

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



**National Report of Japan
for First Review Meeting**

**September 2003
The Government of Japan**

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A. Introduction

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Section A. Introduction

A. 1 Preparation of the report

This national report of Japan, submitted in accordance with the provisions of Article 32 of “the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management”, addresses the measures taken to implement each of the obligations of the Convention. The text (Sections B through K) and the annexes (Section L) of the report are prepared in accordance with “the Guidelines regarding the Form and Structure of National Reports”, and the text of each Article of the Convention is reproduced in bold letters at the top of the report on the Article.

This report was prepared by the Nuclear and Industrial Safety Agency (NISA) of the Ministry of Economy, Trade and Industry (METI), the Science and Technology Policy Bureau (STPB) of the Ministry of Education Culture, Sports, Science and Technology (MEXT), and the Pharmaceutical and Food Safety Bureau (PFSB) and Health Policy Bureau (HPB) of the Ministry of Health, Labour and Welfare (MHLW), in consultation with other relevant governmental organizations, and was submitted to the Nuclear Safety Commission (NSC). In preparing the report, cooperation was obtained from the Nuclear Power Engineering Corporation, the Radioactive Waste Management and Nuclear Facility Decommissioning Technology Center and other relevant organizations. The report was also sent for comments to the Nuclear and Industrial Safety Subcommittee of the Advisory Committee for Natural Resources and Energy of METI.

A. 2 Current Status of Utilization of Nuclear Energy and its Management in Japan

The research, development and utilization of nuclear energy in Japan are conducted solely for peaceful purposes, in accordance with the provisions of Article 2 of the Atomic Energy Basic Law. The Atomic Energy Commission (AEC), established on the basis of the Law, plans, deliberates and makes decisions on national policies relating to the utilization of nuclear energy for peaceful purposes. In order to clarify the fundamentals for the utilization of nuclear energy and its development, the Commission has formulated a total of nine Long-Term Programs for Research, Development and Utilization of Nuclear Energy (Long-Term Programs) since 1956, one approximately every five years. The latest one was published in November 2000.

In line with the policy stated in the Long-Term Program, the Agency for Natural Resources and Energy (ANRE) of METI and MEXT establish implementation plans for utilization of nuclear energy for power generation and related fuel cycle activities, and utilization of nuclear energy in science and technology, respectively.

As to ensuring safety, the NSC established on the basis of the Atomic Energy Basic Law, plans, deliberates and makes decisions on policies aimed at ensuring the safe utilization of nuclear energy. As the regulatory bodies responsible for ensuring safety within their particular area of competence, NISA of METI, the STPB of MEXT and the PFSB and the HPB of the MHLW regulate and give guidance on relevant activities. Operators of nuclear business conduct their activities under the policies and the regulations mentioned above.

(1) Current Status of Utilization of Nuclear Energy in Japan

It has been 40 years since the research, development and utilization of nuclear energy began and diverse activities are presently ongoing. An outline of the current status as of March 2003 is as follows.

In Japan, operation of the first commercial nuclear power reactor was started in 1966. Following the 1973 oil crisis, nuclear power plants were built actively, and now has a total of 55 commercial nuclear power plants are in operation or under construction, supplying more than one third of the gross electric power demand. One plant is at the decommissioning stage.

Nuclear fuel cycle facilities related to commercial nuclear power generation, including 6 enrichment and fuel manufacturing facilities, 2 reprocessing facilities, 3 disposal facilities, etc are in operation or under construction. In addition, two power reactors at the stage of research and development for the effective use of nuclear fuel material in future and 16 research reactor facilities for use in national and private institutes and universities are in operation.

Radioactive materials are now widely used in research applications and commercial activities, and various forms of radiation represent indispensable tools in state-of-the-art technologies such as microscopic observation and measurement of molecule, atom and nucleus and micro-fabrication procedures, supplying new insight into the development of science and technology. Also expanding are uses of X-rays or radioisotopes in medical diagnosis and treatment of cancer, amelioration of rubbers and plastics, sterilization of medical equipment and foodstuffs, crop breeding, etc. There are more than 5000 national or private facilities utilizing various types of radiation.

(2) Current Status of Spent Fuel Management and Radioactive Waste Management

The Law for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (the Reactor Regulation Law) and the Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc. (the Radiation Hazards Prevention Law), the Medical Care Law, the Pharmaceutical Affairs Law and the Clinical Laboratory Technicians and Health Laboratory Technicians Law (the latter three are referred to hereafter as the Medical Care Law, etc.) are intended to ensure safety in the utilization of nuclear energy and radiation. The laws and their related regulations have been amended, as appropriate, as the utilization of nuclear energy and radiation expands and diversifies. The laws are consistent with one another in terms of the basics and details of radiation protection.

1) The Status of Spent Fuel Management

Within their respective areas of competence, NISA of METI and the STPB of MEXT regulate and give guidance on activities aimed at ensuring the safety of spent fuel management at reactor facilities and spent fuel reprocessing plants, based on the Reactor Regulation Law and/or the Electricity Utilities Industry Law.

Japan's basic policy in this field is to reprocess spent fuel and make effective use of the recovered plutonium, uranium and other elements. Spent fuel generated in nuclear power reactors is sent for reprocessing after a period of on-site storage. Up till now, the spent fuel, with the exception of a portion reprocessed by the Tokai Reprocessing Facility of the Japan Nuclear Cycle Development Institute (JNC), has been reprocessed in overseas facilities. In the meantime, Japan Nuclear Fuel Ltd. (JNFL) has started constructing the Rokkasho-mura Spent Fuel Reprocessing Plant, which is to be completed by 2005. Storage of spent fuel in the plant's storage facility began in 1999.

Interim storage of spent fuel before reprocessing allows flexibility in the nuclear fuel cycle. The Reactor Regulation Law was amended in 1999 to incorporate provisions on interim spent fuel storage, and a company is preparing for commercial operation of interim storage facilities by 2010.

2) The Status of Radioactive Waste Management

The safety of radioactive waste management is regulated either by the Reactor Regulation Law, the Radiation Hazards Prevention Law or the Medical Care Law, etc.

Within their respective competence, METI, MEXT and the MHLW regulate activities relevant to the safety of radioactive waste management.

Based on the Reactor Regulation Law and /or Electricity Utilities Industry Law, NISA of METI regulates, and gives guidance on, activities ensuring the safety of radioactive waste management in disposal facilities, power reactors, enrichment facilities, fuel manufacturing facilities and reprocessing facilities. NISA establishes regulations for each stage of licensing, design, operation and decommissioning, including emergency preparedness, giving due consideration to the importance of safety for each nuclear sector.

Based on the Reactor Regulation Law, the STPB of MEXT regulates, and gives guidance on, activities ensuring the safety of radioactive waste management in research reactor facilities and facilities using fuel material for research and development purposes. STPB also establishes regulations giving due consideration to the features and scale of each facility, as well as regulating activities aimed at ensuring the safety of facilities using radioisotopes, based on the Radiation Hazards Prevention Law.

The PFSB and the HPB of the MHLW regulate, and give guidance on, activities ensuring the safe management of radioisotope wastes produced in medical applications, based on the Medical Care Law, etc.

The basic policy of Japan in this field is that the present generations, who enjoy the benefits of nuclear energy, are obliged to do their utmost to ensure the safe disposal of radioactive waste generated in the research, development and utilization of nuclear energy, and shall invest continued efforts in proceeding disposal.

When implementing the policy, the waste producers have the primary responsibility for safe processing and disposal of the waste, and they prepare and promote plans for radioactive waste processing and disposal in consultation with other relevant organizations. Meanwhile, the government is responsible for regulating, and giving guidance to, the producers, with the aim of ensuring that waste processing and disposal are carried out appropriately and safely. In Japan, radioactive waste is classified into two categories, namely high-level waste (HLW) generated from spent fuel reprocessing and other low-level waste (LLW). The LLW is sub-classified according to origin (differences in radionuclide composition) and level of radioactivity.

3) The Status of Radioactive Waste Disposal

Concerning the disposal of radioactive waste, the AEC decides on the basic policy for disposal. Based on the policy, the NSC decides on the fundamental concept for safety regulations, upper bound of radioactivity concentration in disposal and the safety assessment of radioactive waste disposal facilities. METI and MEXT establish relevant regulations.

