

FY2012

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).

FY2012 Nuclear Regulation Authority Annual Report

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Chapter 1 Establishment of the Nuclear Regulation Authority

Section 1 Lessons Learned from the Accident at TEPCO's Fukushima NPP

The earthquake that occurred off the Pacific coast of the Tohoku region on March 11, 2011 and subsequent tsunami damaged the Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station (hereinafter referred to as "TEPCO's Fukushima Daiichi NPS") and the Fukushima Daini Nuclear Power Station. In particular, at TEPCO's Fukushima Daiichi NPS, an extremely serious accident measured at Level 7 on the International Nuclear and Radiological Event Scale (INES) occurred. A large amount of radioactive materials was discharged into the environment and caused extremely serious after effects throughout public life. There were disaster related deaths, many local residents around the NPS were forced into temporary accommodation for extended periods and it is anticipated it will take many years to accomplish needed reconstruction and to pinpoint and treat related health and radiation issues among the general public.

A report by the National Diet of Japan Fukushima Nuclear Accident Independent Investigation Commission (hereinafter referred to as the "National Diet Investigation Commission") said the direct causes of the catastrophe were the earthquake and the tsunami, compounded by organizational problems at TEPCO and the functional failure of the crisis management system of the Official Residence of the Prime Minister (hereinafter referred to as the "Official Residence") and the regulatory authority. The report noted that "the regulators did not monitor or supervise nuclear safety. The lack of expertise resulted in 'regulatory capture,' and the postponement of the implementation of relevant regulations. They avoided their direct responsibilities by letting operators apply regulations on a voluntary basis. Their independence from the political arena, the ministries promoting nuclear energy, and the operators was a mockery. They were incapable, and lacked the expertise and the commitment to assure the safety of nuclear power."

Section 2 Developments and Purposes of the Establishment of the Nuclear Regulation Authority

Based on the lessons learned from the accident, the government decided the Basic Policy on the Reform of an Organization in Charge of Nuclear Safety Regulation on August 15, 2011 and commenced the preparation of a bill to establish a new nuclear regulatory organization. On January 31, 2012, the Cabinet approved a Bill for Partial Revision of the Act for Establishment of the Ministry of the Environment for Reforming the Organization and System for Ensuring Nuclear Safety, etc., which provides that a Nuclear Regulation Authority (hereinafter referred to as the “NRA”) shall be established under the Ministry of the Environment as its external organ. The bill was submitted to the Diet but following subsequent deliberations it was decided to withdraw it. . Instead, a Bill for the Establishment of the NRA was submitted by Diet members, providing for a highly independent authority under Article 3,¹ with the NRA Secretariat placed under it. The Act for Establishment of the Nuclear Regulation Authority was subsequently enacted on June 20 and promulgated on June 27, 2012 (Act No. 47 of 2012).

The NRA was established as an external organ of the Ministry of the Environment by separating the functions of promotion and regulation of nuclear energy, with the aim of avoiding potential problems when a single government organization acted both as a regulatory authority and one promoting wider use of nuclear energy. It was also established as an authority under Article 3 so that the Chairman and the Commissioners can exercise an independent, neutral and fair role, based on their own expertise. Additionally, in order to eliminate the harmful effects of a vertically-divided administration, the NRA shall integrally govern regulations on nuclear energy, nuclear security, safeguards based on international commitments, radiation monitoring, and regulations on the use of radioisotopes, which previously had been governed by other administrative organs (see Table 2).

To strengthen the nuclear emergency preparedness system and nuclear safety regulation related Acts such as the Atomic Energy Basic Act (Act No. 186 of 1955), the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (Act No. 166 of 1957; hereinafter referred to as the “Reactor Regulation Act”), and the Act on Special Measures Concerning Nuclear Emergency Preparedness (Act No. 156 of 1999), were revised under the Supplementary Provisions of the Act for Establishment of the Nuclear Regulation Authority.

On September 19, 2012, the Prime Minister appointed Mr. Shunichi Tanaka as the Chairman, and Mr. Kunihiro Shimazaki, Mr. Toyoshi Fuketa, Ms. Kayoko Nakamura, and Mr. Kenzo Oshima as the Commissioners (the ex post facto consent of the Diet was obtained on February 15, 2013), and the NRA was officially inaugurated.

¹ Committees and authorities prescribed in Article 3, paragraph (2) of the National Government Organization Act, which are council organizations guaranteed to exercise their authority independently without being subject to the supervision of the superior organization (for example, the minister of the ministry under which they are established)

Chapter 2 Outline of the Nuclear Regulation Authority

Section 1 Basic Policy, Plan, and Evaluation of Business of the Nuclear Regulation Authority

At the 22nd meeting held on January 9, 2013, the NRA discussed its core values and principles and decided that its mission should be to protect the general public and the environment through rigorous and reliable regulations of nuclear activities. In order to accomplish this mission, the NRA established five principle activities concerning its independence, effectiveness, transparency, expertise, and readiness (Table 1).

Table 1 NRA's Core Values and Principles

<p>Bearing in mind that:</p> <ul style="list-style-type: none">-The Nuclear Regulation Authority was established to absorb and learn the lessons of the Fukushima Daiichi nuclear accident of March 11, 2011;- Such nuclear accidents should never be allowed to happen again;- Restoring public trust, in Japan and abroad, in the nation's nuclear regulatory organization is of utmost importance and;- The nuclear safety system and management must be rebuilt on a solid basis, placing the highest priority on public safety and a genuine safety culture; <p>Determined that:</p> <ul style="list-style-type: none">- 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; <p>We hereby solemnly pledge our full commitment and unwavering efforts to the foregoing.</p> <p>Mission</p> <p>Our fundamental mission is to protect the general public and the environment through rigorous and reliable regulations of nuclear activities.</p> <p>Guiding Principles for Activities</p> <p>We in the NRA and its supporting Secretariat shall perform our duties diligently acting in accordance with the following principles.</p> <p>(1)Independent Decision Making</p> <p>We shall make decisions independently, based on the latest scientific and technological information, free from any outside pressure or bias.</p> <p>(2)Effective Actions</p> <p>We shall discard the previous ineffective approach to regulatory work and stress the importance of a field-oriented approach to achieve genuinely effective regulations.</p> <p>(3)Open and Transparent Organization</p> <p>We shall ensure transparency and appropriate information disclosure on regulations, including the decision making process.</p> <p>We shall be open to all opinions and advice from Japan and the international community and avoid both self-isolation and self-righteousness.</p> <p>(4)Improvement and Commitment</p> <p>We shall be assiduous in learning and absorbing the latest regulatory know-how and best practices, enhancing individual capacity, and performing our duties, mindful of the highest</p>

ethical standards, a sense of mission, and rightful pride.

(5)Emergency Response

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

On the same day, the NRA set up a master plan for policy reviews and the policy system, under which (1) initiatives to ensure the safety of the nuclear power and radiation facilities, (2) preparation of a crisis management system and approach to mitigate the effect of accidents, and (3) initiatives to ensure the reliability of the nuclear regulatory administration are established as concrete policy goals for accomplishing the abovementioned mission. Based on these guidelines, the NRA will conduct policy reviews each fiscal year with the aim of improving duties through the PDCA cycle (a management method for promoting improvements in production control and quality maintenance) and in designing and planning new policies. On March 27, 2013, the NRA decided a plan for ex post facto evaluation, and agreed that opinions of external experts should be sought at the Policy Review Panel meeting in making evaluations.

Section 2 Organization and Budget

1. Affairs under the Jurisdiction of the NRA

The NRA was established as an authority to integrally govern regulations on nuclear energy, nuclear security, safeguards based on international commitments, radiation monitoring, and regulations on the use of radioisotopes, all of which had previously been administered by several other relevant administrative organs. Based on the provisions of the Atomic Energy Basic Act and the Act on Special Measures Concerning Nuclear Emergency Preparedness, the NRA also oversees technical and professional aspects of nuclear emergency preparedness such as the formulation of the Nuclear Emergency Response Guideline (Table 2).

Table 2 Major Affairs under the Jurisdiction of the NRA

- | |
|---|
| <ol style="list-style-type: none">(1) Ensuring safety in the use of nuclear energy (Regulations on nuclear energy-related business and facilities, and on the use of nuclear fuel material, etc.)(2) Regulations on physical protection of nuclear material (nuclear security) and related issues among relevant ministries and agencies(3) Adjustment of affairs among relevant ministries and agencies concerning radiation monitoring(4) Fostering human resources to ensure nuclear energy safety.(5) Investigation of causes of nuclear reactor accidents and resultant damage.(6) Formulation of the Nuclear Emergency Response Guideline, etc.(7) Regulations on safeguards based on international commitments(8) Prevention of radiation hazards (regulations on radioisotopes, etc.)(9) Implementation of radiation monitoring <p>* Affairs mentioned in (7) to (9) will be under the jurisdiction of the NRA in April 2013.</p> |
|---|

2. Chairman and Commissioners

The NRA is composed of the Chairman and four Commissioners (Table 3).

**Table 3 Terms of Office and Major Roles of the Chairman and Commissioners
(as of March 31, 2013)**

		Term	Major roles
Chairman	Shunichi Tanaka	5y.	Presides over the affairs of the NRA
Commissioner (substitute for the Chairman)	Kunihiko Shimazaki	2y.	Countermeasures against earthquakes and tsunamis
Commissioner	Toyoshi Fuketa	3y.	Measures governing facilities, such as reactors
Commissioner	Kayoko Nakamura	3y.	Physical protection of radiation and nuclear emergency responses
Commissioner	Kenzo Oshima	2y.	International collaboration, nuclear security, and safeguards based on international commitments*

* From April 2013

3. NRA Secretariat

The Secretariat of the NRA oversees affairs under the jurisdiction of the NRA. As of March 31, 2013, the number of staff was 473 and its organization is shown in Figure 1. The FY2012 budget (after supplement) was 37,755 million yen, a breakdown shown in Table 4 (the Cabinet Office has a separate 21,842 million yen (after supplement) as the nuclear disaster countermeasures-related budget).

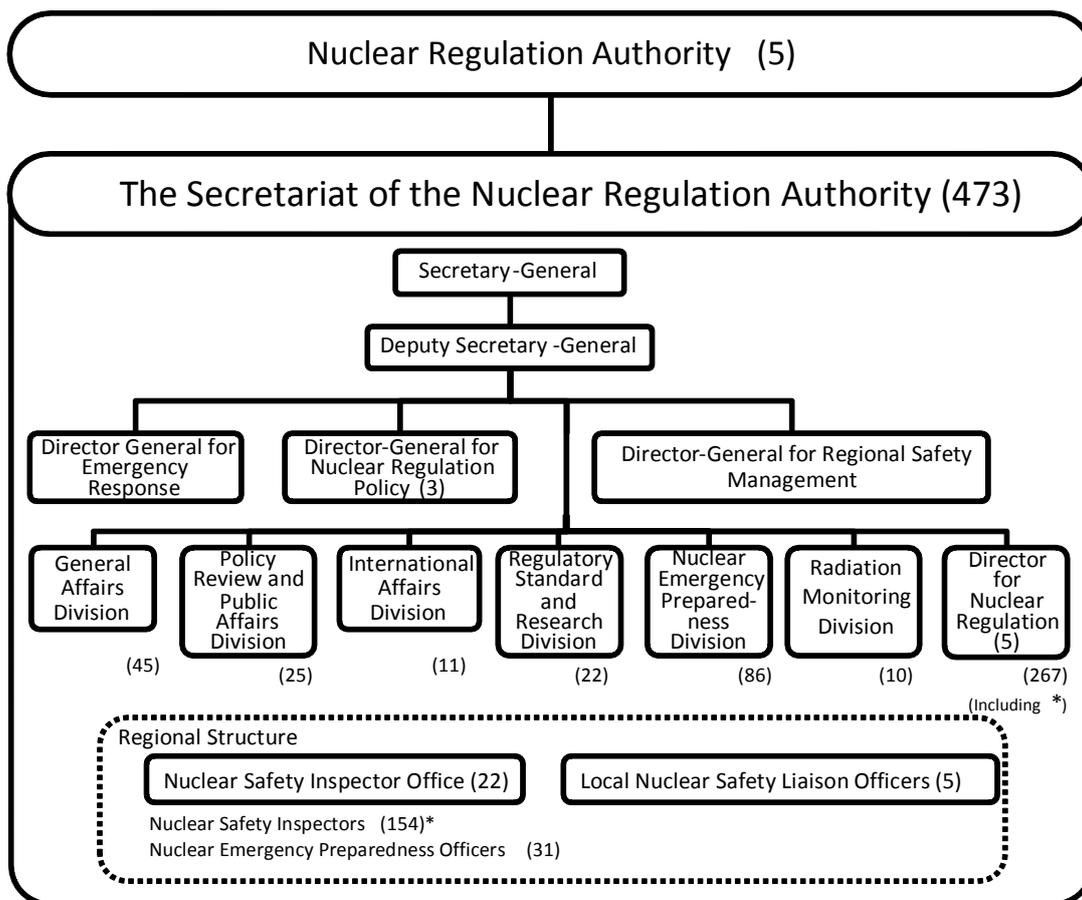


Figure 1 The NRA Organization and Number of Officials (as of March 31, 2013)

Table 4 Breakdown of FY2012 Budget (after Supplement) of the NRA

(million yen)

	FY2012 budget (after supplement)
General account	2,578
Special account for energy measures	32,727
Special account for reconstruction from the Great East Japan Earthquake	2,450
Total	37,755

4. Related Incorporated Administrative Agencies

The NRA holds jurisdiction over all the affairs of the Japan Nuclear Energy Safety Organization (hereinafter referred to as the “JNES”) and part of the affairs of the National Institute of Radiological Sciences (hereinafter referred to as the “NIRS”) and the Japan Atomic Energy Agency (hereinafter referred to as the “JAEA”).

- Japan Nuclear Energy Safety Organization, Incorporated Administrative Agency (JNES)
The JNES will take charge of the examinations of nuclear facilities, analysis and evaluation of safety in the design of nuclear facilities and the prevention of, and recovery from, nuclear disasters.

- National Institute of Radiological Sciences, Incorporated Administrative Agency
Within the scope of earlier NIRS activities, the NRA, together with the Ministry of Education, Culture, Sports, Science and Technology (hereinafter referred to as “MEXT”), holds jurisdiction over the prevention, diagnosis, and treatment of radiation damage to humans.

- Japan Atomic Energy Agency, Incorporated Administrative Agency
The NRA, together with MEXT and the Ministry of Economy, Trade and Industry (hereinafter referred to as “METI”), now has partial jurisdiction of the JAEA to ensure nuclear safety.

Chapter 3 Activities of the Nuclear Regulation Authority

Section 1 Holding NRA Meetings

Under a policy to encourage open meetings the NRA held 35 such gatherings since its inauguration on September 19, 2012 through March 31, 2013 (26 regular meetings and 9 extraordinary meetings), and made 200 decisions. Main topics and main decisions are shown in Tables 5-6 (hereinafter regular meetings and extraordinary meetings are referred to as “NRA Commission Meetings”).

**Table 5 Nuclear Regulation Authority Commission Meetings
(From September 19, 2012 to March 31, 2013)**

No.	Date	Main topics, etc.
2012		
1	9. 19	<ul style="list-style-type: none"> Developing in-house rules, etc. for the operation of commission meetings, etc. Launching the new organization
2	9. 26	<ul style="list-style-type: none"> How to advance the development of the Nuclear Emergency Response Guidelines Basic policy of investigation into fracture zones in the site of the Ohi Power Station Policy for responding to an incident when a steel beam fell into the spent fuel pool in Unit 3 at TEPCO’s Fukushima Daiichi NPS
3	10. 3	<ul style="list-style-type: none"> Working draft for Nuclear Emergency Response Guidelines How to designate specified nuclear power facilities Evaluating environmental monitoring data
4	10. 10	<ul style="list-style-type: none"> How to consider regulatory requirements, including severe accident measures Policy for the study on the “requirements for measures” related to specified nuclear power facilities Evaluating one event that a steel beam fell into the spent fuel pool in Unit 3 at TEPCO’s Fukushima Daiichi NPS Requirements to ensure the transparency and neutrality of external expert advice governing nuclear safety regulations for electric utilities etc.
5	10. 17	<ul style="list-style-type: none"> Setting up the Expert Meeting(s) on the evaluation of fracture zones in NPS sites Regarding study on the ‘requirements for measures’, etc. related to designation of TEPCO’s Fukushima Daiichi NPS as specified nuclear power facilities Response to water leakage containing radioactive materials in Unit 3 turbine building at TEPCO’s Fukushima Daiichi NPS Hearing from the local government (Fukushima Prefecture) on Nuclear Emergency Preparedness Measures
6	10. 19	<ul style="list-style-type: none"> Setting up a study team for the new safety requirements (including severe accident countermeasure regulations) Hearing from the Prefectural Government Association on Nuclear Power and the All Japan Council of Local Governments with Atomic Power Station regarding Nuclear Emergency Response Guidelines Appointment of the specified members for emergency response measures Regarding the bend of the water rods of the fuel assemblies in Unit 5 at

