radioactive contained water to the incineration building, in accordance with the implementation plan for the Specified Nuclear Facilities. The NRA Regional Office for Fukushima Daiichi checked the on-site status and the NRA directed TEPCO to collect inflow water in the incineration building.

To fulfill the above direction, TEPCO grasped the area into which retained water flowed and the amount thereof, analyzed the retained water and transferred it to the main process building. At the 4th NRA Commission Meeting of FY 2014 (April 16, 2014) and the 20th meeting of the Supervision and Evaluation Committee, the NRA discussed the measures for enhancement of the site management to prevent unplanned operations.

The NRA received a final report on the causes and measures for this incident from TEPCO on June 30, 2014 (partially corrected on December 12, 2014). The NRA confirmed the report and at the 3rd NRA Commission Meeting of FY 2015 (April 15, 2015), noted that there had not been any environmental contamination enough to raise any concerns and that the measures to prevent recurrence had been completed including disconnection of the power supply to the transfer pumps not currently in use.

(2) Leakage outside the dike from 4000-t square steel tank cluster

Nuclear safety inspectors on June 9, 2014, found water leakage around bolts on the side of two tanks in the 4000-t square steel tank cluster in the contaminated water tank area. With an on-site inspection, TEPCO confirmed leakage of about one drop every second from these bolt portions. The 4000-t square steel tank cluster was 'unmanaged' facilities because it was used only for temporarily rainwater storage accumulated in the dike in the contaminated water tank area and thus the drain valve of the dike of tank wires was left open. A detailed examination was carried out on possible leakage outside the dike and as a result, it was found that accumulated water was leaking from the square steel tanks. On June 9, it was reported that this incident corresponded to a legislative report event. The NRA directed TEPCO to determine the leakage area, measure the amount and concentration of the leaked water and retrieve the contaminated soil.

TEPCO carried out the work including identifying the leakage area, analyzing the leaked water, collecting the accumulated water in the dike and retrieving the contaminated soil. The NRA discussed the necessity of a continuous program for accumulated water treatment at the 11th NRA Commission Meeting of FY 2014 (June 11, 2014).

The NRA received a final report on the causes of and measures taken for this incident from TEPCO on December 17, 2014 (partially corrected on April 20, 2015). The NRA confirmed said report and at the 6th NRA Commission Meeting of FY 2015 (April 28, 2015), it confirmed that there had not been any marine contamination enough to raise any concerns and that the measures to prevent recurrence had been completed including commencement of operation of the rainwater treatment facility.

(3) Crack in RO-concentrated water tank connecting valve

On September 4, 2014, TEPCO reported to the NRA Regional Office for Fukushima Daiichi that there were drops from a connection valve on an RO-concentrated water tank in the G4 tank area. The NRA Regional Office checked the site status and the NRA directed TEPCO to immediately check the valves of the same type on the RO-concentrated water transfer pipe for cracks and other failures. It further directed TEPCO to implement measures for recurrence prevention based on the results of the cause investigation, including review of the inspection contents for the devices that could be

boundaries related to the RO-concentrated water.

The NRA discussed the status of inspection of the valves of the same type and the necessity of reconsideration of the incident report criteria at the 29th Commission Meeting of FY 2014 (September 24, 2014).

(4) Leakage of treated water by multi-nuclide removal equipment from transfer pipe

On December 17, 2014 TEPCO reported a leakage of the multi-nuclide removal equipment-treated water from a branch (with one end open) connecting to the transfer pipe in the J6 tank area. The NRA Regional Office for Fukushima Daiichi checked the site status and the NRA directed TEPCO to grasp the leakage area, measure the amount of leaked water and the concentration, and retrieve the contaminated soil.

TEPCO carried out these directions including determining the leakage area, analyzing the leaked water and retrieving the contaminated soil. The NRA discussed the enhancement of the site management scheme, at the 47th NRA Commission Meeting of FY 2014 (December 24, 2014) and the 30th meeting of the Supervision and Evaluation Committee.

(5) Leakage from drainage to outside of controlled area

On February 22, 2015 TEPCO reported a 'high' alarm of the site drain radiation monitor in the drain ditch and then an 'extremely high' alarm went off. The NRA Regional Office for Fukushima Daiichi checked the site status and then the NRA directed TEPCO to calculate the amount of leaked water and consider improvements in responding to such alarms.

The NRA discussed this situation and future response at the 58th NRA Commission Meeting of FY 2014 (February 25, 2015) and the 32nd and 33rd meetings of the Supervision and Evaluation Committee.

(6) Responses to incidents in FY 2013

Following leakage from the H4 tank area on August 19, 2013, it was confirmed that TEPCO had subsequently retrieved contaminated soil and had undertaken an environmental monitoring and other assessments. The company implemented countermeasures to prevent the spread of any leakage, by replacing old tanks with welded tanks, closing the valves of the tank dikes, raising the dikes and other actions, based on the probable cause

of the leakage from the joint at the bottom of the tanks. The NRA received a final report from TEPCO on the causes of and measures taken for this incident on June 30, 2014 (partially corrected on October 31, 2014). Which it confirmed and at the 45th NRA Commission Meeting of FY 2014 (December 10, 2014) concluded that there had been no marine contamination to cause any health concerns or any exposure which might lead to such concern and that TEPCO had taken measures to prevent any recurrence including replacement of the original tanks with welded tanks and that the weir drain valves would always remain closed.

Incidents other than the above occurring in FY 2013---leakage from the B south tank area, leakage from the strainer pressure gauge, leakage from the H6 tank area, and leakage from the RO contaminated water treatment facility desalinization device---TEPCO submitted a report on the causes and counter-measures. The NRA confirmed at the 3rd NRA Commission Meeting in FY 2015 (April 15, 2015) that there has been no marine contamination enough to raise any health concerns and measures to prevent any reoccurrence had been completed.

With regard to any future accidents or malfunctions, the NRA at the 52nd Commission Meeting of FY 2014 (January 28, 2015), discussed reconsideration of ordinance related to the safety and the protection of the specified nuclear fuel materials at the TEPCO's Fukushima Daiichi NPS including the addition of exceptional requirements in cases of leakage of liquid nuclear fuel materials. At the 3rd NRA Commission Meeting of FY 2015 (April 15, 2015), it was decided to canvas revision proposals to add to the exception requirements in cases of leakage of liquid radioactive materials and the like, based on the Administrative Procedure Act. The collection of opinions began the next day.

## Section 4 Accident analysis

Thorough analysis of the Fukushima accident is an important element of the NRA's jurisdictional responsibilities including the validation of all technical issues.

To clarify technical issues, The NRA at the 34th NRA Commission Meeting of FY 2012 (March 27, 2013), established "the Committee on Accident Analysis of Fukushima Daiichi Nuclear Power Station." Its members included Commissioner Fuketa, external experts, and officials of the NRA Secretariat, officials of JNES (at that time) and officials of the Japan Atomic Energy Agency. It established a Study Committee in May 2013.

After discussions by the Study Committee and on-site investigations of TEPCO's Fukushima Daiichi NPS (five Study Committee meetings and 4 on-site investigations in FY 2013 and one Study Committee meeting and 5 on-site investigations in FY 2014), the NRA finalized an interim report at the 31st NRA Commission Meeting of FY 2014 (October 8, 2014) and released the report as the "NRA Report". The NRA prepared an English version and sent it to the IAEA, OECD/NEA and other international organizations.

In the interim report, technical analyzes of plant data, on-site investigations and other activities were carried out with regard to the below-listed items which regulatory organizations were required to perform demonstrative investigations. They were among various challenges and unsolved matters outlined by the National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission (hereinafter referred to as the "*National Diet Investigation Commission*") and pointed out in the reports of the Investigation Committee on the Accident at the Fukushima Nuclear Power Stations of Tokyo Electric Power Company. For the individual items, the NRA's opinions were finalized.

1. Occurrence of small-scale leakage in unit 1
2. Loss of function of A-system emergency AC power supply system in unit 1
3. Water coming out on fourth floor of unit 1 reactor building
4. Possibility of malfunction of safety relief valve due to occurrence of small-scale leakage in unit 1
5. Operation status of emergency condensate channel in unit 1
6. Possibility of critical condition in spent fuel pool in unit 3 and occurrence of white smoke
7. Hydrogen explosion in unit 4 reactor building

As to the loss of function of the A-system emergency AC power supply system in unit 1, for example, the cause was water intrusion from the tsunami based on new data newly obtained after release of the National Diet Investigation Commission report and confirmation by an on-site investigation.

When finalizing the interim report, the NRA received a new investigation report from TEPCO. If there is any new relevant information, it will be immediately released.

As before, the NRA plans to proceed with new technical investigations based on the results of middle- to long-term investigation activities inside the reactors.

## **Chapter 5 Establishing Technical and Human Resource Foundations to Ensure Nuclear Safety**

### **Section 1 Continuous improvement of regulatory requirements**

#### **1. Continuous improvement of regulatory requirements**

After TEPCO's Fukushima Daiichi NPS accident, the NRA introduced New Regulatory Requirements governing nuclear facilities for power generation in July 2013 and for nuclear fuel facilities in December 2013. The new requirements were based on lessons learned from the accident, the latest technical knowledge, and major overseas regulatory trends including those by international organizations such as the IAEA. These regulatory requirements (including interpretations, guides, etc.) will be continuously reviewed within the context of the latest available scientific and technical data.

The new or revised NRA regulatory requirements introduced in FY 2014 are as follows.

##### **(1) Response after the malfunction of unit 2 at the Byron Station in the United States due to a one-phase open circuit**

On January 30, 2012, at the unit 2 of Byron Station an insulator had fallen from the off-site power unit supplying power to the facility. It resulted in an open circuit of one phase of the three-phase AC power. As a result, there was an automatic reactor trip and an activation of the safety-system auxiliary equipment. Since this malfunction was not detected, however, the emergency diesel power generators did not start and the voltage became imbalanced, resulting in an overcurrent and an emergency shutdown of the safety-system auxiliary equipment. In Japan the NRA determined that this event was 'new' knowledge.

Based on this, in order to establish requirements to detect any unstable power supply due to a one-phase open circuit malfunction and to recover power supply stability, the NRA in July 2014, partially revised the "Regulatory Guide of NRA Ordinance on Standards for the Location, Structure, and Equipment of Commercial Power Reactors", the "Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor", the "Regulatory Guide on the NRA Ordinance on Standards for the Location, Structure, and Equipment of Power Reactor Facilities at the Research and Development Stage", and the "Regulatory Guide of NRA Ordinance on Technical Standards for Power Reactor Facilities at the Research and

Development Stage”. In October 2014, the NRA partially revised the “Regulatory Guide of NRA Ordinance on Standards for the Location, Structure and Equipment of Reprocessing Facilities”.

(2) Establishment of examination guidelines with regard to Specialized Safety Facility

To guard against acts of terrorism such as the deliberate destruction of a large aircraft, it was required to prepare all necessary phases of enforcement in the New Regulatory Requirements, July 2013. It is required to establish the Specialized Safety Facility, which is reliable backup facilities able to respond to major accidents, within five years from the date of enforcement. If such facilities are installed near reactor buildings, they must be robust enough to withstand the direct impact of a large aircraft.

To ensure this ‘robustness’ the NRA established the “Guideline for Examinations with Regard to Specialized Safety Facility Related to Commercial Power Reactors” and the “Guideline for Examinations with Regard to Assessments of Impacts of Aircraft Crashes Related to Commercial Power Reactors” in September 2014.

(3) Others

In April 2014, the “Regulatory Guide of NRA Ordinance on Standards for the Location, Structure, and Equipment of Commercial Power Reactors” was revised with more appropriate descriptions. In the “Guideline for Assessments of Impacts of Tornados to Nuclear Power Stations”, errors were noted by the public concerning the proposed examination documentation with regard to the application for approval of changes in installation of the Sendai Nuclear Power Station. The guideline was partially revised in September 2014.

## **2. Review of regulations on radioactive waste from decommissioning**

During operations and decommissioning of nuclear power stations, radioactive waste with relatively high radioactivity concentrations are generated, but there were no regulations covering this situation.

On October 1, 2014, therefore, the NRA undertook to clarify and strengthen the Regulations on Radioactive Wastes from Decommissioning and Operation of Nuclear Power Stations (Regulations with Regard to Category-2



Waste Disposal).

On 29 October the NRA said that it would be appropriate to preferentially arrange regulatory requirements and in December it founded a Study Team on Regulations of Radioactive Waste in Decommissioning, which held three meetings in FY 2014.

### **3. Utilization of private standards**

Regulatory requirements based on the Reactor Regulation Act require established performance levels. The NRA will apply the private standards of the Atomic Energy Society of Japan (AESJ), the Japan Society of Mechanical Engineers (JSME), the Japan Electric Association, and other organizations (hereinafter referred to as “*study society*”) after conducting a technical evaluation of said standards.

#### **(1) Evaluation of private standards and integration into technical regulatory requirements**

##### **(i) 2012 Technical Evaluation of Design and Construction Standards, and 2012 Material Standards**

To conduct a technical evaluation of JSME’s “Standards of Nuclear Facilities for Power Generation: Design and Construction Standards <Volume I: Light Water Reactor Standards (hereinafter referred to as the “*Design and Construction Standards*”) in 2012 and “Standards of Nuclear Facilities for Power Generation: Material Standards” (hereinafter referred to as the “*Material Standards*” in 2012, the “Study Team on Technical Evaluation of Design and Construction Standards, and Material Standards” held five study meetings including one in FY 2014. The team solicited public comments before drawing up a technical evaluation document in August 2014. The study partially revised the “Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor Facilities” (hereinafter referred to as the “*Commercial Reactors Technical Standard Guide*”).

##### **(ii) 2012 Welding Standards and 2013 Addenda**

To conduct a technical evaluation of JSME’s “Standards of Nuclear Facilities for Power Generation: Welding Standards” (hereinafter referred to as the “*Welding Standards*”) in 2012 and Addenda in 2013, the “Study

Team on Technical Evaluation of Welding Standards” was founded in July 2014. It held four study meetings and solicited public comments. It drew up a technical evaluation document in February 2015, and partially revised the Commercial Reactors Technical Standard Guide.

(iii) 2012 Maintenance Standards and 2013 Addenda

To conduct a technical evaluation of JSME’s “Standards of Nuclear Facilities for Power Generation: Maintenance Standards in 2012 and Addenda in 2013, the ‘Study Team on Technical Evaluation of Maintenance Standards” was established in January 2015.

(iv) 2013 Addenda to Method of Monitoring Test of Reactor Structure Materials

Based on a reevaluation of the plan with regard to conducting a technical evaluation of private standards (described later), to conduct technical evaluation of JSME’s Addenda in 2013 to the “Method of Monitoring Test of Reactor Structure Materials”, the ‘Study Team on Technical Evaluation of Methods of Surveillance Tests for Structural Materials of Nuclear Reactors’ was established in January 2015 and held three study meetings in FY 2014.

(2) Reconsideration methods of conducting technical evaluations of private standards

The technical evaluation of private standards will be based on the “Plan with Regard to Conducting of Technical Evaluation of Private Standards” (the NRA, August 28, 2013).

The NRA revised this plan in January 2015 integrating the technical evaluation in the 2013 Addenda to the “Method of Monitoring Test of Reactor Structure Materials”, in order to conduct it in conjunction with the technical evaluation of the “Standards of Nuclear Facilities for Power Generation: Maintenance Standards in 2012 and Addenda in 2013”.

(3) Responses based on errors in private standards

While examining the technical evaluation of the Welding Standards in 2012 and the Addenda in 2013, the NRA confirmed that the Design and Construction Standards in 2012 had erroneous stipulations. JSME issued a

list of errata in September 2014 to correct these erroneous stipulations.

To clarify the handling of errors corrections in private standards by the study society, the “Future utilization of private standards in the NRA” (the NRA, June 19, 2013) was reviewed.

(4) Opinion exchange with study society

Considering the errors found in JSME’s standards in September 2014, the NRA exchanged opinions regarding the traceability of the standard creation process in the study society and the response to errors with the Standard Creation Committee of the Atomic Energy Society of Japan, JSME, and the Japan Electric Association at the 56th NRA Commission Meeting in FY 2014 (February 12, 2015).

## **Section 2      Promotion of nuclear safety research**

### **1. Performing nuclear safety research**

To carry out its duties appropriately, the NRA must perform safety research to accumulate the latest scientific and technical knowhow and to be able to respond to problems and consistently improve nuclear safety.

It is therefore essential to be clearly aware of NRA objectives in carrying out; to obtain results which will actually solve problems and at the same time to perform the safety research so that the accumulated scientific and technical knowledge can be fully integrated into the nuclear safety regulations.

At the 23th NRA Commission Meeting in FY 2013 (September 25, 2013), the NRA finalized “About Safety Research at the NRA” to identify the areas of safety research to be undertaken by the NRA.

Based on “About Safety Research at the NRA”, the authority secured the necessary budget and is now undertaking safety research in collaboration with domestic and overseas research organizations.

#### **(1) Status of performance of safety research**

Based on “About Safety Research at the NRA”, the authority carried out 41 safety research projects such as Research with Regard to Specified Nuclear Facilities, Research with Regard to Backend, and Research with Regard to Earthquakes, Tsunamis, and Volcanos, including the three following research fields related to severe accidents, which are considered to be of major importance:

- Preparation of safety analysis methods and analysis codes.
- Preparation of technical knowledge with regard to heat flow phenomenon in a light-water reactor accident.
- Preparation of technical knowledge with regard to severe accidents.

#### **(2) Results from safety research**

As a result of safety research, the NRA released various NRA Technical Reports, which finalized technical foundations, experimental data, and the other information used to assess regulatory standards, various guidelines, and examinations and inspections. In FY 2014, the NRA submitted 17 theses, conducted 47 conference presentations and released 3 reports listed below:

**Table 17 NRA Technical Reports released in FY 2014**

<b>Date of issue</b>	<b>Title</b>
August 2014	Analyses of events for the evaluation of the effectiveness of measures against severe core damage (PWR)
August 2014	Analyses of important phenomena on evaluation of countermeasures to prevent containment damage (PWR)
December 2014	Applicability of water depth coefficient in evaluation for tsunami wave force acting on seawall

## **2. Evaluation of nuclear safety research**

### **(1) Conducting evaluations of safety research**

As to safety research, it is important to evaluate the progress status of safety research and the utilization of such research in nuclear safety regulations and to improve it when necessary. In April 2014, the NRA approved “About conducting evaluation with regard to safety research at the NRA” evaluating all the safety research projects from the political and technical points of view.

### **(2) Annual evaluation of results in FY 2013 and the creation of the FY 2014 plan**

In September 2014, the Secretariat of the NRA reported the outcome of safety research in FY 2013 and the annual evaluation result of safety research plans for FY 2014 at the NRA Commission Meeting.