LLW generated in reactors, reprocessing facilities, etc., is processed and temporarily stored at these facilities and then sent to disposal facility. Disposal of some LLWs from power reactors is currently being carried out, while disposal of waste with comparatively high radioactivity is awaiting the establishment of relevant safety criteria.

Disposal of very low-level concrete waste from dismantling of the Japan Power Demonstration Reactor (JPDR) is already completed and the disposal facility was closed in 1997. The Specified Radioactive Waste Final Disposal Act, enacted in the year 2000, established an

implementing organization for disposal of the HLW, the funds reserved for disposal, the procedure for selecting a disposal site, etc., thus facilitating disposal of HLW generated from spent fuel reprocessing.

A. 3 International Activities

As Japan's basic policy for utilizing nuclear energy is to do it solely for peaceful purposes, the government of Japan actively contributed to the establishment of the International Atomic Energy Agency (IAEA) and has participated in its various committees, appropriately taking into account the results of deliberations at our national policy making and planning on utilization of nuclear energy. Recognizing that international cooperation is essential in ensuring safety of spent fuel and radioactive waste management, Japan has taken part in activities of the IAEA and the Organization for Economic Cooperation and Development/Nuclear Energy Agency (OECD/NEA) for information exchange and discussions on safety-related matters.

A. 4 Scope of Facilities Defined by the Legal Framework of Japan

Under the legal framework of Japan, the facilities mentioned in this report belong to various nuclear businesses, each of which has to be licensed by the Reactor Regulation Law or the Radiation Hazards Prevention Law. The overall concept for regulations is common among all businesses. In this report, discussions related to the common concept are described, and supplemented as necessary with additional observations referring to any particular businesses, thus avoiding unnecessary duplication.

In addition, the description about the Medical Care Law, etc. subsequent to Section F is omitted, since the regulation in the Medical Care Law, etc. applies to the Radiation Hazards Prevention Law correspondingly as later mentioned with Section E.

The word "processing " in this report is used meaning "any operation that changes the characteristics of a waste, including pretreatment, treatment and conditioning".

B. Policies and Practices

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Section B. Policies and Practices (Article 32, Section 1)

- 1. In accordance with the provisions of Article 30, each Contracting Party shall submit a national report to each review meeting of Contracting Parties. This report shall address the measures taken to implement each of the obligations of the Convention. For each Contracting Party the report shall also address its:**
- (i) spent fuel management policy;**
 - (ii) spent fuel management practices;**
 - (iii) radioactive waste management policy;**
 - (iv) radioactive waste management practices;**
 - (v) criteria used to define and categorize radioactive waste.**

As introduced in the previous Section, the AEC has formulated a series of Long-Term Programs. Based on the policy stated therein, the ANRE of METI and MEXT are responsible for establishing implementation plans for utilizing nuclear energy for power generation and related fuel cycle activities, and for scientific and technological applications, respectively. Moreover, the NSC plans, deliberates and decides on policies aimed at ensuring the safe utilization of nuclear energy. As the regulatory bodies responsible for ensuring safety within their particular areas of competence, NISA of METI, the STPB of MEXT and the PFSB and the HPB of the MHLW regulate and give guidance on relevant activities. Operators of nuclear business conduct their activities under these policies and the regulations mentioned above.

Following are the national policies on spent fuel management and radioactive waste management as stated in the Long-Term Program, etc., as well as the implementation plans established by the Japanese government and the practices conducted by business operators.

B. 1 Spent Fuel Management Policy

The Long-Term Program states that nuclear power generation should contribute to Japan's energy supply system as an economical, stable and environmentally acceptable source of energy, and that nuclear fuel cycle technologies have the potential to further improve these aspects, allowing people to enjoy the benefits of nuclear power generation over a long period of time. Recognizing these features, and considering the geography and energy resources of the country, Japan has made it a basic policy to reprocess spent fuel and to make effective use of the recovered plutonium and uranium and other elements, while pursuing the principles of safety and nuclear non-proliferation.

Ensuring self-subsistence, Japan intends to reprocess all spent fuel domestically, as a national policy. The Long-Term Program also states that interim storage of spent fuel ensures sufficient time before reprocessing, thus allowing flexibility in the nuclear fuel cycle.

There are concerns about safety and nuclear proliferation related to the use of plutonium recovered from reprocessing of spent fuel. To address these concerns, Japan is making every effort to ensure safety and to make Japan's policy understood in the international community.

B. 2 Spent Fuel Management Practices

Spent fuel generated in power reactors are sent to reprocessing facilities after a period of on-site cooling and storage. The spent fuel has been reprocessed overseas in accordance with contracts with British and French companies, with the exception of a portion reprocessed by the Tokai Reprocessing Plant of the

JNC. In the meantime, taking into account the call for domestic reprocessing, JNFL began constructing the Rokkasho-mura Spent Fuel Reprocessing Plant, based on operational experience accumulated at the Tokai Reprocessing Facility and on technologies and experience from countries advanced in reprocessing. The plant is to be completed by 2005. Storage of spent fuel in the plant's storage facility began in 1999 and export of spent fuel to foreign reprocessing plants ended in July 2001.

The Reactor Regulation Law was amended in 1999 to incorporate provisions on interim spent fuel storage, and a company is currently preparing for commercial operation of interim fuel storage facilities by 2010.

The spent fuel from research reactor facility has been exported to the USA, or is to be reprocessed in Japan.

B. 3 Radioactive Waste Management Policy

The AEC, in its Long-Term Program and other documents, states that the waste producers has the primary responsibility for safe processing and disposal of the waste and that the government has the responsibility for taking necessary measures to ensure that this processing and disposal are carried out appropriately and safely by the producers, through giving adequate guidance and setting necessary regulations. Further, the AEC states that the government should play an appropriate role in implementing the disposal program for radioactive waste, particularly HLW, with a view to ensuring long-term safety, in addition to its activities related to promotion of research and development activities and safety regulation. (*1)

The AEC states that the present generations, which enjoy the benefits of nuclear energy, are obliged to do their utmost to ensure the safe disposal of radioactive waste generated in the research, development and utilization of nuclear energy, and should invest continued efforts in achieving this goal. The AEC decided on November 2, 1993 to eliminate the option of sea dumping of radioactive waste, based on the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972) and its amendment to Annex I in 1993.

The AEC states that nuclear facilities should be decommissioned safely at the responsibility of license holder with the local community's understanding and support, and that generation of radioactive waste should be minimized. The AEC encourages research and development efforts aimed at recycling and/or reusing waste. The AEC acknowledges that waste below "clearance levels" need not be dealt with as radioactive material and may be handled as conventional waste, and encourages recycling to the fullest extent practical and reasonable.

*1: The policy on processing and disposal of radioactive waste, Decision by the AEC, Oct.22, 1985

B. 4 Radioactive Waste Management Practices

B. 4. 1 Government Activities related to Radioactive Waste Management

METI and MEXT have established and continued to improve the legal framework consisting of the Reactor Regulation Law and the Radiation Hazards Prevention Law, for safe and proper processing, storage and disposal of radioactive waste, based on studies and decisions made by the AEC and the NSC. Among these regulations, the criteria for gaseous and liquid radioactive waste disposal have been established in accordance with relevant international recommendations.

Solid radioactive waste is classified into two categories, namely HLW (liquid waste generated from spent fuel reprocessing in vitrified package) and other LLW. The LLW is sub-classified according to origin (differing radionuclide composition) and level of radioactivity, as shown in Table B. 4-1.

Table B. 4-2 shows the status of activities aimed at preparing the relevant regulations for disposal.

Following is a summary of the basic concepts for disposal shown in Table B. 4-2.

There are two basic concepts for land disposal, i.e. “geological disposal” and “near- and sub-surface disposal”. Near- and sub-surface disposal consists of near-surface disposal, including concrete vault and trench disposal, and sub-surface disposal at a depth sufficient to safety margin for conventional sub-surface use of land. HLW is disposed of solely by geological disposal, and LLW can be disposed of either by geological disposal or near- and sub-surface disposal, taking into consideration the characteristics of waste. Vitrified HLW is emplaced in a stable geological formation at a depth of more than 300 meters, following 30 to 50 years of interim storage to allow cooling. As for the LLW from power reactors, wastes with comparatively higher radioactivity are disposed of in sub-surface facilities, while other wastes are disposed of in concrete vaults or trenches, depending on their radioactivity levels. Radioactive wastes containing transuranic nuclides from reprocessing, uranium waste from enrichment and/or fuel manufacturing, and radioactive waste from medical, industrial and research facilities are disposed of either by geological disposal or near- and sub-surface disposal, depending on types of radionuclides and levels of radioactivity.