		Kashiwazaki-Kariwa NPS
7	10. 24	<ul style="list-style-type: none"> • How to develop the new nuclear safety regulation system • Nuclear Emergency Response Guidelines (draft) • Simulated results of dispersion of radioactive materials • How to develop the design-basis standard for earthquakes and tsunamis
8	10. 31	<ul style="list-style-type: none"> • Development of Nuclear Emergency Response Guidelines • Correction of the simulated results of dispersion of radioactive materials
9	11. 7	<ul style="list-style-type: none"> • Establishing a study team on new safety design-basis standards for earthquakes and tsunamis • Regarding the designation of specified nuclear power facilities and the 'various items needing improvement' • Setting up a study team for the development of a new nuclear safety regulation system • Examining the health controls for local residents related to TEPCO's Fukushima Daiichi NPS Accident • Regarding the requirements, etc. for ensuring transparency and neutrality in appointing members of the Radiation Council • Setting up a study team on radiation emergency medicine • Draft Cabinet Order on stipulating part of the enforcement date for the Act for Establishment of the Nuclear Regulation Authority • Reviewing restoration work based on an agreed restoration plan for cold shut down at Fukushima Daini NPS • The current treatment of the facility operational plan for TEPCO's Fukushima Daiichi NPS before its approval of an implementation plan for specified nuclear power facilities.
10	11. 9	<ul style="list-style-type: none"> • Requesting advice from national security organizations to help in the revision of the physical protection program
11	11. 14	<ul style="list-style-type: none"> • Setting up an Expert Meeting on the investigation of fracture zones in the Tsuruga NPS site • Setting up a study team on nuclear emergency preparedness measures, etc. • Examining a system for policy reviews and evaluation of Incorporated Administrative Agencies
12	11. 20	<ul style="list-style-type: none"> • Setting up an Expert Meeting on the investigation of the fracture zone at the Higashidori NPS, Tohoku Electric Power Company. • Setting up a study team on health controls for residents in the area of TEPCO's Fukushima Daiichi NPS Accident • Evaluation of an additional report on the event in which a steel beam fell into the spent fuel pool in Unit 3 at TEPCO's Fukushima Daiichi NPS.
13	11. 21	<ul style="list-style-type: none"> • Exchange of opinions between experts and NRA commissioners
14	11. 28	<ul style="list-style-type: none"> • Setting up a Supervision and Evaluation Committee for Specified Nuclear Power Facilities • Evaluation of TEPCO's report on the root cause analysis on its violation of the operational safety program • Regarding the bend of the water rods of fuel assemblies in Unit 5, Kashiwazaki-Kariwa NPS • Evaluation of the countermeasures against water leakage from the vent line of the 2nd cesium adsorption equipment (Sally) at TEPCO's Fukushima Daiichi NPS
15	12. 5	<ul style="list-style-type: none"> • Setting up a study team on emergency monitoring • Regarding ill-preparedness on the operational safety program relating to the

		change of inspection periods, etc. of Monju
16	12. 12	<ul style="list-style-type: none"> Regarding the violation of compliance with the operational safety program for Monju Regarding additional documents for reference for Nuclear Emergency Response Guidelines
17	12. 13	<ul style="list-style-type: none"> Regarding correction of the simulated results of the dispersion of nuclear materials, the cause investigation, and prevention measures against recurrence of failure of the simulation
18	12. 14	<ul style="list-style-type: none"> Exchange of opinions between NRA commissioners and its international advisors
19	12. 18	<ul style="list-style-type: none"> Approval of change of the physical protection program of licensees
20	12. 19	<ul style="list-style-type: none"> Setting up the Supervision and Evaluation Committee to examine the seawater inflow into nuclear facilities in Unit 5 at Hamaoka NPS Setting up a committee for nuclear security Evaluation on revising a facility operational program of TEPCO's Fukushima Daiichi NPS The current status of inspection for the bend of the water rods of fuel assemblies in Unit 5 at Kashiwazaki-Kariwa NPS
21	12. 26	<ul style="list-style-type: none"> Results confirming "the implementation progress of the restoration plan for Fukushima Daini NPS based on the Nuclear Licensee Emergency Preparedness Action Plan"
2013		
22	1. 9	<ul style="list-style-type: none"> NRA's Core Values and Principles Setting up a master plan for policy reviews and the overall policy system Regarding partial revision of the Enforcement Cabinet Order of the Act on Special Measures Concerning Nuclear Emergency Preparedness Draft Cabinet Order on special exceptions of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Nuclear Reactors related to the reactor facilities at TEPCO's Fukushima Daiichi NPS
23	1. 16	<ul style="list-style-type: none"> Evaluation of the response to the water leakage containing radioactive materials in the turbine building of Unit 3 in TEPCO's Fukushima Daiichi NPS The state of response to the bend of the water rods of fuel assemblies in Unit 5 of Kashiwazaki-Kariwa NPS
24	1. 23	<ul style="list-style-type: none"> How to improve the system of aging countermeasures Evaluation on the revision of a facility operational plan for TEPCO's Fukushima Daiichi NPS
25	1. 30	Nuclear Emergency Response Guidelines (revised draft)
26	2. 5	<ul style="list-style-type: none"> Requesting advice from national security organizations regarding the approval of revisions for the physical protection program
27	2. 6	<ul style="list-style-type: none"> Review of the "Policy on Ensuring the Operational Transparency of the NRA" Regarding a report from the Japan Atomic Energy Agency on the NRA's instruction related to Monju and on-site inspection Draft New Regulatory Requirements for Nuclear Power Stations
28	2. 13	<ul style="list-style-type: none"> Draft rules for installation and operation, of TEPCO's Fukushima Daiichi NPS

		<ul style="list-style-type: none"> Applying the operational experiences of nuclear facilities
29	2. 14	<ul style="list-style-type: none"> Requesting opinions from national security organizations on approval of an implementation plan (protection of specified nuclear fuel materials) related to Specified Nuclear Power Station, Fukushima Daiichi NPS Requesting opinions from national security organizations on approval of the revision of the physical protection program of Fukushima Daiichi NPS
30	2. 20	<ul style="list-style-type: none"> Draft notice of installation and operation, of nuclear reactor facilities at TEPCO's Fukushima Daiichi NPS Regarding developing the regulatory requirements for test and research reactors and nuclear fuel facilities, and other measures
31	2. 27	<ul style="list-style-type: none"> Draft Cabinet Order on special exceptions of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Nuclear Reactors related to the nuclear reactor facilities at TEPCO's Fukushima Daiichi NPS Peer Review meeting for the draft evaluation of fracture zones at nuclear power stations Review of the system for approval of the extension of the operational period Regarding developing new safety requirements for the prototype fast breeder reactor "Monju" Revision of Nuclear Emergency Response Guidelines Overview of the discussions of a study team on health controls for residents in the Fukushima Daiichi NPS area Regarding safety goals
32	3. 6	<ul style="list-style-type: none"> Assessment on the leakage of washing wastewater outside the controlled area at Tokai Daini NPS, Japan Atomic Power Company Draft Cabinet Order on preparation for the related Cabinet Order with partial enforcement of the Act for Establishment of the Nuclear Regulation Authority Regarding health controls of the residents near the Fukushima Daiichi NPS site (draft recommendation) Regarding safety goals Strengthening emergency response capabilities
No.	Date	Main topics, etc.
33	3. 19	<ul style="list-style-type: none"> Implementation of site inspections on ex post facto measures based on the restoration plan for TEPCO's Fukushima Daini NPS Evaluation of the start of hot testing for the multi-nuclide removal equipment (System A) at TEPCO's Fukushima Daiichi NPS Confirmation of a report from the Japan Atomic Energy Agency on the NRA's actions on instruction Monju Basic policy for enforcing new regulations on power reactors
34	3. 27	<ul style="list-style-type: none"> Strengthening collaboration between the Secretariat of the NRA and the

		<p>Japan Nuclear Energy Safety Organization</p> <ul style="list-style-type: none"> • Partial revision of the Public Notice to specify particularly important electric facilities based on the table of Article 53, paragraph (1) of the Ministerial Ordinance on Security of Facilities for Nuclear Power Generation • Setting up a study committee to analyze the TEPCO Fukushima Daiichi NPS Accident • How to establish requirements covering research and test reactors and nuclear fuel materials • FY2013 NRA's ex post facto evaluation plan and holding a Policy Review Panel meeting • Regarding the bend of the fuel rods of the fuel assemblies in Unit 1 at TEPCO's Kashiwazaki-Kariwa NPS • Suspension of facility operation due to blackout at TEPCO's Fukushima Daiichi NPS • Regarding safety goals
35	3. 29	<ul style="list-style-type: none"> • Approval of the implementation plan for specified nuclear power facilities (physical protection of specified nuclear fuel materials) at TEPCO's Fukushima Daiichi NPS • Approval of the application for revision for the physical protection program • Requesting advice from national security organizations regarding the approval of revision for the physical protection program (commercial power reactor facilities, reprocessing facilities, etc.)

*The 10th, 19th, 26th, 29th, and 35th meetings, where information on physical protection of nuclear materials was discussed, were closed to the public based on the Operational Guidelines for NRA Commission Meetings, because there are risks that the disclosure of such information could aid persons intent on committing sabotage against nuclear facilities thus endangering public safety.

**Table 6: Main Points decided in NRA Commission Meetings
(From September 19, 2012 to March 31, 2013)**

Date	Main points of NRA Commission decisions
[Steering NRA Commission Meetings]	
9. 19	<ul style="list-style-type: none"> • Operational Guidelines for NRA Commission Meetings • Code of conduct related to ethics for NRA Chairman and commissioners • Policy for ensuring transparency for NRA Commission • Evaluation standards for administrative measures based on the law concerning disclosure of information possessed by administrative organs • Guidelines for the establishment of a Nuclear Facility Safety Information Allegation Investigation Committee • Guidelines for management of NRA administrative documents
10. 10	<ul style="list-style-type: none"> • Requirements for ensuring transparency and neutrality when the NRA incorporates advice from external experts on new nuclear safety regulations for electric utilities
11. 7	<ul style="list-style-type: none"> • Requirements for ensuring transparency and neutrality in appointing the members of the Radiation Council
1. 9	<ul style="list-style-type: none"> • NRA's Core Values and Principles
2. 6	<ul style="list-style-type: none"> • Basic plans and policy systems for the NRA's policy reviews
3. 27	<ul style="list-style-type: none"> • Amendment of the Policy on Ensuring Operational Transparency of the NRA • Rules for the development of the NRA-related Ordinances upon the enforcement of part of the Act for the Establishment of the Nuclear Regulation Authority • Requirements for ensuring transparency and neutrality when the NRA incorporates external advice for new nuclear safety regulations, . for business operators based on the Act on Prevention of Radiation Disease Due to Radioisotopes. • Revision of the requirements for ensuring transparency and neutrality when the NRA incorporates external advice into revised nuclear safety regulations for electric utilities • FY2013 NRA's ex post facto evaluation plan
[Fukushima Daiichi Nuclear Power Station, TEPCO]	
9. 26	<ul style="list-style-type: none"> • Guidance and instruction to TEPCO regarding an incident in which a steel beam fell into the spent fuel pool in Unit 3 of Fukushima Daiichi NPS
10. 10	<ul style="list-style-type: none"> • Additional instruction to TEPCO regarding the above incident
10. 17	<ul style="list-style-type: none"> • Instruction to TEPCO regarding water leakage containing radioactive materials in Unit 3 turbine building of Fukushima Daiichi NPS
11. 7	<ul style="list-style-type: none"> • Designation of the nuclear reactor facilities in TEPCO's Fukushima Daiichi NPS as "specified nuclear power facilities" • Instruction to TEPCO concerning submission of an "implementation plan" based on the "requirements for measures" for specified nuclear power facilities in Fukushima Daiichi NPS
3. 6	<ul style="list-style-type: none"> • Regarding health control procedures for nearby residents affected by the Fukushima Daiichi Nuclear Accident, TEPCO (draft recommendation)

[Nuclear Regulation Act and Related Laws]	
1.23	• Instruction concerning the current treatment of applications from operators regarding the aging measures for nuclear reactors generating commercial electric power
2.27	• Draft Cabinet Order on special exceptions of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Nuclear Reactors related to TEPCO's Fukushima Daiichi NPS
[Individual Facilities]	
(Fast Breeder Reactor "Monju")	
12.12	• Administrative order necessary for security measures and collecting reports
2. 6	• Implementation of on-site inspections for the prototype FBR "Monju"
(Kashiwazaki-Kariwa NPS)	
10.19	• Instruction on the bend of the water rods of fuel assemblies in Unit 5 of Kashiwazaki-Kariwa NPS, TEPCO
11.28	• Instruction on the bend of the water rods of fuel assemblies in Unit 5 of Kashiwazaki-Kariwa NPS, TEPCO
[Nuclear Emergency Response Measures and Related Issues]	
9.19	• NRA's Emergency Preparedness Action Plan
	• NRA's Code of Ethics in cases of an emergency
10.31	• Nuclear Emergency Response Measures Guidelines
11. 7	• Draft Cabinet Order on stipulating the enforcement date for part of the Act for Establishment of the Nuclear Regulation Authority
1. 9	• Draft Cabinet Order on partial revision of the Act on Special Measures Concerning Nuclear Emergency Preparedness
2.27	• Revision of Nuclear Emergency Response Guidelines
3.27	• Amendment of the NRA's Emergency Preparedness Action Plan

Section 2 Activities of NRA Study Teams

Based on the Act for the Establishment of the Nuclear Regulation Authority the Reactor Safety Examination Committee, the Nuclear Fuel Safety Examination Committee, the Radiation Council, and the Administrative Evaluation Bureau are to be established within the NRA. Furthermore, Study Teams consisting of NRA Commissioners, external experts, and officials of the Secretariat of the NRA were established and open discussions were held. In order to ensure neutrality and fairness, requirements for selected committee members and external experts were specified as necessary (see Chapter 6, Section 1)

1. Supervision and Evaluation Committee for Specified Nuclear Power Facilities

Based on the Reactor Regulation Act, the NRA designated TEPCO's Fukushima Daiichi NPS as specified nuclear power facilities on November 7, 2012. In response, the relevant nuclear operator submitted an implementation plan for these nuclear power facilities on December 7. This Committee, consisting of Commissioner Fuketa, external experts, officials of the Secretariat of the NRA, and officials of the JNES, discussed the implementation plan, supervised and evaluated the situation, conducted two site inspections and held seven study meetings since December 6, 2012. In those meetings, they discussed and evaluated such topics as "Major risk factors for specified nuclear power facilities and risk assessment," "Multi-nuclide removal equipment," "Ensuring safety in spent fuel removal from the spent fuel storage pool of Unit 4," "Cover for fuel removal for Unit 3," "Overview of the quake resistance of reactor buildings of Unit 1 to Unit 4," "Measures to decrease doses under current exposure conditions," and "Suspension of facility operations due to blackout" (see Chapter 4, Section 1).

2. Study Team on Health Controls of local Residents related to the Fukushima Daiichi NPS Accident

Surveys on residents' health controls following the Fukushima accident were conducted by the Fukushima prefecture and other organizations whose respective roles are governed by related laws and regulations. This Study Team, consisting of Commissioner Nakamura, external experts, and officials of the NRA Secretariat and held discussions on ensuring smooth implementation of ex post facto measures so that the NRA may subsequently recommend improved health controls to the relevant administrative organs. The Study Team held five meetings between November 30, 2012, and February 19, 2013, heard expert opinions, and compiled details of the discussions. The NRA held further meetings on these discussions before compiling recommendations on March 6, 2013 (see Chapter 4, Section 1).

3. Study Team on New Regulatory Requirements for Light Water Power Reactors

Following enactment of the Act for Establishment of the Nuclear Regulation Authority and the revision of the Reactor Regulation Act, new regulations governing power reactors will come into

force at a time specified by Cabinet Order but within a period not exceeding ten months from the effective date of the Act for Establishment of the Nuclear Regulation Authority (by July 18, 2013). Therefore, this Study Team, consisting of Commissioner Fuketa, external experts, officials of the NRA Secretariat and officials of the JNES, started discussions on draft requirements concerning countermeasures against major accidents on October 25, 2012. The Study Team held 20 meetings during FY2012, reviewing design basis accidents and discussing external events exceeding assumed levels which will be taken into account in shaping basic policy countermeasures against future severe accidents. Based on these discussions, the Study Team presented a draft of new regulatory requirements at the NRA Commission Meeting on February 6, 2013 and started to seek public comments on this draft the following day (see Chapter 4, Section 2).

4. Study Team on New Regulatory Requirements for Light Water Nuclear Power Plants (Earthquakes and Tsunamis)

Following enactment of the Act for Establishment of the Nuclear Regulation Authority and revision of the Reactor Regulation Act new regulations governing power reactors shall also come into force on a day specified by Cabinet Order but within a period not exceeding ten months from the effective date of the Nuclear Regulation Authority Establishment Act itself (by July 18, 2013). Therefore, this Study Team, consisting of Commissioner Shimazaki, external experts, officials of the NRA Secretariat and officials of the JNES, started discussions on new regulatory requirements concerning earthquakes and tsunamis on November 19, 2012. The Study Team held 10 meetings during FY2012. Members discussed strengthening standards and buildings and facilities to better withstand earthquakes and tsunamis tightening standards for determining capable faults, establishing more accurate design basis earthquake ground motions, and clarification of standards for ground shifts and deformation, in addition to those for quakes. Based on the discussions, the Study Team presented a draft of new regulatory requirements at the NRA Commission Meeting on February 6, 2013 and started to seek public comments on this draft the following day (see Chapter 4, Section 2).

5. Study Team on Establishment of New Safety Regulations for Light Water Nuclear Power Plants

Following the enactment of the Act for Establishment of Nuclear Regulation Authority and the revision of the Reactor Regulation Act new regulations on power reactors shall come into force on a day specified by Cabinet Order but within a period not exceeding ten months from the effective date of the Nuclear Regulation Authority Establishment Act itself (by July 18, 2013). This Study Team consisting of Commissioner Fuketa, external experts, officials of the NRA Secretariat and JNES officials, held five meetings during FY2012 discussing measures for integrating all safety regulations on power reactors into the Reactor Regulation Act on November 20, 2012, and sought the opinions of nuclear operators.. At a March 28, 2013 meeting members held discussions on a draft of the Ordinance of the NRA (see Chapter 4, Section 2).

6. Expert Meeting on Investigation of Fracture Zones at the Ohi Power Station, Kansai Electric Power Co., Inc.

In order to investigate and evaluate fracture zones on the premises of the Ohi Power Station, Kansai Electric Power Co., Inc., this expert meeting, consisting of Commissioner Shimazaki and external experts, during FY2012 conducted two site inspections and held three evaluation meetings after a preliminary conference on October 23, 2012. However, they could not reach common ground and decided to hold another evaluation meeting pending the results of further investigations (see Chapter 4, Section 3).