Overall 2013 safety research objectives were reached, except for seven projects, some of which were suspended due to responses to the New Regulatory Requirement and the prioritization of research related to TEPCO’s Fukushima Daiichi NPS accident. Seven projects achieved particular outcomes because the research was absorbed into the New Regulatory Requirements, preparation of the related guidelines, and examinations of conformance to the New Regulatory Requirements.

Regarding the FY 2014 plan, seven projects were considered to be selectively conducted aiming at validation of a forthcoming safety improvement evaluation, and at arrangement of the technical foundation indispensable for persistent and stable safety examinations based on the latest knowledge. The projects were discontinued or reconsidered based on changes in various situations.

## **Section 3 Securing personnel and improving specialties**

### **1. Securing personnel**

To effectively administer nuclear regulations which require the highest NRA professional and technical expertise, it is essential to hire highly skilled personnel. Since its foundation, the NRA has striven to attract experienced personnel from the private and other sectors and young officials who will oversee the administration of nuclear regulations. Thus far, the authority has hired more than 100 people including experienced personnel with excellent skills and new employees to administer the nuclear regulations.

As to employment of officials with experience from the private and other sectors in FY 2014, The NRA in FY 2014 hired 57 persons as of April 1, 2015 who will ensure conformance to the New Regulatory Requirements, inspections corresponding to the on-site facilities, and measures to prevent nuclear disasters through regular contacts with local governments; research officials who will be responsible for enhancing technical research; and officials responsible for accounting, general affairs, and other areas. The NRA will continue to hire other highly skilled personnel.

In FY 2015, 22 persons were hired, to be in charge of the administration for nuclear regulations. To hire only the highest qualified and ambitious personnel, the NRA accepted visits government and offices in both spring and summer. To attract students majoring in nuclear engineering and related fields, the NRA carried out its own, unique “employment examination for nuclear engineering officials” and sought research officials to be in charge of technological researches and investigations. The NRA mounted an active public relations campaign, clearly explaining its aims and mandates, in order to attract the most highly qualified personnel from all fields.

Paragraph 2, Article 6 of Supplementary Provisions of the Act for Establishment of the NRA stipulates: “Officials of the NRA, including executives and other officials, shall not be permitted to transfer to administrative organizations responsible for duties with regard to promotion of nuclear energy utilization in order to ensure the independence of the regulations to retain the safety in nuclear energy utilization. During a five year period after enforcement of this Act, however, this may not apply where it is acknowledged that there is an unavoidable reason taking into consideration the official’s ambition, aptitude and the like.” The NRA will soon announce the scope of the administrative organizations promoting nuclear energy utilization in order to clarify the major

points of this stipulation.

## **2. Improving specialties**

The administrative field of nuclear regulations requires specialized and highly technical decisions including nuclear reactor engineering, earthquake and tsunami resistance evaluation, radiation protection, probabilistic risk assessment, and others. It therefore is essential to continuously improve this field of expertise.

When the Japan Nuclear Energy Safety Organization was integrated on March 1, 2014, the NRA received a highly qualified pool of personnel. The authority began its own unique recruitment drive and at the same time, on June 25, 2014, defined the “Basic policy of development of NRA officials” to clarify its basic policy and framework for recruitment and development of qualified personnel. The NRA further approved “About promotion of measures with regard to development of officials” on September 3, 2014.

In accordance with its basic policy and to further promote development and training, the organization also utilized the facilities of the NRA Human Resource Development Center, which was established in March 2014.

The overall aim, therefore is a scheme whereby NRA personnel can systematically improve their skills to meet work requirements while the organization itself introduced a system to efficiently manage officials’ abilities, including their history of attending training courses while clarifying the skills necessary for major tasks.

To promote and strengthen safety measures corresponding to the New Regulatory Requirements, including measures needed to prevent or respond to accidents and plant conditions at the time of any accident, the NRA introduced a training simulator which can reproduce situations which can copy ‘normal’ operations in a power reactor, accidents and ‘major’ accidents.

The NRA is preparing a comprehensive implementation scheme and an information system to identify, collect and sort advanced knowledge and transfer such information to both experienced and younger personnel.

Since many employees have now been ‘uniquely’ employed by the NRA beginning in this fiscal year, the authority established a two-year education training covering basic information needed in such areas as the legislative system of nuclear safety regulations, nuclear facilities, radiation protection, safety culture and to provide on-the-job training in NRA Regional Offices.

In addition to the aforementioned measures and in the same way as last fiscal year, the NRA also implemented training programs for current officials to include the Reactor Regulation Act. The NRA provided (1) advanced training courses on nuclear regulations for operational safety inspectors, nuclear emergency preparedness officers and other personnel who are required to obtain legal qualifications, (2) inspection training courses using full-sized equipment and facilities and practical skills training using simulation test devices to understand occurrence mechanisms during abnormal events and to learn the measurement methods (3) practical skills and simulator training for operation control techniques including responses to severe accidents (4) English conversation training courses, short-term postings to overseas regulatory organizations and training courses for improvement of international specialties.

The NRA dispatched three officials to related Japanese graduate schools, other officials to international organizations including the IAEA. Also the NRA dispatched an official to the US NRC and will continue to send other personnel to overseas nuclear regulatory organizations in the future.

The NRA Human Resource Development Center also held national examinations to qualify chief reactor and nuclear fuel technicians who are responsible for safety and supervision of reactor operations and the handling of nuclear fuel material. As a result, the NRA licensed 19 chief reactor technicians and 22 chief nuclear fuel technicians.



## **Chapter 6 Enhancement of Nuclear Security and Consistent Implementation of Safeguards**

### **Section 1 Approaches regarding security of nuclear material**

#### **1. Committee on Nuclear Security**

The Committee on Nuclear Security which the NRA established in FY 2012 is reviewing as a priority concern the introduction of a system to verify the reliability of individual workers in nuclear facilities, security measures for nuclear material during transportation and the security of nuclear material in related facilities. During FY 2014, various working groups established by the committee reviewed individual subjects as part of an overall analysis.

##### **(1) Review on Confirmation System of Trustworthiness**

An individual reliability verification system in nuclear power stations is one of the methods to assess any internal threat and institute countermeasures such as restricting access of individuals to any critical zone. Such a decision will be based on personal information, such as his/her backgrounds. Such verifications are among the recommendations contained in 'Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities' (INFCIRC/225) (hereinafter referred to as "*Nuclear material physical protection recommendation*").

The "Working Group on the Confirmation System of Trustworthiness" held three meetings in 2014 and presented a draft report to a group of experts for their opinions in the 5th working group held on December 5, 2014.

##### **(2) Review of nuclear material security during transportation**

National legislation normally regulates the transportation of nuclear fuel materials outside an operational site. The level of physical protection needed is determined in accordance with the specific nature of the concerned material in question.

While there had been no specified definition for the level of physical protection needed for long-life, low-heat generated radioactive waste (hereinafter referred to as "*TRU waste*") expected to be returned from France, the level of protection of the TRU waste was reviewed in the "Working Group on Security in the Transport of Nuclear Material" since FY 2013 following clarification of the transportation packaging specifications. We summarized a report on the "Level of physical protection of nuclear

material during transportation of long-lived low-heat generation radioactive waste (CSD-B & CSD-C)" in the 3rd Committee on Nuclear Security held on August 1, 2014, and reported the results of the review in the 20th NRA Commission Meeting held on August 20, 2014.

Based on this definition, we requested comments on the proposed rules revision from November 17, 2014 through December 16, 2014 in order to update the "Ordinance on Arrangement of Transportation of the specified Nuclear Fuel Material". In addition, we requested comments on proposed revision of the "Ordinance on the Transportation of Nuclear Fuel Material, Outside Plants, and Business Offices", in order to respond to Nuclear material physical protection recommendation that was issued in 2011.

(3) Review of security of nuclear material on radioisotope.

Since the September 11, 2001 terrorist attacks in the United States, threats not only from nuclear explosive devices, but also from a diffusion apparatus of radioisotope--a so-called "dirty bomb"--has become an increased concern. Though such dirty bombs may have a smaller impact than a nuclear explosion, an increase in global terrorism has raised the spectrum of their widespread use and the need to ensure international security of nuclear materials and radioisotopes.

The IAEA reviewed this situation in preparation of its "Nuclear Security Recommendations on Radioactive Material and Associated Facilities."

A working group on radioactive isotope security was established at the 3rd Committee on Nuclear Security held on August 1, 2014 to review current security, and examine countermeasures against terrorist and criminal activity in Japan. Expert opinion on proposed countermeasures by applicants and licenses was solicited at the first and second working groups held on October 10, 2014 and December 19, 2014 respectively.

## **2. Approaches to Develop a Nuclear Security Culture**

The development of nuclear security culture by applicants and licensees was established as a regulatory requirement in FY 2012, and these ongoing development activities was checked through physical protection inspections in FY 2014.

The NRA commissioner held meetings with the applicants and licensees operational management to enhance their participation in

development activities.

In addition, the "Regulatory Guidelines for a Nuclear Security Culture" was defined in the 50th NRA Commission Meeting of the FY 2014 (January 14, 2015) to develop and maintain a culture of nuclear security in the NRA, the organization designated to regulate nuclear power based on the "NRA's Core Values and Principles."

**Table 18 Regulatory Guidelines for a Nuclear Security Culture**

<p>Every person involved in nuclear power is responsible for developing and maintaining a nuclear security culture.</p> <p>The NRA shall clarify the regulatory guidelines to develop and constantly improve its own nuclear security culture.</p> <p>In addition, the NRA shall contribute to development of a nuclear security culture throughout Japan through activities based on these guidelines.</p> <p><b>Activity regulatory guide</b></p> <p><b>1. Recognition of threat</b></p> <p>The existence of threats to nuclear security must be always recognized, and the importance of protection against such threats shall be kept in mind.</p> <p><b>2. Harmony with safety</b></p> <p>We need to recognize that nuclear security and the safety of nuclear power are inter-dependent. Personnel shall make every endeavor to maintain a harmony of measures for both, and management personnel shall be responsible for selecting the most suitable measure.</p> <p><b>3. Responsibility of management staff</b></p> <p>Management shall take the leadership role in fostering a climate of nuclear security, and the development of a nuclear security culture. In addition, they must constantly examine the organization's posture by constant evaluation and the establishment of targets.</p> <p><b>4. Education and self-improvement</b></p> <p>The organization is responsible for developing and educating talented personnel to lead the drive for nuclear security.</p> <p>At the same time, personnel shall voluntarily undertake ongoing self-improvement.</p> <p><b>5. Protection and communication of information</b></p> <p>Sensitive nuclear security information and information necessary for developing a nuclear security culture in Japan both be adequate protected but also positively communicated when appropriate.</p>
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### **3. IAEA International Physical Protection Advisory Service (IPPAS)**

IPPAS offers advice for the implementation of physical protective measures in accordance with the Convention on the Physical Protection of Nuclear Material and a Recommendation on the Physical Protection of Nuclear

Material. It verifies the details of the physical protective measure of nuclear materials in a facility, hearings with government agencies and licensees and visits by teams of experts from the IAEA and member nations who request such a visit. The IAEA had dispatched 65 missions to 41 nations by December 2014.

In January 2014, Japan requested an IPPAS mission and acceptance was announced by Prime Minister Abe at the third Nuclear Security Summit in the Hague, Netherlands in March 2014.

Following preparatory meetings with the IAEA June 30, 2014 and July 1, 2014, an IPPAS mission visited Japan from February 16-27, 2015. A mission statement concluded: "Overall conditions of the nuclear security system and physical protection implementation measures for nuclear facilities and nuclear material in Japan is robust and sustainable. It also has been significantly improved recently."

The NRA will review mission recommendations and implement which will be finalized as necessary following further discussions. Measures will be implemented to ensure continuous improvement.

#### **4. Revision of the Law on Penalty for Actions that Hazard Human Life and others Through Radiation Emissions**

A Revision of the Convention on the Physical Protection of Nuclear Material was adopted in the council held by the IAEA in 2005 to strengthen the international approach to the physical protection of nuclear material and nuclear facilities. Contracting nations were urged to accelerate the revision process at the second Nuclear Security Summit in 2012, to be concluded by 2014. The Japanese Government submitted a "bill to revise a part of the law on penalties for actions that hazard human life and other impacts through emitting radiation (law on penalty for emitting radiation)" to the 186th session of the Diet in February 2014. This was in order to implement legislative measure for ensuring an amendment provision of the convention in Japan (enacted on April 16, 2014).

On June 28, 2014, Japan submitted the instrument of acceptance of the "Convention on the Physical Protection of Nuclear Material" to the director of the IAEA. (Contracting nations as of February 18, 2015 were 84, including Japan. The revision was to be put into effect on the thirtieth (30th) day after the submission of ratification instrument, acceptance instrument or approval by 101 of 151 contracting nations).

## **5. Approval of the Nuclear Material Physical Protection Program**

Table 19 shows the number of approvals on changes in the Nuclear Material Physical Protection Program in FY 2014.

## **6. Nuclear Material Physical Protection Inspection**

The NRA annually inspects compliance by applicants, licensees and their employees, to the Nuclear Material Physical Protection Program for protection of specific nuclear fuel material based on the Reactor Regulation Act (Nuclear Material Physical Protection Inspection).

In the Nuclear Material Physical Protection Inspection in FY 2014, a focus was placed on the following: Installation of commercial power reactors, verification of licensee and applicants approach on physical protective measures, evaluation of progress in the implementation of a nuclear security culture development outlined in FY 2011. Table 19 shows the number of the Nuclear Material Physical Protection inspections in FY 2014.

**Table 19 Approval of Nuclear Material Physical Protection Programs  
(from April 1, 2014 to March 1, 2015)**

Approvals of changes in the Nuclear Material Physical Protection Program	56 (breakdown) Fuel facility: 4 Test nuclear reactor: 4 Commercial power nuclear reactors: 26 Research and development stage reactors: 6 Storage facilities: 0 Reprocessing facilities: 2 Radioactive waste storage facilities: 1 Nuclear fuel material usage facilities: 12 Specified nuclear facilities: 1
Inspection of Compliance with Nuclear Material Protection Programs	59 (breakdown) Fuel facilities: 7 Test nuclear reactors for test: 7 Commercial power nuclear reactors: 17 Research and development stage reactors: 2 Storage facilities: 1 Reprocessing facilities: 2 Radioactive waste storage facilities: 2 Nuclear fuel material usage facilities: 20 Specified nuclear facilities: 1

**7. Violation of Nuclear Material Physical Protection Programs**

(1) The Japan Atomic Energy Agency, an incorporated administrative organization, reported a suspicious person was seen at its science laboratory outside a restricted area on February 24, 2014. An investigation found the person in question had entered the main gate (entry to restricted area) in a vehicle and main gate guards did not see the vehicle entering into the area in question.

The NRA said this was a violation of the Nuclear Material Physical Protection Programs, because of neglect in enforcing security measures for the Atomic Energy Agency science laboratory in the following areas:

- (i) Preparation of minor provisions on entry control.
- (ii) Duty of nuclear material physical protection manager.
- (iii) Entry control to restricted area.

The NRA judged that this was a possible critical incident which could have affected physical protection measures, though it was not regarded as "organizational misconduct" caused by intentional or malicious will. The NRA therefore alerted the JAEA with a document of facts, requested a review of rules governing the restricted area in September 12, 2014, and requested enforcement of measures to prevent any future similar occurrence.

(2) Chubu Electric Power Company, Hamaoka Nuclear Power Station

Physical protection measures in the protected areas of the Hamaoka Nuclear Power Station, Chubu Electric Power Company, were not implemented during the designated implementation period under the Nuclear Material Physical Protection Programs.

The NRA identified insufficient compliance to legislation and regulation and nuclear security by the person(s) in charge of nuclear material physical protection, including the nuclear material physical protection manager. The fundamental reason was the lack of an organizational checking mechanism. The NRA said this lapse did not amount to "organizational misconduct" or negligence caused by intentional or malicious will. On January 30, 2015, the NRA notified the Chubu Electric Power Company in writing and requested the prevention of any similar future incident.

## Section 2 Safeguard efforts

In order to obtain a confirmation from the IAEA, pursuant to the Safeguards Agreement<sup>5</sup> between Japan and the IAEA and its additional protocol<sup>6</sup>, that the nuclear material within the territory of Japan is not diverted to nuclear weapons or other nuclear explosive devices, the NRA consolidates accounting information on all nuclear material held in nuclear facilities, universities and other locations and declares it to the IAEA, and then accommodates in-field inspections to confirm the correctness and completeness of the declarations. Through these activities, the NRA attempts to maintain international confidence in peaceful use of nuclear material in Japan.

The Safeguard activities in line with the progress of the reactor decommissioning work have been implemented also in TEPCO's Fukushima Daiichi NPS. In particular, routine inspections are applied to nuclear material in reactors #4 through #6 and the common pool. Also that verification is carried out to reactors #1 through #3 where regular safeguard measures are difficult to implement due to high radiation levels. Verification is needed to confirm that no nuclear material withdrawn undetected by the monitoring system installed outside of the reactor building. In addition, verification is needed that the facilities design and situation of operations agreeing with the declaration is implemented.

The IAEA secretariat issues an annual "Safeguards Statement" which summarizes the findings of safeguards activities implemented the previous year and conclusions from the evaluation of those activities in all signatory countries to safeguards agreement. In the "Safeguards Statement for 2013," published on June 20, 2014, the IAEA secretariat concluded that "all nuclear material (in Japan) remained in peaceful use (broader conclusion)<sup>7</sup>" as has been the case since 2004.