In the future, discussions will continue on measures that can be taken to provide different disposal methods in a single disposal facility, or disposing of wastes of different origin in a single disposal facility.

The AEC decides on the basic policy for disposal. Based on the policy, the NSC decides on the basic concept for the safety regulations for land disposal (*2), upper bounds of radioactivity concentration for disposal of radioactive materials and methods for assessing the safety of disposal facilities, METI and MEXT establish relevant regulations. To date, the regulations for disposal of LLW from power reactors, including the upper bounds in license applications for waste disposal, have already been established. The radioactive waste returned from overseas reprocessing is disposed of together with waste from domestic reprocessing.

The Specified Radioactive Waste Final Disposal Act, enacted in the year 2000, stipulates the establishment of an implementing organization for disposal of HLW, the funds reserved for disposal, and procedure for selecting a disposal site, etc. Final Disposal Plan is developed every five years based on the Act.

Partitioning and transmutation is a technology used to separate radioactive materials with long half-lives in HLW from the rest of the waste and convert them into short half-lives or stable materials. This technology, even though it is still in early stage of development, should be further pursued because it may contribute to reducing cost the burden of waste processing and disposal and to effective use of available resources.

*2: Basic Concept for Safety Regulation for Land Disposal of Low-Level Solid Radioactive Waste (Committee on Safety Regulation of Radioactive Waste, NSC, October 11, 1985)

B. 4. 2 Radioactive Waste Management Practices by Operators

Operators, recognizing their responsibility concerning radioactive waste management addressed in B.3,

shall manage radioactive waste generated at their facilities in compliance with the Reactor Regulation Law, the Radiation Hazards Prevention Law and relevant regulations.

(1) High-Level Radioactive Waste Management Practices

Spent fuel has been reprocessed by the Tokai Reprocessing Plant of the JNC and by overseas reprocessing plants in France and the United Kingdom. In the meantime, JNFL is constructing a vitrification facility for HLW, attached to its reprocessing facility. This is to be completed by 2005.

High-level liquid waste generated at the Tokai Reprocessing Plant of the JNC is stored in a tank within the facility. The vitrification facility started operation in January 1995 and had produced 130 canisters by March 2003.

Utilities in Japan have concluded reprocessing contracts with British and French companies for a total of 5,600 t U of light water reactor spent fuel and 1,500 t U of gas cooled reactor spent fuel. In accordance with these contracts, vitrified waste packages are returned to the utilities and are stored by JNFL. By March 2003, 616 vitrified packages had been returned and a total of 2,200 packages will be stored, with remaining packages to be returned in the next ten-odd years.

Vitrified waste will be disposed of by geological disposal. Based on the Specified Radioactive Waste Final Disposal Act, the Nuclear Waste Management Organization of Japan, the responsible implementing body, will select preliminary investigation areas, then detailed investigation areas and, finally, a site for disposal facility construction, and will implement disposal of HLW in this disposal facility.

(2) Low-Level Radioactive Waste Management Practices

As shown in B. 4. 1, LLW is classified into waste from power reactors, waste containing transuranic nuclides, uranium waste and radioactive waste from medical, industrial and research facilities. The waste management strategy for each of these categories is as follows.

1) Waste from Power Reactors

As of March 2003, fifty-four nuclear power reactors were in operation. Liquid waste concentrate is solidified with cement in drums after evaporation. Paper, clothing and other combustibles are placed in drums after incineration. Plastics, metals and other non-combustibles are placed in drums after compaction. Used steam generators and other large-volume solid wastes are placed in storage facilities. Of the comparatively highly radioactive waste, replaced control rods and channel boxes, etc. are stored in spent fuel pools and spent ion exchange resins are stored in tanks. Near-surface disposal of LLW solidified with cement in drums started in 1992 at the disposal facility of JNFL at Rokkasho Village in Aomori Prefecture.

A reactor at the Tokai Power Station of the Japan Atomic Power Co. ceased operation in 1998 and has been in decommissioning since December 2001. The advanced thermal reactor "Fugen" of JNC ceased commercial operation in March 2003 and decommissioning will start after about ten years of preparation.

2) Waste Containing Transuranic Nuclides

Liquid transuranic waste generated at the Tokai Reprocessing Plant of JNC is stored in tanks temporarily, and a portion of the liquid waste are solidified in drums after concentration by evaporation. Segmented fuel cladding, used filters and sampling bottles are put in containers and other solid waste is put into drums. These drums and the containers are being held in storage at

on-site storage facilities.

3) Uranium Waste

Liquid waste containing uranium generated from enrichment and/or fuel manufacturing facilities of JNC and/or other private facilities are stored in tanks. Solid uranium waste and the ash resulting from the incineration of part of the solid uranium waste are put in drums. They are held in storage at on-site storage facilities.

4) Radioactive Waste from Medical, Industrial and Research Facilities

Radioactive waste generated from medical and industrial uses is collected by the operators of radioisotope waste management facilities, who store it in their own storage facilities after processing such as, compaction or incineration. Radioactive waste generated in research reactor facilities and fuel material use facilities of the Japan Atomic Energy Research Institute (JAERI), the JNC and universities are stored in their own storage facilities after processing such as compaction or incineration.

B. 5 Criteria for Definition and Classification of Radioactive Waste

As shown in B. 4, radioactive waste is classified into two categories, namely HLW and LLW. Depending on its origin, the LLW is sub-classified into waste from power reactors, waste containing transuranic nuclides, uranium waste and radioactive waste from medical, industrial and research facilities.

Based on a report published by the NSC, a provision was formulated under the Reactor Regulation Law on the upper bounds of radionuclides concentration in license applications for disposal of waste from reactor facilities.

The NSC is discussing clearance levels for radioactive waste, founded on the basic concept set out by the AEC, and has published clearance levels (radionuclide concentrations) for waste from light water reactors, gas-cooled reactors, heavy water reactors, fast reactors and fuel material use facilities, as well as clearance level certification methods.

Table B. 4-1 Classification of Radioactive Waste

Classification			Example	Origin of Waste
High-Level Radioactive Waste			Vitrified Liquid Waste	Reprocessing facilities
Low-Level Radioactive Waste	Waste from Power Reactors	Waste with Comparatively High Radioactivity	Control Rods Core Internals	Power Reactors
		Low-Level Waste	Liquid Waste Filters Used Equipment Expendables	
		Very Low-Level Waste	Concrete Metals	
	Waste Containing Transuranic Nuclides		Parts of Fuel Rod Liquid Waste Filters	Reprocessing Facilities MOX Fuel Fabrication Facilities
	Uranium Waste		Expendables Sludge Used Equipment	Enrichment and Fuel Manufacturing Facilities
	Radioactive Waste from Medical, Industrial and Research Facilities		Solidified Package Metals Concrete Plastics Filters Miscellaneous Solids	Fuel Material Use Facilities Radioisotope Use Facilities Research reactor Facilities
Waste below Clearance Levels			Waste from Decommissioning	All Nuclear Facilities

Table B.4-2 Classification of basic concepts for disposal and status of activities preparing for relevant regulations

			Atomic Energy Commission	Nuclear Safety Commission			Situation regarding establishment of regulatory law and provisions
			Basic concepts for disposal	Basic concept for safety regulation	Restriction for disposal facility	Method of safety assessment	
High-Level Radioactive Waste			Established May 1998	Studied Nov 2000	To be studied	To be studied	To be established
Low-Level Radioactive Waste	Waste from Power Reactors	Waste with Comparatively High Radioactivity (core internals, etc.)	Established Oct 1998	Established Sep 2000	Established Sep 2000	To be studied	Almost established Dec 2000
		Low-Level Waste	Established Aug 1984	Established Oct 1985	Established Feb 1987, June 1992	Studied Mar 1988, Jan 1993	Almost established Mar 1987, Feb 1993
		Very Low-Level Waste			Established June 1992, Sep 2000	Studied Jan 1993	Almost established Sep 1992 Dec 2000
	Waste Containing Transuranic Nuclides		Established Apr 2000	Under study	To be studied	To be studied	To be established
	Uranium Waste		Established Dec 2000	Under study	To be studied	To be studied	To be established
	Radioactive Waste from Medical, Industrial and Research Facilities ^{*2}		Established June 1998	Under study	To be studied	To be studied	To be established
	Clearance Levels		Established Aug 1984	Established Mar 1999, Jul 2001, Apr 2003 ^{*1}			To be established

*1 : Clearance levels for Main Nuclear Facilities, Clearance levels for Heavy Water Reactors and Fast Neutron Reactors, Clearance levels for Fuel Material Use Facilities (Facilities where Irradiated Fuel and Materials are handled).