7. Expert Meeting on Investigation of Fracture Zones at the Tsuruga Nuclear Power Station

In order to investigate and evaluate fracture zones at the Tsuruga NPS, the Japan Atomic Power Company, this expert meeting consisting of Commissioner Shimazaki and external experts during FY2012 conducted one site inspection and held three evaluation meetings following a preliminary meeting on November 27, 2012. A basic draft evaluation report was agreed and a peer review meeting was held on March 8, 2013, to seek the opinions of a wide range of experts on the draft (see Chapter 4, Section 3).

8. Expert Meeting on Investigation of Fracture Zones at the Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc.

In order to investigate and evaluate fracture zones at the Higashidori NPS, Tohoku Electric Power Co., Inc. team members including Commissioner Shimazaki and external experts, during FY2012 held a preliminary meeting on Nov. 22, 2012 followed by one site inspection and three evaluation meetings after which they agreed on a basic draft evaluation report. (see Chapter 4, Section 3).

9. Technical Information Committee

It was determined that the NRA Secretariat should hold a Technical Information Committee meeting once every one or two months to collect and evaluate timely nuclear safety-related information including regulations. The first meeting was held on March 25, 2013 (see Chapter 4, Section 7).

10. Study Team on Nuclear Emergency Preparedness Measures

When preparing the Nuclear Emergency Response Guidelines on October 31, 2012, additional discussions were required to improve the Guidelines. . The Study Team of Commissioners Nakamura and Fuketa, external experts, officials of the NRA Secretariat and JNES, held seven meetings starting on November 22 to discuss ideal nuclear emergency preparedness measures, including standards for making judgments and implementing protective actions in an emergency. On January 24, 2013, they amalgamated their findings with the Study Team on Radiation Emergency Medicine, and presented a

draft of the revised Nuclear Emergency Response Guidelines at an NRA Commission Meeting on January 30. The same day they began to seek public comment on the draft and based on those findings, a revised set of Guidelines was agreed at the NRA Commission Meeting on February 27 (see Chapter 5, Section 1).

11. Study Team on Radiation Emergency Medicine

When preparing the Nuclear Emergency Response Guidelines on October 31, 2012, additional discussions were required to improve the guidelines in the area of radiation emergency medicine. The Study Team, consisting of Commissioner Nakamura, external experts, and officials of the NRA Secretariat held five meetings starting on November 15. On January 24, 2013, they coordinated their results with the Study Team on Nuclear Emergency Preparedness Measures, and presented a draft of the revised Nuclear Emergency Response Guidelines at the NRA Commission Meeting on January 30. Following public comments the same day, a revised set of Guidelines was agreed at the NRA Commission Meeting on February 27 (see Chapter 5, Section 1).

12. Study Team on Emergency Monitoring

The Operational Intervention Level (OIL), which is necessary to judge whether to implement protective actions in the event of a nuclear disaster, is determined by radiation dose rates measured in an emergency. Therefore, accurate emergency monitoring needs to be conducted properly. The Study Team of Commissioner Nakamura, external experts, and NRA Secretariat officials held five meetings starting on December 17, 2012 to discuss how to build an effective emergency monitoring system. Specifically, they discussed the roles of respective organizations and division of work among them, plans for conducting emergency monitoring, and the functions and structure of the Emergency Monitoring Center. They also sought opinions on cooperation to emergency monitoring from nuclear operators. The discussions were compiled on March 11, 2013 (see Chapter 5, Section 1).

13. Study Team on Nuclear Security

This Study Team, consisting of Commissioner Oshima, external experts, and officials of the NRA Secretariat discussed immediate problems on nuclear security in a broad context, with the aim of steadily strengthening Japan's nuclear security and contributing to overall international security.. At a first meeting on March 4, 2013, they reviewed past discussions and efforts in the field as well as a forthcoming agenda. (see Chapter 5, Section 4).

14. Supervision and Evaluation Committee for the Evaluation of Seawater Inflow into Unit 5 of the Hamaoka NPS

The seawater inflow into the reactor facilities at Unit 5 of Hamaoka NPS, Chubu Electric Power Co., Inc. on May 14, 2011 was a rare event worldwide with potentially serious consequences. Therefore, the Committee of Commissioner Fuketa, external experts, and NRA Secretariat officials,

has supervised and evaluated the effects of the seawater inflow and the subsequent maintenance of equipment and instruments by the relevant nuclear operator. At the first meeting on February 1, 2013, they confirmed the results of past checkups and the basic approach for future discussions.

15. Commission on Evaluation of Incorporated Administrative Agencies

The NRA Commission on Evaluation of Incorporated Administrative Agencies (hereinafter referred to as the “Evaluation Commission”), which consists of external experts, was established based on the Act on General Rules for Incorporated Administrative Agency (Act No. 103 of 1999). Its purpose is to evaluate the performance of incorporated administrative agencies under the jurisdiction of the NRA (as of FY2012, the whole of the affairs of the JNES and part of the affairs of the NIRS). The first Evaluation Commission meeting was held on December 20, 2012, and operational rules and the setting up of the Task Force were determined.

The meeting of the JNES Task Force set up in the Evaluation Commission was held on the same day and they discussed amendments to the third mid-term goal and the third mid-term plan of the JNES.

Chapter 4 Initiatives for Ensuring the Safety of Nuclear Facilities

Section 1 Initiatives for Ensuring the Safety of TEPCO's Fukushima Daiichi NPS

1. Designation as "Specified Nuclear Power Facilities" under the Reactor Regulation Act

The earthquake that occurred off the Pacific coast of the Tohoku region on March 11, 2011 and subsequent tsunami caused a nuclear accident, including core damage, at TEPCO's Fukushima Daiichi NPS. Emergency measures were taken to cope with the resultant hazardous situation based on Article 64, paragraph (1) of the Reactor Regulation Act.

It is anticipated that TEPCO's Fukushima Daiichi NPS will need to be placed under special management in the future. Therefore, the NRA designated TEPCO's Fukushima Daiichi NPS as specified nuclear power facilities on November 7, 2012, based on Article 64-2, paragraph (1) of the Reactor Regulation Act. Based on paragraph (2) of said Article, the NRA required the relevant licensee to submit a plan to implement measures for the operational safety of the facilities (implementation plan), while indicating matters for which the measures should be taken (Table 7) and the time limit therefor.

On December 7, 2012, the NRA received the implementation plan prepared by TEPCO based on Article 64-3, paragraph (1) of the Reactor Regulation Act.

Upon receipt of the implementation plan, the NRA established the Supervision and Evaluation Committee for the Specified Nuclear Power Facilities, and the Committee has been examining, while referring to the results of site inspection, whether the measures being taken are appropriate i.e. the necessary safety requirements for each of the facilities (see Figure 2).

Table 7 Main Points of necessary measures

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| <ol style="list-style-type: none">(1) With the goal of completing fuel removal as promptly as possible and reducing risks of the specified nuclear power facilities as a whole, thereby ensuring safety inside and outside the premises, measures should be taken promptly and efficiently.(2) Regarding Units 1 to 4, decommissioning measures, including removal and storage of melted fuel rods, should be completed as early as possible, while ensuring safety in the process.(3) Regarding Units 5 and 6, the cold shutdown status should be maintained stably.(4) Workers' exposure doses should be ascertained and managed. |
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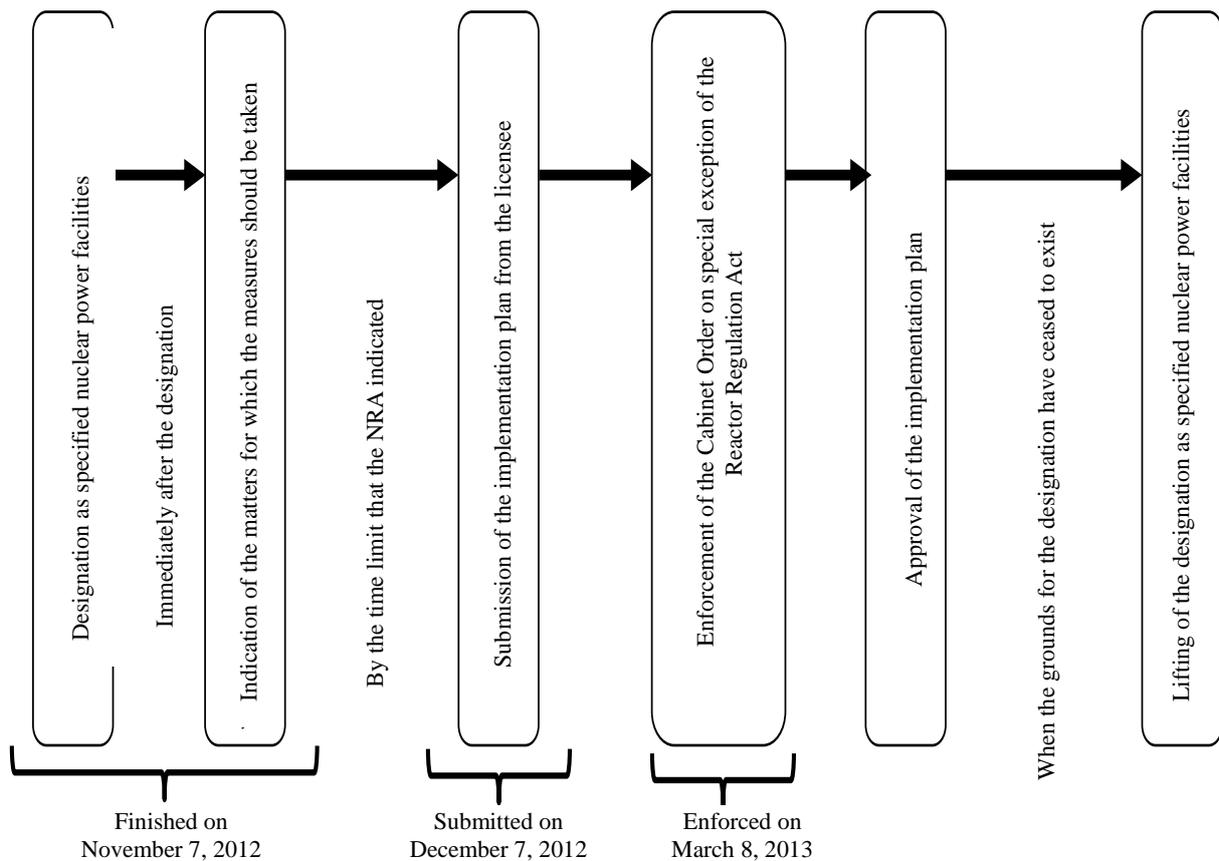


Figure 2 Action Scheme for Specified Nuclear Power Facilities and Progress

Article 64-4 of the Reactor Regulation Act provides that only part of the provisions of said Act may be applied to the facilities, as specified by Cabinet Order, as long as measures for operational safety are implemented in accordance with the implementation plan. On March 8, 2013, the Cabinet Order on Special Provisions of the Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors for TEPCO’s Fukushima Daiichi NPS Facilities, which specifies such partial application, was put into force. These provisions will be applied to TEPCO’s Fukushima Daiichi NPS following approval of the implementation plan. With regard to the Ordinance and the Public Notices of the NRA that need to be amended upon the application of the abovementioned Cabinet Order, public comments were sought for a draft of the Ordinance from February 14 to March 15 and for drafts of the Public Notices from February 21 to March 17.

2. Responses to Accidents and Troubles

Based on Article 25 of the Act on Special Measures Concerning Nuclear Emergency Preparedness, nuclear operators are required to make appropriate emergency responses to any incident and report them to the competent minister. Based on this Act, TEPCO reported to the NRA which checked the

validity of TEPCO's prevention measures particularly for any fallout effects on the stable operation of the facilities, leakage of water containing radioactive materials out of the system, and other possible impacts.

○ Fall of a steel beam into the spent fuel pool in Unit 3

On September 22, 2012, during rubble removal work on the operating floor of the reactor building of Unit 3 (upper floor of the reactor building), a steel beam fell into the spent fuel pool. In response, the NRA requested TEPCO to clarify the cause, prepare future preventative measures, and to assess the impact to the spent fuel and the spent fuel pool. The NRA confirmed that TEPCO's responses were correct and the nuclear safety inspector and other on-site officials confirmed that recurrence prevention measures were being taken.

○ Leakage of water containing radioactive materials in Unit 3 turbine building

On August 14, 2012, water containing radioactive materials leaked from the transfer line (pressure hose) in Unit 4 turbine building, and on October 15, water leakage occurred again in the same transfer line in Unit 3 turbine building. Considering the fact that water leakage occurred in the same transfer line, the NRA requested TEPCO to clarify the cause and prepare recurrence prevention measures. The NRA confirmed that TEPCO's responses were correct but also requested TEPCO to make a report after completing the measures. The NRA will confirm the contents of the submitted report and instruct the on-site nuclear safety inspector to check the results of the measures.

○ Water leakage from the vent line of the 2nd cesium adsorption equipment (Sally)

On November 20, 2012, water leaked from the vent line installed outside the east side of the high temperature incinerator building. The NRA queried TEPCO about the cause and recurrence prevention measures and confirmed that the measures were appropriate. The NRA received and confirmed a TEPCO report on the completion of the measure. The on-site nuclear safety inspector checked the results of the measures.

○ Suspension of facility operation due to blackout

On March 18, 2013, a blackout occurred in part of the power-supply system. Due to this blackout, the alternative cooling system for the spent fuel pool, the cooling system for the shared pool of spent fuel, part of the gas control system for Unit 3 containment vessel, the cesium adsorption equipment, and part of the nitrogen gas transfer unit stopped operations. As a result of the investigation, charred parts were discovered in the switchboard and the body of a small animal was found on the floor nearby. TEPCO concluded that the animal may have touched the conduction system which triggered a short circuit and subsequent blackout.

The NRA received a TEPCO report, observed the company's responses, monitored the cooling of the reactor and finally confirmed that there are no safety abnormalities.

The NRA requested TEPCO to clarify the causes of these events and prepare appropriate counter measures. The Supervision and Evaluation Committee for the Specified Nuclear Power Facilities, which examines implementation plans for specified nuclear power facilities, also began deliberations on the validity of these responses.

3. Investigation into Causes of the Accident

One of the NRA's most significant roles will be to continue efforts to clarify the causes of the accident at TEPCO's Fukushima Daiichi NPS. The NRA will produce technical verification based on both medium and long-term investigations of the inside of the reactors.

TEPCO investigated the inside of Unit 1 reactor containment vessel in October 2012 and investigated the high-dose areas within the Unit 3 reactor building by using a robotic camera in November 2012. TEPCO has been sequentially conducting further investigations into the inside of the containment vessels and reactor buildings and the NRA has received the results thereof.

At the NRA Commission Meeting on March 27, 2013, the Study Committee on Analysis of TEPCO's Fukushima Daiichi NPS Accident, consisting of Commissioner Fuketa, external experts, and officials of the NRA Secretariat, JNES, and the Secretariat of the Nuclear Safety Research Center of the JAEA, was set up to address the need to clarify technical issues and it was determined that studies should be continued over the medium to long term.

4. Discussions on Health Controls of Nearby Residents

Following the accident, surveys on residents' health controls in response to the accident were conducted by Fukushima prefecture and other relevant organizations. Their respective roles in implementing health management surveys are specified in the Act on Special Measures for Fukushima Reconstruction and Revitalization (Act No. 25 of 2012) and other related laws and regulations. To ensure smooth implementation of ex post facto measures, and for the purpose of providing necessary suggestions and recommendations on health controls to the relevant administrative organs, the Study Team on Health Controls of the Residents related to the Fukushima Daiichi NPS Accident held five discussions and compiled a summary on February 19, 2013. Based on this, the NRA had further discussions and compiled suggestions on March 6 concerning such matters as (1) ascertaining external exposure doses and measurement of internal exposure doses using whole body counters (WBCs) immediately after the accident and in the longer term, (2) ascertaining health conditions through thyroid testing and health checkups, and (3) the system for implementing health management surveys (Table 8).

Table 8 Main Points of Proposed Health Controls for Nearby Residents

(1) Ascertaining exposure doses

- External exposure doses immediately after the accident should be estimated as accurately as possible by thoroughly investigating individuals' behaviors.
- With regard to long-term external exposure, effective doses, which usually fall below values estimated from air dose rates, are more significant. Therefore, external exposure doses should be measured continuously with personal integrating dosimeters.
- The measurement of internal exposure doses using WBCs now being conducted should be continued.

(2) Ascertaining health conditions

- Measurement results of thyroid testing should be evaluated regularly.
- Ordinary preventive healthcare measures should be further enhanced through utilizing the existing system of health checkups, etc. in Fukushima, in such a manner as to provide residents with annual health checkups and preparing health consultation services.
- It is necessary to promote epidemiological study.

(3) Implementation system

- As health controls of residents will need to be continued for years, efforts should be made under the initiative of the national government and in cooperation among prefectures, municipalities, regional medical associations and institutions, in a responsible and sustainable manner to ensure residents' good health.

Section 2 Review of Regulatory Requirements

1. Revision of the Reactor Regulation Act in Response to TEPCO's Fukushima Daiichi NPS Accident

In response to the accident at TEPCO's Fukushima Daiichi NPS, the Reactor Regulation Act was revised by the Supplementary Provisions of the Act for Establishment of the Nuclear Regulation Authority (June 2012), for the purpose of introducing new regulations based on 'lessons learned' availability of the latest technical knowledge, as well as trends of overseas regulations, including regulatory requirements specified by international organizations such as the International Atomic Energy Agency (IAEA). The main points of the revision include (1) strengthening countermeasures against severe accidents, (2) adoption of the latest technical knowledge and introduction of the backfit system under which already authorized nuclear facilities are also required to conform to new regulatory requirements, (3) introduction of an approval system for the extension of operational periods, and (4) integration of all safety regulations on power reactors into the Reactor Regulation Act.