After receiving this evaluation, Japan introduced the "Integrated safeguards" which aims at optimizing safeguards activity including such things as random inspections<sup>8</sup>. Based on the conclusions, the IAEA introduced "Integrated Safeguards" into Japan with the optimum combination of all

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<sup>5</sup> Agreement between the Government of Japan and the International Atomic Energy Agency in implementation of Article III.1 and 4 of the Treaty on the Non-Proliferation of Nuclear Weapons

<sup>6</sup> Additional protocol to Agreement between Japanese Government and International Atomic Energy Agency on implementation of the Chapter 3-1 and 4 of the Treaty on the Non-Proliferation of Nuclear Weapons

<sup>7</sup> [http://www.nsr.go.jp/activity/hoshousochi/news/20140709\\_sir.html](http://www.nsr.go.jp/activity/hoshousochi/news/20140709_sir.html)  
[http://www.iaea.org/safeguards/publications\\_news/es/es2013.html](http://www.iaea.org/safeguards/publications_news/es/es2013.html)

<sup>8</sup> Inspection implemented randomly with short notification in lieu of the traditional method implemented systematically aiming at reduction of the number of inspections by IAEA



safeguards measures including random inspections.<sup>9</sup>

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<sup>9</sup> Inspections conducted in a random manner with short notice, replacing the conventional planned method, as a means of reducing the number of IAEA inspections

## **Chapter 7 Enhancing Nuclear Emergency Measures and Radiation Monitoring**

### **Section 1 Nuclear emergency measures**

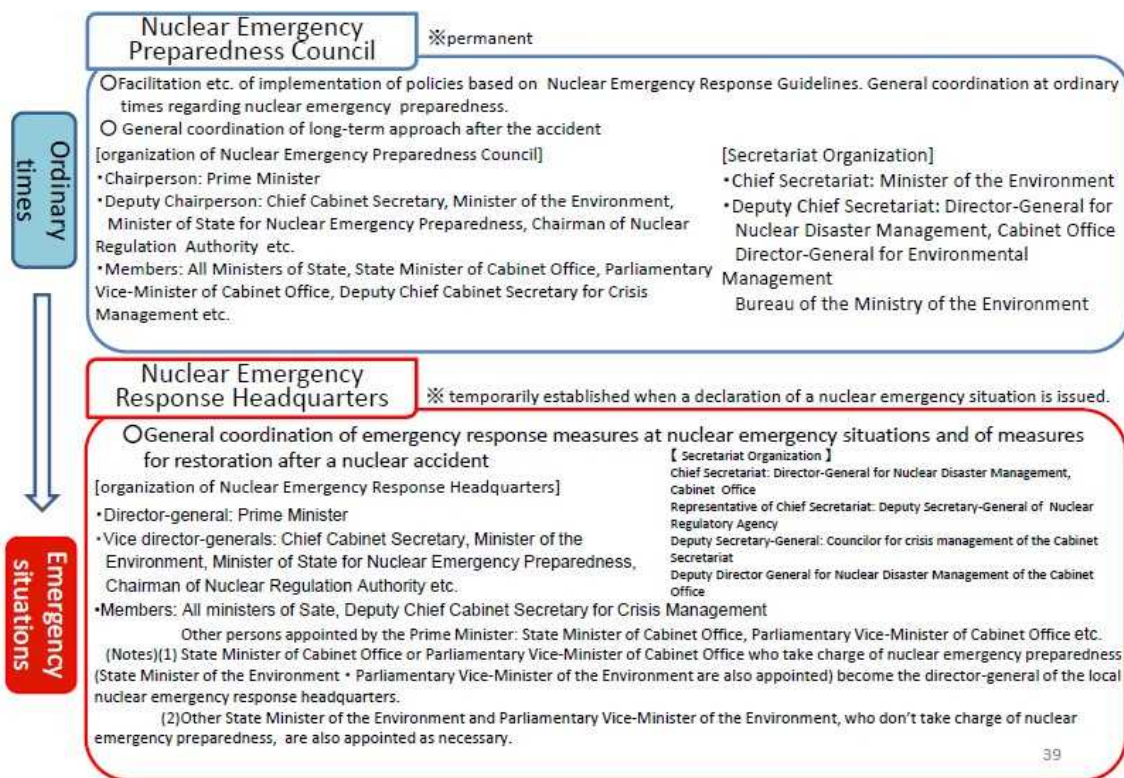
The related laws/ordinances, such as the Atomic Energy Basic Act, the Act on Special Measures Concerning Nuclear Emergency Preparedness were revised and a new framework of nuclear emergency measures was structured along with the establishment of the NRA in September 19, 2012, following the TEPCO's Fukushima Daiichi NPS accident and lessons learned there.

To insure their success, the entire government must fully embrace the new emergency measures. A Cabinet-level Nuclear Emergency Preparedness Council was established to ensure government-wide acceptance even in 'ordinary times'.

The Prime Minister will be the chairman of the new council. Deputy chairmen are the Chief Cabinet Secretary, the Minister of the Environment, the Minister of State for Nuclear Emergency Preparedness and the NRA Chairman. Other members include each Minister of State and the Deputy Chief Cabinet Secretary for Crisis Management. The Minister of the Environment will be the director of the Nuclear Emergency Preparedness Council.

Nuclear Emergency Response Headquarters will be setup in the event of an emergency such as the release of radioactive materials. Deputy chairmen are the Chief Cabinet Secretary, the Minister of the Environment, the Minister of Economy, Trade and Industry, the Minister of State for Nuclear Emergency Preparedness and the NRA Chairman. Other members include each Minister of State and the Deputy Chief Cabinet Secretary for Crisis Management. The roles of the Nuclear Emergency Response Headquarters are as follows: the NRA unambiguously handles technical and specialized matters, relevant government offices procure necessary equipment needed by a nuclear facility and general off-site activities outside of facility (off-site) under the guidance of the general manager (Prime Minister). The Director General for Nuclear Disaster Management, Cabinet Office which was established in October 14, 2014 will direct Nuclear Emergency Response Headquarters.

Figure 5 shows the system of Nuclear Emergency Preparedness in the entire government at the end of FY 2014.



**Figure 5 System of Government Nuclear Emergency Preparedness**

The Act on Special Measures Concerning Nuclear Emergency Preparedness identifies the NRA as the competent authority to implement emergency regulations to ensure the smooth working of involved entities including national and local government, applicants and licensees. The NRA activated Nuclear Emergency Response Guidelines in October 31, 2012, and then revised it once in FY 2012 and again in FY 2013. The meetings of “the Study Team on Nuclear Emergency Preparedness Measures” were held in October and thereafter in FY2014 to review the scope and criteria of nuclear disaster countermeasure concerning the TEPCO’s Fukushima Daiichi NPS, and necessary protective measures during the passage of plume outside of UPZ. The team also reviewed the following issues--since techniques to predict the effects of radioactivity, such as the System for Prediction of Environmental Emergency Dose Information (SPEEDI) and to subsequently judge protective measure is not adequate to utilize them to decide on protective measures: deleting descriptions concerning the predictive technique and instead prepare a mechanism to allow a rapid summary and sharing of results of emergency monitoring.

Following these reviews, public comment solicited based on the Administrative Procedure Act in March 2015, and the guideline was revised on April 22, 2015.

## **Section 2 Emergency Response**

### **1. Licensees Disaster Prevention Drills in Nuclear Energy Related Activity**

Debriefing meetings to evaluate disaster prevention drills by licensees based on the Act on Special Measures Concerning Nuclear Emergency Preparedness have been held starting in FY 2013. In a FY 2014 debriefing meeting we exchanged views with nuclear energy licensees on common issues arising in the previous business year and future years, to confirm that training techniques had been strengthened.

Members of the NRA Secretariat attended licensee disaster prevention drills to help improve overall emergency response capability, including wider information sharing with the S/NRA Emergency response center (ERC) and the nuclear facility event quick response center.

### **2. NRA Approach Concerning Crisis Control**

In October 14, 2014, we revised the NRA emergency preparedness action plan to strengthen preparation systems such as establishing a joint countermeasure headquarters between the NRA and Nuclear Disaster Management bureau, Cabinet Office, linking this with the reorganization of the NRA and Cabinet Office.

We endeavored to maintain and improve our initial responding ability, including a full time response system with a day-night shift system based on the NRA initial response manual.

We prepared a day-night shift check list for use as an assistance and reference guide, to help maintain and improve instruction and judgment ability and information collection and effective communication. The list summarizes the following: outlines a series of tasks based on the initial response manual; i.e. information collection, judgment of establishing an alert headquarters, preparation and distribution of in-office urgent call-out e-mails, fax for related government offices to which information shall be sent, and procedures for telephone communications.

### **3. NRA Approach on Comprehensive Disaster Preparedness Drills**

A comprehensive disaster preparedness drill based on the Act on Special Measures Concerning Nuclear Emergency Preparedness was held November 2-3, 2014 as a joint mission between the national government, local

government, and nuclear power licensees and was attended by the Prime Minister for the Shika nuclear power station. This exercise was the first since the establishment of Nuclear Disaster Management Bureau, Cabinet Office, in which the collaboration of the Cabinet Office Director-General for Nuclear Disaster Management and the NRA was confirmed. Emergency drills were also held in other nuclear-hosting prefectures. NRA Secretariat personnel, including the local Senior Specialists for Nuclear Emergency Preparedness and the Local Radiation Monitoring Officers helped prepare a training plan and attended the exercises. We shall make every endeavor to continuously enhance and reinforce the local system of Nuclear Emergency Preparedness in the light of experiences obtained through the disaster prevention drill.

## **Section 3 Enhancement of Radiation Monitoring**

### **1. Enhancement of emergency monitoring systems**

The Nuclear Emergency Response Guidelines stipulates that the 'level' of any emergency will be determined by the ability of the affected facility to implement effective counter-measures, particularly early-stage activities such as the evacuation or temporary relocation of personnel following the release of radioactive materials measured by monitoring. The NRA is currently making every effort to reinforce the measurement system, such as effective emergency monitoring following this guideline.

For these preparations, the NRA Secretariat prepared and published the "Emergency monitoring plan preparation procedure" which explains fundamental concepts and example texts, one example being an emergency monitoring plan of one prefecture and neighboring prefectures in June 12, 2014. In addition, the NRA prepared and published the "Emergency monitoring center establishing procedure" to establish a system and operation for an emergency monitoring center. That center will be the 'core' of all emergency monitoring, based on the conclusion that related organizations, such as local governments and licensees will implement emergency monitoring under the control of the national government as established in the Nuclear Emergency Response Guidelines in October 29, 2014. The NRA prepares materials and equipment for the emergency monitoring center in the nuclear facility installation area based on this established procedure.

The NRA on January 21, 2015 also published a "Call-out plan for emergency monitoring" explaining the spreading out and prolongation of the emergency monitoring.

In addition, the NRA Secretariat established Local Radiation Monitoring Offices to work in close collaboration with local governments hosting nuclear facilities to ensure In addition to already established offices in Aomori, Fukushima and Fukui prefectures in FY 2013, new centers were opened in Ibaragi, Ohi and Takahama regions in Fukui, Ehime, Saga and Kagoshima prefectures.

In addition, we are preparing for test operations of the "Emergency radiation monitoring information sharing and announcement system" beginning in FY 2015, which is capable of quickly summarizing results of emergency monitoring and sharing those results with involved personnel to adequately judge and implement the protective measure after release of radioactive

materials.

## **2. Radiation Monitoring Following the TEPCO's Fukushima Daiichi NPS Accident**

The NRA implemented monitoring of the entire Fukushima Prefecture, the off-shore area adjacent to the TEPCO's Fukushima Daiichi NPS, Tokyo Bay and air dose rates covering the whole of Japan. Analysis results are published weekly, based on the "Comprehensive Radiation Monitoring Plan" (agreed at the monitoring coordination council in August 2, 2011 and revised on April 1, 2014). Responsibility for radiation monitoring had been transferred from the Ministry of Education, Culture, Sports, Science and Technology in FY 2013.

### **(1) Recognition of long-term spread of radioactive material throughout Fukushima prefecture**

The NRA implemented aerial monitoring throughout the Fukushima area. In February 2015, the authority published a space dosage map (as of September 20, 2014) within an 80 km zone from the Fukushima Power Station, as well as an air dose rate map (as of September 20, 2014) for Fukushima and its neighboring prefectures. In August 2014 we issued an output report, the "Technical activities to recognize the long-term impact of radioactive material associated with the Tokyo Electric Power Co. Fukushima Daiichi Nuclear Power Station accident" containing measurement results such as the distribution situation of air dose rates and amount of radioactive cesium in the soil.

### **(2) Air dose rate in Fukushima and neighboring prefectures**

The air dose rate is measured continuously with 708 mobile monitoring posts and 3,036 units of real-time dosage measuring systems installed at high-visibility locations such as schools at the request of local authorities in Fukushima and neighboring prefectures. Measurement results are announced on the homepage in 'real time'. The mobile monitoring posts are transferred according to the needs of local authorities in the distressed area.

### **(3) Monitoring offshore areas**

Continuing from the previous business year, related organizations implement their monitoring in accordance with the "How to monitor offshore



area" guideline which is part of the "Comprehensive Radiation Monitoring Plan." The NRA collects and analyzes seawater and seabed soil in areas immediately around and further out to sea of the TEPCO's Fukushima Daiichi NPS and Tokyo Bay.

IAEA oceanic monitoring experts conducted hearing on the oceanic monitoring and directly observed collection and analysis methods in government offices, including those of the NRA in November 2013. IAEA Environment Laboratory experts visited Japan in September and November, 2014 to verify that Japan's data is highly reliable. These experts made a cross-comparison of analysis results and performance evaluation by collecting sea water samples adjacent to the TEPCO's Fukushima Daiichi NPS with the cooperation of the NRA Secretariat.

### **3. Implementation of Radiation Monitoring Throughout Japan<sup>10</sup>**

Since the TEPCO's Fukushima Daiichi NPS accident, the NRA undertook monitoring activities from the Ministry of Education, Culture, Sports, Science and Technology, based on the transfer of tasks concerning implementation of radiation monitoring from the MEXT in FY 2013.

#### **(1) Environmental radioactivity level research (conducted since FY 1957)**

In 47 prefectures throughout Japan, we collected environmental samples, such as atmospheric floating dust, fallout, and soil for radiation analysis. In Measurement results by FY 2013 were recorded sequentially into a database for publication. The air dose rate is continuously measured at 297 monitoring posts throughout Japan and is published in real time on the NRA homepage.

#### **(2) Oceanic environmental radioactivity comprehensive evaluation assessment (conducted since FY 1983)**

Sea water, seabed soil and ocean creatures are collected once a year in 16 offshore areas near nuclear power stations and nuclear fuel reprocessing facilities to research radiation levels. FY 2013 results were entered into a database to be published.

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<sup>10</sup> Monitoring tasks were transferred from the Ministry of Education, Culture, Sports, Science and Technology in April 1, 2013, along with enforcement of the part of the Act for Establishment of the Nuclear Regulation Authority.

- (3) Radiation monitoring near nuclear power generation facilities (issued subsidies since FY 1974)

Financial assistance was given to prepare radiation monitoring and research facilities implemented by the main nuclear power generation facility and 24 adjacent prefectures (budget in FY 2014, 6.86 billion JPY). Financial assistance was given for reconstruction of nuclear facilities damaged in the Great East Japan Earthquake for preparation of a radiation monitoring system in Miyagi prefecture (budget in the FY 2013, 1.58 billion JPY).

Results reported by respective local governments were entered into a database for publication.

- (4) Training local government monitor workers (implemented since FY 1990)

The "Environmental radiation analysis training" and "Monitoring task training" were conducted for local government personnel to improve radiation analysis technology and the effectiveness of local government emergency monitoring.

#### **4. Implementation of Radiation Research Concerning Port Calls by Nuclear Powered Vessels<sup>1 1</sup>**

The NRA periodically analyzes radiation in the ports of Yokosuka, Sasebo and Kinnakagusuku where US nuclear vessels make port calls. It also collects sea water to analyze radiation in collaboration with related organizations such as the Japan Coast Guard during entry, visit and exit of nuclear vessels results are published on the NRA homepage daily and since FY 2013 have been transferred to a database for publication.

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<sup>1 1</sup> The task was transferred from the Ministry of Education, Culture, Sports, Science and Technology in April 1, 2013, as the "Implementation of radiation monitoring in throughout Japan."

## **Section 4 Response to Accidents and Failures**

The Reactor Regulation Act mandates that accidents and failures in nuclear facilities must be reported by licensees to the NRA.

The number of the accidents and failures reported by nuclear energy licensees to the NRA from April 1, 2014 to March 31, 2015 was six. A breakdown is: five cases from commercial power reactors (included specified nuclear facility), one case from a nuclear reactor facility for test and study and nuclear fuel material usage facility, and none from a nuclear reactor facility in the research and development stage (Monju and Fugen) or other nuclear facilities (fuel facility, reprocessing facility, waste disposal facility, radioactive waste storage facility) (Table 20). In addition, the number of accidents and failures reported to the NRA by the applicants and licensees handling radioisotopes based on the Radiation Hazards Prevention Act was two (Table 21).

Evaluation assessments based on INES<sup>1 2</sup> is applied to accidents and failures reported to the NRA as a mandatory requirement under the Reactor Regulation Act and the Radiation Hazards Prevention Act. Under INES guidelines, level ratings should be reported to the IAEA in the event of level 2 or higher which is considered to be highly focused.

However, since INES is a scale for normal nuclear facilities, applying it to the TEPCO's Fukushima Daiichi NPS, after it was severely damaged by the accident on March 11, 2011, may cause confusion. Therefore, rating by INES shall not be applied to that particular power station and a separate document by the NRA of the event, its impact on the environment and the measures taken by the authority will be described separately.

The decision that the leakage from the contaminated water reservoir facility RO concentrated liquid tank was not covered by the INES rating in FY 2014 was reported to the IAEA.

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<sup>1 2</sup> INES is formulated as an index to describe the meaning of safety for individual a: of the nuclear facility by the IAEA and the Organization for Economic Co-operation and Development Nuclear Energy Agency (OECD/NEA). The level of evaluation is categorized from level zero (no safety significance) through level seven (severe accident).