*2 : Status of study by the Atomic Energy Commission and Nuclear Safety Commission and the situation regarding establishment of laws and provisions for radioactive waste generated from reactor facilities are the same as the status and situation for waste from power reactors.

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C. Scope of Application

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Section C. Scope of Application (Article 3)

1. **This Convention shall apply to the safety of spent fuel management when the spent fuel results from the operation of civilian nuclear reactors. Spent fuel held at reprocessing facilities as part of a reprocessing activity is not covered in the scope of this Convention unless the Contracting Party declares reprocessing to be part of spent fuel management.**
2. **This Convention shall also apply to the safety of radioactive waste management when the radioactive waste results from civilian applications. However, this Convention shall not apply to waste that contains only naturally occurring radioactive materials and that does not originate from the nuclear fuel cycle, unless it constitutes a disused sealed source or it is declared as radioactive waste for the purposes of this Convention by the Contracting Party.**
3. **This Convention shall not apply to the safety of management of spent fuel or radioactive waste within military or defence programmes, unless declared as spent fuel or radioactive waste for the purposes of this Convention by the Contracting Party. However, this Convention shall apply to the safety of management of spent fuel and radioactive waste from military or defence programmes if and when such materials are transferred permanently to and managed within exclusively civilian programmes.**
4. **This Convention shall also apply to discharges as provided for in Articles 4, 7, 11, 14, 24 and 26.**

The government of Japan applies this Convention to the safety of spent fuel management when the spent fuel results from the operation of civilian nuclear reactors. The government of Japan, jointly with UK and France, declared that it should report, within the context of the Convention, on reprocessing as part of spent fuel management (September 5, 1997), and, when acceding to the convention, declared reprocessing to be part of spent fuel management.

The government of Japan applies this Convention to the safety of radioactive waste management when the radioactive waste results from civilian applications. However, the government of Japan does not apply this Convention to waste that contains only naturally occurring radioactive materials and that does not originate from the nuclear fuel cycle.

Japan does not have, or does not plan to have, any spent fuel within military or defence programmes. The government of Japan does not make declaration specified in the Article 3. 3.

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D. Lists and Inventories

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Section D. Lists and Inventories (Article 32, Section 2)

This report shall also include:

- (i) a list of the spent fuel management facilities subject to this Convention, their location, main purpose and essential features;**
- (ii) an inventory of spent fuel that is subject to this Convention and that is being held in storage and of that which has been disposed of. This inventory shall contain a description of the material and, if available, give information on its mass and its total activity;**
- (iii) a list of the radioactive waste management facilities subject to this Convention, their location, main purpose and essential features;**
- (iv) an inventory of radioactive waste that is subject to this Convention that:**
 - (a) is being held in storage at radioactive waste management and nuclear fuel cycle facilities;**
 - (b) has been disposed of; or**
 - (c) has resulted from past practices. This inventory shall contain a description of the material and other appropriate information available, such as volume or mass, activity and specific radionuclides;**
- (v) a list of nuclear facilities in the process of being decommissioned and the status of decommissioning activities at those facilities.**

D.1 List of Spent Fuel Management Facilities

Spent fuel from power reactor facilities is being held in storage at spent fuel management facilities within power reactor facilities or at the spent fuel management facilities within the Tokai Reprocessing Facility of JNC and Rokkasho Reprocessing Plant of JNFL. Spent fuel from research reactor facilities is being held in storage at spent fuel management facilities of the research reactor facilities. The locations, main purposes and essential features of these spent fuel management facilities are listed in Tables D.1-1 and D.1-2.

D.2 Inventory of Spent Fuel

Spent fuel stored in above-mentioned spent fuel management facilities totals approximately 11,000 ton as of the end of March, 2003.

D.3 List of Radioactive Waste Management Facilities

Radioactive waste management facilities within power reactor facilities include the followings: waste processing facilities where waste generated at the reactor facility is processed; solid waste storage facilities where drums (homogeneous solidification, fill-up solidification, miscellaneous solid and others), etc. filled with processed waste are being held in storage; storage facilities where the replaced steam generators and other large solid wastes are being held in storage; spent fuel pools etc. where the used control rods, the disused channel boxes, etc. are being held in storage; and tanks where the spent ion exchange resin is being held in storage.

Radioactive waste management facilities within enrichment and fuel manufacturing facilities include the followings; waste processing equipments that processes waste generated at the facilities; and solid waste storage facilities where drums filled with processed waste are held in storage.

Radioactive waste management facilities within spent fuel reprocessing facilities include the followings; waste processing equipments that processes waste generated at the facility; waste storage facilities where vitrified waste and high level liquid waste are being held in storage; and waste storage facilities where low level liquid waste and low level solid waste are being held in storage.

Radioactive waste management facilities licensed under the disposal business include the followings; radioactive waste repositories where radioactive waste is disposed of; and waste management facilities where radioactive waste is processed and being held in storage before disposal.

Radioactive waste management facilities within research reactor facilities and major fuel material use facilities include the followings; waste processing equipments that processes low level radioactive waste generated at those facilities; and solid waste storage facilities where drums filled with processed waste are being held in storage.

Radioisotope waste management facilities licensed on the basis of the Radiation Hazards Prevention Law include storage facilities, where drums, etc. filled with processed waste generated at radioisotopes use facilities, etc. are being held in storage.

Radioactive waste management facilities licensed on the basis of the Medical Care Laws etc. include the storage facilities, etc., where drums, etc. filled with processed radioactive medical waste generated at medical care facilities, etc. being are being held in storage.

The locations, main purposes and essential features of these radioactive waste management facilities are listed in Tables D.3-1 and D.3-2.

D.4 Inventory of Radioactive Waste

D.4.1 Inventory of Radioactive Waste Being Held in Storage

Radioactive waste from power reactor facilities, including approximately 550,000 drums (converted to number of 200 litter drums) in solid waste storage facilities, 29 steam generators in steam generator storage facilities, used control rods, disused channel boxes, spent resin in spent fuel pools and other facilities respectively, are stored at end of March 2003.

HLWs of approximately 700 vitrified packages and approximately 400m³ high level liquid waste are stored in fuel reprocessing facilities. LLWs of approximately 440,000 drums (converted to number of 200 litter drums) and approximately 4,000m³ low level liquid waste are stored in fuel reprocessing facilities, fuel fabrication facilities, laboratories, research reactor facilities of universities, and storage facilities of Japan Radioisotopes Association at end of March 2003.

D.4.2 Inventory of Radioactive Waste That Has Been Disposed of

A portion of LLW from power reactor facilities, which has comparatively low concentration of radionuclides has been transported to a radioactive waste disposal facility of a disposal business operator and disposed of at near surface disposal facility since 1992.

The amount of the waste emplaced at the disposal facility is listed in Table D.4-1. Presently, the

disposal facility of JNFL is in operation and has disposed of about 150,000 drums (each carrying 200 liters) of waste, as of the end of March 2003. At the disposal facility of Tokai Research Establishment of JAERI, disposal of about 1,670 tons of very low level waste resulting from dismantling of JPDR was finished in 1995, and the disposal facility has been at the preservation stage since October 1997.

D.4.3 Inventory of Radioactive Waste that Has Resulted from Past Practices

None.

D.5 List of Nuclear Facilities in the Process of Being Decommissioned

Nuclear facilities in the process of being decommissioned include Tokai Power Plant of Japan Atomic Power Co., and JRR-2 of JAERI. Nuclear facilities scheduled to be decommissioned include the advanced thermal reactor Fugen Nuclear Power Plant of JNC. The status of decommissioning activities, etc. is listed in Tables D.5-1 and D.5-2.