2. Efforts for Establishing New Regulatory Requirements

New regulations on power reactors will come into force on a day specified by Cabinet Order within a period not exceeding ten months from the effective date of the Act for Establishment of the Nuclear Regulation Authority (by July 18, 2013). New regulations for other facilities (such as nuclear fuel facilities) shall come into force on a day specified by Cabinet Order within a period not exceeding one year and three months from the effective date of the same Act (by December 18, 2013).

Concerning enforcement of new regulations on power reactors, the Study Team on the New Regulatory Requirements for Light Water Power Reactors, the Study Team on the New Regulatory Requirements for Light Water Nuclear Power Plants (Earthquakes and Tsunamis), and the Study Team on Establishment of New Safety Regulations for Light Water Nuclear Power Plants were set up and discussions were held on the requirements and other matters concerning power reactors.

The Study Team on the New Regulatory Requirements for Light Water Power Reactors discussed the tightening of the conventional design basis and requirements for countermeasures against severe accidents, while the Study Team on the New Regulatory Requirements for Light Water Nuclear Power Plants (Earthquakes and Tsunamis) discussed the design basis against earthquakes and tsunamis. The discussions were held to establish the highest safety regulations in the world, based on probabilistic risk assessment and also taking into consideration applicable external events in light of the lessons we learnt from the TEPCO's Fukushima accident and with reference to overseas regulatory requirements.

Public comments were sought from February 7 to 28, 2013, with regard to the draft of the new regulatory requirements compiled through these discussions (Table 9). They were reviewed by the Study Teams, and various amendments were adopted such as specifying detailed requirements for

functions of tsunami protection facilities against design basis earthquake ground motions.

The Study Team on Establishment of New Safety Regulations for Light Water Nuclear Power Plants discussed issues shown in Table 10 and conducted hearings with organizations subject to regulation.

Table 9: Main Points of Draft New Regulatory Requirements for Light Water Power Reactors

Main Topic	Draft New Regulatory Requirements
Tightening of design basis	<ul style="list-style-type: none"> • Natural disasters such as tornados, forest fire, etc.to be taken into consideration in designing facilities • Strengthen and thoroughly ensure fire protection measures • Strengthen the trustworthiness of safety equipment • Strengthen external power supplies • Physical protection of systems to allow heat dissipation
Countermeasures against severe accidents (measures to prevent core damage)	<ul style="list-style-type: none"> • Measures to be taken when failing to shut down nuclear reactors by ordinary procedures • Measures to be taken when losing the functions to cool down and reduce pressure of reactors • Measures to be taken when losing functions of the ultimate heat sinks • Ensuring support functions (power supply, water, etc.)
Countermeasures against severe accidents (measures to prevent damage of containment vessel)	<ul style="list-style-type: none"> • Measures for cooling down and reducing atmospheric pressure and reducing radioactive materials in containment vessels (containment spray system) • Measures for preventing damage due to pressure increase of containment vessels (filter vent) • Measures for cooling down reactor cores that have melted down on the bottom of containment vessels • Measures for preventing hydrogen explosions in containment vessels • Measures for preventing hydrogen explosions in reactor buildings • Measures for cooling down spent fuel storage pools
Countermeasures against intentional aircraft collision, etc.	<ul style="list-style-type: none"> • Develop facilities (specified safety facilities) that can be used in the event of core damage caused by a terror attack, such as an intentional aircraft collision
Measures to curb spread of radioactive materials outside the premises	<ul style="list-style-type: none"> • Request to install outdoor watering equipment, etc. in preparation for any damage to containment vessels
Strengthening of standards concerning tsunamis	<ul style="list-style-type: none"> • Specify tsunamis exceeding the largest-ever level as ‘standard tsunamis,’ and request installation of tsunami protection facilities, such as seawalls, as countermeasures against such standard tsunamis
Expansion of facilities to require high quake resistance	<ul style="list-style-type: none"> • Categorize facilities that have protective functions against tsunamis into Class S, the same category as reactor pressure vessels, for which the highest quake resistance is required in designing, in order to ensure that functions to prevent water intrusion, etc. would not be lost due to earthquakes
Tightening of standards for determining capable faults	<ul style="list-style-type: none"> • When determining capable faults to be taken into consideration in aseismic design, evaluate the activity of faults back to the middle Pleistocene epoch (approx. 400 million years ago), as necessary

Main Topic	Draft New Regulatory Requirements
Tightening of design basis	<ul style="list-style-type: none"> • Natural disasters such as tornados, forest fire, etc.to be taken into consideration in designing facilities • Strengthen and thoroughly ensure fire protection measures • Strengthen the trustworthiness of safety equipment • Strengthen external power supplies • Physical protection of systems to allow heat dissipation
Countermeasures against severe accidents (measures to prevent core damage)	<ul style="list-style-type: none"> • Measures to be taken when failing to shut down nuclear reactors by ordinary procedures • Measures to be taken when losing the functions to cool down and reduce pressure of reactors • Measures to be taken when losing functions of the ultimate heat sinks • Ensuring support functions (power supply, water, etc.)
Countermeasures against severe accidents (measures to prevent damage of containment vessel)	<ul style="list-style-type: none"> • Measures for cooling down and reducing atmospheric pressure and reducing radioactive materials in containment vessels (containment spray system) • Measures for preventing damage due to pressure increase of containment vessels (filter vent) • Measures for cooling down reactor cores that have melted down on the bottom of containment vessels • Measures for preventing hydrogen explosions in containment vessels • Measures for preventing hydrogen explosions in reactor buildings • Measures for cooling down spent fuel storage pools
Countermeasures against intentional aircraft collision, etc.	<ul style="list-style-type: none"> • Develop facilities (specified safety facilities) that can be used in the event of core damage caused by a terror attack, such as an intentional aircraft collision
Measures to curb spread of radioactive materials outside the premises	<ul style="list-style-type: none"> • Request to install outdoor watering equipment, etc. in preparation for any damage to containment vessels
Strengthening of standards concerning tsunamis	<ul style="list-style-type: none"> • Specify tsunamis exceeding the largest-ever level as ‘standard tsunamis,’ and request installation of tsunami protection facilities, such as seawalls, as countermeasures against such standard tsunamis
Expansion of facilities to require high quake resistance	<ul style="list-style-type: none"> • Categorize facilities that have protective functions against tsunamis into Class S, the same category as reactor pressure vessels, for which the highest quake resistance is required in designing, in order to ensure that functions to prevent water intrusion, etc. would not be lost due to earthquakes
Setting of more accurate design basis earthquake ground motions	<ul style="list-style-type: none"> • Ascertain subsurface structures at NPS sites in three dimensions
Clarification of standards for ground shifts and deformation, in addition to those for quakes	<ul style="list-style-type: none"> • Construct buildings and structures categorized into Class S on ground where there are no capable faults underneath

Table 10 Major Topics of the Study Team on Establishment of New Safety Regulations for Light Water Nuclear Power Plants

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| <ol style="list-style-type: none">(1) To make contents of the attachment be stated in the main text of the application for permission to establish a facility(2) To require notification for part of the matters for permission for changes to establishment of facilities(3) Regarding certification of types of specified equipment(4) Regarding methods for quality control concerning designing and construction work, and technical standards for the organization for inspection(5) Integration of the safety regulations on power reactor facilities into the Reactor Regulation Act |
|---|

It was decided at the NRA Commission meeting on February 27, 2013, that new regulatory requirements for the Fast Breeder Reactor “Monju” should be developed separately from other power reactors. This would strengthen the enforcement of the revised Act in July, basically based on the new regulatory requirements for light water reactors. It was agreed further discussions should be held separately on unique safety issues for fast breeder reactors covering both the medium to long terms.

Regarding new draft regulatory requirements for nuclear fuel facilities it was decided at the NRA Commission meeting on March 27, 2013, that the Study Team on New Regulatory Requirements for Nuclear Fuel Facilities consisting of Commissioner Fuketa, external experts, officials of the NRA Secretariat, JNES and the Secretariat of the Nuclear Safety Research Center of JAEA, should be established.

The March 19, 2013 NRA Commission meeting, recognizing the importance of on-going efforts for enhancing safety, discussed basic policy for strengthening the backfitting system and operating it regularly to become familiar with the system and avoid confusion and potential accidents. It was also decided that when introducing new regulatory requirements, a basic transitional period should be granted before enforcement of the new requirements and that final judgement on their efficacy be made prior to the renewed commencement of operations.

3. Initiation of the Approval System for the Extension of Operational Periods

In addition to the introduction of the abovementioned new regulatory requirements, the approval system for the extension of operational periods is also to be introduced. The working life of power reactors will be set at 40 years, but subject to approval, this may be extended once only for a further 20 years. This basic policy was decided at the February 27, 2013 NRA meeting which underlined that in deciding any extension period, the status of the relevant plant must be ascertained and confirmed in detail including prevailing technical standards and anticipated deterioration during this extended period.. Furthermore, it was decided to require the maintenance policy for the extended period to be included in any application, paying particular attention to preventative measures against aging.

Regarding commercial power reactors which have been in operation for thirty years or more, decennial deterioration assessment and preparation of a long-term maintenance policy are already

required, based on the Reactor Regulation Act and other Acts. This has been one of the requirements for approval of safety measures (system for responding to facility aging). In order to discuss necessary adjustments for introducing new regulatory requirements, it was decided at the NRA Commission meeting on January 23, 2013, that applications for approval of safety measures pertaining to the system for responding to facility aging, which are expected to be filed by nuclear operators before the enforcement of new regulatory requirements, should not be allowed until said Act is put into force.

Section 3 Investigations of Fracture Zones in NPS Sites

At the Commission meetings on September 26 and October 17, 2012, the NRA decided to conduct site inspection and evaluation regarding six NPSs (Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc. (hereinafter referred to as “Tohoku Higashidori NPS” in this section), Shiga Nuclear Power Station, Hokuriku Electric Power Company, Mihama Nuclear Power Station and Ohi Power Station, Kansai Electric Power Co., Inc. (the latter shall be referred to as “Ohi Power Station” in this section), Tsuruga Nuclear Power Station, the Japan Atomic Power Company (hereinafter referred to as “Tsuruga NPS” in this section), and the Fast Breeder Reactor “Monju,” JAEA), for which the former Nuclear and Industrial Safety Agency had directed additional investigations regarding whether or not the fracture zones within the premises have been active in recent years.

Upon commencing the investigations, expert meetings were set up for each NPS, consisting of Commissioner Shimazaki and four academic experts who are well-versed in the recognition and investigations of capable faults and the preparation of investigation plans. These experts have not been involved in safety assessment (including seismic back checks² and secondary assessment³) for respective facilities but were recommended by four related academic societies (the Japanese Society for Active Fault Studies, Geological Society of Japan, Japan Association for Quaternary Research, and Seismological Society of Japan).

In FY2012, expert investigations were conducted for Ohi Power Station, Tsuruga and Tohoku Higashidori NPSs.

1. Ohi Power Station

The Expert Meeting on Investigation of Fracture Zones at the Ohi Power Station, Kansai Electric Power Co., Inc. confirmed earlier developments at its preliminary meeting, and then conducted a three-day site inspection three evaluation meetings.

Based on the results of a second site inspection (on December 28 and 29, 2012), an evaluation was held on January 16, 2013. However, members could not reach an agreement concerning whether the fracture zone observed in the Daibahama trench had resulted from landslides or fault movement. They decided to hold another evaluation meeting after fully examining and analyzing the results of a bore investigation to be conducted later and also to conduct a trench investigation at the southern part of the premises.

²Reconfirmation of the aseismic safety of existing nuclear facilities in response to the revision of the seismic design standard established by the former Nuclear and Industrial Safety Agency and the former Nuclear Safety Commission in 2006

³Assessment by the former Nuclear Safety Commission of the results of safety assessment conducted by the former Nuclear and Industrial Safety Agency

2. Tsuruga NPS

The Expert Meeting on Investigation of Fracture Zones at the Tsuruga Nuclear Power Station confirmed earlier developments at a preliminary meeting and then conducted a two-day site inspection and held two evaluation meetings.

Following the site inspection and evaluation meetings, a draft of the evaluation report suggesting that the fracture zone immediately beneath Unit 2 is highly likely to be a capable fault was mostly approved on January 28, 2013. On March 8, a peer review meeting was held to seek opinions on the draft from experts and the evaluation report will be compiled incorporating their views.

3. Tohoku Higashidori NPS

The Expert Meeting on Investigation of Fracture Zones at Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc. confirmed earlier developments at a preliminary meeting and then conducted a two-day site inspection and held three evaluation meetings.

At the time of the site inspection and at the first and second evaluation meetings, members generally agreed that the fracture zones at the site are highly likely to be capable faults, and at the third evaluation meeting on February 18, 2013, a draft evaluation report was generally approved.

Section 4 Status of Examinations and Inspections

1. Examinations after the Enforcement of the New Regulations

At the NRA Commission meeting on March 19, 2013, basic policy toward the enforcement of the new regulations was discussed and the method of examinations after enforcement was approved.

It was decided that applications for permission for changes to establishment of facilities, approval of construction plans, and of safety measures should be accepted simultaneously. This will facilitate simultaneous examinations both from the hardware and software sides. Inspections should be conducted after finishing examinations. Regarding power plants where investigations of fracture zones are underway (see Section 3), a general consensus of opinion at the NRA will be the baseline for beginning examinations.

Regarding plants that have been before the introduction of the new regulations, confirmation work shall be started immediately after the details of the new regulatory requirements are determined to ascertain to what extent these plants conform to the new requirements.

2. Status of Examinations and Inspections

Based on the Reactor Regulation Act, the NRA has implemented necessary regulations on fuel facilities, research and test reactor facilities, commercial power reactor facilities, reactor facilities still in the stage of research and development (Monju and Fugen), spent fuel interim storage facilities, reprocessing facilities, waste disposal facilities, waste storage facilities, facilities where nuclear fuel material, etc. is used, as well as on disposal and transport, and outside factories or places of activity concerning nuclear fuel material..

During the period from September 19, 2012 to March 31, 2013, the NRA conducted examinations and inspection as shown in Table 11.

**Table 11 Status of Examinations and Inspections
(From September 19, 2012 to March 31, 2013)**

Facility type		Number
Fuel facilities (6)	Approval of changes for design and construction methods	5
	Pass of pre-operation test	3
	Approval of welding methods	1
	Periodic facility inspection	2
	Approval of safety measures or approval of changes	2
	Operational safety inspection	12
Research and test reactor facilities (6) (under decommissioning procedures: 8)	Approval of design and construction method	2
	Approval of changes to design and construction method	2
	Pass of pre-operation test	1
	Approval of welding method	2
	Operational safety inspection	22
Commercial power reactor facilities (17) (under decommissioning procedures: 2)	Approval of construction plan	2
	Submission of construction plan and changes to such plans	10
	Pass of pre-operation test	17

	Pass of fuel assembly inspection	15
	Approval of fuel assembly design	3
	Evaluation concerning welding operator test	45
	Approval of safety measures or approval of changes	7
	Operational safety inspection	68
	Approval of changes to decommissioning plan	1
	Instruction of omission of pre-operation test	1
	Instruction of omission of fuel assembly inspection	2
	Approval of facilities under special design	1
	Approval of special processing of fuel assembly	1
Reactor facilities still in the research and development stage (Monju and Fugen) (under construction: 1) (under decommissioning procedures: 1)	Periodic facility inspection	1
	Approval of safety measures or approval of changes	1
	Operational safety inspection	5
Spent fuel interim storage facility (under construction: 1)	Approval of welding method	1
Reprocessing facilities (2)	Approval of design and construction method	2
	Approval of changes to design and construction method	1
	Pass pre-operation test	1
	Approval of welding method	1
	Periodic facility inspection	1
	Operational safety inspection	4
Category 2 waste disposal facilities (2)	Confirmation concerning waste disposal facilities	2
	Operational safety inspection	4
Waste storage facilities (2)	Pass of pre-operation test	1
	Periodic facility inspection	1
	Operational safety inspection	4
Facilities where nuclear fuel material, etc. is used (15)	Permission for use	1
	Permission for changes of use	23
	Pass of facility inspection	2
	Approval of safety measures or approval of changes	2
	Operational safety inspection	30
Disposal and transport, etc. outside factories or places of activity concerning nuclear fuel material.	Approval of design of nuclear fuel package	4
	Approval of transport container	5

* As of March 31, 2013, there were no facilities that had received designation or permission for business of a refining facility and a Category 1 waste disposal facility.

As a result of the third operational safety inspection for FY2012, it was found that at Fast Breeder Reactor “Monju,” JAEA, a considerable amount of equipment, including one categorized as Class 1, the category most significant in terms of safety, had not been inspected in line with the maintenance plan, exceeding the lime limit for operational safety inspection. On December 12, 2012, the NRA concluded that the maintenance of the nuclear reactor had not been implemented properly. It decided to order JAEA to immediately conduct an inspection of unchecked, time-expired equipment , a review of its maintenance plan and to also analyze the fundamental causes, including organizational factors and corporate culture, and formulate stronger, recurrent prevention measures. The NRA also requested MEXT, which holds jurisdiction over JAEA, to make a response concerning

evaluation and other measures on this matter.

The NRA subsequently received a report from JAEA on January 31, 2013, concerning the status of unchecked equipment, analysis of the causes, and proposed recurrence prevention measures. It also received a response from MEXT. The NRA conducted a site inspection on February 14-15, and the fourth operational safety inspection for FY2012 from March 4 to 22, to look into the matter and ascertain organizational factors.

Section 5 Accidents and Malfunctions

The Reactor Regulation Act requires nuclear operators to report any accidents and malfunctions at their nuclear facilities to the NRA in order to ensure safety of nuclear facilities.