**Table 20 List of Reported Accidents and Failures Based on the Reactor Regulation Act (From April 1, 2014 to March 31, 2015)**

Date of occurrence <sup>*1</sup>	Facility name	Overview	INES
(1)	Specified nuclear facility		
April 13,2014	Tokyo Electric Power Co. Fukushima Daiichi Nuclear Power Station	<p>[Leakage of radioactive material in a controlled area]</p> <p>On April 10, 2014, contaminated water generated from the reactor building due to the Fukushima Daiichi Nuclear Power Station accident (hereinafter referred to as “<i>stagnant water</i>”) is transferred from the on-site dike building to the process main building, which is normally used as a reservoir for <i>stagnant water</i> <sup>note</sup>. On April 11, level of the process main building water was confirmed to be lower while the water level of the on-site dike building rose. The licensee confirmed that accumulated water in the process main building entered the incineration building, from the fact that the transfer pumps to the on-site dike building and the incineration building, in which the stagnant water was not stored from the process main building were operating. The licensee had not yet evaluated the capacity of the building to store <i>stagnant water</i>, although a transfer of the <i>stagnant water</i> to the incineration work building was taken into consideration for emergencies. Therefore, the licensee judged that the nuclear fuel material leaked inside the controlled area. The licensee also estimated that the volume of flow-in water was approximately 165 m<sup>3</sup> in the incinerator building side of the incineration building, and approximately 38 m<sup>3</sup> in the workshop building side.</p> <p>On June 30, 2014, the licensee reported the cause of the incident and countermeasures, followed by the verification of the report concerned. The evaluation assessment was finalized confirming there was no environmental contamination of any concern, and the measures to prevent a recurrence, such as a separation of the power supply of the transfer pump not in use at the moment had been completed in the 3rd NRA Commission Meeting in the FY 2015 (April 15, 2015).</p> <p>Note: While a typical power station stores water in a tank, some buildings were utilized as a tank in Fukushima Daiichi.</p>	—*2
June 9, 2014	Tokyo Electric Power Co. Fukushima Daiichi Nuclear Power Station	<p>[Leakage of radioactive material in a controlled area]</p> <p>On June 9, 2014, leakage of stored water into the dike from the section of bolts at the upper parts of the sides of two tanks (one bolt each tank) located in the group of square shape 4,000 ton tanks cluster was found. In addition, it was confirmed that some of the water leaked to outside the bunker because</p>	—*2

		<p>the dike drain valve was open. The licensee estimated that approximately 3.5 m<sup>3</sup> of the stored water leaked outside the bunker. On December 17, 2014, the licensee reported the cause of the incident and countermeasures taken, followed by the report's verification. The evaluation assessment was finalized confirming there was no oceanic contamination of concern, and measures to prevent a recurrence, such as starting operations of the rain water processing equipment, had been completed in the 3rd NRA Commission Meeting in the FY 2015 (April 15, 2015).</p>	
September 17, 2014	Tokyo Electric Power Co. Fukushima Daiichi Nuclear Power Station	<p>[Non functioning of equipment required in the implementation plan]</p> <p>On September 4, 2014, leakage of RO concentrated water from the joint valve of the RO concentrated water tank at the G4 tank area was confirmed. As a result of disassembling inspection of the connection valve, a crack that penetrated the valve was confirmed. The licensee judged that the required function defined in the implementation plan for the Fukushima Daiichi Nuclear Power Station specified nuclear facility (contaminated water processing equipment shall be capable of preventing a leak) had failed.</p> <p>In addition, the licensee confirmed that there was no leakage outside the dike of RO concentrated water, and that approximately 1 liter of RO concentrated liquid had leaked.</p> <p>As of March 31, 2015, the licensee is investigating the problem.</p>	—*2
December 17, 2014	Tokyo Electric Power Co. Fukushima Daiichi Nuclear Power Station	<p>[Leakage of radioactive material in controlled areas]</p> <p>On December 17, 2014, processed water from which radioactive material other than H-3 was removed by the multiple nuclide removal equipment, was leaked from the branch pipe (piping with one side opened) under construction that was connected to the transfer pipe. This occurred when the processed water was being transferred to the A1 tank in the newly completed J6 tank area. After investigation, the licensee assumed that the leakage occurred due to transfer of the processed water based on a wrong operating procedures, because of an initial misunderstanding of the construction drawing of the transfer pipe. The licensee estimates that approximately 6 m<sup>3</sup> of processed water leaked outside the dike.</p> <p>As of March 31, 2015, the licensee is investigating the problem.</p>	—*2
February 22, 2015	Tokyo Electric Power Co. Fukushima Daiichi Nuclear Power Station	<p>[Leakage of radioactive material outside a controlled area]</p> <p>On February 22, 2015, an "Extremely high" of the site drain radiation monitor in the drainage ditch went off. After investigation, the licensee judged that contaminated water flowed into the drainage and then out into the power station port, which is</p>	—*2

		outside of the controlled area. The licensee estimated that the total amount of beta radioactivity out-flow was approximately $4 \times 10^8$ Bq (temporary estimation) As of March 31, 2015, the licensee continued to investigate the problem.	
(2)	Nuclear reactor installation in research and development stage		
(3)	Research/test nuclear reactor facility and nuclear fuel material usage facility		
September 11, 2014	Incorporated administrative agency Japan Atomic Energy Agency Oarai research and development center JMTR (material test reactor)	<p>[Leakage of radioactive material outside a controlled area]</p> <p>On September 11, 2014 at 10:20, a pool of water was discovered in the 3rd waste water system storage tank (II) building in outside the controlled area. Although the licensee had confirmed that there was a contamination and it contained Co-60 following of water measurement and analysis, the notification concerning the Ordinance on installation and operation of nuclear reactor used for test and research, etc. Article 16-14 and the Ordinance on use of nuclear fuel material, etc. Article 6-10, was delayed until 21:17, because an ongoing check of the route of the leaked water. The licensee presumed the leakage route was from the inspection hole or others due to the rise of water level in the liquid waste storage tank. The total volume of leaked water was estimated to be approximately 26 liters.</p> <p>On December 25, 2014 and in March 10, 2015, the licensee reported the cause and countermeasures taken. As of March 31, 2015, the NRA Secretariat was evaluating the report.</p>	* 3
(4)	Other nuclear facilities (fuel, reprocessing, waste disposal and radioactive waste storage facilities)		

**Table 21 List of Report Accidents and Failures Based on Radiation Hazards  
Prevention Act**

**(From April 1, 2014 to March 31, 2015)**

Date of occurrence* 1	Name of licensee	Overview	INES
December 24, 2014	Asahi Precision CO.Ltd.	<p>[Leakage of radioactive material outside a controlled area]</p> <p>On December 17, 2014, the NRA Secretariat confirmed that radiation management of this company was not adequate at an on-site inspection of the Asahi Precision Co., Ltd. Therefore, the Secretariat instructed the licensee to implement contamination inspections inside and outside the controlled area. On December 24, contamination of radioisotopes (nickel 63 and tritium) was detected outside the controlled area (entrance and exit floor surface) as a result of a contamination inspection.</p> <p>As of March 31, 2015, the licensee had identified the contaminated area outside of controlled area and decontaminates that area, and is investigating the cause of the problem.</p>	* 3
December 25, 2014	HMS	<p>[Unknown location of radioactive material]</p> <p>On December 25, 2014, the HMS Chiba CO., Ltd. reported to the NRA that an indicator rod in which radioisotopes (cobalt 60 and californium 252) are embedded, to water contents and soil density gauge had been unknown since December 18. The company searched the office concerned and the construction site without result and reported the matter to the Chiba Police Headquarters as well as continuing to search the location.</p> <p>As of March 31, 2015, the company was still searching for the missing radiation source rod.</p>	* 3

\*1 Describing the date of reporting based on the Reactor Regulation Act and the Radiation Hazard Prevention Act as the date of occurrence.

\*2 Outside coverage of the INES evaluation assessment.

\*3 Currently, we are asking the licensee for information required for adequate implementation of INES evaluation assessment.

## Appendix Activities and Results in FY 2014 (Data)

### Section 1 NRA Commission Meetings

Under a policy to encourage open Commission Meetings, the NRA held 65 conferences from April 1, 2014, to March 31, 2015 (47 regular meetings and 18 extraordinary meetings), and made 76 NRA Commission decisions (hereinafter referred to as “*Commission decisions*”). The main topics and Commission decisions covered by the NRA are listed in tables 22 and 23.

**Table 22 Actual record of the NRA Commission Meeting  
(From April 1, 2014 to March 31, 2015)**

No.	Date	Main topics
1	4.2	<ul style="list-style-type: none"> <li>▪ Regarding the NRA task continuity plan.</li> <li>▪ Regarding the violation of obligations under the nuclear material physical protection program in Tokai Village Daini NPS.</li> <li>▪ Regarding the formulation of basic policy for cultivating NRA human resources.</li> <li>▪ Regarding the focused guidelines on inspection for observance of operational safety programs in FY 2014.</li> <li>▪ Regarding the operational safety inspections (interim report #3).</li> <li>▪ Overview of results of the sixth committee of the Convention on Nuclear Safety.</li> <li>▪ Report of attending Hague Nuclear security summit and side events.</li> </ul>
2	4.9	<ul style="list-style-type: none"> <li>▪ Regarding the implementation of evaluation assessments of safety research in the NRA.</li> <li>▪ Regarding the OECD/NEA conference in the memorial; ceremony for the 50th anniversary of Japan's accession to the OECD.</li> </ul>
3 * 1	4.11	<ul style="list-style-type: none"> <li>▪ Regarding the selection of the review board of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee.</li> </ul>
4	4.16	<ul style="list-style-type: none"> <li>▪ Regarding the appointment of the reviewing board of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee.</li> <li>▪ Regarding the case in which accumulated water was transferred to a building unsuitable for accumulated water in TEPCO's Fukushima Daiichi NPS.</li> <li>▪ Regarding the response of the Japan Atomic Energy Agency to rules in the Reactor Regulation Act concerning overdue inspections of the Prototype Fast Breeder Reactor Monju.</li> <li>▪ Regarding the rationalization of interpreting the Regulatory Guide of NRA Ordinance on Standards for the Location, Structure, and Equipment of Commercial Power Reactors.</li> </ul>



No.	Date	Main topics
5	4.23	<ul style="list-style-type: none"> <li>▪ Regarding the implementation of requesting opinions for the ordinance (proposed) on partial revision of the ordinance on use of international controlled material.</li> <li>▪ Regarding actions for receiving the IRRS of IAEA.</li> <li>▪ Regarding the Cabinet decision and report in the Diet of the NRA annual report</li> <li>▪ Regarding the exclusive processing in the fourth quarter of FY 2013.</li> </ul>
6	5.2	<ul style="list-style-type: none"> <li>▪ Regarding the approach for operation experience feedback of a nuclear facility.</li> <li>▪ Regarding conformity reviews to regulatory requirements in a nuclear power station.</li> <li>▪ Regarding the situation of conformity reviews to regulatory requirements in a nuclear fuel facility.</li> <li>▪ Regarding approval procedures of the construction plan and pre-service inspection for nuclear power reactor facilities.</li> <li>▪ Regarding welding inspections concerning TEPCO's Fukushima Daiichi NPS specified nuclear facilities.</li> <li>▪ Regarding the overview of results of the International Nuclear Regulators Association (INRA).</li> </ul>
7	5.14	<ul style="list-style-type: none"> <li>▪ Regarding the preparation of the NRA Technical Reports.</li> <li>▪ Regarding implementation of an operational safety inspection in the fourth quarter of FY 2013.</li> <li>▪ Regarding the guidelines of implementation of operational safety inspection in FY 2014.</li> </ul>
8	5.21	<ul style="list-style-type: none"> <li>▪ Regarding the approval of Tohoku Electric Power Co. "Approval of operational safety program change of Onagawa NPS" (technical evaluation of plant life management of unit 1).</li> <li>▪ Regarding the situation of conformity reviews to regulatory requirement in a nuclear power station (relating to permission for change in reactor installation).</li> <li>▪ Regarding the situation of action in the NRA Regional Office for Fukushima Daiichi.</li> </ul>
9	5.28	<ul style="list-style-type: none"> <li>▪ Regarding the FY 2013 NRA annual report.</li> <li>▪ Regarding the estimation of exposure dose and effect of protective measures in emergencies.</li> </ul>
10	6.4	<ul style="list-style-type: none"> <li>▪ Regarding the guidelines for action concerning "Design vulnerability in electric power system."</li> <li>▪ Regarding the guidelines of structuring the NRA management system.</li> <li>▪ Regarding the review situation of TEPCO's implementation plan concerning the frozen soil impermeable wall.</li> </ul>
11	6.11	<ul style="list-style-type: none"> <li>▪ Regarding the enactment and others of the ordinance on partial revision of the ordinance on use of international controlled material.</li> <li>▪ Regarding the distribution situation and transition of aerial dose rate (measurement of aerial dose rate from the ground with a survey meter).</li> <li>▪ Regarding the enactment of implementation procedures for operational safety inspection of nuclear power reactor facilities for power generation.</li> <li>▪ Regarding the leak to the outside of bunker from 4000 ton notch tank group in TEPCO's Fukushima Daiichi NPS.</li> </ul>

No.	Date	Main topics
12	6.18	<ul style="list-style-type: none"> <li>• Regarding the request for opinions for the partial revision (proposed) of Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor</li> <li>• Regarding the result of implementation of FY 2013 nuclear material physical protection inspection.</li> <li>• Regarding the IAEA International Physical Protection Advisory Service (opening official preparatory meeting).</li> <li>• Regarding how to review conformity of Tohoku Electric Power Co. Higashidori NPS unit 1.</li> </ul>
13 * 2	6.24	<ul style="list-style-type: none"> <li>• Regarding the approval of appointment of board members of the designated organizations implementing safeguards inspections</li> </ul>
14	6.25	<ul style="list-style-type: none"> <li>• Regarding the basic policy for cultivating NRA human resources.</li> <li>• Regarding the approval of change concerning effective dose at the site boundary) in "TEPCO's Implementation plan for the Fukushima Daiichi NPS, specified nuclear facility".</li> <li>• Regarding the enactment and other issues on partial revision of the ordinance on use of international controlled material (modified version).</li> </ul>
15	7.2	<ul style="list-style-type: none"> <li>• Regarding the evaluation of the legislation report on damage to the reactor building ceiling crane of the Tohoku Electric Power Co. Onagawa NPS unit 1.</li> <li>• Regarding the review of the Kyushu Electric Power Co. "Approval of operational safety program change of Sendai NPS" (technical evaluation of plant life management of unit 1).</li> <li>• Regarding the implementation of a technical evaluation of the Japan Society of Mechanical Engineers welding standards.</li> </ul>
16	7.9	<ul style="list-style-type: none"> <li>• Regarding the partial revision of Regulatory Guide of NRA Ordinance on Standards for the Location, Structure, and Equipment of Commercial Power Reactors.</li> <li>• Regarding the publication of "Safeguards Statements 2013 version" by the IAEA and results of implementing safeguards activity in Japan.</li> <li>• Regarding the progress of work to stop water at the connection between the unit 2 and 3 seawater pipe trench and turbine building in TEPCO's Fukushima Daiichi NPS.</li> </ul>
17	7.16	<ul style="list-style-type: none"> <li>• Regarding the request for opinions to the draft review report concerning the application for permission for change in reactor installation at the Kyushu Electric Power Co. Sendai NPS reactor unit 1 and 2.</li> <li>• Regarding suggestions from international advisors.</li> </ul>
18	7.30	<ul style="list-style-type: none"> <li>• Regarding the exclusive processing in the first quarter of FY 2014.</li> <li>• Regarding a business trip report to exchange views with the United States Government agencies.</li> <li>• Regarding the results of attending the 10th National Conference on Earthquake Engineering in the United States.</li> </ul>

No.	Date	Main topics
19	8.6	<ul style="list-style-type: none"> <li>• Regarding the partial revision of Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor.</li> <li>• Regarding the implementation of requesting opinion to the guideline (proposed) for examinations with regard to specialized safety facility related to commercial power reactors, and the guideline (proposed) for examinations with regard to assessments of impacts of aircraft crashes related to commercial power reactors.</li> <li>• Regarding the review of protection against external events at TEPCO's Fukushima Daiichi NPS.</li> <li>• Regarding the situation of implementation of operational safety inspections in the first quarter of FY 2014.</li> </ul>
20	8.20	<ul style="list-style-type: none"> <li>• Regarding the reactivation of the Study Team on Nuclear Emergency Preparedness Measures.</li> <li>• Regarding the level of physical protection of nuclear material during transportation of long-life low heat generation radioactive waste (CSD-B &amp; CSD-C).</li> <li>• Regarding how to review conformity of the Hokuriku Electric Power Co. Shika NPS unit 2.</li> <li>• Regarding the study team on monitoring of volcanic activities around nuclear facilities.</li> </ul>
21	8.27	<ul style="list-style-type: none"> <li>• Regarding approval of changes concerning installation of an expanded multiple nuclide removal facility in "TEPCO's implementation plan for Fukushima Daiichi NPS, specified nuclear facility."</li> <li>• Regarding evaluation of policy implemented in FY 2013.</li> <li>• Regarding exchanging opinion with licensees on safety improvements including the development of a safety culture.</li> <li>• Regarding the situation of conformity reviews to regulatory requirements in a nuclear fuel facilities.</li> </ul>
22	9.3	<ul style="list-style-type: none"> <li>• Regarding the NRA management system provision (proposed) and the partial revision (proposed) of the related internal provision.</li> <li>• Regarding opinions on FY 2014 nuclear energy comprehensive disaster prevention drill plan.</li> <li>• Regarding the report of implementation situation of the second joint committee of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee.</li> <li>• Regarding the action guidelines concerning "corrosion in fire protection piping due to air and water reaction."</li> <li>• Regarding the focus of FY 2015 Nuclear power regulation and emergency measures.</li> <li>• Regarding how to implement policy on personnel development.</li> </ul>
23	9.10	<ul style="list-style-type: none"> <li>• Regarding the result of requesting opinions to the draft review report and the permission for change in reactor installation of the Kyushu Electric Power Co. Sendai NPS reactor units 1 and 2.</li> <li>• Regarding the overview of results of the 7th Japan-China-ROK nuclear power safety high level regulator meeting.</li> </ul>
24 * 3	9.12	<ul style="list-style-type: none"> <li>• Regarding the violation of rules of Nuclear Material Protection Programs.</li> </ul>

No.	Date	Main topics
25	9.17	<ul style="list-style-type: none"> <li>▪ Regarding the result of requesting opinion to the guideline (proposed) for examinations with regard to specialized safety facility related to commercial power reactors,, and to the guideline (proposed) for examinations with regard to assessments of impacts of aircraft crashes related to commercial power reactors.</li> <li>▪ Regarding the response to errors in design and construction standards published by the Japan Society of Mechanical Engineers.</li> <li>▪ Regarding the partial revision of evaluation guidelines covering the impact of a tornado on a nuclear power station.</li> <li>▪ Regarding the result of the FY 2013 evaluation of safety research outcome and the FY 2014 safety research plan.</li> <li>▪ Regarding the response to the one-phase conditions in a reprocessing facility.</li> <li>▪ Regarding the approval of change concerning penetrative construction work of underground buried materials in the construction of the frozen soil impermeable wall) in "TEPCO's implementation plan for Fukushima Daiichi NPS, specified nuclear facility."</li> </ul>
26 * 4	9.17	<ul style="list-style-type: none"> <li>▪ Regarding the establishment of characteristics (proposed) of aircraft in the guideline for examinations with regard to specialized safety facility related to commercial power reactors.</li> </ul>
27 * 4	9.18	<ul style="list-style-type: none"> <li>▪ Regarding the establishment of characteristics (proposed) of aircraft in the guideline for examinations with regard to specialized safety facility related to commercial power reactors.</li> </ul>
28	9.19	<ul style="list-style-type: none"> <li>▪ Regarding the appointment of a commissioner for delegating tasks from the Chairman of the NRA.</li> </ul>
29	9.24	<ul style="list-style-type: none"> <li>▪ Regarding revision of the related cabinet order for enhancement and reinforcement of Nuclear Emergency Preparedness.</li> <li>▪ Regarding the status of site inspections for the implementation of ex post facto countermeasures after a nuclear disaster based on the restoration plan for TEPCO's Fukushima Daini NPS.</li> <li>▪ Regarding the approval of altering the operational safety program for the Prototype Fast Breeder Reactor Monju.</li> <li>▪ Regarding the crack in the joint valve of the RO concentrated liquid tank in TEPCO's Fukushima Daiichi NPS.</li> <li>▪ Regarding the FY 2013 radiation management report concerning nuclear facilities.</li> </ul>