Table D.1-1 List of Spent Fuel Management Facilities (Related to Power Generation) (No. 1)

Nuclear facilities where spent fuel management facilities are located	Location	Main purpose	Essential features
Japan Atomic Power Co. Tokai-2 Power Station	Ibaraki-pref.	Storage of spent fuel	Wet storage (partly stored in dry casks)
Japan Atomic Power Co. Tsuruga Power Station	Fukui-pref.	Storage of spent fuel	Wet storage
Hokkaido Electric Power Co., Inc. Tomari Power Station	Hokkaido-pref.	Storage of spent fuel	Wet storage
Tohoku Electric Power Co., Inc. Onagawa Nuclear Power Station	Miyagi-pref.	Storage of spent fuel	Wet storage
The Tokyo Electric Power Co., Inc. Fukushima Daiichi Nuclear Power Station	Fukushima-pref.	Storage of spent fuel	Wet storage (partly stored in dry casks)
The Tokyo Electric Power Co., Inc. Fukushima Daini Nuclear Power Station	Fukushima-pref.	Storage of spent fuel	Wet storage
The Tokyo Electric Power Co., Inc. Kashiwazaki Kariwa Nuclear Power Station	Niigata-pref.	Storage of spent fuel	Wet storage
The Chubu Electric Power Co., Inc. Hamaoka Nuclear Power Station	Shizuoka-pref.	Storage of spent fuel	Wet storage
Hokuriku Electric Power Co., Inc. Shika Nuclear Power Station	Ishikawa-pref.	Storage of spent fuel	Wet storage
The Kansai Electric Power Co., Inc. Mihama Power Station	Fukui-pref.	Storage of spent fuel	Wet storage
The Kansai Electric Power Co., Inc. Takahama Power Station	Fukui-pref.	Storage of spent fuel	Wet storage
The Kansai Electric Power Co., Inc. Ohi Power Station	Fukui-pref.	Storage of spent fuel	Wet storage
The Chugoku Electric Power Co., Inc. Shimane Nuclear Power Station	Shimane-pref.	Storage of spent fuel	Wet storage
Shikoku Electric Power Co., Inc. Ikata Power Station	Ehime-pref.	Storage of spent fuel	Wet storage
Kyushu Electric Power Co., Inc. Genkai Nuclear Power Station	Saga-pref.	Storage of spent fuel	Wet storage
Kyushu Electric Power Co., Inc. Sendai Nuclear Power Station	Kagoshima-pref.	Storage of spent fuel	Wet storage
Japan Nuclear Cycle Development Institute Fugen Nuclear Power Station	Fukui-pref.	Storage of spent fuel	Wet storage
Japan Nuclear Cycle Development Institute Tokai Reprocessing Plant	Ibaraki-pref.	Storage of spent fuel	Wet storage
Japan Nuclear Fuel Limited Rokkasho Reprocessing Plant	Aomori-pref.	Storage of spent fuel	Wet storage
Japan Nuclear Cycle Development Institute Monju	Fukui-pref.	Storage of spent fuel	Wet storage*1

(As of the end of March 2003)

*1: Pre-service inspection stage

Table D.1-2 List of Spent Fuel Management Facilities (Research Reactors) (No. 2)

Nuclear facilities where spent fuel management facilities are located	Location	Main purpose	Essential features
Japan Atomic Energy Research Institute Tokai Research Establishment	Ibaraki-pref.	Storage of spent fuel	Dry storage
Japan Atomic Energy Research Institute Oarai Research Establishment	Ibaraki-pref.	Storage of spent fuel	Wet storage
Japan Atomic Energy Research Institute Mutsu Establishment	Aomori-pref.	Storage of spent fuel	Dry storage
Japan Nuclear Cycle Development Institute Oarai Engineering Center	Ibaraki-pref.	Storage of spent fuel	Wet storage
Rikkyo University Institute for Atomic Energy	Kanagawa-pref.	Storage of spent fuel	Dry storage
Musashi Institute of Technology Atomic Energy Research Laboratory	Kanagawa-pref.	Storage of spent fuel	Dry storage
Kyoto University Research Reactor Institute	Osaka-pref.	Storage of spent fuel	Wet storage
Toshiba Corporation Research Reactor Center	Kanagawa-pref.	Storage of spent fuel	Wet storage
Hitachi Engineering Co., Ltd. Ozenji Branch Section	Kanagawa-pref.	Storage of spent fuel	Wet storage

(As of the end of March 2003)

<Reference>

List of Nuclear facilities where spent fuel management facilities are not located (Research Reactors)

Nuclear facilities	Location
Kinki University Atomic Energy Research Institute	Osaka-pref.
The University of Tokyo Nuclear Engineering Laboratory, Graduate School of Engineering	Ibaraki-pref.
Toshiba Corporation Nuclear Engineering Lab.	Kanagawa-pref.
Hitachi, Ltd. Power & Industrial Systems R&D Laboratory Ozenji Branch Section	Kanagawa-pref.

(As of the end of March 2003)

* Because of small thermal output, there is no assumption to generate spent fuel in the research reactors on this list during the service period

Table D.3-1 List of Radioactive Waste Management Facilities (Power Reactors)

Nuclear facilities where radioactive waste management facilities are located	Location	Main Purpose	Essential Features
Japan Atomic Power Co. Tokai Power Station	Ibaraki-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
Japan Atomic Power Co. Tokai-2 Power Station	Ibaraki-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
Japan Atomic Power Co. Tsuruga Power Station	Fukui-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
Hokkaido Electric Power Co., Inc. Tomari Power Station	Hokkaido-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
Tohoku Electric Power Co., Inc. Onagawa Nuclear Power Station	Miyagi-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
The Tokyo Electric Power Co., Inc. Fukushima Daiichi Nuclear Power Station	Fukushima-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
The Tokyo Electric Power Co., Inc. Fukushima Daini Nuclear Power Station	Fukushima-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
The Tokyo Electric Power Co., Inc. Kashiwazaki Kariwa Nuclear Power Station	Niigata-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
The Chubu Electric Power Co., Inc. Hamaoka Nuclear Power Station	Shizuoka-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
Hokuriku Electric Power Co., Inc. Shika Nuclear Power Station	Ishikawa-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
The Kansai Electric Power Co., Inc. Mihama Power Station	Fukui-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
The Kansai Electric Power Co., Inc. Takahama Power Station	Fukui-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
The Kansai Electric Power Co., Inc. Ohi Power Station	Fukui-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
The Chugoku Electric Power Co., Inc. Shimane Nuclear Power Station	Shimane-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
Shikoku Electric Power Co., Inc. Ikata Power Station	Ehime-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
Kyushu Electric Power Co., Inc. Genkai Nuclear Power Station	Saga-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
Kyushu Electric Power Co., Inc. Sendai Nuclear Power Station	Kagoshima-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
Japan Nuclear Cycle Development Institute, the advanced thermal Reactor Fugen Nuclear Power Plant	Fukui-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, incineration, etc.
Japan Nuclear Cycle Development Institute Monju	Fukui-pref.	Processing and storage of waste from the power plant	Stored at a storage facility after volume reduction by compaction, etc.