During the period from September 19, 2012 to March 31, 2013, there were seven accidents or malfunctions reported by nuclear operators to the NRA based on the Reactor Regulation Act. Four were at commercial power reactor facilities and three were at research and test reactor facilities and facilities where nuclear fuel material is used. No reports were made from research and development reactors (Monju and Fugen) and other nuclear facilities (fuel facilities, reprocessing facilities, waste disposal facilities, and waste storage facilities) (see Table 12).

**Table 12 List of Accidents and Malfunctions at Nuclear Facilities
(From September 19, 2012 to March 31, 2013)**

Date ^(Note 1)	Facility Name	Outline	INES ^(Note 2)
(1) Commercial power reactor facilities			
11.30	Tokai Daini NPS, Japan Atomic Power Company	<p>[Leakage of radioactive materials to a non-controlled area]</p> <p>When transporting waste liquid generated from a test of the cement solidification apparatuses at Tokai Daini NPS, the liquid containing a small amount of radioactive materials leaked within the premises of the NPS (a non-controlled area). The liquid was removed immediately after being detected.</p> <p>The event may have been caused due to insufficient checking of the outer appearance as there are no clear rules on transport within the NPS. The nuclear operator made a report to the NRA on February 15 to the effect that the operator would take measures such as revising work instructions and providing case training to contractors.</p>	0- (provisional)
12.12	Unit 5 at Kashiwazaki-Kariwa NPS, TEPCO	<p>[Touching of fuel rods in the fuel assemblies]</p> <p>On October 16, when inspecting the fuel assembly channel box at Unit 5 at Kashiwazaki-Kariwa NPS, bends were found in water rods in two fuel assemblies. As a result of detailed inspection using a fiber-optic camera, it was confirmed that part of the fuel rods in one of these two fuel assemblies touched other fuel rods.</p> <p>The causes are under investigation as of March 31.</p> <p>The NRA directed all operators that have installed boiling-water reactors to inspect fuel assemblies. Sample investigations reported by March 31 revealed abnormalities in fuel assembly water rods at Unit 1 (see the event on March 19 below), Unit 2, and Unit 5 at this NPS. At Unit 2, fuel rods touching other fuel rods have not been found.</p>	1 (provisional)
2.6	Unit 1 at Mihama NPS, Kansai Electric Power Co., Inc.	<p>[Malfunction of an emergency diesel generator]</p> <p>On February 5, during a loading test of the A-emergency diesel generator, at Unit 1 at Mihama NPS, smoke was generated from around the supercharger. Personnel stopped the generator</p>	0- (provisional)

		<p>manually.</p> <p>As a result of visual inspection, multiple metal fragments were found at the bottom of the supercharger and there was an opening because the flange at the supercharger vent had come off. When looking inside of the supercharger using a fiber-optic camera, it was confirmed that part of the turbine rotor was damaged.</p> <p>On March 18, the nuclear operator reported the causes to the NRA and proposed measures to be taken. As of March 31, the NRA was evaluating this report.</p>	
3.19	Unit 1 at Kashiwazaki-Kariwa NPS, TEPCO	<p>[Contact of part of the fuel rods in the fuel assemblies]</p> <p>In response to the discovery that bends were found in water rods at Unit 5 at Kashiwazaki-Kariwa NPS (the event on December 12 above), inspection of fuel assemblies was conducted for all Units, and it was confirmed that some fuel rods touched each other in Unit 1.</p> <p>The causes were under investigation as of March 31.</p>	1 (provisional)
(2) Research and development reactor facilities (Monju and Fugen)			
/			
(3) Research and test reactor facilities and facilities where nuclear fuel material, etc. is used ^(Note 3)			
10.25	Japan Materials Testing Reactor(JMTR), Oarai Research and Development Center (North District), JAEA	<p>[Leakage of radioactive materials in a non-controlled area]</p> <p>On October 19, when the nuclear operator conducted a voluntary inspection to confirm the integrity of parts of the facility from the waste liquid tank of the spent fuel cutting pool to a waste liquid transfer tube, a water bleed was found on the surface of the transfer tube in a non-controlled area. As a result of detailed measurement, a small amount of radioactive materials was detected.</p> <p>The leakage from said transfer tube stopped once the transfer pump was immediately halted after discovery of the leakage.</p> <p>The causes were under investigation as of March 31.</p>	0 (provisional)
11.9	Japan Materials Testing Reactor (JMTR), Oarai Research and Development Center (North District), JAEA	<p>[Leakage of radioactive materials to a non-controlled area]</p> <p>On November 8, when the nuclear operator conducted a voluntary inspection to confirm the integrity of the waste liquid pipe in a non-controlled area, a water bleed was found on the surface of the pipe. Measurements showed a small amount of radioactive material.</p> <p>The leakage from said pipe stopped when the affected part was immediately repaired with silicone tape.</p> <p>The causes were under investigation as of March 31.</p>	0 (provisional)
1.4	Refining and Conversion Facility Ningyo-toge Environmental Engineering Center, JAEA	<p>[Leakage of radioactive materials to a non-controlled area]</p> <p>On January 4, when personnel were patrolling the refining and conversion facility (where nuclear fuel material is used), a water bleed was found at the exhaust air duct in a non-controlled area. Measurements showed a small amount of radioactive material.</p> <p>The leakage from said exhaust air duct was halted when plastic sheets were immediately applied to the</p>	0 (provisional)

		affected part. The causes were under investigation as of March 31.	
(4) Other nuclear facilities (fuel facilities, reprocessing facilities, waste disposal facilities, and waste storage facilities)			

Note 1 Date on which a report was made based on the Reactor Regulation Act

Note 2 INES is the indicator established by the IAEA and OECD/NEA⁴, with the aim of clearly indicating what individual accidents and troubles at nuclear facilities mean in terms of safety. Japan adopted this indicator in 1992. INES evaluation is conducted in line with the INES User's Manual 2008.

Evaluation levels range from Level 0 (no safety significance) to Level 7 (major accident). For nuclear power stations, troubles categorized into Level 0 are further classified into Level 0- (events with no effect on safety) and Level 0+ (events that may affect safety).

Note 3 Facilities where nuclear source material and nuclear fuel material are used.

⁴ Nuclear Energy Agency, the Organization for Economic Co-operation and Development

Section 6 Status of Major Nuclear Facilities

The status of major nuclear facilities from September 19, 2012 to March 31, 2013 is shown in Table 13.

**Table 13 Status of Major Nuclear Facilities
(September 19, 2012 - March 31, 2013)**

Tomari NPS, Hokkaido Electric Power Co., Inc.			
All reactor operations were suspended during the following periods.			
		Implementation Period	Results/Others
Periodic Inspection	Unit 1	April 22, 2011 - (underway)	
	Unit 2	August 26, 2011 - (underway)	
	Unit 3	May 5, 2012 - (underway)	
Operational Safety Inspection	The 3rd	November 26 - December 7, 2012	No particular safety concerns
	The 4th	February 25 - March 8, 2013	No particular safety concerns
	Operational safety inspection for behavior with potentially dangerous effects (Unit 1)	March 12 - March 18, 2013	No particular safety concerns
		March 15 - March 21, 2013	No particular safety concerns

Higashidori NPS, Tohoku Electric Power Co., Inc.			
All reactor operations were under suspended during the following periods.			
		Implementation Period	Results/Others
Periodic Inspection	Unit 1	February 6, 2011 - (underway)	
	Operational Safety Inspection	The 3 rd inspection	November 26 - December 7, 2012
The 4 th inspection		February 18 - March 1, 2013	No particular safety concerns
Others	Since November 2012, the inspections of the on-site fracture zone are underway (see Section 3).		

Onagawa NPS, Tohoku Electric Power Co., Inc.			
All reactor operations were suspended during the following periods.			
		Implementation Period	Results/Others
Periodic Inspection	Unit 1	September 10, 2011 - (underway)	
	Unit 2	November 6, 2010 - (underway)	
	Unit 3	September 10, 2011 - (underway)	
Operational Safety Inspection	Operational safety inspection for a variety of potentially dangerous situations (Unit 1)		
		November 13 - 16, 2012	No particular safety concerns
		February 12-19, 2013	No particular safety concerns
	The 3 rd inspection	December 3 - 14, 2012	No particular safety concerns

	The 4 th inspection	March 4-15, 2013	No particular safety concerns
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Fukushima Daiichi Nuclear Power Station, Tokyo Electric Power Co. Inc. (see Section 1)

All reactors were under suspension during the following periods.
 Units 1-4 were abolished pursuant to the Electricity Business Act on April 19, 2012.
 On November 7, 2012, designated as the “Specified Nuclear Power Facilities.”
 On December 7, 2012, received an “operational plan.”
 Under examination for the approval of the plan.

		Implementation Period	Results/Others
Periodic Inspection	Unit 5	January 3, 2011 (underway)	
	Unit 6	August 14, 2010 (underway)	
Operational Safety Inspection	Operational Safety Inspection for behavior with potentially dangerous effects (Unit 6)		
		November 19 - 28, 2012	No particular safety concerns
	The 3rd inspection	December 3 - 18, 2012	No particular safety concerns
	The 4th inspection	February 25 - March 12, 2013	No particular safety concerns

Fukushima Daini Nuclear Power Station, Tokyo Electric Power Co. Inc.

All reactor operations were suspended during the following periods.

		Implementation Period	Results/Others
Periodic Inspection	Unit 1	Under suspension	The inspection date for Units 1 to 4 is “not yet determined” because of difficulty with inspection due to the impact of the Great East Japan Earthquake (Change of the date for periodic inspection has been approved under the law).
	Unit 2	Under suspension	
	Unit 3	Under suspension	
	Unit 4	Under suspension	
Operational Safety Inspection	The 3rd inspection	December 3 - 18, 2012	No particular safety concerns
	The 4th inspection	February 18 - March 1, 2013	No particular safety concerns

Kashiwazaki-Kariwa NPS, Tokyo Electric Power Co. Inc.

All reactors were under suspension during the following periods.

	Implementation Period	Results/Others
Periodic Inspection	Unit 1	August 6, 2011 – (underway)
	Unit 2	February 19, 2007 – (underway)
	Unit 3	September 19, 2007 – (underway)
	Unit 4	February 11, 2008 – (underway)
	Unit 5	January 25, 2012 – (underway)
	Unit 6	March 26, 2012 – (underway)
	Unit 7	August 23, 2011 – (underway)
Operational Safety Inspection	Operational Safety Inspection for situations with potentially dangerous effects (Unit 1)	
	December 19, 2012 - January 9, 2013	No particular safety concerns
	February 15 - March 12, 2013	No particular safety concerns
	Operational Safety Inspection for behavior with potentially dangerous effects (Unit 7)	
	February 12 - March 4, 2012	No particular safety concerns
	The 3rd inspection	November 30 – December 14, 2012
The 4th inspection	February 25 - March 12, 2013	No particular safety concerns
Accidents and incidents, etc.	On October 16, 2012, the bend of the water rods of the fuel assemblies was confirmed in Unit 5 and fuel rods were touching each other in parts in Unit 5. In a later inspection, the bend of the water rods was confirmed in Unit 2. In Unit 1, water rods were bent and part of the fuel rods were touching each other (see Section 5).	

Tokai NPS, Japan Atomic Power Company

Under decommissioning (in the process of removing all except the reactor and its surrounding area)

	Implementation Period	Results/Others
Operational Safety Inspection	3rd inspection	November 12 – 16, 2012
		December 27, 2012
	4th inspection	February 18 – 22, 2013
		No particular safety concerns

Tokai Daini NPS, Japan Atomic Power Company

All reactor operations were suspended during the following periods.

	Implementation Period	Results/Others
Periodic Inspection	May 21, 2011 – (underway)	
Operational Safety Inspection	The 3rd inspection	December 3 – 14, 2012
	The 4th inspection	March 4 - 15, 2013
		No particular safety concerns

Accidents and incidents, On November 30, 2012, leakage of water containing radioactive materials was found in a non-controlled area and response measures such as decontamination were conducted on the same day. The cause was thought to be insufficient checking of the outer appearance since there were no clear rules on transport within the NPS (see Section 5).

Hamaoka NPS, Chubu Electric Power Co., Inc.

Units 1 and 2 are being decommissioned (preoperational period for dismantling work). During that period, operations at Units 3 to 5 are suspended.

(Units 1 and 2; under decommissioning)

		Implementation Period	Results/Others
Periodic Inspection (facility)	Unit 1	Not an inspection object because of the absence of radioactive fuel materials	
	Unit 2	January 28, 2013 – (underway)	
Operational Safety Inspection	The 3rd inspection	November 26 – 28, 2012	No particular safety concerns
		December 10 – 12, 2012	
	The 4th inspection	February 25 – 28, 2013	No particular safety concerns
		March 11-13, 2013 –	

(Units 3, 4, and 5; operations suspended)

		Implementation Period	Results/Others
Periodic Inspection	Unit 3	November 29, 2010 – (underway)	
	Unit 4	January 25, 2012 – (underway)	
	Unit 5	March 22, 2012 – (underway)	
Operational Safety Inspection	The 3rd inspection	November 26 – December 7, 2012	No particular safety concerns
		December 12, 2012	
	The 4th inspection	February 25 – March 8, 2013	No particular safety concerns

Accidents and incidents	The Supervision and Evaluation Committee for the event of seawater inflow at Unit 5 in 2011 was established in February 1, 2013.
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Shika NPS, Hokuriku Electric Power Company

Operations at all reactors were suspended during the following periods.

		Implementation Period	Results/Others
Periodic Inspection	Unit 1	October 8, 2011 – (underway)	
	Unit 2	March 11, 2011 – (underway)	
Operational Safety Inspection	The 3rd inspection	December 3 – 14, 2012	No particular safety concerns
	The 4th inspection	February 25 – March 8, 2013	No particular safety concerns

Tsuruga NPS, Japan Atomic Power Company

All reactor operations were suspended during the following periods.

		Implementation Period	Results/Others
Periodic Inspection	Unit 1	January 26, 2011 – (underway)	
	Unit 2	August 29, 2011 – (underway)	
Operational Safety Inspection	The 3rd inspection	December 3 – 14, 2012	No particular safety concerns
	The 4th inspection	March 4-15, 2013	No particular safety concerns
Others	The investigation of fracture zones in the NPS site was conducted starting in November 2012 (see Section 3).		

Mihama NPS, Kansai Electric Power Co., Inc.

All reactor operations were suspended during the following periods.

		Implementation Period	Results/Others
Periodic Inspection	Unit 1	November 24, 2010 – (underway)	
	Unit 2	December 18, 2011 – (underway)	
	Unit 3	May 14, 2011 – (underway)	
Operational Safety Inspection	The 3rd inspection	December 3 – 14, 2012	No particular safety concerns
	Operational Safety Inspection for situations with potentially dangerous effects (Unit 3)		
		December 12 – 17, 2012	No particular safety concerns
		December 21 – 26, 2012	No particular safety concerns
	Operational Safety Inspection for situations with potentially dangerous effects (Unit 1)		
		February 8 – 14, 2013	No particular safety concerns
		February 20 -25, 2013	No particular safety concerns
The 4th inspection	February 25 – March 8, 2013	No particular safety concerns	
Accidents and incidents	On February 6, 2013, the breakdown of an emergency diesel generator was confirmed in Unit 1(see Section 5).		

Ohi Power Station, Kansai Electric Power Co., Inc.

During the following periods operations at Units 1 and 2 were suspended. Units 3 and 4 restarted operations after a short break

		Implementation Period	Results/Others
Periodic Inspection	Unit 1	December 10, 2010 – (underway)	
	Unit 2	December 16, 2011 – (underway)	
	Unit 3	March 18, 2011 – August 3, 2012	
	Unit 4	July 22, 2011 – August 16, 2012	
Operational Safety Inspection	3rd inspection	November 26 – December 7, 2012	No particular safety concerns
	Operational Safety Inspection for situations with potentially dangerous effects (Unit 1)		
		January 11 – 29, 2013	No particular safety concerns
		January 25 – February 4, 2013	No particular safety concerns
	4th inspection	February 25 – March 8, 2013	No particular safety concerns
Others	The investigation of fracture zones in the NPS site began in October in 2012 (see Section 3). On February 6, 2013, deviance from the Limiting Conditions of Operation occurred in Unit 3 and recovery occurred on the same day (confirmed with an on-site inspection). In the fourth operational safety inspection, it was confirmed that factor analysis has been conducted and corrective measures were implemented effectively.		

Takahama NPS, Kansai Electric Power Co., Inc.

All reactor operations were suspended during the following periods.

		Implementation Period	Results/Others
Periodic Inspection	Unit 1	January 10, 2011 – (underway)	
	Unit 2	November 25, 2011 – (underway)	
	Unit 3	February 20, 2012 – (underway)	
	Unit 4	July 21, 2011 – (underway)	
Operational Safety Inspection	The 3rd inspection	December 6 - 19, 2012	No particular safety concern
	Operational Safety Inspection for situations with potentially dangerous effects (Unit 1)		
		December 4 to 10, 2012	No particular safety concern
		December 14 to 18, 2012	No particular safety concern
	4th inspection	February 25 to March 8, 2013	No particular safety concern

Shimane NPS, Chugoku Electric Power Co., Inc.

All reactor operations were suspended during the following periods.

		Implementation Period	Results/Others
Periodic Inspection	Unit 1	November 8, 2010 – (underway)	
	Unit 2	January 27, 2012 – (underway)	
Pre-operation test	Unit 3	Pre-operation test was underway on the construction phase.	Completed up to the construction work set forth in (iii) of the Table of Article 17 of the Ministerial Ordinance concerning the Security of Nuclear Power Generation Facilities
Operational Safety Inspection	3rd inspection	November 27 to December 13, 2012	No particular safety concerns
	Operational Safety Inspection for situations with potentially dangerous effects (Unit 2)	December 19 - 21, 2012	No particular safety concerns
		December 27 - 28, 2012	No particular safety concerns
		4th inspection	February 28- March 15, 2013

Ikata NPS, Shikoku Electric Power Co., Inc.