No.	Date	Main topics
30	10.1	<ul style="list-style-type: none"> <li>• Regarding revision of the NRA organization rule for enhancement and reinforcement of Nuclear Emergency Preparedness.</li> <li>• Regarding the partial revision of the Act on Special Measures Concerning Nuclear Emergency Preparedness accompanying the revision of the Disaster countermeasures Basic Law.</li> <li>• Regarding the system of study group meetings after the accession of new commissioners.</li> <li>• Regarding switching the chairman of the peer review committee concerning evaluation of fracture zone on the site.</li> <li>• Regarding the request for opinions for the proposed partial revision of the Ordinance on Off-site Transportation of Nuclear Fuel Materials.</li> <li>• Regarding the approval of change in the implementation plan for TEPCO's Fukushima Daiichi NPS specified nuclear facility and installation of the advanced multiple nuclide removal facility.</li> <li>• Regarding the review of TEPCO's "Approval of operational safety program change at the Kashiwazaki Kariwa NPS" (technical evaluation of plant life management of unit 1).</li> <li>• Regarding the overview of the result of the International Nuclear Regulators Association (INRA) meeting and other bilateral meetings at the IAEA General Conference.</li> <li>• Regarding the fifth national report of Japan of the convention on the safety of spent fuel management and radioactive waste management.</li> </ul>
31	10.8	<ul style="list-style-type: none"> <li>• Regarding the interim report (proposed) of accident analysis at TEPCO's Fukushima Daiichi NPS.</li> <li>• Regarding the defect in procedures based on the legislation for users of nuclear fuel materials and inadequate action of the NRA Secretariat.</li> <li>• Regarding the revision of the NRA emergency preparedness action plan accompanying revision of the NRA organization order.</li> <li>• Regarding the operation of immediate emergency predictions of the effects of the radioactivity network system.</li> <li>• Regarding the change of interim targets for the incorporated administrative agency, the Japan Atomic Energy Agency.</li> <li>• Regarding the overview of results of the second Japan-France regulatory authority meeting.</li> </ul>
32	10.15	<ul style="list-style-type: none"> <li>• Regarding the report of reform of mechanism in the Japan Atomic Energy Agency.</li> <li>• Regarding the reform of the electric power system (electricity deregulation) and nuclear power generation.</li> <li>• Regarding the procedure of approval applications by commercial power reactors for an extension of operations period.</li> <li>• Regarding opening Local Radiation Monitoring Offices.</li> </ul>
33	10.22	<ul style="list-style-type: none"> <li>• Regarding exchanging views on safety improvement including the development of a safety culture.</li> <li>• Regarding the exclusive processing in the second quarter of FY 2014.</li> </ul>

No.	Date	Main topics
34	10.29	<ul style="list-style-type: none"> <li>• Regarding the partial revision of the Regulatory Guide of the NRA Ordinance on Standards for the Location, Structure and Equipment of Reprocessing Facilities</li> <li>• Regarding the report relating to "Procedure to establish the emergency monitoring center."</li> <li>• Regarding the review on regulation of radioactive waste accompanying a decommissioned reactor.</li> <li>• Regarding the implementation of operational safety inspections in the second quarter of FY 2014.</li> <li>• Regarding results of INSAG (International Nuclear Safety Advisory Group) of the IAEA and ITAG (Consulting committee concerning the IAEA comprehensive report on TEPCO's Fukushima Daiichi NPS accident).</li> <li>• Regarding the report of attendance at the 2014 Convention of The Geological Society of America (GSA2014).</li> </ul>
35	10.29	<ul style="list-style-type: none"> <li>• Regarding the approach on safety improvements including the development of a safety culture.</li> </ul>
36	11.5	<ul style="list-style-type: none"> <li>• Regarding the request for opinions on the proposed ordinance for partial revision of the Regulation on transportation of specified nuclear fuel material and the Regulations for Transport of Nuclear Fuel Materials outside plants.</li> <li>• Regarding the situation of conformity reviews to regulatory requirement in nuclear power stations.</li> </ul>
37 * 5	11.5	<ul style="list-style-type: none"> <li>• Regarding the disposition of objects contaminated by radioisotope.</li> </ul>
38	11.12	<ul style="list-style-type: none"> <li>• Regarding the partial revision of the Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor.</li> <li>• Regarding the approval of the Kansai Electric Power Company's "Approval of operational safety program change at the Takahama Power Station" (technical evaluation of plant life management of unit 1).</li> <li>• Regarding safety research on tsunami wave forces applied to a seawall (interim report).</li> <li>• Regarding opposition to grating permission for changes in reactor installation of the Kyushu Electric Power Co. Sendai NPS reactor unit 1 and 2.</li> <li>• Regarding the overview of the results of IAEA and CSS meetings.</li> </ul>
39 * 5	11.13	<ul style="list-style-type: none"> <li>• Regarding the disposition of objects contaminated by radioisotope.</li> </ul>
40	11.19	<ul style="list-style-type: none"> <li>• Regarding enactment of the partial revision of the Ordinance for Off-site Transportation of Nuclear Fuel Materials.</li> </ul>
41	11.26	<ul style="list-style-type: none"> <li>• Regarding the report of the periodical inspection of the Fukushima Daiichi NPS specified nuclear facility.</li> <li>• Regarding the amount of radioactive material falling outside the site during debris removal work in unit 3 (August 2013).</li> </ul>
42	11.26	<ul style="list-style-type: none"> <li>• Regarding the approach on safety improvements including development of a safety culture.</li> </ul>
43	12. 3	<ul style="list-style-type: none"> <li>• Report of results of the reporting meeting of the disaster prevention drill for licensees of nuclear energy related activity (evaluation of results of the drill implemented by licensees of nuclear energy related activity during FY 2013 and FY 2014 first two quarters).</li> <li>• Regarding the progress situation of the meeting of experts concerning fracture zones on the site.</li> </ul>

No.	Date	Main topics
44 * 6	12. 8	<ul style="list-style-type: none"> <li>• Regarding actions on the laws of specified secret protection in the NRA.</li> </ul>
45	12.10	<ul style="list-style-type: none"> <li>• Regarding the regulation on radiation exposure during emergency work.</li> <li>• Evaluations of TEPCO's report regarding the leakage from the contaminated water storage facility, RO concentrated water tank in the Fukushima Daiichi NPS.</li> <li>• Regarding the application of INES standards (International Nuclear and Radiological Event Scale) for accidents and failures at TEPCO's Fukushima Daiichi NPS.</li> <li>• Regarding adding members to the study team monitoring volcanic activity around nuclear facilities.</li> <li>• Regarding the results of the International conference on occupational exposure co-hosted by the IAEA and ILO, and visiting the IAEA environment laboratory.</li> </ul>
46	12.17	<ul style="list-style-type: none"> <li>• Regarding the request for opinions to the draft review report concerning the application for permission for changes in reactor installation at the Kansai Electric Power Co. Takahama Power Station reactor units 3 and 4.</li> <li>• Regarding the response to errors in the technical evaluation and design and construction standards published by the Japan Society of Mechanical Engineers welding standards.</li> <li>• Regarding how to review the regulation of radioactive waste during reactor decommissioning.</li> <li>• Regarding actions on matters confirmed in the FY 2014 operational safety inspection to JMTR of the Japan Atomic Energy Agency science laboratory and Oarai research and development center (north area).</li> </ul>
47	12.24	<ul style="list-style-type: none"> <li>• Regarding how to review the regulation of radioactive waste during reactor decommissioning.</li> <li>• Regarding the results of implementing the FY 2014 nuclear energy comprehensive disaster prevention drill plan.</li> <li>• Regarding the leak from the transfer piping from the multiple nuclide removal facility processing water in TEPCO's Fukushima Daiichi NPS.</li> <li>• Regarding the interim risk reduction map (tentative naming) in TEPCO's Fukushima Daiichi NPS.</li> </ul>
48	1. 7	<ul style="list-style-type: none"> <li>• Regarding the review of the plan on implementing technical evaluations of commercial standards.</li> <li>• Regarding implementing technical evaluations concerning the Japan Society of Mechanical Engineers "Standards of Nuclear Facilities for Power Generation: Maintenance Standards" and the Japan Electric Association's proposed "Method of Monitoring Test of Reactor Structure Materials".</li> </ul>
49	1.13	<ul style="list-style-type: none"> <li>• Regarding the approach on safety improvements including establishment of a safety culture.</li> </ul>
50	1.14	<ul style="list-style-type: none"> <li>• Regarding the formulation of NRA "Regulatory Guides for activity on Nuclear Security Culture."</li> <li>• Regarding the review procedure concerning the specialized safety facility.</li> <li>• Regarding the review of the Kansai Electric Power Company's "Approval of operational safety program change at the Takahama Power Station" (technical evaluation of plant life management of unit 3).</li> <li>• Regarding the proposed FY 2014 plan for a supplementary budget and proposed plan covering the number of agency personnel.</li> </ul>

No.	Date	Main topics
51	1.21	<ul style="list-style-type: none"> <li>• Regarding the formulation of the next interim and long term targets of the incorporated administrative agency, the Japan Atomic Energy Agency.</li> <li>• Regarding the draft of “Measures for Mid-term Risk Reduction at TEPCO’s Fukushima Daiichi NPS (as of January 2015)”.</li> <li>• Regarding approval of changes concerning the full operation of the sub-drain water treatment facility in TEPCO’s implementation plan for Fukushima Daiichi NPS, specified nuclear facility.</li> <li>• Regarding the call-out plan for emergency monitoring.</li> <li>• Regarding the proposed plan for the FY 2015 supplementary budget and proposal plan governing the number of agency personnel.</li> </ul>
52	1.28	<ul style="list-style-type: none"> <li>• Regarding the review of reporting criteria of the Fukushima Daiichi NPS accident.</li> <li>• Regarding the report from the national university corporation of Kyoto University.</li> <li>• Regarding implementation of reports of the third joint committee of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee.</li> <li>• Regarding the report on activities of female personnel and implementation of a work balance among NRA personnel.</li> <li>• Regarding exclusive processing in the third quarter of FY 2014.</li> </ul>
53	1.28	<ul style="list-style-type: none"> <li>• Regarding the approach on safety improvement including a safety culture development.</li> </ul>
54 *3	1.30	<ul style="list-style-type: none"> <li>• Regarding violations of Nuclear Material Protection Programs.</li> </ul>
55	2. 4	<ul style="list-style-type: none"> <li>• Regarding the proposed interim targets of the NRA.</li> <li>• Regarding the partial revision of Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor.</li> <li>• Regarding the implementation of operational safety inspections in the third quarter of FY 2014.</li> </ul>
56	2.12	<ul style="list-style-type: none"> <li>• Regarding the results of soliciting opinions to the draft review report and the permission for changes in reactor installation of the Kansai Electric Power Company’s Takahama Power Station reactor units 3 and 4.</li> <li>• Regarding proposed NRA interim targets.</li> <li>• Regarding a visit to the Finland nuclear power regulation agency (STUK), the Swedish nuclear power regulation agency (SSM) and their respective facilities and to the IAEA.</li> <li>• Regarding soliciting opinions concerning the formulation of future standards of academic societies and associations, the Japan Society of Mechanical Engineers, the Atomic Energy Society of Japan and the Japan Electric Association.</li> </ul>
57	2.18	<ul style="list-style-type: none"> <li>• Regarding changes for the interim plan of the incorporated administrative agency, the Japan Atomic Energy Agency.</li> <li>• Regarding the next interim and long term targets of the incorporated administrative agency, the Japan Atomic Energy Agency.</li> <li>• Regarding the draft of “Measures for Mid-term Risk Reduction at TEPCO’s Fukushima Daiichi NPS (as of February 2015)”.</li> <li>• Regarding the partial revision of the ordinance governing the use of international controlled materials, and possible implementation of opinions accompanying the revision.</li> <li>• Regarding suggestions from international advisors.</li> </ul>



No.	Date	Main topics
58	2.25	<ul style="list-style-type: none"> <li>• Regarding the technical evaluation of safety research by the external senior expert.</li> <li>• Regarding the verification concerning implementing a mechanism to judge the performance of a person responsible for operations.</li> <li>• Regarding the situation of conformity reviews to regulatory requirements in a nuclear power station.</li> <li>• Regarding conformity reviews to regulatory requirements in a nuclear fuel facility.</li> <li>• Regarding outside leakage in a controlled area from the waste water route in TEPCO's Fukushima Daiichi NPS.</li> </ul>
59	3. 1	<ul style="list-style-type: none"> <li>• Regarding the approach on safety improvement including development of a safety culture.</li> </ul>
60	3. 4	<ul style="list-style-type: none"> <li>• Regarding the implementation of revision of NRA rules relating to Nuclear Emergency Response Guidelines and requesting accompanying opinions.</li> <li>• Regarding the review team and the posture of the medical treatment system during a nuclear disaster.</li> <li>• Regarding the verification of reports on measures for operational safety orders and operational safety program changes based on the Reactor Regulation Act in the fast breeder prototype reactor Monju.</li> <li>• Regarding the publication of the NRA approach.</li> <li>• Regarding the results of the fifth meeting of the ITAG relating to the comprehensive IAEA report on TEPCO's Fukushima Daiichi NPS.</li> </ul>
61 * 3	3. 6	<ul style="list-style-type: none"> <li>• Regarding the result of accepting IPPAS of nuclear material.</li> </ul>
62	3.11	<ul style="list-style-type: none"> <li>• Regarding the procedure of pre-service inspection for commercial power reactor facilities after approval of a construction plan.</li> <li>• Regarding the proposed NRA FY 2015 annual focus point plan.</li> <li>• Regarding the NRA's post evaluation implementation plan in FY 2015 and the NRA policy system in FY 2015.</li> </ul>
63	3.18	<ul style="list-style-type: none"> <li>• Regarding the approval of the construction plan of the Kyushu Electric Power Co. Sendai NPS reactor unit 1.</li> <li>• Regarding the evaluation scale of international nuclear power and radiation events covering accidents and failures at nuclear facilities.</li> <li>• Regarding the review of Mitsubishi Heavy Industry's "Application of the type certificate for design of specified packages concerning the spent fuel interim storage facility."</li> <li>• Regarding the report for visiting the United States.</li> </ul>
64	3.18	<ul style="list-style-type: none"> <li>• Regarding safety improvements and development of a safety culture at the Chubu Electric Power Company).</li> </ul>
65	3.25	<ul style="list-style-type: none"> <li>• Regarding the NRA's proposed FY 2015 annual focus point plan.</li> <li>• Regarding the revision of the related cabinet order for establishing the National Research and Development Agency Council.</li> <li>• Regarding the focused guidelines on inspection of observance of an operational safety program in FY 2015.</li> <li>• Regarding the evaluation of the fracture zone on the site of The Japan Atomic Power Company Tsuruga Power Station.</li> <li>• Regarding the evaluation of the fracture zone on the site of Tohoku Electric Power Co. Higashidori NPS.</li> </ul>

- \* 1 The 3rd NRA Commission Meeting in FY 2014 was closed to the public due to a concern for endangering personal rights and benefits and a concern to ensure a fair and smooth approach towards personnel affairs management and concern about publicly revealing information and selection reviews by the reviewing commissioner.
- \* 2 The 13th NRA Commission Meeting in FY 2014 was closed to the public due to a concern for endangering personal rights and benefits because of opening information and review of selection of the reviewing corporation concerned to public, and to a concern for disturbing ensuring fair and smooth personnel affairs regarding the tasks concerning the personnel affair management of the corporation concerned.
- \* 3 The 24th, 54th, and 61st NRA Commission Meetings in FY 2014 were closed to the public to prevent endangering public safety by disclosing information relating to the nuclear material physical protection to a person(s) who might ultimately attempt to sabotage a nuclear facility with such information.
- \* 4 The FY 2014 26th and 27th NRA Commission Meetings were closed to the public because release of safety and maintenance information such as terrorism countermeasures could result in an illegal invasion or destruction of specified structures.
- \* 5 The 37th and 39th NRA Commission Meetings in FY 2014 were closed to the public because of concerns public safety could be endangered by disclosure of information relating to the management of the radiation facilities to a person or persons who could attempt criminal behavior with such information.
- \* 6 The 44th NRA Commission Meeting in FY 2014 was closed to the public due to a concern for endangering relations with foreign countries and the safety of the public, because the disclosure of information relating to such issues as preventing terrorism could disturb the smooth management of nuclear power stations.