(As of the end of March 2003)

Table D.3-2 List of Radioactive Waste Management Facilities (Other Than Power Reactors)

Nuclear facilities where radioactive waste management facilities are located		Location	Main Purpose	Essential features
Global Nuclear Fuel - Japan Co., Ltd.	Enrichment and/or fuel manufacturing facility	Kanagawa-pref.	Processing and storage of uranium waste	Stored at a storage facility, etc. after volume reduction by compaction, etc.
Mitsubishi Nuclear Fuel Co., Ltd.	Enrichment and/or fuel manufacturing facility	Ibaraki-pref.	Processing and storage of uranium waste	Stored at a storage facility, etc. after volume reduction by compaction, incineration, etc.
Nuclear Fuel Industries, Ltd. Tokai Works	Enrichment and/or fuel manufacturing facility	Ibaraki-pref.	Processing and storage of uranium waste	Stored at a storage facility, etc. after volume reduction by incineration, etc.
	Fuel material use facility		Processing and storage of waste from fuel material use facility	Stored at a storage facility, etc. after volume reduction by incineration, etc.
Nuclear Fuel Industries, Ltd. Kumatori Works	Enrichment and/or fuel manufacturing facility	Osaka-pref.	Processing and storage of uranium waste	Stored at a storage facility, etc. after volume reduction by compaction, etc.
Japan Nuclear Cycle Development Institute Ningyo-Toge Environmental Engineering Center	Enrichment and/or fuel manufacturing facility	Okayama - pref.	Processing and storage of uranium waste	Stored at a storage facility, etc. after volume reduction by incineration, etc.
	Fuel material use facility		Processing and storage of waste from fuel material use facility	Stored at a storage facility, etc. after volume reduction by incineration, etc.
Japan Nuclear Cycle Development Institute Tokai Works	Reprocessing facility	Ibaraki-pref.	Processing and storage of HLW and waste containing transuranic nuclides	HLW stored after vitrification, waste containing transuranic nuclides stored after volume reduction by incineration, etc.
	Fuel material use facility		Processing and storage of waste from fuel material use facility	Stored at a storage facility, etc. after volume reduction by compaction, incineration, etc.
Japan Nuclear Cycle Development Institute Oarai Engineering Center	Research reactor facility; Fuel material use facility	Ibaraki-pref.	Processing and storage of waste from fuel material use facility and research reactor facility	Stored at a storage facility, etc. after volume reduction by compaction, etc.
Japan Nuclear Fuel Limited Reprocessing Business division	Reprocessing facility	Aomori-pref.	Processing and storage of HLW and waste containing transuranic nuclides	Presently, waste from a reception and storage facility for spent fuel is stored at a storage facility (main facility is currently under construction).
	Waste management facility		Storage of vitrified waste	A storage facility for returned vitrified waste

Nuclear facilities where radioactive waste management facilities are located		Location	Main Purpose	Essential features
Japan Nuclear Fuel Limited Enrichment and Disposal Office	Waste disposal facility	Aomori-pref.	Disposal of low level radioactive waste	Unit 1 Disposal facility and Unit 2 Disposal facility
	Enrichment and/or fuel manufacturing facility		Processing and storage of uranium waste	Stored at a storage facility
Japan Atomic Energy Research Institute Tokai Research Establishment	Waste disposal facility	Ibaraki-Pref.	Disposal of low level radioactive waste	
	Research reactor facility; Fuel material use facility; Radioisotope Waste Management facility*1		Processing and storage of radioactive waste from medical, industrial and research facilities	Stored at a storage facility, etc. after volume reduction by compaction, incineration, etc.
Japan Atomic Energy Research Institute Oarai Research Establishment	Waste management facility; Fuel material use facility; Radioisotope Waste Management facility*1	Ibaraki-Pref.	Processing and storage of radioactive waste from medical, industrial and research facilities	Stored at a storage facility, etc. after volume reduction by compaction, incineration, etc.
	Research reactor facility		Storage of waste from research reactor facility	Storage of ion exchange resin
Japan Atomic Energy Research Institute Mutsu Establishment	Research reactor facility	Aomori-Pref.	Processing and storage of waste from research reactor facility	Stored at a storage facility, etc. after volume reduction by compaction, etc.
The University of Tokyo Nuclear Engineering Research Laboratory, Graduate School of Engineering	Research reactor facility; Fuel material use facility	Ibaraki-Pref.	Momentary storage of waste from research reactor facility and fuel material use facility	Processed in Japan Atomic Energy Research Institute Tokai Research Establishment
Kyoto University Research Reactor Institute	Research reactor facility Fuel material use facility	Osaka-pref.	Processing and storage of waste from research reactor facility and fuel material use facility	Stored at a storage facility, etc. after volume reduction by compaction, etc.
Rikkyo University Institute for Atomic Energy	Research reactor facility	Kanagawa-pref.	Processing and storage of waste from research reactor facility	Stored at a storage facility, etc. after volume reduction by compaction, etc.
Musashi Institute of University Atomic Energy Research Institute	Research reactor facility	Kanagawa-pref.	Storage of waste from research reactor facility	Stored at a storage facility, etc.
Kinki University Atomic Energy Research Institute	Research reactor facility	Osaka-pref.	Storage of waste from research reactor facility	Stored at a storage facility, etc.
Toshiba Corporation Research Reactor Center	Research reactor facility	Kanagawa-pref.	Storage of waste from research reactor facility	Stored at a storage facility, etc.

Nuclear facilities where radioactive waste management facilities are located		Location	Main Purpose	Essential features
Toshiba Corporation Nuclear Engineering Lab.	Fuel material use facility; Research reactor facility	Kanagawa-pref.	Storage of waste from research reactor facility and fuel material use facility	Stored at a storage facility, etc.
Hitachi, Ltd. Power & Industrial Systems R&D Laboratory Ozenji Branch Section	Research reactor facility	Kanagawa-pref.	Storage of waste from research reactor facility	Stored at a storage facility, etc.
Hitachi Engineering Co., Ltd. Ozenji Branch Section	Research reactor facility	Kanagawa-pref.	Storage of waste from research reactor facility	Stored at a storage facility, etc.
National Institute of Radiological Sciences Radiotoxicology Building Operations Section	Fuel material use facility	Chiba-pref.	Storage of waste from fuel material use facility	Stored at a storage facility, etc.
National Institute of Advanced Industrial Science and Technology Tsukuba Central 2	Fuel material use facility	Ibaraki-pref.	Storage of waste from fuel material use facility	Stored at a storage facility, etc.
Nuclear Material Control Center Rokkasho Safeguards Analytical Laboratory	Fuel material use facility	Aomori-pref.	Processing and storage of waste from fuel material use facility	Stored at a storage facility, etc. after volume reduction by compaction, incineration, etc.
Nuclear Material Control Center Tokai Safeguards Center	Fuel material use facility	Ibaraki-pref.	Storage of waste from fuel material use facility	Stored at a storage facility, etc.
Nippon Nuclear Fuel Development Co., Ltd. NFD Hot Laboratory	Fuel material use facility	Ibaraki-pref.	Processing and storage of waste from fuel material use facility	Stored at a storage facility, etc. after volume reduction by compaction, etc.
Nuclear Development Corporation Fuel Hot Laboratory	Fuel material use facility	Ibaraki-pref.	Processing and storage of waste from fuel material use facility	Stored at a storage facility, etc. after volume reduction by compaction, etc.
Japan Radioisotope Association The Kaya Memorial Takizawa Laboratory	Radioisotope Waste Management facility*2	Iwate-pref.	Processing and storage of waste from radioisotope use facility, etc.	Stored at a storage facility, etc. after volume reduction by compaction, incineration, etc.
Japan Radioisotope Association Tohoku Storage Facility	Radioisotope Waste Management facility*2	Miyagi-pref.	Storage of waste from radioisotope use facility, etc.	Stored at a storage facility, etc.
Japan Radioisotope Association Kanto Storage Facility	Radioisotope Waste Management facility*2	Ibaraki-pref.	Storage of waste from radioisotope use facility, etc.	Stored at a storage facility, etc.
Japan Radioisotope Association Ichihara Office	Radioisotope Waste Management facility*2	Chiba-pref.	Storage of waste from radioisotope use facility, etc.	Stored at a storage facility, etc.
Japan Radioisotope Association Kanto Waste Relay Station II	Radioisotope Waste Management facility*2	Chiba-pref.	Processing and storage of waste from radioisotope use facility, etc.	Stored at a storage facility, etc. after volume reduction by compaction, etc.

Nuclear facilities where radioactive waste management facilities are located		Location	Main Purpose	Essential features
Japan Radioisotope Association Kanto Waste Relay Station	Radioisotope Waste Management facility*2	Chiba-pref.	Storage of waste from radioisotope use facility, etc.	Stored at a storage facility, etc.
Japan Radioisotope Association Kansai Waste Relay Station	Radioisotope Waste Management facility*2	Kyoto-pref.	Storage of waste from radioisotope use facility, etc.	Stored at a storage facility, etc.
The University of Tokyo Radioisotope Center	Radioisotope Waste Management facility*1	Tokyo-Metro.	Processing and storage of waste from radioisotope use facility, etc.	Stored at a storage facility, etc. after volume reduction by incineration, etc.
T.N. Technos Co. Tsukuba Research Center	Radioisotope Waste Management facility*1	Ibaraki-pref.	Processing and storage of waste from radioisotope use facility, etc.	Stored at a storage facility, etc. after volume reduction by incineration, etc.