All reactor operations were suspended during the following periods.

		Implementation Period	Results/Others
Periodic Inspection	Unit 1	September 4, 2011 – (underway)	
	Unit 2	January 13, 2012 – (underway)	
	Unit 3	April 29, 2011 – (underway)	
Operational Safety Inspection	The 3rd inspection	December 3 - 14, 2012	No particular safety concerns
	Operational Safety Inspection for potentially dangerous actions (Unit 1)	January 22 - 30, 2013	No particular safety concerns
		February 5 - 14, 2013	No particular safety concerns
		Operational Safety Inspection for situations with potentially dangerous effects (Unit 2)	February 20 - 26, 2013
	March 4-12, 2013		No particular safety concerns
	4th inspection		February 25 - March 8, 2013

Genkai NPS, Kyusyu Electric Power Co., Inc.

All reactor operations were suspended during the following periods.

		Implementation Period	Results/Others
Periodic Inspection	Unit 1	December 1, 2011 – (underway)	
	Unit 2	January 29, 2011 – (underway)	
	Unit 3	December 11, 2010 – (underway)	
	Unit 4	December 25, 2011 – (underway)	
Operational Safety Inspection	3rd inspection	November 26- December 7, 2012	No particular safety concerns
	4th inspection	February 25 - March 8, 2013	No particular safety concerns
	Operational Safety Inspection for situations with potentially dangerous effects (Unit 3)		
		February 28 - March 6, 2013	No particular safety concerns
		March 5 – 11, 2013	No particular safety concerns
	Operational Safety Inspection for situations with potentially dangerous effects (Unit 4)		
	March 15-21, 2013	No particular safety concerns	
	March 19- 26, 2013	No particular safety concerns	

Sendai NPS, Kyusyu Electric Power Co., Inc.

All reactor operations were suspended during the following periods.

		Implementation Period	Results/Others
Periodic Inspection	Unit 1	May 10, 2011 – (underway)	
	Unit 2	September 1, 2011 – (underway)	
Operational Safety Inspection	The 3rd inspection	December 3 - 14, 2012	No particular safety concerns
	Operational Safety Inspection for situations with potentially dangerous effects actions (Unit 1)		
		January 24 - 28, 2013	No particular safety concerns
		January 25 - February 4, 2013	No particular safety concerns
	Operational Safety Inspection for situations with potentially dangerous effects (Unit 2)		
		February 5 - 12, 2013	No particular safety concerns
	February 8 - 15, 2013	No particular safety concerns	
The 4th inspection	March 4-15, 2013	No particular safety concerns	

Prototype Fast Breeder Reactor “Monju,” Japan Atomic Energy Agency

All reactor activities were suspended during the following periods.

		Implementation Period	Results/Others
Pre-operation test		Pre-operation test (performance check) was suspended in the construction phase.	
Operational Safety Inspection	3rd inspection	November 26 - December 11, 2012	Breach of obligation of measures for operational safety and the operational safety program were confirmed.

	4th inspection	March 4-22, 2013	Breach of obligation measures for operational safety and operational safety program were confirmed as also noted in the 3rd inspection.
Others	In response to the breach of obligation of measures for operational safety, etc. confirmed in the third operational safety inspection, the NRA ordered JAEA to analyze the causes and prepare recurrence prevention measures. On February 14-15, 2013, an on-site inspection was conducted. In the fourth operational safety inspection, the NRA ascertained organizational factors (see Section 4).		

Fugen Decommissioning Engineering Center, JAEA			
Under Decommissioning (in the period of spent fuel removal)			
		Implementation Period	Results/Others
Periodic Inspection (facility) Operational Safety Inspection		September 1, 2012 - January 10, 2013	Confirmed a suitable level of technical standards
	2nd inspection	September 18 - 21, 2012	No particular safety concerns
	3rd inspection	November 26 - 30, 2012	No particular safety concerns
	4th inspection	February 25 - March 1, 2013	No particular safety concerns

*Operational Safety Inspections are conducted four times a year based on the Reactor Regulation Act. For example, “the 3rd” in the Table indicates that it is the 3rd operational safety inspection in FY 2012.

Section 7 Promotion of Nuclear Safety Research

In order to address significant issues, such as attaining the highest level of nuclear regulations in the world, and strengthening radiation monitoring mainly in Fukushima prefecture, the NRA made the necessary budget requests and has promoted safety research in collaboration with JNES and other related incorporated administrative agencies.

Specifically, based on the lessons learned from Fukushima accident, the NRA conducted surveys, tests and studies for dealing with various regulatory issues including countermeasures against severe accidents and other measures to combat earthquakes and tsunamis. It encouraged the development of analysis code, finely-tuned radiation monitoring based on requests from municipalities and residents, and formulation of a database for the results of the radiation monitoring by related organizations.

The NRA Secretariat established a safety research promotion office to encourage greater safety in the nuclear energy field and began studies on a system which will allow related organizations to adjust their own research into nuclear safety regulations and allow them to respond quickly and flexibly to new regulatory issues.

The NRA also decided to hold a Technical Information Committee meeting once every one or two months at the NRA Secretariat with the aim of collecting and analyzing information on accidents at nuclear facilities in and outside Japan and incorporate such information in new regulations as necessary on a timely basis. The first such meeting was held on March 25, 2013.

Chapter 5 Initiatives for Developing a Crisis Management System and Mitigating the Effects of Future Accidents

Section 1 Development of a System for Nuclear Emergency Responses

1. Framework for the Government's Nuclear Emergency Responses

Based on the experience and lessons learned from the Fukushima accident and accompanying the establishment of the NRA, the government developed new nuclear emergency responses including the revision of, the Atomic Energy Basic Act, the Act on Special Measures Concerning Nuclear Emergency Preparedness, and other related laws and regulations.

Nuclear emergency response policies need to be implemented and promoted in a unified manner by the whole government and to achieve that goal the Nuclear Emergency Preparedness Commission was set up within the Cabinet. The Prime Minister serves as the Chairperson, and the Chief Cabinet Secretary, the Minister of the Environment, and the Chairman of the NRA serve as Vice Chairpersons. All other Ministers and the Deputy Chief Cabinet Secretary for Crisis Management are Commission Commissioners and the Minister of the Environment serves as the Director-General of the Secretariat of the Commission.

In the Nuclear Emergency Response Headquarters, which will be set up in the event of future nuclear emergencies such as the discharge of a large amount of radioactive materials, the Chief Cabinet Secretary, the Minister of the Environment, and the Chairman of the NRA (who is the newly assigned as Vice Director General), in addition to the Minister of Economy Trade and Industry, and all the other Ministers and the Deputy Chief Cabinet Secretary for Crisis Management will serve as headquarter members. At the Nuclear Emergency Response Headquarters the NRA will oversee the technical and professional safety aspects of nuclear facilities (on-site), while relevant ministries and agencies will deal with equipment procurement and other off-site activities under the supervision of the Director General (Prime Minister). The Secretary-General of the NRA Secretariat will also serve as the Director-General of the Headquarters. Secretariat

2. Preparation of the Manual, etc.

Following the formulation of new nuclear emergency responses, the chapter for nuclear emergency responses of the Basic Disaster Prevention Plan which explains Japan's policy on disaster prevention, was also revised on September 6, 2012. Jurisdictions were changed following the establishment of NRA and the crisis management system at the Official Residence, including the NRA, and division of roles in taking on-site and off-site measures, were clearly specified. It was also decided that when examining the possibility of earthquakes and tsunamis in areas where nuclear power stations and related facilities are located, detailed investigation and analysis should be conducted concerning source regions of earthquakes and tsunamis, and that appropriate facilities should be designated in advance to meet the challenge of possible malfunction of emergency response facilities (hereinafter referred to as "off-site centers") because of large natural disasters.

At the first meeting of the Nuclear Emergency Preparedness Commission on October 19, 2012, the Nuclear Emergency Response Manual was approved specifying responses in the event of nuclear emergency to be taken by the NRA and other related ministries and agencies. This manual specifies concrete deployment of staff and response procedures to be followed by the government. The Chairman, Commissioners, and expert staff of the NRA will meet in the operations room of the Nuclear Emergency Response Headquarter at the Official Residence to collect and transmit information, supervise the relevant nuclear operators' efforts for restoration in the wake of an accident and make a professional judgment on the advisability of evacuating and providing other protective actions for residents living near the affected facilities. The manual specifies that NRA Commissioners and the Director General for Emergency Response of the NRA Secretariat should be dispatched to an emergency rapid response center to be set up in the head office of the relevant electric power company, and that the Senior Vice Minister of the Environment (or the Parliamentary Secretary of the Environment) and the Director General for Regional Safety Management of the NRA Secretariat should be dispatched to local headquarters to be set up at off-site centers to strengthen local response systems.

In conjunction with the enforcement on September 19, 2012, of the Act on Special Measures Concerning Nuclear Emergency Preparedness revised by the Supplementary Provisions of the Act for Establishment of the Nuclear Regulation Authority, related Ministerial Ordinances that specify requirements for off-site centers were revised and guidelines providing for technical standards to supplement them were established. Prefectures where off-site centers are located shall fully check the status of relevant facilities based on revised Ministerial Ordinances and the guidelines, and then take measures such as relocating the facilities or enhancing equipment based on the results thereof. Furthermore, efforts have been made for enhancing emergency power supply equipment at off-site centers, increasing storage of protective clothing, masks, and emergency food, and preparing communication materials and equipment in preparation for possible relocation to alternative off-site centers.

Pursuant to the provisions of the Basic Act on Disaster Control Measures (Act No. 223 of 1961) and the Act on Special Measures Concerning Nuclear Emergency Preparedness revised by the Supplementary Provisions of the Act for Establishment of the Nuclear Regulation Authority, it was decided that regional disaster prevention plans, including evacuation plans in the event of a nuclear disaster, should be amended based on the Nuclear Emergency Response Guidelines (mentioned later), by March 18, 2013. In order to support efforts by each local government for amendments briefing sessions were held and an amended manual for preparing regional disaster prevention plans was prepared on December 2012. As areas included in the Urgent Protective Action Planning Zone (UPZ; see Table 14) may extend over multiple prefectures, the national government held a conference on broad-based regional disaster prevention measures among multiple prefectures and made adjustments to ensure consistency in regional measures. In preparing regional disaster prevention plans and to obtain information to be referred to when determining the UPZ, a simulation study was conducted on

the spread of radioactive materials at the same levels experienced during the Fukushima accident. Results were released in October and corrections made on December 13 (see Chapter 6, Section 2). By the end of March, 2013, nearly three-quarters of the relevant local governments had finished preparing their regional disaster prevention plans based on the Nuclear Emergency Response Guidelines. Support will be continuously provided to local governments to enhance regional systems for nuclear emergency preparedness.

Nuclear emergency response measures have been taken by the NRA and the Nuclear Emergency Response Office set up in the Cabinet Office. The deputy directors and other lower-ranked officials of the NRA Secretariat are officially appointed as staff of the Nuclear Emergency Response Office on a double-duty basis, thereby ensuring cooperation between the two organizations.

3. Preparation of Nuclear Emergency Response Guidelines

Under the Act on Special Measures Concerning Nuclear Emergency Preparedness the NRA will prepare Nuclear Emergency Response Guidelines to ensure that nuclear operators and national and local governments will smoothly implement nuclear emergency responses. Therefore, the NRA commenced discussions on the guidelines immediately after its inauguration and completed them on October 31, 2012 (Table 14).

Table 14 Main Points of the Nuclear Emergency Response Guidelines (decided on October 31, 2012)

Basic issues concerning nuclear emergency responses	<ul style="list-style-type: none"> • Positioning of the guidelines • Characteristics of nuclear disasters • Basic idea for protective actions against radiation exposure
Issues concerning nuclear emergency preparedness measures	<ul style="list-style-type: none"> • Establishment of the EAL⁵ and OIL⁶ as standards for implementing protective actions, including evacuation, in an emergency • Concerning such massive disasters that unique measures need to be prepared in advance The PAZ⁷ (around 5km from nuclear facilities) should be introduced where immediate evacuation is necessary, and the UPZ⁸ (around 30km from nuclear facilities) where evacuation should be implemented depending on circumstances • Provision of information to residents on a regular basis concerning the potential discharge of radioactive materials, characteristics of nuclear disasters, protective actions against radiation exposure, etc. • Implementation of comprehensive emergency drills for ensuring cooperation with residents and related organizations and practical emergency drills in conditions similar to a real situation • Consideration for the socially vulnerable and others who have difficulties in taking refuge by themselves and need help during any evacuation. • As areas included in the UPZ may extend over multiple prefectures, there is a need for proactive involvement of the national government to make adjustments among multiple prefectures and ensure consistency in regional

⁵ Emergency Action Level: To be set based on the situation of facilities

⁶ Operational Intervention Level: Indicated in measurable values, such as air dose rates and concentration of radioactive materials in environmental samples

⁷ Precautionary Action Zone: A zone where precautionary actions need to be prepared

⁸ Urgent Protective action planning Zone: A zone where urgent protective actions need to be prepared

	<ul style="list-style-type: none"> zonal measures. • Other advance preparation for establishing monitoring and radiation emergency medicine systems in collaboration with disaster medical agencies
Emergency response measures	<ul style="list-style-type: none"> • Implementation of emergency monitoring to promptly ascertain the situation • Prompt and appropriate information distribution to residents • Implementation of effective protective measures based on the EAL and OIL (sheltering indoors, evacuation, intake of stable iodine, etc.)
Medium- to long-term measures against nuclear disasters	<ul style="list-style-type: none"> • Long-term evaluation of the effects of radiation on human health and the environment • Implementation of decontamination measures to minimize effects

Following establishment of the guidelines the Study Team on Nuclear Emergency Preparedness Measures and the Study Team on Radiation Emergency Medicine continued discussion to enhance their content of the guidelines including how to specify the EAL and OIL (see Table 14). They are used to make standard decisions on the implementation of protective actions in an emergency and radiation emergency medicine procedures such as the screening and preventive intake of stable iodine. Discussions were also held on how to best utilize weather forecasts and the projected aerial spread of radioactive materials from the System for Prediction of Environmental Emergency Dose Information (SPEEDI). Based on these discussions and the results of public comments on the draft of the revised Nuclear Emergency Response Guidelines sought from January 30, 2013, further revisions to said guidelines was decided at the NRA Commission Meeting on February 27 (Table 15).

Table 15 Main Points of the Revision to the Nuclear Emergency Response Guidelines (February 27, 2013)

Nuclear emergency preparedness measures	<ul style="list-style-type: none"> • Classification of the initial stage of emergencies into the Situation on Alert, Site Emergency, and General Emergency. • Specification of the EAL for making judgments on the abovementioned classification and the OIL as the standard for implementing protective actions in the case of a General Emergency
Radiation medicine	<ul style="list-style-type: none"> • Utilization of emergency disaster medicine organizations, and broad-based collaboration among medical institutions • Preparation of a system for preventive intake of stable iodine, such as distributing tablets to residents in the PAZ in advance • Development of a screening system
Others	<ul style="list-style-type: none"> • Utilization of SPEEDI data as references for inverse estimation of the discharge of radioactive materials and for implementing protective actions • Utilization of weather forecasts, etc. as reference materials for implementing protective actions • Need to consider TEPCO's Fukushima Daiichi NPS separately from other facilities

The Study Team on Emergency Monitoring discussed effective systems for emergency monitoring and procedures for changing the OIL to reflect the discussion results in the Nuclear Emergency Response Guidelines. Their discussions were compiled on March 11, 2013 (Table 16).

Table 16 Main Points concerning Emergency Monitoring to be Included in the Nuclear Emergency Response Guidelines

Basic policy	<ul style="list-style-type: none"> • Under the control of the national government, local governments, nuclear operators, and related designated public organizations shall share objectives and conduct collaboration, while fulfilling respective responsibilities.
Objective, definitions	<ul style="list-style-type: none"> • Collection of information on radiation levels resulting from accidents and provision of information for making a decision on the implementation of protective actions based on the OIL • Provision of information for evaluating effects of radiation on residents and the environment
Advance preparation	<ul style="list-style-type: none"> • The national government shall prepare a system for emergency monitoring centers at relevant areas and make plans for deploying staff and equipment • Local governments shall make an emergency monitoring plan.
Implementation	<ul style="list-style-type: none"> • The national government shall make an implementation plan for emergency monitoring. • Related parties shall conduct emergency monitoring based on the implementation plan. • The national government shall analyze and evaluate the results of emergency monitoring and release the information in an integrated manner.

Section 2 Initiatives for Emergency Responses

At the first NRA Commission Meeting on September 19, 2012, the NRA Initial Response Manual, which defines the NRA's actions in the event of extreme crises,⁹ was decided. Furthermore, in order to ensure smooth and secure communications, a TV conference system and a satellite communication system were developed, linking the national government, local governments, and nuclear operators.

When an earthquake occurred off the coast of Miyagi prefecture on October 25, 2012 (the seismic intensity measured in Ishinomaki City was a lower 5), the Chairman and the Commissioners of the NRA and the executives of the NRA Secretariat met at the NRA Emergency Response Center (ERC) in line with the abovementioned manual, and set up the Nuclear Accident Vigilance Headquarters. On October 5, Commissioner Fuketa conducted an on-site training drill, with the cooperation of the Self-Defense Force and the Police at the Rokkasho Reprocessing Plant, Japan Nuclear Fuel Limited. A further emergency training session involving NRA Commissioners and executives of the NRA Secretariat was held in November. The following month section chiefs and other lower-ranked NRA Secretariat officials underwent training on communications equipment and information communication.

Based on lessons learned from such training sessions, the NRA Initial Response Manual was reviewed in February 2013. The systems for NRA Commissioners and the executives and officials in management posts of the NRA Secretariat for meet for emergency, day-duty and night-duty were duly strengthened..