**Table 23 List of decision made by the NRA (From April 1, 2014 to March 31, 2015)**

Date	Decisions made in council
4. 2	<ul style="list-style-type: none"> <li>▪ Enactment of NRA continuity plan (Metropolitan earthquake countermeasures).</li> <li>▪ Enactment of NRA continuity plan (new influenza countermeasures).</li> <li>▪ Regarding the compliance with Nuclear Material Protection Regulations (note).</li> </ul>
4.16	<ul style="list-style-type: none"> <li>▪ Appointment of reviewing board of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee.</li> <li>▪ Partial revision of requirement for ensuring transparency and neutrality for appointment of commissioners of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee.</li> </ul>
5. 2	<ul style="list-style-type: none"> <li>▪ Procedure of approval of the construction plan and pre-service inspection for nuclear power reactor facilities.</li> </ul>
5.21	<ul style="list-style-type: none"> <li>▪ Approval of operational safety program changes of nuclear facilities of the Tohoku Electric Power Co. Onagawa NPS.</li> </ul>
5.28	<ul style="list-style-type: none"> <li>▪ FY 2013 annual report of the NRA.</li> </ul>
6. 4	<ul style="list-style-type: none"> <li>▪ Instruction of the report concerning the information from the United States "Design vulnerability in electric power systems."</li> </ul>
6.11	<ul style="list-style-type: none"> <li>▪ Enactment on partial revision of the ordinance on use of international controlled materials.</li> <li>▪ Enactment of notice for partial revision of ordinance on international controlled materials based on the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.</li> <li>▪ Enactment on partial revision of the ordinance on use of international controlled materials.</li> <li>▪ Enactment of notice for partial revision of the issue of international controlled materials based on the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors.</li> </ul>
6.24	<ul style="list-style-type: none"> <li>▪ Approval of appointment of board members of designated organizations implementing safeguards inspections.</li> </ul>
6.25	<ul style="list-style-type: none"> <li>▪ Basic policy for cultivating NRA human resources.</li> <li>▪ Approval of changes in the implementation plan of installation at TEPCO's Fukushima Daiichi NPS specified nuclear facility.</li> </ul>
7. 2	<ul style="list-style-type: none"> <li>▪ Evaluation for the report from the Tohoku Electric Power Company concerning the damage of the reactor building ceiling crane at the Onagawa NPS unit 1.</li> </ul>
7. 9	<ul style="list-style-type: none"> <li>▪ Partial revision of the Regulatory Guide of NRA Ordinance on Standards for the Location, Structure, and Equipment of Commercial Power Reactors</li> <li>▪ Partial revision Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor</li> <li>▪ Partial revision of Regulatory Guide of NRA Ordinance on Standards for the Location, Structure, and Equipment of Power Reactor Facilities at the Research and Development Stage.</li> <li>▪ Partial revision of interpreting the Regulatory Guide of NRA Ordinance on Technical Standards for Power Reactor Facilities at the Research and Development Stage.</li> </ul>
7.16	<ul style="list-style-type: none"> <li>▪ Requesting opinion on proposed changes in reactor installation of the Kyushu Electric Power Co. Sendai Nuclear Power Station (change of the nuclear reactor facility units 1 and 2).</li> </ul>

Date	Decisions made in council
8. 6	<ul style="list-style-type: none"> <li>▪ Formulation of technical evaluation for the Japan Society of Mechanical Engineers "Nuclear power generation equipment standards Design and construction standards (2012 version)" &lt;Series 1 Light water reactor standards &gt; (JSME S NC1-2012).</li> <li>▪ Formulation of technical evaluation for the Japan Society of Mechanical Engineers "Nuclear power generation equipment standards Material standards (2012 version)" (JSME S NJ1-2012).</li> <li>▪ Partial revision of interpreting the Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor Facilities.</li> <li>▪ Establishment of Regulatory Guide of NRA on cracks or other defects that could destroy commercial power reactors and auxiliary facilities.</li> </ul>
8. 27	<ul style="list-style-type: none"> <li>▪ Evaluation of FY 2013 implemented policies.</li> <li>▪ Approval of change (installation of expanded multiple nuclide removal facility, implementation of verification tests concerning removal performance) in the implementation plan for TEPCO's Fukushima Daiichi NPS specified nuclear facility.</li> <li>▪ Approval of change in implementation plan of installation of TEPCO's Fukushima Daiichi NPS specified nuclear facility.</li> </ul>
9. 3	<ul style="list-style-type: none"> <li>▪ Enactment of NRA management policy.</li> <li>▪ Partial revision of NRA administrative document management procedures.</li> <li>▪ Opinion of the FY 2014 plan for nuclear energy comprehensive disaster prevention drill.</li> </ul>
9.10	<ul style="list-style-type: none"> <li>▪ Permission for change in reactor installation at the Kyushu Electric Power Co. Sendai Nuclear Power Station (change of the nuclear reactor facility units 1 and 2).</li> </ul>
9.12	<ul style="list-style-type: none"> <li>▪ Regarding compliance with Nuclear Material Protection Regulations (note).</li> </ul>
9.17	<ul style="list-style-type: none"> <li>▪ Enactment of the guideline for examinations with regard to specialized safety facility related to commercial power reactors.</li> <li>▪ Enactment of the guideline for examinations with regard to assessments of impacts of aircraft crashes related to commercial power reactors.</li> </ul>
9.18	<ul style="list-style-type: none"> <li>▪ Establishment of characteristics of aircraft in the guideline for examinations with regard to specialized safety facility related to commercial power reactors.</li> </ul>
9. 24	<ul style="list-style-type: none"> <li>▪ Regarding the proposed cabinet order for partial revision of the Cabinet Office organization orders (discussion).</li> <li>▪ Regarding the implementation of on-site inspections at the Fukushima Daini Nuclear Power Station (notification).</li> </ul>
10. 1	<ul style="list-style-type: none"> <li>▪ Rule for partial revision of NRA organization rules.</li> </ul>
10. 8	<ul style="list-style-type: none"> <li>▪ Collection of reports based on the provision of Article 67, paragraph 1 of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (the national university corporation Kyoto University Faculty of Engineering radiation laboratory).</li> <li>▪ Interim report of accident analysis of TEPCO's Fukushima Daiichi NPS.</li> <li>▪ Correction of the NRA emergency preparedness action plan.</li> <li>▪ Regarding the change of target (interim target) on the task operation to be accomplished by the incorporated administrative agency, the Japan Atomic Energy Agency (discussion).</li> </ul>
10.15	<ul style="list-style-type: none"> <li>▪ Regarding the Approval for extension of the operational life of commercial power reactors (instruction).</li> </ul>
10.29	<ul style="list-style-type: none"> <li>▪ Partial revision of Regulatory Guide of NRA Ordinance on Standards for the Location, Structure, and Equipment of a reprocessing facility.</li> </ul>
11. 5	<ul style="list-style-type: none"> <li>▪ Order based on Article 28 paragraph 6 of the Radiation Hazards Prevention Act due to radioisotopes.</li> </ul>

Date	Decisions made in council
11.12	<ul style="list-style-type: none"> <li>▪ Partial revision of Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor Facilities.</li> <li>▪ Approval of operational safety program changes for nuclear facilities of the Kansai Electric Power Co. Takahama Power Station.</li> </ul>
11.19	<ul style="list-style-type: none"> <li>▪ Enactment of the partial revision of the Ordinance on Off-site Transportation of Nuclear Fuel Materials</li> <li>▪ Enactment of the Partial revision of the Notification on Technical Details for Off-site Transportation of Nuclear Fuel Materials.</li> </ul>
12. 8	<ul style="list-style-type: none"> <li>▪ NRA specified secret protection policy.</li> <li>▪ Partial revision of NRA administrative management procedures.</li> </ul>
12.10	<ul style="list-style-type: none"> <li>▪ Evaluations of the report regarding the leakage from the contaminated water storage facility RO concentrated water reservoir at TEPCO's Fukushima Daiichi NPS.</li> </ul>
12.17	<ul style="list-style-type: none"> <li>▪ Report concerning the Japan Society of Mechanical Engineers "Nuclear power generation equipment standards design and construction standards" &lt;Series I Light water reactor standards&gt;.</li> <li>▪ Requesting opinion to the permission for change in reactor installation at the Kansai Electric Power Co. Takahama Power Station (change of the nuclear reactor facility units 3 and 4).</li> </ul>
1. 14	<ul style="list-style-type: none"> <li>▪ Formulation of the NRA "Regulatory Guide on Nuclear Security Culture."</li> </ul>
1. 21	<ul style="list-style-type: none"> <li>▪ Regarding the review concerning change of approval application of implementation plans concerning TEPCO's Fukushima Daiichi NPS specified nuclear facility (Full operation of sub-drain and water treatment facility).</li> <li>▪ Approval of change in the implementation plan concerning the specified nuclear facility installed in the Fukushima Daiichi NPS.</li> </ul>
1. 28	<ul style="list-style-type: none"> <li>▪ Regarding compliance to the legislation and regulations concerning usage of nuclear fuel materials (note).</li> </ul>
1.30	<ul style="list-style-type: none"> <li>▪ Regarding compliance with Nuclear Material Protection Regulations (note).</li> </ul>
2. 4	<ul style="list-style-type: none"> <li>▪ Formulation of technical evaluations for the Japan Society of Mechanical Engineers "Nuclear power generation equipment standards welding standards (2012 version/2013 supplementation)" (JSME S NB1-2012/2013).</li> <li>▪ Formulation of technical evaluation for the Japan Society of Mechanical Engineers "Nuclear power generation equipment standards design and construction standards (2012 version (including 2013 supplementation))" &lt;Series I Light water reactor standards &gt; (JSME S NC1-2012/2013 corrigenda) (as of December 5, 2014).</li> <li>▪ Partial revision for Regulatory Guide of NRA Ordinance on Technical Standards for Commercial Power Reactor Facilities.</li> </ul>
2. 12	<ul style="list-style-type: none"> <li>▪ 1st session interim target of the NRA.</li> <li>▪ Permission for change in reactor installation of the Kansai Electric Power Co. Takahama Power Station (change of the nuclear reactor facility units 3 and 4).</li> </ul>
2. 18	<ul style="list-style-type: none"> <li>▪ Regarding the change of the interim plan for accomplishing the interim target of the incorporated administrative agency, the Japan Atomic Energy Agency (discussion).</li> <li>▪ Regarding the "Measures for Mid-term Risk Reduction at TEPCO's Fukushima Daiichi NPS (as of February 2015)".</li> </ul>
3.11	<ul style="list-style-type: none"> <li>▪ Post evaluation implementation the NRA plan for FY 2015.</li> </ul>
3.18	<ul style="list-style-type: none"> <li>▪ Approval of construction plans for the Kyushu Electric Power Co. Sendai NPS reactor unit 1.</li> <li>▪ Regarding the evaluation of international nuclear power and radiation events covering accidents and failures at nuclear facilities.</li> </ul>

<b>Date</b>	<b>Decisions made in council</b>
3.25	<ul style="list-style-type: none"><li data-bbox="341 309 906 340">▪ FY 2015 annual focus point plan of the NRA.</li><li data-bbox="341 344 1382 405">▪ Regarding the Cabinet order for partial revision of the NRA's organization (discussion).</li><li data-bbox="341 409 1382 470">▪ Regarding the NRA National Research and Development Agency Council order (discussion).</li><li data-bbox="341 474 1018 506">▪ Rule for partial revision of the NRA's organization rule.</li></ul>

## **Section 2 Activities of Study Meetings**

### Councils and others

- Reactor Safety Examination Committee
- Nuclear Fuel Safety Examination Committee
- Radiation Council
- Commission on Evaluation of Former Incorporated Administrative Agency, the Japan Nuclear Energy Safety Organization

### Review meeting

- The Review meeting on conformity to the New Regulatory Requirements for Nuclear Power Plants /Nuclear Fuel Facilities/Plant Life Management)

### Study Teams

- The Study Team on the Regulation of Radioactive Waste in Decommissioning
- The Study Team on Nuclear Emergency Preparedness Measures
- The Study Team on Safety and Security Measures for Evacuees to Return Home
- The Study Team on Technical Evaluation of Design and Construction Standards, and Material Standards
- The Study Team on Technical Evaluation of Welding Standards
- The Study Team on Technical Evaluation of Methods of Surveillance Tests for Structural Materials of Nuclear Reactors
- The Study Team on Monitoring Volcanic Activities around Nuclear Facilities

### Expert Meeting on the Investigation of Fracture Zones in Nuclear Power plants

- The Expert Meeting on the Investigation of Fracture Zones in the site of Tsuruga Nuclear Power Station
- The Expert Meeting on the Investigation of Fracture Zones in the Site of Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc.
- The Expert Meeting on the Investigation of Fracture Zones in the Site of Mihama Power Station
- The Expert Meeting on the Investigation of Fracture Zones in the Site of Shika Nuclear Power Station
- The Expert Meeting on the Investigation of Fracture Zones in the Site of the Prototype Fast Breeder Reactor "Monju"

### Committees with specific areas of expertise

- The Committee on Nuclear Security
- The Commission on Supervision and Evaluation of Specified Nuclear Facilities
- The Committee on Accident Analysis of the Fukushima Daiichi Nuclear Power Station
- The Technical Information Committee
- The Technical Evaluation Committee on Safety Research

### Others

- Debriefing Session of Emergency Drills by Nuclear Operators
- NRA Policy Review Meeting
- Expert Meeting on NRA's Administrative Review -FY 2014-

The Act for Establishment of the NRA required the Reactor Safety Examination Committee, the Nuclear Fuel Safety Examination Committee, the Radiation Council, and the Commission on Evaluation of Incorporated Administrative Agencies the Japan Nuclear Energy Safety Organization to be established within the NRA. We set up study meetings of NRA Commissioners, external experts, and officials of the NRA Secretariat, and conducted open discussions on nuclear safety regulations and on individual matters. In selecting the committee members and external experts, we specified the selection requirements needed to ensure neutrality and fairness.

### 1. Reactor Safety Examination Committee

An NRA Commission meeting held on February 5, 2014 specified the requirements for ensuring transparency and neutrality when the NRA selected items to be investigated and discussed, and the methods to be applied in appointing appropriate members. On the basis of those requirements, the appointment of members was approved at the April 16, 2014 NRA Commission Meeting, after which the first joint review meeting of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee was held on May 12. Four subsequent joint review meetings were held in FY 2014.

Members of the Reactor Safety Examination Committee	Makiko Okamoto	Associate Professor, Management & Information Systems Engineering Department of Graduate School, Nagaoka University of Technology
	Michiaki Kai	Professor, Department of Health Sciences, Oita University of Nursing and Health Sciences
	Tadahiro Katsuta	Associate Professor, School of Law, Meiji University
	Seiji Shiroya	Professor Emeritus, Kyoto University
	Naoto Sekimura	Professor, School of Engineering, the University of Tokyo
	Tsuyoshi Takada	Professor, School of Engineering, the University of Tokyo
	Toshiko Nakagawa	Professor, Faculty of Engineering, Tokyo City University
	Ken Nakajima	Professor, Kyoto University Research Reactor Institute
	Akiko Matsuo	Professor, Faculty of Science and Technology, Keio University
	Ken Muramatsu	Affiliate Professor, Faculty of Engineering, Tokyo City University
	Yuko Yoneoka	Technical Operation Manager, Lloyd's Register Quality Assurance Limited



## 2. Nuclear Fuel Safety Examination Committee

The requirements for ensuring transparency and neutrality when the NRA selected items to be investigated and discussed, and the methods to be applied in appointing appropriate persons as members, were specified at the NRA Commission Meeting held on February 5, 2014. On the basis of those requirements, the appointment of members was approved at the NRA Commission Meeting held on April 16, 2014, after which the first joint review meeting of the Reactor Safety Examination Committee and the Nuclear Fuel Safety Examination Committee was held on May 12. The committee subsequently held four joint review meetings in FY 2014.

Members of the Nuclear Fuel Safety Examination Committee	Noriko Asanuma	Associate Professor, School of Engineering, Tokai University
	Toshiaki Ohe	Professor, School of Engineering, Tokai University
	Makiko Okamoto	Associate Professor, Management & Information Systems Engineering Department of Graduate School, Nagaoka University of Technology
	Michiaki Kai	Professor, Department of Health Sciences, Oita University of Nursing and Health Sciences
	Tadahiro Katsuta	Associate Professor, School of Law, Meiji University
	Tsuyoshi Takada	Professor, School of Engineering, the University of Tokyo
	Satoru Tanaka	Professor, School of Engineering, the University of Tokyo (Attended until the second meeting)
	Akiko Matsuo	Professor, Faculty of Science and Technology, Keio University
	Hirotake Moriyama	Director, Kyoto University Research Reactor Institute
	Shinsuke Yamanaka	Professor, Graduate School of Engineering, Osaka University
	Yuko Yoneoka	Technical Operation Manager, Lloyd's Register Quality Assurance Limited

### 3. Radiation Council

The appointment of the members of the Radiation Council was approved at the NRA Commission Meeting held on March 13, 2014, after which the 127th general meeting was held on April 4, the 128th on September 4, and the 129th on November 17.

Members of the Radiation Council	Yoshitomo Uwamino	Director, Safety Operation Office, RIKEN Nishina Center for Accelerator-Based Science
	Kenji Kamiya	Vice-president (support for restoration and medical care for the exposed), Hiroshima University; Vice-president, Fukushima Medical University
	Reiko Kanda	Sub-leader, Regulatory Science Research Program, Research Center for Radiation Protection, National Institute of Radiological Sciences
	Kazuro Sugimura	Professor and assistant of President (advanced medical care), Graduate School of Medicine, Kobe University
	Kaori Togashi	Professor, Graduate School of Medicine, Kyoto University
	Yoko Fujikawa	Associate Professor, Kyoto University Research Reactor Institute
	Shoji Futatsugawa	Dedicated Director, Japan Radioisotope Association
	Yasuhiro Yamaguchi	Deputy Director, Nuclear Science Research Institute, Japan Atomic Energy Agency

#### **4. Commission on Evaluation of Former Incorporated Administrative Agency Japan Nuclear Energy Safety Organization**

The Commission on Evaluation of former Incorporated Administrative Agency Japan Nuclear Energy Safety Organization consisting of external experts was established on March 1, 2014 and held three meetings in FY 2014. They were based on the Act on General Rules for Incorporated Administrative Agencies (Act No. 103 of 1999) to evaluate the nuclear energy safety infrastructure mechanism which the NRA had assumed administrative jurisdiction over in FY 2014. This committee was disbanded in March 31, 2015.

Members	Satoshi Endo	Adviser, JAMCO Corporation
	Naoshi Ogasawara	President and Representative Partner, Avantia GP
	Wako Tojima	Science Journalist
	Akio Yamamoto	Professor, Graduate School of Engineering, Nagoya University
Temporary members	Hiroaki Yoshii	Professor, Faculty of Communication Studies, Tokyo Keizai University

## 5. Review Meeting on Conformity to the New Regulatory Requirements

Applications for changes in reactor installation and other applications received from operators were reviewed on the basis of the New Regulatory Requirements for Nuclear Power Plants, which came into force on July 8, 2013, and the New Regulatory Requirements for Nuclear Fuel Facilities, which came into force on December 18, 2013. A study team was assembled by the NRA Secretariat of the NRA in addition to a commissioner of the NRA. The team held 113 review meetings on the NPS, and 40 meetings on the nuclear fuel facility in FY 2014. They also held four review meetings in FY 2014 on applications from operators for safety program changes concerning plant life management.