(As of the end of March 2003)

*1 : Radioisotope Waste Management facility licensed on the basis of the Radiation Hazards Prevention Law

*2 : Radioisotope Waste Management facility licensed on the basis of the Radiation Hazards Prevention Law and the Medical Care Laws etc.

Table D.4-1 The Amount of Waste Disposed of

Name of facility		Representative nuclides	Disposed amount
Japan Nuclear Fuel Limited, Enrichment/waste disposal division, Radioactive waste disposal facility*1	No. 1 disposal facility	Co-60, Ni-63, Cs-137, Sr- 90, C-14	134,683 drums*3
	No. 2 disposal facility	Co-60, Ni-63, Cs-137, Sr- 90, C-14	15,832 drums*3
Japan Atomic Energy Research Institute, Tokai Research Establishment *2	Waste disposal facility	Co-60, Ni-63, Cs-137, Sr- 90, Ca-41, C-14, Eu-152, H-3	1,670 tons

*1: As of the end of March 2003

*2: Disposal of very low level concrete waste resulting from the dismantling of JPDR. Disposal completed in 1995, and operation has been shifted to the preservation stage of the disposal facility since October 1997.

*3: 200-liter drums

Table D.5-1 List of Nuclear Facilities in the Process of Being Decommissioned and Planned to Be Decommissioned. Status of Decommissioning Activities at These Facilities
(With Respect to Power Reactors)

Name of facility	Location	Reactor type	Electrical output (MW)	Commercial operation	Status of decommissioning
Japan Atomic Power Co., Tokai Power Plant	Ibaraki -pref.	GCR	166	Jul 1966 - Mar 1998	Decommissioning started in 2001
Japan Nuclear Cycle Development Institute, the advanced thermal reactor Fugen Nuclear Power Plant	Fukui -pref.	ATR	165	1979 - Mar 2003	Commercial operation discontinued in March 2003. It will start decommissioning procedure after ten years of preparation.

(As of the end of March 2003)

Table D.5-2 List of Nuclear Facilities in the Process of Being Decommissioned and Planned to Be Decommissioned. Status of Decommissioning Activities at These Facilities
(With Respect to Research Reactors)

Name of facility	Location	Reactor type	Thermal output (kW)	Service period	Status of decommissioning
Japan Atomic Energy Research Institute Tokai Research Establishment JRR-1	Ibaraki-pref.	Water-boiler reactor	50	Aug 1957 - Mar 1969	Decommissioning has been completed. The reactor body, fuel material handling equipment, primary cooling equipment and, a sub-pile room are currently being maintained as remaining facilities.
Japan Atomic Energy Research Institute Tokai Research Establishment JRR-2	Ibaraki-pref.	Heavy-water moderated cooling tank reactor	10,000	Oct 1960 - Dec 1996	The following activities for decommissioning have been completed. Shipment of spent fuel and heavy water, isolation of reactor cooling system and reactor body, removal of secondary cooling system and experimental equipment.
Japan Atomic Energy Research Institute Tokai Research Establishment VHTRC	Ibaraki-pref.	Graphite-moderated reactor	0.01	May 1985 - Jun 1999	Dismantling and removal of the reactor body and leveling of reactor (including resin painting) have been completed.
Japan Atomic Energy Research Institute Mutsu Establishment The Reactor Facilities Of The First Nuclear Ship (Mutsu)	Aomori-pref.	Pressurized light-water moderated and cooled reactor, PWR	36,000	Aug 1974 - Feb 1992	Dismantling has been completed. Accessory land facilities are currently being maintained for the purpose of storing solid waste and processing liquid waste .
Japan Nuclear Cycle Development Institute. Oarai Engineering Center Deuterium Critical Assembly (DCA)	Ibaraki-pref.	Heavy-water moderated reactor	1	Dec 1969 - Sep 2001	Deactivation has been completed.

Name of facility	Location	Reactor type	Thermal output (kW)	Service period	Status of decommissioning
Hitachi Engineering Co., Ltd. Ozenji Branch Section HTR	Kanagawa -pref.	Light-water moderated and cooled reactor	100	Dec 1961 - Feb 1975	Dismantling has been completed. Currently being proceeding are the maintenance of the pool storing spent fuel and the storage and maintenance of radioactive waste.
Toshiba Corporation Research Reactor Center Toshiba Training Reactor-1 (TTR-1)	Kanagawa -pref.	Light-water moderated inhomogeneous reactor	100	Mar 1962 - Jan 2001	Permanent suspension of operational functions and removal of reactor cooling system facilities.
Hitachi, Ltd. Power & Industrial Systems R&D Laboratory Ozenji Branch Section OCF	Kanagawa -pref.	Light-water moderated and cooled inhomogeneous reactor	0.1	Oct 1962 - Sep 1968	Dismantling has been completed. Radioactive waste is currently being stored and maintained.
Rikkyo University Institute for Atomic Energy	Kanagawa -pref.	Zirconium hydride moderated light-water cooled reactor	100	Dec 1961 - Dec 2001	Dismantling started in 2002.

(As of the end of March 2003)

E. Legislative and Regulatory System

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Section E. Legislative and Regulatory System

E.1 Implementing Measures (Article 18)

Each Contracting Party shall take, within the framework of its national law, the legislative, regulatory and administrative measures and other steps necessary for implementing its obligations under this Convention.

This report describes the legislative, regulatory and administrative measures and other steps, taken by the Government of Japan, necessary for implementing its obligation under this Convention.

E.2 Legislative and Regulatory Framework (Article 19)

Each Contracting Party shall establish and maintain a legislative and regulatory framework to govern the safety of spent fuel and radioactive waste management.

This legislative and regulatory framework shall provide for:

- (i) the establishment of applicable national safety requirements and regulations for radiation safety;**
- (ii) a system of licensing for spent fuel and radioactive waste management activities;**
- (iii) a system of prohibition for the operation of a spent fuel or radioactive waste management facility without a license;**
- (iv) a system of appropriate institutional control, regulatory inspection and documentation and reporting;**
- (v) the enforcement of applicable regulations and of the terms of the licenses;**
- (vi) a clear allocation of responsibilities of the bodies involved in the different steps of spent fuel and radioactive waste management.**

When considering whether to regulate radioactive materials as radioactive waste, Contracting Parties shall take due account of the objectives of this Convention.

E.2.1 Basic Legislation Governing the Utilization of Nuclear Energy

The basic law on the utilization of nuclear energy in Japan is the Atomic Energy Basic Law that was established in 1955. The objectives of the law are quoted as "to secure future energy resources, achieve progress in science and technology, and promote industry, by encouraging research, development, and the utilization of nuclear energy, and thereby contribute to the improvement of the welfare of human society and the national living standard." The basic policy here is prescribed as follows: "The research, development and utilization of nuclear energy shall be limited to peaceful purposes, on a basis of ensuring priority to safety, and performed on a self-controlled basis under democratic administration, and the results thereof shall be made public and actively contribute to international cooperation."

In order to attain these objectives and achieve the basic policy, the law prescribes the following:

- Establishment of the AEC and the NSC, and their duties, organization, administration, and authorities
- Regulations governing nuclear fuel materials
- Regulations governing the construction, etc. of reactor facility.
- Prevention of radiation hazards

The law also prescribes the assignment of these matters to the respective laws.

E.2.2 Legislative and Regulatory Framework Governing the Safety of Nuclear Utilization

Major laws established for the purpose of providing safety regulations on the utilization of nuclear energy and related laws include "the Law for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (the Reactor Regulation Law)", "the Electricity Utilities Industry Law," "the Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc. (the Radiation Hazards Prevention Law)" and "Medical Care Law, etc." Also included are "the Basic Law for Emergency Preparedness," "the Special Law of Emergency Preparedness for Nuclear Disaster," "the Law for Technical Standards of Radiation Hazards Prevention" and "the Specified Radioactive Waste Final

Disposal Act," etc. Overviews of these laws are provided in the following paragraphs.