In order to ensure proper radiation monitoring special cars were put in into place at the offices of the directors in charge of radiation monitoring, and on October 19, 2012, Emergency Response Measures Committee Members were appointed to undertake technical discussions on emergency measures to be taken by the NRA in the event of a nuclear emergency.

It was also decided, at the NRA Commission Meeting on March 6, 2013, that the members in charge of emergency situations at nuclear power stations, and NRA Secretariat officials should conduct hearings and exchange opinions with core groups of respective nuclear operators that take charge in the event of an accident, with the aim of further enhancing capacity to respond to emergencies.

⁹Occurrence of an earthquake with a seismic intensity of a lower 5 or greater on the Japanese scale in a municipality where nuclear facilities are located, occurrence of an earthquake with a seismic intensity of a lower 6 or greater in a prefecture where nuclear facilities are located, or issuance of a warning of a large tsunami, etc.

Section 3 Environmental Monitoring

1. Comprehensive Monitoring Plan

With regard to radiation monitoring at TEPCO's Fukushima Daiichi NPS, related ministries and agencies and Fukushima prefecture have conducted joint monitoring of land and sea areas, food, water the environment in line with the Comprehensive Monitoring Plan (decided by the Monitoring Coordination Meeting on August 2, 2011, revised on March 15, 2012, and partially revised on April 1, 2012). The aim was to ascertain any monitoring changes and evaluating the overall environmental effects, such results contributing to future measures (Table 17). After its inauguration, the NRA assumed overall responsibility and has compiled the results of the radiation monitoring.

Table 17 Major Monitoring Systems under the Comprehensive Monitoring Plan
(End of March 2013)

Target	Responsible entities
Environment in general (nationwide)	MEXT, ^(Note 1) respective prefectures, etc.
Environment in general (all areas of Fukushima prefecture)	MEXT, ^(Note 1) Nuclear Emergency Response Headquarters, Fukushima prefecture, etc.
Sea areas	MEXT, ^(Note 1) Ministry of Land, Infrastructure, Transport and Tourism, Ministry of the Environment, Fisheries Agency, Japan Coast Guard, Fukushima prefecture, etc.
Schools, nursery centers, etc.	MEXT, ^(Note 2) Ministry of Health, Labour and Welfare, and Fukushima prefecture
Ports, airports, parks, sewerage, etc.	Ministry of Land, Infrastructure, Transport and Tourism, municipalities, etc.
Water environment, natural parks, waste	Ministry of the Environment, Fukushima prefecture, etc.
Farm soil, forests, pasture, etc.	Ministry of Agriculture, Forestry and Fisheries, Forestry Agency, prefectures, etc.
Food	Ministry of Health, Labour and Welfare, Ministry of Agriculture, Forestry and Fisheries, respective prefectures, etc.
Tap water	Ministry of Health, Labour and Welfare and prefectures

(Note 1) Conducted by the NRA since April 2013

(Note 2) Partially conducted by the NRA since April 2013

2. Analysis of the Results of Environmental Monitoring

The NRA analyzed and confirmed the results of all radiation monitoring based on the Comprehensive Monitoring Plan and reported such results to Commission Meetings as well as posting them on its website.

Such reports were made thus far at six NRA Commission Meetings (October 10, 2012, November 14, 2012, December 12, 2012, January 16, 2013, February 20, 2013, and March 19, 2013). The monitoring results showed a slow but declining trend in radiation levels in Fukushima prefecture thanks to physical attenuation of radioactive cesium and rainfall and other natural phenomena.

When any abnormal event occurs, necessary responses shall be taken, such as making contact with related organizations, confirming the content of monitoring results, and providing press releases.

Section 4 Initiatives for Physical Protection Measures

Following its establishment, the NRA assumed responsibility from the Atomic Energy Commission for overseeing of administrative organizations responsible for physical protection (nuclear security). These issues are wide-ranging and internationally significant underlined by the necessity to enhance, nuclear security measures which was reaffirmed at the Nuclear Security Summit meetings in April 2010 and March 2012.

At the Study Team on Nuclear Security meeting on March 4, 2013, it was decided to prioritize (1) the introduction of a credibility confirmation system for individuals,¹⁰ (2) nuclear security measures during transportation of nuclear materials, and (3) nuclear security for radioactive materials and related facilities, including countermeasures against stealing, etc. Reference was made to earlier discussions held by the Atomic Energy Commission when it was responsible for nuclear security.

Based on lessons learned from TEPCO's Fukushima Daiichi NPS and the fifth revision (Rev. 5) of the Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225), METI and MEXT in FY2011 revised and strengthened the Ministerial Ordinances (Regulations Concerning the Installment, Operation, etc. of Commercial Power Reactors, etc.) providing for the physical protection of reactor facilities, The number of approvals of changes to physical protection provisions and other cases in response to said revisions, is shown in Table 18.

**Table 18: Approved Cases concerning Physical Protection Provisions
(From September 19, 2012 to March 31, 2013)**

Approval of changes to physical protection provisions	45 cases (breakdown) Commercial power reactors: 17 Reprocessing facilities: 1 Test reactor facilities:7 Facilities where nuclear fuel material is used: 20
Receipt reports on the repeal of physical protection provisions	1 case
Inspection of the compliance with physical protection provisions	41 cases (breakdown) Commercial power reactor facilities: 16 Reactors being in the stage of R&D: 1 Reprocessing facilities: 2 Fuel facilities: 2 Waste storage facilities: 1 Test reactor facilities:6 Facilities where nuclear fuel material is used:13
Issuance of certificate concerning the conclusion of an agreement on transportation of specified nuclear fuel material	29 cases

¹⁰The Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Rev.5) recommends the implementation of clearance confirmation for individuals as a major physical protection measure to minimize the risks of information leakage or sabotage against nuclear facilities by an insider..

Chapter 6 Initiative for Ensuring Trust in Nuclear Regulatory Administration

Section 1 Ensuring Transparency and Neutrality

1. Ensuring Decision Making Transparency

To restore trust in nuclear regulation it is essential to ensure transparency in decision making. The Policy on Ensuring Operational Transparency of the NRA which was decided at the first NRA Commission Meeting, specifies the basic policy of (1) building an information release system not subject to disclosure request requirement (2) effective adherence to a disclosure and discussion process (3) thorough adherence to the principle of administration based on written documents, for the purpose of clarifying developments and discussions leading to final decisions. Furthermore, the policy provides that the details of discussions, minutes, and used reference materials at the meetings of the Commission, Committees, and Study Teams, etc. of the NRA should be disclosed in principle.

Based on this Policy, summaries of proceedings are prepared for all nuclear regulation meetings attended by three or more members and interviews between NRA Commissioners or officials of the NRA Secretariat and those to be regulated. They are then disclosed together with the names of attendants and used reference materials. The summaries of significant meetings will be reported at NRA Commission Meetings.

Following such guidelines, on January 22, 2013, there was improper behavior when one of the Directors-General for Nuclear Regulation Policy met personally with a nuclear operator and provided said operator in advance an unreleased draft report scheduled to be used at forthcoming experts meeting. In response, a written warning was issued on February 1 and said Director-General for Nuclear Regulation Policy was transferred to MEXT. At a February 6 NRA Commission Meeting, recurrence prevention measures were discussed and it was decided that interviews with nuclear operators and other regulated parties should be held by two or more persons for all agendas and that schedules of such interviews should be disclosed as well.

NRA Commission and Study Team meetings have been held in public based on the Policy on Ensuring Operational Transparency of the NRA and the Operational Guidelines for NRA Commission Meetings. The NRA posted official pages on internet video sites, YouTube and niconico. It broadcasted such meetings live on YouTube whenever possible and uploaded recorded videos and abridged editions on YouTube and niconico. Reference materials used at NRA Commission Meetings and Study Team meetings are posted on the NRA Website as each meeting starts for the convenience of site users. Minutes of NRA Commission Meetings are posted on the NRA Website the following day and those of Study Team meetings in around one week.

Press conferences are held by the NRA Chairman once a week and by the Deputy Secretary-General of the NRA Secretariat, acting as a spokesman, twice a week (additionally, unscheduled press conferences have been held as necessary, and a total of 84 news conferences were held from September 19, 2012 to March 31, 2013). Press conferences are broadcasted live and recorded videos are released. Minutes of the press conferences by the NRA Chairman are posted on the NRA Website the same day, if possible, and those by a spokesman the next day.

2. Ensuring Neutrality in the Decision Making Process

To restore trust in nuclear regulation, it is indispensable to ensure the neutrality of persons involved in the decision making process. Therefore, the Code of Conduct related to Ethics for NRA Chairman and Commissioners was agreed at the first NRA Commission Meeting on September 19, 2012. The Code stipulates that the Chairman and the Commissioners must not receive donations from nuclear operators during their term of office and that they disclose any donations they had received in the three years immediately prior to assuming office. Further, they should disclose any situation involving their students finding jobs at nuclear operators (At the time of presenting personnel proposals to the Diet on July 26, 2120, such information was disclosed for the Chairman and the Commissioners).

An NRA October 10,2012 Commission Meeting decided 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 of information on the relationship between the relevant external experts and electric utilities. Furthermore, when newly examining the safety of individual electric utilities facilities or when reexamining earlier assessments on individual facilities, persons may be selected as external experts only if they have not served as executives of the relevant electric utilities in the latest 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. Similar requirements were also established for the appointment of the Radiation Council members.

Based on these requirements, self-reported personal data of the members of each Study Team is displayed on the NRA Website. For members of the Expert Meetings on Investigation of Fracture Zones in NPS Sites, who will reexamine earlier results of individual facilities, it was decided that from officials recommended by related academic societies, only academic experts who have never been involved in safety assessment for these facilities will be chosen.

3. Ensuring Independence and Initiatives for Avoiding Self-isolation and Self-righteousness

Independent decision making in nuclear regulation is important for proper regulation and is emphasized by many global nuclear regulatory organizations as one of the most significant factors of their organizational philosophy. However, regulatory organizations must avoid becoming self-isolated and making self-righteous decisions. Therefore, the NRA structured as a highly independent authority, a so-called Article 3 authority. The Guiding Principles for Activities state that “we shall make decisions independently, based on scientific and technological information, free from any outside pressure or bias,” while adding that “we shall be open to all opinions and advice from Japan and the international community and avoid both self-isolation and self-righteousness” (see Table 1).

Following such principles, the NRA utilizes the expertise of external experts as members of Study Teams and has actively held hearings with other professionals and related business operators (a total of 24 hearings were held for all Study Teams).

At a November 21, 2012 NRA Commission Meetings, exchange of opinions were held with accident investigation committees set up in the Diet and the government¹¹ and people engaging in NPO activities and with External advisers on December 14. The overall aim was to seek opinion on NRA initiatives from both domestic and international experts. The NRA also took advantage of international meetings to exchange opinions with nuclear regulatory organizations of major countries (see Section 3).

To strengthen transparency and relationships and to improve communication both within and outside Japan, ensuring a better understanding of regulations and enabling a more prompt response to emergencies, the NRA held a series of meetings with interviews with related professionals and businesses.

The NRA sought public comments on seven themes to help formulate new regulatory requirements and the Nuclear Emergency Response Guidelines. In particular it sought a wider public involvement and response on regulatory issues for new draft provisions based on the Administrative Procedure Act (Act No. 88 of 1993). The NRA subsequently publicized the NRA's vision in response to those public opinions.

The NRA established a mechanism to accept questions and opinion from the general public on a regular basis via the internet or by telephone, preparing a call center and a page to accept opinions on its website (on average, the NRA receives around 10 opinions and questions via the web page and around 40 opinions and questions at the call center every day).

On January 28, 2013, the Special Committee for Investigation of Nuclear Power Issues was set up in the House of Representatives, and the NRA Chairman attended the meeting to explain NRA initiatives of the NRA and held a question and answer session.

¹¹National Diet Investigation Commission and Investigation and Verification Committee for the Accident at TEPCO's Fukushima Nuclear Power Station (Government's Nuclear Accident Investigation and Verification Committee)

Section 2 Securing Personnel and Enhancing Their Expertise

1. Securing Personnel and Enhancing Their Expertise; Strengthening Organizational Structures

Nuclear regulation is an administrative field requiring highly professional and technical judgments. In order to prevent the regulatory authority from becoming a ‘regulatory captive’ of nuclear operators, it is indispensable to secure a sufficient number of highly professional personnel and thereafter continuously enhance their expertise.

To achieve these aims the NRA initially introduced new training programs and thereafter ongoing enhanced training schedules for current employees. The sessions ranged from strengthening basic knowledge to advanced expertise. They included (1) specialized training on nuclear regulation and targeting nuclear safety inspectors and senior nuclear emergency specialists who need legal status, (2) practical test training using regular machinery, equipment and skills practice covering potential crises by using simulation test equipment and learning measuring methods, and (3) practice for operation control, including responses to severe accidents, by using plant simulators. To maintain and enhance officials expertise in nuclear power engineering, the NRA began new programs including lectures with graduate school level textbooks and other lectures covering national government-level crisis management and quality control.

Three NRA officials went to Japanese graduate schools prior to dispatching other officials to foreign nuclear regulatory organizations including the US Nuclear Regulatory Commission (hereinafter referred to as the “NRC”), and the IAEA.

Following its launch and three the middle of the fiscal year the NRA recruited 13 highly experienced personnel and has begun recruiting activities for new graduates and mid-career workers for FY2013 and thereafter.

Since the NRA has assumed responsibility for the work of JNES, the government will abolish that organization as promptly as possible, take any further legal steps necessary and transfer former JNES officials to the relevant sections of the NRA Secretariat. Additionally, the government will review the structures and operations of incorporated administrative agencies and related organizations so ensure that nuclear energy safety regulations are implemented by a more efficient and effective manner.

At the March 27, 2013 NRA Commission Meeting, it was decided that the NRA Secretariat and JNES, which provides technical support to the NRA, should strengthen their collaboration not only on issues directly relating to nuclear regulation such as establishment of requirements, examinations, and inspections, but also in human resources development, such as personnel exchanges and training sessions.

To ensure the independence and neutrality of regulations, Article 6, paragraph (2) of the Supplementary Provisions of the Act for Establishment of the Nuclear Regulation Authority provides that officials of the NRA Secretariat may not be transferred to any government organizations that have jurisdiction over affairs concerning nuclear energy promotion (the so-called “no-return rule”), while providing transitional measures for five years after the enforcement of the Act. The NRA has

dealt with this matter in line with the purport of this paragraph.

2. Thorough Operation Quality Control

Based on the fact that errors were repeatedly found (and publicized in October 2012) in the simulation results of the spread of radioactive materials and to ensure that the work would be done properly in future, it was decided to confirm the purpose and operating system with regard to simulations handling massive data, upon placing orders and changing specifications,. To strengthen quality control, the NRA established an operation quality control office to check compliance with these processes and also held quality control training sessions for selected officials to raise general awareness throughout the organization.

Section 3 Collaboration and Cooperation with International Organizations and Foreign Countries

To obtain international trust in Japan's efforts to bolster nuclear regulation and nuclear safety, it is vitally important to fully and quickly explain and transmit Japan's ongoing efforts in these fields in the wake of the Fukushima accident. They include 'lessons learned' from Fukushima, incorporating whenever necessary international safety requirements and the latest scientific information, both domestically and internationally, and incorporating them into Japan's latest regulatory requirements. The NRA will therefore actively promote two-way collaboration and cooperation with foreign countries and international organizations, learning from their experience and knowledge in the field of nuclear safety and in turn explaining Japan's own efforts to enhance nuclear safety.

1. NRA Visits to Foreign Nuclear Regulatory Organizations

From October 22-26, 2012, Commissioner Oshima and NRA Secretariat officials visited nuclear regulatory organizations in the United States, the United Kingdom, France and to the IAEA. They explained the functions of the newly established NRA and efforts being made for strengthened nuclear regulation and exchanged opinions for future collaboration and cooperation. To further deepen cooperation in with the US, UK, and French nuclear regulatory organizations, accords were reached to make adjustments for preparing bilateral agreements on nuclear safety cooperation.

2. Collaboration and Cooperation with International Organizations (IAEA and OECD/NEA)

At the expert meeting of the Fukushima Ministerial Conference on Nuclear Safety, held jointly by the government of Japan and the IAEA from December 15 to 17, 2012, Chairman Tanaka delivered the keynote speech. He explained lessons learned from TEPCO's Fukushima Daiichi NPS and efforts being made at the site, the establishment of the NRA, and initiatives for restoring trust in nuclear regulatory administration. Commissioner Oshima made a panel presentation, focusing on organizational and human factors in nuclear safety.

In order to exchange ideas and transmit information to the international community concerning Japan's own efforts to enhance nuclear safety as outlined (above) NRA Commissioners attended the following international conferences hosted by the IAEA and the Organization for Economic Co-operation and Development Nuclear Energy Agency (hereinafter referred to as the "OECD/NEA").

- The 3rd Workshop on Science and Values in Radiological Protection and the 6th Asian Regional Conference on the Evolution of the System of Radiological Protection (November 6 to 8, 2012; Tokyo)
- OECD/NEA Committee on Safety of Nuclear Installations (CSNI) (December 5 to 6, 2012; Paris)
- OECD/NEA Committee on Safety of Nuclear Installations (CSNI) Bureau Meeting (March 11 to 15, 2013; Washington D.C.)

- IAEA International Technical Advisory Group (ITAG) on the Comprehensive Report on TEPCO's Fukushima Daiichi NPS (March 21 to 22, 2013; Vienna)

3. Regional Cooperation and Bilateral Cooperation

During the abovementioned Fukushima Ministerial Conference, talks were held with nuclear regulatory organizations from the United States, the United Kingdom, France, Germany, Canada, Russia, South Korea, Vietnam, and Belarus for future cooperation in nuclear safety. Chairman Tanaka signed memorandums with the NRC and the French nuclear safety agency, Autorité de sûreté nucléaire (hereinafter referred to as "ASN"), to confirm that conventional bilateral agreements concerning cooperation in nuclear safety continue to be effective.