### Review of Conformity to the New Regulatory Requirements for Nuclear Power Plants

Nuclear Regulation Authority	Akira Ishiwatari	Commissioner of the Nuclear Regulation Authority (Attended from the 141st meeting)
	Kunihiko Shimazaki	Commissioner of the Nuclear Regulation Authority (Attended from the 138th meeting)
	Toyoshi Fuketa	Commissioner of the Nuclear Regulation Authority
Secretariat of the Nuclear Regulation Authority	Michio Sakurada	Director-General, Nuclear Regulation Department
	Tetsuya Yamamoto	Director-General (Attended from the 136th meeting)
	Tomoho Yamada	Director-General (Attended from the 136th meeting as "Director, Regulatory Standard and Research Division")
	Hiroshi Yamagata	Director, Division of Regulation for PWR (Attended from the 182nd meeting as "Director, Division of Regulation for BWR")
	Kazuya Aoki	Director, Division of Regulation for BWR (Attended from the 182nd meeting as "Director for Regulation of Nuclear Facilities")
	Tomoya Ichimura	Director, Division of Regulation for PWR (Attended until the 182nd meeting)
	Masaru Kobayashi	Director, Division of Regulation against Earthquake and
	Yuji Ono	Nuclear Regulation Liaison Officer
	Souichi Urano	Nuclear Regulation Liaison Officer
	Hisashi Miyamoto	Nuclear Regulation Liaison Officer
	Shin Morita	Nuclear Regulation Liaison Officer
	Kaoru Oasada	Nuclear Regulation Liaison Officer

### Review of Conformity to New Regulatory Requirements for Nuclear Fuel Facilities

Nuclear Regulation Authority	Satoru Tanaka	Commissioner of the Nuclear Regulation Authority (Attended from the 30th meeting)
	Akira Ishiwatari	Commissioner of the Nuclear Regulation Authority (Attended from the 29th meeting)
	Kunihiko Shimazaki	Commissioner of the Nuclear Regulation Authority (Attended until the 11th meeting)
	Toyoshi Fuketa	Commissioner of the Nuclear Regulation Authority (Attended until the 27th meeting)
Secretariat of the Nuclear Regulation Authority	Michio Sakurada	Director-General, Nuclear Regulation Department
	Tetsuo Ohmura	Director-General
	Shinzo Kuromura	Director, Division of Regulation for Advanced Reactors, Research Reactors, and Decommissioning
	Yasuhiko Ishii	Director, Division of Regulation for Nuclear Fuel (Fabrication and Reprocessing) Facilities and Use of Nuclear Material
	Masaru Kobayashi	Director, Division of Regulation against Earthquake and Tsunami
	Kazuyuki Sugiyama	Director for Nuclear Safety Review
	Akihiko Ogawa	Nuclear Regulation Liaison Officer
	Kiyomitsu Hasegawa	Nuclear Regulation Liaison Officer
	Shin Morita	Nuclear Regulation Liaison Officer
	Kaoru Oasada	Nuclear Regulation Liaison Officer

### Conformity review concerning technical evaluation of aging nuclear power stations

Secretariat of the Nuclear Regulation Authority	Tetsuo Ohmura	Director-General
	Hidefumi Kawauchi	Chief Officer for Technical Research and Investigation
	Masahiro Otaka	Senior Officer for Technical Research and Investigation
	Toshihiro Bannai	Nuclear Regulation Liaison Officer

## 6. The Study Team on the Regulation of Radioactive Waste in Decommissioning

A study team consisting of commissioner Satoru Tanaka and external experts in the 47th NRA Commission Meeting of FY 2014 (December 24, 2014) was established for review of preparation of regulations and standards concerning radioactive waste generated during a reactor decommissioning. Three meetings were held in FY 2014.

Nuclear Regulation Authority	Satoru Tanaka	Commissioner of the Nuclear Regulation Authority
External experts	Takeshi Imoto	Assistant Professor, Tokyo University Environmental Safety Headquarters
	Tetsuo Iguchi	Professor, Graduate School of Engineering, Nagoya
	Toshiaki Ohe	Professor, Tokai University School of Engineering Department of Nuclear Engineering
	Tadahiro Katsuta	Associate Professor, School of Law, Meiji University
	Takahiro Yamamoto	National Institute of Advanced Industrial Science and Technology Research Institute of Earthquake and Volcano Geology Principal Staff, Regulatory Research
National Institute of Radiological Sciences	Isao Kawaguchi	Research Center of Radiation Protection Regulatory Science Research Program Researcher
Japan Atomic Energy Agency	Tadao Tanaka	Director, Safety Research Center Environment Safety Research Unit
	Seiji Takeda	Director, Safety Research Center Environment Safety Research Unit Environmental Impact Evaluation Research Group
	Toshikatu Maeda	Principal Staff, Safety Research Center
Secretariat of the Nuclear Regulation Authority	Masashi Hirano	Director-General for Regulatory Standard and Research
	Tetsuo Ohmura	Director-General
	Daiji Takeuchi	Director-General for Nuclear Regulatory Technical Affairs
	Masahiro Aoki	Director, Regulatory Standards and Research Division
	Yukinori Maekawa	Director, Division of Regulation (in charge of waste, storage, transport)
	Masahiro Uchida	Director, Division of Regulation for Research Reactors, Nuclear Fuel (in charge of nuclear fuel waste)
	Tomoki Shibutani	Coordinator, Regulatory Standards and Research Division Planning and Coordination Division
	Norikazu Yamada	Director, Division of Regulation for Research Reactors, Nuclear Fuel (in charge of nuclear fuel waste), assistant Chief Officer for Technical Research and Investigation

## 7. The Study Team on Nuclear Emergency Preparedness Measures

The Nuclear Regulation Authority determines Nuclear Emergency Response Guidelines to ensure their smooth implementation by applicants and licensees, and the national and local governments. The Study Team on Nuclear Emergency Preparedness Measures was reconvened on October 2, 2014, and held four meetings in FY 2014.

Nuclear Regulation Authority	Kayoko Nakamura	Commissioner of the Nuclear Regulation Authority
	Toyoshi Fuketa	Commissioner of the Nuclear Regulation Authority
	Satoru Tanaka	Commissioner of the Nuclear Regulation Authority
External expert	Toshimitsu Honma	President, Safety Research Center, Japan Atomic Energy Agency
	Norio Watanabe	Director, Incorporated administrative agency the Japan Atomic Energy Agency Safety Research Center Regulation Information Analysis Office
	Hideo Tatsuzaki	Director, Incorporated administrative agency National Institute of Radiological Sciences REMAT medical treatment, medical care
	Hideki Kimura	Director, Aomori Nuclear power Center
	Kazuyoshi Masumoto	Professor, High Energy Accelerator Research Organization
Secretariat of the Nuclear Regulation Authority	Masaya Yasui	Director General for Emergency Response
	Okinobu Hirai	General manager, Radiation Protection Countermeasures (Attended until the 8th meeting)
	Hiromu Katayama	Director General, Radiation Protection Strategy and Security (Attended from the ninth meeting)
	Daiji Takeuchi	Director-General for Nuclear Regulatory Technical Affairs
	Yasushi Morishita	Unit manager, Radiation Protection Countermeasure Nuclear Emergency Preparedness Policy Division (Attended until the 8th meeting)
	Shinichi Araki	Unit manager, Nuclear Emergency Measures and Nuclear Material Protection Division (Attended until the 8th meeting as "Unit manager, Radiation Monitoring Division")
	Toshihiro Imai	Director, Disaster prevention drill of licensee of nuclear energy related activity team
	Rikio Minamiyama	Unit manager, Radiation Monitoring Division (Attended from the ninth meeting)
	Motokazu Maekawa	Director, Saga Local Radiation Monitoring Office
	Mitsuhiro Kajimoto	Director, Division of Regulation for Research Reactors, Nuclear Fuel (Severe accident)
	Takehiko Suzuki	Planning officer, Nuclear Emergency Measures and Nuclear Material Protection Division
	Kenzo Fujimoto	Counseling Expert, Nuclear Emergency Measures and Nuclear Material Protection Division

		(Attended until the eighth meeting as "Counseling Expert Nuclear Emergency Preparedness Policy Division")
	Minoru Saito	Counseling Expert, Nuclear Emergency Measures and Nuclear Material Protection Division
	Kazumi Miyagi	Senior Disaster Protection Expert officer, Nuclear Emergency Measures and Nuclear Material Protection Division (Attended until the 8th meeting as "Senior Disaster Protection Expert officer, Nuclear Emergency Preparedness Policy Division")



## 8. The Study Team on Safety and Security Measures for Evacuees to Return Home

In FY 2014, opinions were exchanged regarding the approach and current situation of the Cabinet Office Nuclear Sufferers Life Support Team and the current situation of the counseling staff system for local governments.

Nuclear Regulation Authority	Kayoko Nakamura	Commissioner of the Nuclear Regulation Authority
External experts	Makoto Akashi	Vice-President, Incorporated Administrative Agency, the National Institute of Radiological Sciences
	Fumiko Kasuga	Director, National Institute of Health Science Safety Information Department
	Ohtsura Niwa	Extraordinary Professor, Fukushima Medical University Radiation Medical Health Control center International Cooperation Department
	Hokuto Hoshi	President, Public interest incorporated foundation Hoshi General Hospital
	Yuuichi Moriguchi	Professor, University of Tokyo Department of Urban Engineering
Secretariat of the Nuclear Regulation Authority	Hideka Morimoto	Deputy Secretary-General
	Hideyuki Tsunoda	Director, Radiation Protection and Safeguard Division
	Shinichi Araki	Director, Radiation Monitoring Division

## 9. The Study Team on Technical Evaluation of Design, Construction and Material Standards

A study team consisting of commissioner Fuketa and external experts was established for review of the proposed technical evaluation of the Japan Society of Mechanical Engineers "Power generation equipment standards Design and construction standards" <Series I Light water reactor standards> 2012 version and the "Power generation equipment standards Material standards" 2012 version. One team meeting was held in FY 2014.

Nuclear Regulation Authority	Toyoshi Fuketa	Commissioner of the Nuclear Regulation Authority
External experts	Yoshio Arai	Professor, Saitama University Graduate School of Science and Engineering
	Masahide Suzuki	Professor, Nagaoka University of Technology Graduate School of Engineering Nuclear Systems Safety Engineering
	Toshiyuki Takagi	Professor, Tohoku University Institute of Fluid Science
	Yuichi Tsuji	Professor, Tokyo Denki University Department of Mechanical Engineering
	Takashi Furukawa	Deputy Director, Japan Power Engineering and Inspection Corporation Inspection & Technical Service Division
Japan Atomic Energy Agency	Hiroataka Nishiyama	Group Leader, Safety Research Center material/Structure Safety Research Unit Material/Water Chemical Research Group
Secretariat of the Nuclear Regulation Authority	Daiji Takeuchi	Director-General for Nuclear Regulatory Technical Affairs
	Tomoho Yamada	Director, Regulatory Standard and Research Division
	Yasuhara Masuhara	Director for Policy Planning, Regulatory Standard and Research Division Planning and Coordination Division

## 10. The Study Team on Technical Evaluation of Welding Standards

A study team consisting of commissioner Fuketa and external experts was established for review of the proposed technical evaluation of the Japan Society of Mechanical Engineers "Power generation equipment and welding standards" 2012 version/2013 supplement. Four team meetings were held in FY 2014.

Nuclear Regulation Authority	Toyoshi Fuketa	Commissioner of the Nuclear Regulation Authority
External experts	Yoshio Arai	Professor, Saitama University Graduate School of Science and Engineering
	Masahide Suzuki	Professor, Nagaoka University of Technology Graduate School of Engineering Nuclear Systems Safety Engineering
	Toshiyuki Takagi	Professor, Tohoku University Institute of Fluid Science
	Susumi Tsukamoto	NIMS Special Researcher, National Institute for Materials Science External Cooperation Department Research Cooperation Office
	Yuichi Tsuji	Professor, Tokyo Denki University Department of Mechanical Engineering
	Takashi Furukawa	Deputy Director, Japan Power Engineering and Inspection Corporation Inspection & Technical Service Division
Japan Atomic Energy Agency	Hiroataka Nishiyama	Group Leader, Safety Research Center material/Structure Safety Research Unit Material/Water Chemical Research Group
	Jinya Katsuyama	Deputy Principal Staff Research, Safety Research Center Environment Safety Research Unit Structure Integrity Evaluation Research Group
Secretariat of the Nuclear Regulation Authority	Daiji Takeuchi	Director-General, Nuclear Regulatory Technical Affairs
	Masahiro Aoki	Director, Regulatory Standard and Research Division (Attended from the fourth meeting)
	Tomoho Yamada	Director, Regulatory Standard and Research Division (Attended until the third meeting)
	Yasuhiro Masuhara	Director for Policy Planning, Regulatory Standard and Research Division Planning and Coordination Division

## 11. The Study Team on Technical Evaluation of Methods of Surveillance Tests for Structural Materials of Nuclear Reactors

A study team consisting of Commissioner Satoru Tanaka and external experts was established for review of the proposed technical evaluation of the Japan Electric Association "Surveillance/ testing methods for reactor structural materials" 2013 supplement. Three team meetings were held in FY 2014.

Nuclear Regulation Authority	Satoru Tanaka	Commissioner of the Nuclear Regulation Authority
External experts	Ryuta Kasada	Assistant Professor, Kyoto University Institute of Advanced Energy
	Yasuhiro Kanto	Professor, Ibaragi University Department of Mechanical Engineering
	Kazunori Morishita	Assistant Professor, Kyoto University Institute of Advanced Energy
Japan Atomic Energy Agency	Hiroataka Nishiyama	Group Leader, Safety Research Center material/Structure Safety Research Unit Material/Water Chemical Research Group
Secretariat of the Nuclear Regulation Authority	Masashi Hirano	Director-General for Regulatory Standard and Research
	Daiji Takeuchi	Director-General for Nuclear Regulatory Technical Affairs
	Masahiro Aoki	Director, Regulatory Standard and Research Division
	Yasuhiro Masuhara	Director for Policy Planning, Regulatory Standard and Research Division Planning and Coordination Division

## 12. The Study Team on Monitoring of Volcanic Activities around Nuclear Facilities

A study team in the 20th NRA Commission Meeting of FY 2014 (August 20, 2014) was established for organizing volcanological knowledge relating to large eruptions. Five team meetings were held in FY 2014.

Nuclear Regulation Authority	Akira Ishiwatari	Commissioner of the Nuclear Regulation Authority (Attended from the third meeting)
	Kunihiko Shimazaki	Commissioner of the Nuclear Regulation Authority (Attended until the second meeting)
External experts	Masato Iguchi	Professor, Kyoto University Disaster Prevention Research Institute Volcano Activity Research Center (Attended from the third meeting)
	Kazuhiro Ishihara	Professor Emeritus, Kyoto University
	Akira Ishiwatari	Professor, Tohoku University Center for Northeast Asian Studies (Attended until the second meeting)
	Hiroshi Shinohara	Chief Researcher, National Institute of Advanced Industrial Science and Technology Research Institute of Earthquake and Volcano Geology
	Kunihiko Shimazaki	Professor Emeritus, Tokyo University (Attended from the third meeting)
	Hiroshi Shimizu	Director, Kyushu University Institute of Seismology and Volcanology (Attended from the third meeting)
	Toshikazu Tanada	Regulatory Chief Researcher, National Research Institute for Earth Science and Disaster Prevention/ Preventive research
	Setsuya Nakada	Professor, University of Tokyo Earthquake Research Institute
	Toshitsugu Fujii	Professor Emeritus, Tokyo University
Observer	Sadayuki Kitagawa	Unit manager, Japan Meteorological Agency Seismology and Volcanology Department
	Mikio Tobita	Regulatory Researcher, Geospatial Information Authority of Japan Geography and Crustal Dynamics Research Center
	Hiroki Yajima	Volcano Research Senior Officer, Japan Coast Guard Hydrographic and Oceanographic Department Engineering and International Affairs Division
Secretariat of the Nuclear Regulation Authority	Masashi Hirano	Director-General for Regulatory Standard and Research
	Michio Sakurada	Director, Nuclear Regulation Department
	Masaru Kobayashi	Director, Division of Regulation against Earthquakes and Tsunamis
	Shin Morita	Nuclear Regulation Liaison Officer
	Yoshiyuki Yasuike	Researcher, Divisions of Research for Earthquakes and Tsunamis

### 13. Expert Meeting on the Investigation of Fracture Zones in the Site of Tsuruga Nuclear Power Station

Five additional research evaluation meetings and peer review meetings were held in FY 2014. An expert meeting consisting of Nuclear Regulation Authority commissioners and external intellectuals held on-site research and evaluation of the faults at the Tsuruga Power Station. A report was submitted to the NRA Commission Meeting on March 25, 2015.

Nuclear Regulation Authority	Akira Ishiwatari	Commissioner of the Nuclear Regulation Authority (Attended from the fifth meeting)
	Kunihiko Shimazaki	Commissioner of the Nuclear Regulation Authority (Attended until the fourth meeting)
External experts	Yasuhiro Suzuki	Professor, Nagoya University Disaster Mitigation Research Center
	Hiroyuki Tsutsumi	Assistant Professor, Kyoto University Graduate School of Science
	Kouichiro Fujimoto	Assistant Professor, Tokyo Gakugei University Department of Education
	Takahiro Miyauchi	Professor, Chiba University Graduate School of Science

**14. Expert Meeting on the Investigation of Fracture Zones in the Site of Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc.**

Four research evaluation and peer review meetings were held in FY 2014. Participants included NRA commissioners and external experts who held on-site research and evaluation of faults at the Tohoku Higashidori NPS. An evaluation report was submitted to the NRA Commission Meeting on March 3, 2015.

Nuclear Regulation Authority	Akira Ishiwatari	Commissioner of the Nuclear Regulation Authority (Attended from the 11th meeting)
	Kunihiko Shimazaki	Commissioner of the Nuclear Regulation Authority (Attended until the 10th meeting)
External experts	Yasuo Awata	Senior Chief Researcher, National Institute of Advanced Industrial Science and Technology Research Institute of Earthquake and Volcano Geology Capable Fault Evaluation Research Group
	Heitaro Kaneda	Assistant Professor, Chiba University Graduate School of Science
	Youta Kumaki	Professor, Senshu University School of Letters
	Hiroshi Sato	Professor, University of Tokyo Earthquake Research Institute

## 15. Expert Meeting on the Investigation of Fracture Zones in the Site of Mihama Power Station

Two research evaluation meetings were held in FY 2014, participants including NRA commissioners and external experts who conducted on-site research and evaluation of faults at the Mihama NPS.

Nuclear Regulation Authority	Akira Ishiwatari	Commissioner of the Nuclear Regulation Authority (Attended from the third meeting)
	Kunihiko Shimazaki	Commissioner of the Nuclear Regulation Authority (Attended until the second meeting)
External experts	Tomoyuki Ootani	Assistant Professor, Gifu University Faculty of Engineering Department of Civil Engineering
	Akira Takeuchi	Professor, Toyama University Graduate School of Science and Engineering
	Kiyohide Mizuno	Senior Chief Researcher, National Institute of Advanced Industrial Science and Technology Research Institute of Earthquake and Volcano Geology Quaternary Basin Research Group
	Takahiro Miyauchi	Professor, Chiba University Graduate School of Science



## 16. Expert Meeting on the Investigation of Fracture Zones in the site of Shika Nuclear Power Station

Four research and evaluation meetings were held in FY 2014. Participants included NRA commissioners and external experts who conducted on-site research and evaluation of faults at the Shika NPS.