On November 29, 2012, nuclear regulatory organizations from Japan, China, and South Korea, all of which possess nuclear power plants, held the 5th Japan-China-South Korea Senior Regulators' Meeting on Nuclear Safety in Seoul, South Korea, for the purpose of enhancing nuclear safety and strengthening regional cooperation in the North East Asia Region. Commissioner Oshima signed a revised memorandum specifying the basic framework for promoting cooperation. Delegates also agreed to strengthen information exchange during both 'normal' times and in the case of emergencies and exchanged opinions and information on common nuclear safety problems and for effectively improving technology.

The Vietnam Agency for Radiation and Nuclear Safety (hereinafter referred to as "VARANS") plans to introduce nuclear power generation, and the NRA provided safety management training for Vietnamese officials on nuclear regulation via JNES, twice in Tokyo, from October 1 to November 30, and from November 12 to December 21, 2012.

On February 20, 2013, Commissioners Fuketa and Oshima exchanged nuclear safety views with the ASN in Tokyo, and on March 13, Commissioner Oshima visited Moscow for talks to further cooperation with the Russian nuclear regulatory organization, Rostechndzor.

4. External Advisers

To ensure access to the very latest international knowledge and expertise in helping to establish a new regulatory organization and its activities and aims, the NRA appointed three experienced experts from the United States, the United Kingdom and France as advisors (Table 19). At a Commission Meeting on December 14, 2012, these advisors presented their opinions on the roles to be fulfilled respectively by the regulatory authority and nuclear operators in order to cultivate and strengthen a safety culture on an on-going basis, and on how the regulatory authority should work to restore people's trust.

Table 19 External Advisers¹²

André-Claude Lacoste	Former Chairman of the ASN Led the Integrated Regulatory Review Service (IRRS) in Japan by IAEA in 2007
Richard A. Meserve	Former Chairman of the NRC Chairman of the IAEA International Nuclear Safety Group (INSAG) Witness at the National Diet Investigation Commission
Michael Weightman	Former Chief of the UK Office for Nuclear Regulation (ONR) Led the IAEA Expert Team on Investigation into Accident at Fukushima Daiichi NPS

¹²Titles are as of March 31, 2013.

Section 4 ‘Allegation’ System Concerning Information on Safety of Nuclear Facilities

In order to detect violations to laws and regulations by nuclear operators at an early stage and prevent nuclear disasters in advance, the Reactor Regulation Act provides for an ‘allegation’ system concerning safety information of nuclear facilities. The NRA will investigate charges made by employees and others concerning potential violations committed by nuclear operators, scrutinizes the facts, and issues directions to the relevant nuclear operators as necessary, or takes other corrective measures.

To ensure the neutrality and transparency of NRA investigations a Nuclear Facility Safety Information Allegation Investigation Committee consisting of external experts, will be set up to oversee the system, and under the supervision of the Committee cases shall be processed as promptly as possible. Due consideration will be made for the protection of persons making the allegations, and the operational status of the system shall be disclosed. At the end of FY2012, one case was being processed and no case had been completed.

Appendix: Major Initiatives at the Beginning of FY2013

At the beginning of FY2013 (April 1 to 30), major developments under the jurisdiction of the NRA were as follows.

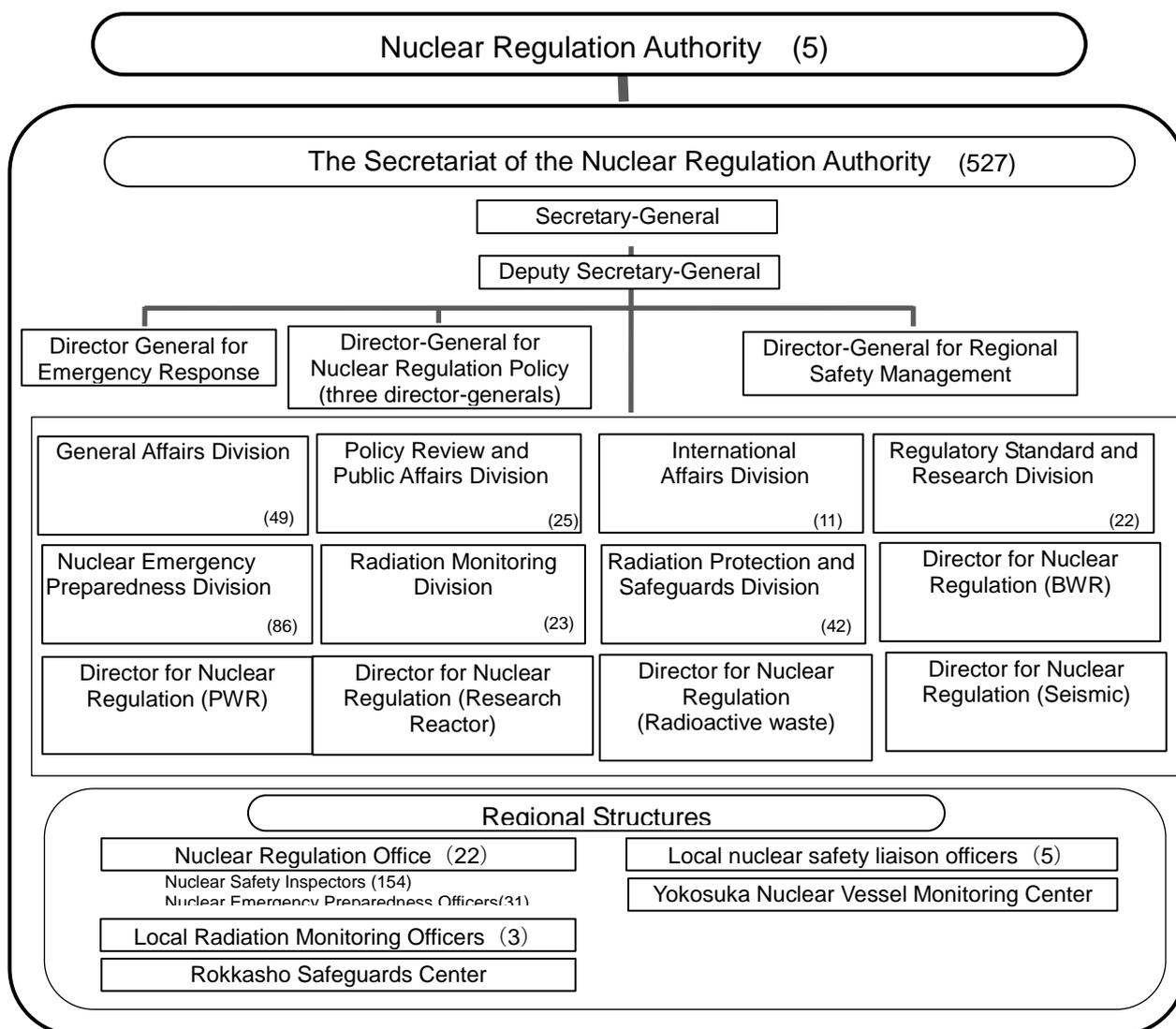
Section 1 Improvement of the Organization

Following the enforcement of part of the Act for Establishment of the Nuclear Regulation Authority on April 1, 2013, issues concerning the implementation of monitoring, regulations on the use of radioisotopes, and safeguards based on international commitments were transferred from MEXT to the NRA.

After this transfer of powers the number of officials increased from 473 to 527, and the Radiation Protection and Safeguards Division was created (Appendix Table 1).

The NRA also took over some of the functions of JAEA.

The initial budget for FY2013 (draft) was 57,308 million yen and the breakdown is as shown in Appendix Table 1 (the Cabinet Office separately secured 13,763 million yen (draft) as the nuclear disaster countermeasures-related budget).



Appendix Figure 1 The NRA Organization and Number of Officials (as of April 1, 2013)

Appendix Table 1 Breakdown of the NRA's FY2013 Initial Budget (Draft)

(million yen)

	FY2013 Initial budget
General account	7,850
Special account for energy measures	42,888
Special account for reconstruction from the Great East Japan Earthquake	6,570
Total	57,308

Section 2 Responses to the Crisis at TEPCO’s Fukushima Daiichi NPS

Following the initial accident TEPCO’s Fukushima plant became totally dependent on temporary equipment while permanent equipment was being prepared and ongoing risks remained high. For the period beginning in April, 2013 accidents and other problems continued to occur frequently (Appendix Table 2). The NRA directed TEPCO to take necessary measures, and following discussions at the April 12 and April 19 meetings of the Supervision and Evaluation Committee for the Specified Nuclear Power Facilities, it decided to detail risk factors and consider various measures depending on the seriousness of any situation. As the regulatory authority, the NRA participated in April 19 discussions in the Council for the Decommissioning of TEPCO’s Fukushima Daiichi Nuclear Power Station, chaired by the Ministry of Economy, Trade and Industry. It provided technical and professional advice to enhance collaboration with METI and related organizations. To strengthen the local monitoring system the NRA also increased the number of officials of the Fukushima Daiichi Nuclear Regulation Office Authority.

Appendix Table 2: Problems at TEPCO’s Fukushima Daiichi NPS at the Beginning of FY2013

<p>Alarm at the dust monitor installed at the main gate (April 3)</p>	<p>An alarm was triggered at the continuous dust monitor installed at the main gate. Measurements from a portable dust monitor confirmed that no abnormalities were observed in radiation levels in the surrounding environment.</p> <p>Because of the malfunction TEPCO replaced the faulty continuous dust monitor. The cause is now under investigation.</p>
<p>Automatic shutdown because of a malfunction of the multi-nuclide removal equipment (April 4)</p>	<p>The multi-nuclide removal equipment (ALPS) under test operation shut down automatically but a site investigation did not uncover any abnormalities. After considering recurrence prevention measures to prevent erroneous operations, the test operation of the equipment was resumed on April 5.</p> <p>The problem was due to an erroneous operation.</p>
<p>Temporary halt of the heater in the boric acid solution tank (April 5)</p>	<p>Charred parts were observed in the heater of the boric acid solution tank specifically in the equipment injecting acid solution to Units 1 to 3. Temperature controls were continued by using the heater of another system.</p> <p>Causes are under investigation.</p>
<p>Halt to the cooling system for the spent fuel pool at Unit 3 due to an electrical blackout (April 5)</p>	<p>The cooling system for the spent fuel pool at Unit 3 halted following a malfunction in the power source. The stoppage apparently occurred because a wire fence installed near the power supply equipment to prevent the intrusion of small animals touched the electric current circuit and this resulted in an earth fault.</p> <p>The NRA Chairman directed TEPCO to (1) promptly publicize the current situation and prospect for recovery, and (2) investigate circumstances which might cause similar future events.</p>
<p>Alarm indicating device malfunctions went off at the continuous dust monitor at the main gate (April 5)</p>	<p>An alarm went off at the continuous dust monitor installed at the main gate. However, measurements from another dust monitor showed no abnormalities in radiation levels around the main gate.</p> <p>The alarm apparently went off due to a temporary decline in sample inflow for measurement.</p>
<p>Leakage of contaminated water from underground water tanks (since April 5)</p>	<p>Leakage of contaminated water occurred at three out of the seven underground water tanks. TEPCO is taking measures, such as transferring contaminated water to other underground water tanks and strengthening monitoring of underground water tanks. Causes are now under</p>

	<p>investigation.</p> <p>The NRA Chairman directed TEPCO to (1) strengthen the monitoring of underground water tanks and (2) take the utmost precautions to prevent contaminated water from leaking into the sea.</p>
Cutoff of the silt fences within the port (April 8)	<p>Two silt fences near the intake of Units 5 and 6 within the port were cut off.</p> <p>Causes are now under investigation.</p>
Leakage of contaminated water from the transfer tube during transfer from the underground water tank (April 11)	<p>In response to the leakage of contaminated water from the underground water tanks on April 5, TEPCO began the transfer of the contaminated water in Tank No. 3 to Tank No. 6, but the contaminated water leaked at the flange of the tube.</p>
Problems during rubble removal at Unit 3 (April 18)	<p>During the removal of steel rubble at Unit 3, the lid of the skimmer surge tank was accidentally moved and many pieces of rubble fell into the pool. The NRA directed TEPCO to strengthen monitoring of the alternative cooling system for the spent fuel pool at Unit 3 and consider ways to seal the crack in the lid. On April 22, TEPCO covered the lid.</p>
Discovery of a puddle within the building for shared pool of spent fuel (April 21)	<p>A puddle was discovered on the first floor in the area of cask wagons of the building for shared pool of spent fuel. Radioactive materials contained in the water stored in the spent fuel pool were not detected in the puddle. Therefore, it is believed that rainwater and groundwater seeped from the joint part of the nearby building.</p>
Discovery of two mice in the switchboard for the alternative cooling system for the spent fuel pool at Unit 2 (April 22)	<p>The bodies of two mice were found in the switchboard of the alternative cooling system for the spent fuel pool at Unit 2, but power supply to the cooling system was maintained. TEPCO stopped the alternative cooling system for the spent fuel pool at Unit 2, removed the mice, confirmed that there were no abnormalities in the switchboard, and restarted the system after taking countermeasures against the intrusion of small animals.</p>

Based on Article 64-4 of the Reactor Regulation Act, the NRA approved the regulations and public notice for managing TEPCO's Fukushima Daiichi NPS in accordance with the status of the nuclear reactor facilities at its Commission Meeting on April 3 They were promulgated and put into effect on April 12.

Section 3 Status of Discussions on the Regulatory System

1. Discussions on Safety Goals

Safety is the fundamental goal in regulating nuclear facilities. With that in mind the former Nuclear Safety Commission had held repeated discussions since 2001 but had failed to reach a conclusion.

The NRA started its own discussions in FY2012. It decided at an April 10, 2013 Commission Meeting that the results compiled at the Special Committee on Safety Goals of the former Nuclear Safety Commission should be the basis of any future safety discussions, and that a target concerning environmental contamination by radioactive materials should be established based on information accrued in the wake of the accident at TEPCO's Fukushima Daiichi NPS. It was also agreed that the requirements to limit the occurrence of an accident that causes a massive release of Cs137 (exceeding 100TBq) below once in a million reactor years should be applied to ALL power reactors without distinction. Discussions on safety goals are continuing.

2. Review of Regulatory Requirements, etc.

Regarding new regulatory requirements for power reactors which were scheduled to come into force no later than July 18, 2013, the NRA in February 2013 sought public comment on the draft of the three essential features,: (1) the tightening of the conventional design basis, (2) requirements for countermeasures against severe accidents, and (3) the design basis against earthquakes and tsunamis. Based on these comments, the NRA determined the draft of new regulatory requirements at its Commission Meeting on April 3. Based on this draft and further discussions at the Study Team on Establishment of New Safety Regulations for Light Water Nuclear Power Plants, the NRA prepared drafts of related regulations, public notices, and in-house rules and sought further public comment between April 11 and May 10). Based on the draft of the new regulatory requirements, a first meeting was held on April 19 to evaluate the current status of Units 3 and 4 of Ohi Power Station, Kansai Electric Power Co., Inc.

Regarding the new regulatory requirements for nuclear fuel facilities which are scheduled to come into force by December 18, 2013, the Study Team on New Regulatory Requirements for Nuclear Fuel Facilities consisting of Commissioner Fuketa, external experts, officials of the NRA Secretariat, JNES officials and officials of the Secretariat of the Nuclear Safety Research Center of the JAEA, started discussions. At the meetings of the Study Team held on April 15-16, 2013, they discussed the basic policies for the new regulatory requirements, the outline of various facilities, such as spent fuel reprocessing facilities and nuclear fuel processing facilities, and the basic idea on new regulatory requirements by type of facilities.

Regarding the Nuclear Emergency Response Guidelines, the NRA sought public comments between April 10-May 9, 2013 on a revised draft from the Study Team on Emergency Monitoring of a revision to embody a system for implementing emergency monitoring delivering stable iodine tablets in advance..

Regarding investigations on fracture zones at NPS sites, an Expert Meeting on Investigation of Fracture Zones in the Site of Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc. was held on April 18, and the Expert Meeting on Investigation of Fracture Zones in the Site of Tsuruga Nuclear Power Station on April 24, starting deliberations for compiling evaluation reports.

Reference: Committees, Study Teams, etc.

Relating to the establishment of the new regulatory requirements

- Study Team on the New Regulatory Requirements for Light Water Power Reactors
- Study Team on Establishment of New Safety Regulations for Light Water Nuclear Power Plants
- Study Team on the New Regulatory Requirements for Light Water Nuclear Power Plants (Earthquakes and Tsunamis)
- Study Team on New Regulatory Requirements for Nuclear Fuel Facilities, etc.

Relating to countermeasures against nuclear disasters

- Study Team on Nuclear Emergency Preparedness Measures
- Study Team on Radiation Emergency Medicine
- Study Team on Emergency Monitoring

Expert meetings on investigations of fracture zones in the NPS sites

- Expert Meeting on Investigation of Fracture Zones in the Site of Ohi Power Station, Kansai Electric Power Co., Inc.
- Expert Meeting on Investigation of Fracture Zones in the Site of Tsuruga Nuclear Power Station
- Expert Meeting on Investigation of Fracture Zones in the Site of Higashidori Nuclear Power Station, Tohoku Electric Power Co., Inc.

Relating to specified facilities

- Supervision and Evaluation Committee for Specified Nuclear Power Facilities
- Study Committee on Analysis of TEPCO's Fukushima Daiichi NPS Accident
- Supervision and Evaluation Committee for the Event of Seawater Inflow into Unit 5 of Hamaoka NPS

Others

- Study Team on Health Controls of the Residents related to the Fukushima Daiichi NPS Accident
- Study Team on Nuclear Security
- Technical Information Committee
- NRA Policy Review Panel
- NRA Commission on Evaluation of Incorporated Administrative Agencies