Nuclear Regulation Authority	Akira Ishiwatari	Commissioner of the Nuclear Regulation Authority (Attended from the third meeting)
	Kunihiko Shimazaki	Commissioner of the Nuclear Regulation Authority (Attended until the second meeting)
External experts	Norio Shigematsu	Senior Chief Researcher, National Institute of Advanced Industrial Science and Technology Research Institute of Earthquake and Volcano Geology Seismotectonics Research Group
	Daisuke Hirouchi	Professor, Shinshu University Department of Education
	Kouichiro Fujimoto	Assistant Professor, Tokyo Gakugei University Department of Education
	Toshikazu Yoshioka	Senior Chief Researcher, National Institute of Advanced Industrial Science and Technology Research Institute of Earthquake and Volcano Geology

## 17. Expert Meeting on the Investigation of Fracture Zones in the site of the Prototype Fast Breeder Reactor “Monju”

Two research evaluation meetings were held in FY 2014 with participants including NRA commissioners and external experts who conducted on-site research and evaluation of faults at the fast breeder prototype reactor Monju.

Nuclear Regulation Authority	Akira Ishiwatari	Commissioner of the Nuclear Regulation Authority (Attended from the second meeting)
	Kunihiko Shimazaki	Commissioner of the Nuclear Regulation Authority (Attended until the first meeting)
External experts	Tomoyuki Ootani	Assistant Professor, Gifu University Faculty of Engineering Department of Civil Engineering
	Akira Takeuchi	Professor, Toyama University Graduate School of Science and Engineering
	Hiroyuki Tsutsumi	Assistant Professor, Kyoto University Graduate School of Science Division of Earth and Planetary Sciences
	Kiyohide Mizuno	Senior Chief Researcher, National Institute of Advanced Industrial Science and Technology Research Institute of Earthquake and Volcano Geology Quaternary Basin Research Group

## 18. The Committee on Nuclear Security

One research evaluation meeting was held in FY 2014. It was attended by NRA commissioners and external experts pursuing enhancement of nuclear security in Japan as well as addressing the international contribution to nuclear security. Three meetings of the Working Group on the Confirmation System of Trustworthiness were held in FY 2014. One examined the verification system for individuals. A working group on nuclear security concerning radioactive isotopes was established in the 3rd Committee on Nuclear Security (August 1, 2014), and held two meetings in FY 2014.

### The Committee on Nuclear Security

Nuclear Regulation Authority	Kenzo Oshima	NRA commissioner (Attended until the third meeting)
External experts	Nobumasa Akiyama	Professor, Hitotsubashi University School of International and Public Policy
	Isao Itabashi	Director, Council of Public Policy
	Sukeyuki Ichimasa	Chief Researcher, National Institute for Defense Studies
	Osamu Iwahashi	Executive Director, Public Interest Incorporated Foundation Japan Police Support Association
	Naomitsu Odano	Research Regulatory Principal Staff, National Maritime Research Institute
	Keiko Sakurai	Professor, Gakushuin University Faculty of Law
	Kaoru Naito	Former Director, Department of Science and Technology for Nuclear Material management
	Hiroshi Mashima	Advisor, Japan Marine Science Inc.
	Ichiro Yamaguchi	Senior Chief Researcher, National Institute of Public Health Department of Environmental Health
Secretariat of the Nuclear Regulation Authority	Yoshihide Kuroki	General manager, Radiation Protection Countermeasure (Attended until the third meeting)
	Yasushi Morishita	Unit manager, Nuclear Emergency Preparedness Policy Division (Attended until the third meeting)
	Hiromine Yamaguchi	Director, Nuclear Emergency Preparedness Policy Division Nuclear Security and Nuclear Material Protection Office

\* Members at the third meeting (August 1, 2014)

### The Working Group on the Confirmation System of Trustworthiness

Nuclear Regulation Authority	Satoru Tanaka	Commissioner of the Nuclear Regulation Authority (Attended from the fourth meeting)
	Kenzo Oshima	NRA commissioner (Attended until the third meeting)
External experts	Nobumasa	Professor, Hitotsubashi University School of

	Akiyama	International and Public Policy
	Isao Itabashi	Director, Council of Public Policy
	Sukeyuki Ichimasa	Chief Researcher, National Institute for Defense Studies
	Osamu Iwahashi	Executive Director, Public Interest Incorporated Foundation Japan Police Support Association
	Naomitsu Odano	Research Regulatory Principal Staff, National Maritime Research Institute
	Keiko Sakurai	Professor, Gakushuin University Faculty of Law
	Kaoru Naito	Former Director, Department of Science and Technology for Nuclear Material management
	Hiroshi Mashima	Advisor, Japan Marine Science Inc.
	Ichiro Yamaguchi	Senior Chief Researcher, National Institute of Public Health Department of Environmental Health
Secretariat of the Nuclear Regulation Authority	Hiromu Katayama	Director General, Radiation Protection Strategy and Security (Attended from the fourth meeting)
	Yoshihide Kuroki	General manager, Radiation Protection Countermeasure (Attended until the third meeting)
	Shinichi Araki	Unit manager, Nuclear Emergency Measures and Nuclear Material Protection Division (Attended from the fourth meeting)
	Yasushi Morishita	Unit manager, Nuclear Emergency Preparedness Policy Division (Attended until the third meeting)
	Hiromine Yamaguchi	Director, Nuclear Emergency Countermeasure and Nuclear Material Protection Division Nuclear Security and Nuclear Material Protection Office (Attended by the third meeting as "Director, Nuclear Emergency Preparedness Policy Division Nuclear Security and Nuclear Material Protection Office")

#### Working group on nuclear security concerning radioactive isotope

Nuclear Regulation Authority	Satoru Tanaka	Commissioner of the Nuclear Regulation Authority
External experts	Nobumasa Akiyama	Professor, Hitotsubashi University School of International and Public Policy
	Isao Itabashi	Director, Council of Public Policy
	Sukeyuki Ichimasa	Chief Researcher, National Institute for Defense Studies
	Osamu Iwahashi	Executive Director, Public Interest Incorporated Foundation Japan Police Support Association
	Naomitsu Odano	Research Regulatory Principal Staff, National Maritime Research Institute
	Keiko Sakurai	Professor, Gakushuin University Faculty of Law
	Kaoru Naito	Former Director, Department of Science and Technology for Nuclear Material management
	Hiroshi Mashima	Advisor, Japan Marine Science Inc.
	Ichiro Yamaguchi	Senior Chief Researcher, National Institute of Public Health Department of Environmental Health
Secretariat of the	Hiromu	Director General, Radiation Protection Strategy and

Nuclear Regulation Authority	Katayama	Security (Attended from the second meeting)
	Okinobu Hirai	General manager, Radiation Protection Countermeasure (Attended until the first meeting)
	Hideyuki Tsunoda	Unit Director, Radiation Measures and Safeguard Division
	Yoshiyuki Shimane	Director, Radiation Measures and Safeguard Division Radiation Regulation Office

## 19. The Commission on Supervision and Evaluation of Specified Nuclear Facilities

The Committee on Supervision and Evaluation of Specified Nuclear Facilities consisting of NRA commissioners and external experts held 14 meetings in FY 2014 to discuss the implementation plan for specified nuclear facilities, the risk assessment of TEPCO's Fukushima Daiichi Power Station, and the seismic adequacy of the nuclear reactor buildings, units 1 through 4.

In addition, the contaminated water countermeasure review working group held one meeting in FY 2014 to discuss the technical aspects of contamination of subsurface water and the outflow to the ocean adjacent to TEPCO's Fukushima Daiichi NPS.

### Commission on Supervision and Evaluation of Specified Nuclear Facilities

Nuclear Regulation Authority	Toyoshi Fuketa	Commissioner of the Nuclear Regulation Authority
	Satoru Tanaka	Commissioner of the Nuclear Regulation Authority (Attended from the 27th meeting)
External experts	Hiroaki Abe	Professor, Institute for Materials Research, Tohoku University
	Tetsuo Iguchi	Professor, Graduate School of Engineering, Nagoya
	Akira Ohtsuru	Professor, Fukushima Medical University
	Yoshinori Kittaka	Professor, Graduate School of Urban Environmental Science, Tokyo Metropolitan University
	Ikuji Takagi	Professor, Graduate School of Engineering, Kyoto
	Shigeaki Tsunoyama	Educational Study Special Advisor, University of Aizu
	Yukihiro Hayashi	Professor, Graduate School of Engineering, Kyoto
	Yukihiro Higashi	Professor, Department of Science and Engineering, Iwaki Meisei University
	Akio Yamamoto	Professor, Graduate School of Engineering, Nagoya
	Akira Watanabe	Specially Appointed Professor, Fukushima University Division of Human Support System
Secretariat of the Nuclear Regulation Authority	Masashi Hirano	Director-General for Regulation Standard and Research
	Tomoho Yamada	Director-General (Attended from the 28th meeting)
	Tetsuya Yamamoto	Director-General (Attended until the 27th meeting)
	Gyo Sato	General Liaison Officer for Actions Responding to the Accident at TEPCO's Fukushima Daiichi NPS
	Shinji Kinjo	Chief of Office for Actions Responding to the Accident

### Working Group on Contaminated Water Countermeasures

Nuclear Regulation Authority	Toyoshi Fuketa	Commissioner of the Nuclear Regulation Authority
External experts	Shinichi Nakayama	Vice-president, Safety Research Center, Japan Atomic
	Masaya Yasuhara	Senior Researcher, Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology
Secretariat of the Nuclear Regulation Authority	Tetsuya Yamamoto	Director-General (Attended until the 13th meeting)
	Shinichi Araki	Unit manager, Radiation Monitoring Division (Attended until the 13th meeting)
	Shinji Kinjo	Chief of Office for Actions Responding to the Accident
	Norikazu Yamada	Chief Officer for Technical Research and Investigation

## 20. The Committee on Accident Analysis of the Fukushima Daiichi Nuclear Power Station

A study group consisting of commissioner Fuketa and external experts was established in 2013. It held one meeting in FY 2014 and one on-site investigation before finalizing an interim report on October 8, 2014. The group reviewed the items for which verification was required in the accident investigation report summarized by the Diet and the government, and the items that were considered to be necessary to analyze the impact of the accident and its follow-up response, from the technical aspect.

Nuclear Regulation Authority	Toyoshi Fuketa	Commissioner of the Nuclear Regulation Authority
External experts	Yoshinori Kittaka	Professor, Graduate School, Tokyo Metropolitan University
	Yutaka Kukita	Professor Emeritus, Nagoya University
	Ikuji Takagi	Professor, Graduate School, Kyoto University
	Tsuyoshi Takada	Professor, Graduate School of the University of Tokyo
	Tadashi Narabayashi	Professor, Graduate School, Hokkaido University
Japan Atomic Energy Agency	Kunio Onizawa	Delegated Director, Safety Research Center Research Coordination Office
	Yu Maruyama	Group Leader, Safety Research Center Severe Accident Evaluation Research Group
	Taisuke Yonomoto	Unit Director, Safety Research Center Nuclear Reactor Research Unit
	Norio Watanabe	Director, Safety Research Center Regulation Information Analysis Office
Secretariat of the Nuclear Regulation Authority	Masaya Yasui	Director General for Emergency Response
	Masashi Hirano	Director-General for Regulatory Standard and Research
	Tetsuya Yamamoto	Director-General (Attended until the sixth meeting)
	Masahide Kobayashi	Director, Division of Regulation for Research Reactors, Nuclear Fuel (in charge of system safety)
	Hiroshi Yamagata	Director, Division of Regulation for BWR (Attended until the sixth meeting)



## 21. Technical Information Committee

The Technical Information Committee held six meetings in FY 2014 under the leadership of Commissioner Fuketa, and collects and evaluates information on nuclear safety. The collected information is incorporated into the regulations at appropriate times.

Nuclear Regulation Authority	Toyoshi Fuketa	Commissioner of the Nuclear Regulation Authority
Secretariat of the Nuclear Regulation Authority	Masashi Hirano	Director-General for Regulatory Standard and Research
	Daiji Takeuchi	Director-General for Nuclear Regulatory Technical Affairs
	Michio Sakurada	Director-General, Nuclear Regulation Department
	Tetsuya Yamamoto	Director-General for Nuclear Regulation (Attended until the 10th meeting)
	Tetsuo Ohmura	Director-General for Nuclear Regulation
	Tomoho Yamada	Director-General for Nuclear Regulation (Attended by the 10th meeting as "Director, Regulatory Standard and Research Division")
	Kenichi Fujita	Director, International Affairs Office
	Masahiro Aoki	Director, Regulatory Standard and Research Division (Attended from the 11th meeting)
	Masahide Kobayashi	Director, Division of Research for Reactor System Safety (Attended from the ninth meeting)
	Mitsuhiro Kajimoto	Director, Division of Research for Severe Accident (Attended from the ninth meeting)
	Masahiro Uchida	Director, Division of Research for Nuclear Fuel Cycle and Radioactive Waste (Attended from the ninth meeting)
	Naotaka Takamatsu	Director, Division of Research for Earthquake and Tsunami (Attended from the ninth meeting)
	Gyo Sato	Director, Nuclear Regulation Policy Planning Division
	Kazuya Aoki	Director, Division of Regulation for BWR (Attended from the 13th meeting)
	Hiroshi Yamagata	Director, Division of Regulation for PWR (Attended by the 11th meeting as "Director, Division of Regulation for BWR")
	Tomoya Ichimura	Director Division of Regulation for PWR (Attended until the 11th meeting)
	Atsuo Sawada	Director, Division of Regulation for Inspection of Nuclear Reactor Facilities
	Shinzo Kuromura	Director, Division of Regulation for Advanced Reactors, Research Reactors, and Decommissioning
	Yasuhiko Ishii	Director, Division of Regulation for Nuclear Fuel (Fabrication and Reprocessing) Facilities and Use of Nuclear Material
	Yukinori Maekawa	Director, Division of Regulation for Radioactive Waste, Storage and Transport (Attended from the 12th meeting)
Rikio Minamiyama	Director, Division of Regulation for Radioactive Waste, Storage and Transport (Attended until the 10th meeting)	

	Masaru Kobayashi	Director, Division of Regulation against Earthquakes and Tsunamis
	Matsuji Takeyama	Director, Nuclear Emergency Measures and Nuclear Material Protection Division Accidents Response Office
Japan Atomic Energy Agency	Norio Watanabe	Director, Office for Analysis of Event and Regulatory Information, Nuclear Safety Research Center

## 22. The Technical Evaluation Committee on Safety Research

The Technical Evaluation Committee on Safety Research held eight meetings to examine interim and post-assessment reports by external experts on safety research in the NRA.

### The Technical Committee on Plant Safety

External experts	Tomoaki Kunugi	Professor, Graduate School, Kyoto University
	Nobuatsu Tanaka	Professor, Ibaraki University
	Takashi Tsuruta	Professor, Akita Prefecture University

### The Technical Committee on Nuclear Fuel and Materials

External experts	Tatsumi Arima	Associate Professor, Graduate School of Kyushu University
	Manabu Kanematsu	Assistant Professor, Tokyo University of Science
	Ken Kurosaki	Assistant Professor, Graduate School of Osaka University
	Masato Mochizuki	Professor, Graduate School of Osaka University
	Hideo Watanabe	Assistant Professor, Kyushu University

### The Technical Committee on Severe Accidents

External experts	Takeshi Iimoto	Assistant Professor, Tokyo University
	Naoto Kasahara	Professor, Graduate School of University of Tokyo
	Ken Muramatsu	Affiliate Professor, Tokyo City University
	Koji Morita	Professor, Graduate School of Kyushu University

### The Technical Committee on Nuclear Fuel Cycle and Radioactive Waste

External experts	Noriko Asanuma	Assistant Professor, ToKai University
	Youichi Enokida	Professor, Graduate School of Nagoya University
	Hiroshige Kikura	Assistant Professor, Tokyo Institute of Technology
	Ikuji Takagi	Professor, Graduate School, Kyoto University
	Shunji Honma	Assistant Professor, Graduate School of Saitama University
	Ken Muramatsu	Affiliate Professor, Tokyo City University
	Masahito Mochizuki	Professor, Graduate School of Osaka University

### The Technical Committee on Earthquakes and Tsunamis

External experts	Tomotaka	Professor, Kyoto University
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	Iwata	
	Naoki Sakai	Chief Researcher, National Research Institute for Earth Science and Disaster Prevention
	Manabu Shoji	Assistant Professor, Graduate School of Tsukuba University
	Osamu Furuya	Assistant Professor, Tokyo City University
	Hiroaki Yamanaka	Assistant Professor, Graduate School of Tokyo Institute of Technology

### 23. Debriefing Session of Emergency Drills by Nuclear Operators

A Debriefing Session was held in FY 2014 under the leadership of Commissioner Fuketa to provide nuclear operators with opportunities to mutually check and improve emergency drills conducted at their respective sites.

Nuclear Regulation Authority	Toyoshi Fuketa	Commissioner of the Nuclear Regulation Authority
Secretariat of the Nuclear Regulation Authority	Masaya Yasui	Director General for Emergency Response
	Masashi Hirano	Director-General for Regulatory Standard and Research
	Tetsuya Yamamoto	Director-General
	Tetsuo Ohmura	Director-General
	Mitsuhiro Kajimoto	Director, Division of Regulation for Research Reactors, Nuclear Fuel (in charge of severe accidents)
	Shoji Takeyama	Director, Nuclear Emergency Preparedness Policy Division Accidents Response Office
	Toshihiro Imai	Team Leader, On-site Emergency Response Propel Team

## 24. NRA Policy Review Meeting -FY 2014-

An NRA Policy Review Meeting to canvass the opinions of external experts was held once in FY 2014 as part of a policy assessment (ex post facto) conducted by the NRA.

External experts	Yoshinori Iizuka	Senior Researcher, School of Engineering, the University of Tokyo
	Hideaki Shiroyama	Director, Policy Alternatives Research Institute, the University of Tokyo; Professor, Graduate Schools for Law and Politics, the University of Tokyo
	Motoyuki Suzuki	Professor Emeritus, the University of Tokyo; Auditor, Tokyo Institute of Technology
	Kenjiro Tao	Previous Member of National Public Safety Commission; Former President of Hiroshima Supreme Court
	Asei Machi	Freelance journalist

## 25. Expert Meeting on the NRA's Administrative Review – FY 2014-

In the administrative project review, offices and ministries held three meetings in FY 2014 with external opinions, to review and clarify the implementation status of all their projects. The meetings with external experts canvassed opinions of the problems and proposed improvements for various projects. As part of the review, the expert meeting shall be held for some of the projects with external experts for hearing the opinions of problems and improvement. The expert meeting was held three times in FY 2014.

External experts	Takashi Asaba	Professor, Faculty of Law, Hakuoh University
	Naoshi Ogasawara	President, Avantia GP
	Yukiko Tabuchi	Administration and Management Consultant