Apart from the laws mentioned above, "the Law for Establishment of the AEC and the NSC," "the Ministry of Economy, Trade and Industry (METI) Establishment Law," "the Ministry of Education, Culture, Sports, Science and Technology (MEXT) Establishment Law," "the Ministry of Health, Labour and Welfare (MHLW) Establishment Law," "the Japan Nuclear Energy Safety Organization Establishment Law," etc. establish the administrative organizations responsible for the safety regulation of nuclear facilities.

The major laws related to the safety regulation of nuclear facilities are shown in Tables E.2-1 (a) and (b).

(1) The Law for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors (the Reactor Regulation Law) and the Electricity Utilities Industry Law

In accordance with the spirit of "the Atomic Energy Basic Law", the Reactor Regulation Law, to ensure that the uses of nuclear source material, nuclear fuel material, and reactors are limited to peaceful purposes, and carried out in a planned manner, and to ensure public safety by preventing hazards due to them and providing physical protection of nuclear fuel material, provides for:

- Fabrication business for nuclear fuel
- Establishment and operation of reactor facilities
- Storage business for spent fuel
- Reprocessing business for spent fuel
- Disposal business for radioactive wastes
- Use of nuclear fuel material, etc., and
- Regulations regarding off site waste management.

The safety of the management of spent fuel generated in a reactor facility and stored on site, spent fuel stored off site or spent fuel brought into and stored in a reprocessing facility, is regulated by the provisions on the establishment and operation of reactor facilities, by the provisions on the storage business or by the provisions on the reprocessing business, respectively.

As radioactive wastes generated at enrichment and/or fuel manufacturing facilities, reactor facilities, spent fuel storage facilities, reprocessing facilities, fuel material use facilities, etc. are stored or processed in associated facilities of the respective facility, the safety of their management is regulated by the provisions on respective businesses. Meanwhile, the provisions on disposal business regulate the safety of waste disposal and related waste management.

The Reactor Regulation Law stipulates:

- Regulations on basic design or design policy at the time of facility establishment (Licensing)
- Regulations on detailed design at the time of facility construction (Approval of Design and Construction Methods)
- Inspections at the time of facility construction (Welding Inspection, Pre-Service Inspection)
- Regulations at the time of facility operation (Approval of the Safety Preservation Rules, the Nuclear Safety Inspection)
- Inspections of facility during operation (Periodical Inspection of Facility)
- Measures taken for safety preservation of facility

- Record management
- Report collection
- Regulations on facility transfer, and succession or merger of nuclear business operator
- Dismantling of facility
- Safety Verification on Waste Disposal.

The content of major regulations is as follows:

At the time of issuing the License for Establishment of a nuclear facility, the regulatory body conducts an examination to determine adequacy of the site and adequacy of the basic design of structure and equipment from the point of emergency preparedness. In addition, the regulatory body confirms that the nuclear facility will not be used for non-peaceful purposes, that the license will cause no hindrance to planned development and utilization of atomic energy, and that the applicant planning to establish the nuclear facility has sufficient technical capability to ensure safety and sufficient financial basis to execute the plan.

At the time of Approval of the Design and Construction Methods of nuclear facilities, the regulatory body evaluates detailed design to determine whether the structures, system and components to be constructed are in accordance with the above basic design, as well as in compliance with national technical standards.

Moreover, the regulatory body conducts the Pre-Service Inspection and the Welding Inspection of pipes, components, etc. to confirm whether the construction of facilities and the manufacturing of the components are in accordance with the detailed design mentioned above. The regulatory body also conducts, during operation, the Periodical Inspection of Facilities to continually confirm the integrity of the facilities and equipment. The nuclear business operators are required to report and keep operation records.

In the disposal business, the regulatory body confirms whether the radioactive waste disposal facility, the waste packages and the safety preservation measures are in accordance with the technical standards.

At the operation of a nuclear facility, in addition to regulations focusing on the integrity of structural aspects described above, an assessment is also conducted concerning managerial aspects of the nuclear business operator such as the organization, reporting system, operating procedure, equipment maintenance, surveillance, radiation control for personnel, radioactive waste management, radioactive gaseous and liquid waste discharge, radiation monitoring and safety education for personnel. These aspects are comprehensively documented in the Safety Preservation Rules, which shall be examined by the regulatory body for approval. Furthermore, the Nuclear Safety Inspection system was established, and the Nuclear Safety Inspectors who confirms compliance with the Safety Preservation Rules are stationed at each nuclear facility. The Safety Preservation Rules were strengthened to clarify the rules on safety education for personnel. Moreover, the allegation system was established, encouraging personnel to allege violation of safety regulation at nuclear facility without incurring unfavorable treatment.

Some provisions of the Electricity Utilities Industry Law apply to a commercial power reactor facility, which is also an electric structure, while the corresponding provisions of the Reactor Regulation Law are exempted from application.

As shown in Figures E.2-1 (a) and (b), rules and standards are established for each business under the Reactor Regulation Law. When conducting safety examination of a nuclear facility, Examination Guides and various reports (Table E.2-1) established by the NSC are used. Moreover, appropriate

industry association level guidelines, etc. (Table E.2-2) are used as necessary.

(2) The Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc. (The Radiation Hazards Prevention Law)

The objectives of the Radiation Hazards Prevention Law are to regulate the handling of radioisotopes, radiation generating devices, and material contaminated with radioisotopes, etc., thereby preventing a radiation hazards and ensuring public safety.

As shown in Figure E.2-1 (a) mentioned above, the Ordinance and Rules for the Enforcement of the Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc. are established under the Radiation Hazards Prevention Law.

A holder of license for sales business, lease business or waste management business issued under the Radiation Hazards Prevention Law, in the case where they either possess a storage facility of a certain size or more or use a radiation generating device, is required to undergo the Pre-Service Inspection and the Periodic Inspection.

Those who use the facility must compile a set of the Internal Rules for Prevention of Radiation Hazards, designate the Supervisor of Radiation Protection, and report these results to the regulatory body before handling commences. Furthermore, those who use the facility have an obligation to conform to the standards for facilities to be used, which have been established by legislation. Other obligations include: measuring the radiation doses within the premises or on the boundary of the business establishment; measuring the exposure doses of the occupational personnel; providing education and training; and conducting health examinations, etc (some nuclear business operators are excluded).

Regarding management of radioisotopes or materials contaminated with such radioisotopes generated from radioisotopes handling business, management must be carried out in conformity with the standards established by laws and regulations within the premises of said place of business or the premises of the place of radioisotope waste management business operator.

When the use of radioisotopes or radiation generating devices is to be abolished, a report describing the measures adopted as part of the abolishing procedures must be submitted to the Minister of MEXT, along with a notice of such abolition

If necessary, MEXT gives instruction for the Radiation Inspectors to conduct an on site inspection in order to ascertain the state of compliance with the standards established by laws and regulations.

(3) Medical Care Law, etc.

Waste business operators designated by the Minister of MHLW conduct radioisotope waste management for medical use, on the basis of the Medical Care Law, the Clinical Laboratory Technicians and Health Laboratory Technicians Law, and the Pharmaceutical Affairs Law.

Site, structure, and equipment of the waste management facilities have to comply with related technical standards in order to be designated by the Minister of MHLW and Welfare.

Furthermore, Periodical Inspection, Radiation Hazard Prevention Rules, conformance order to the standards of waste management facilities, education and training, notification of closure of waste management business, etc, are provided by these laws the same as by the Radiation Hazards Prevention Law.

(4) The Basic Law for Emergency Preparedness and the Special Law of Emergency Preparedness

for Nuclear Disaster

The Special Law of Emergency Preparedness for Nuclear Disaster was established to address special characteristics of nuclear emergency, within the legal framework of the Basic Law for Emergency Preparedness. This special law stipulates special measures for nuclear emergency, including obligation of nuclear business operators to prevent occurrence of nuclear emergency, the Declaration of Nuclear Emergency and establishment of the Nuclear Emergency Response Headquarters, and activation of emergency measures. The Senior Specialist for Nuclear Emergency is stationed in the vicinity of each nuclear facility, to guide and advise the nuclear business operator in preparing its Plan for Nuclear Emergency Preparedness, as well as to conduct its duty to prevent occurrence of nuclear emergency and mitigate consequences should it occur.

Moreover, the nuclear emergency measures in the Basic Plan for Emergency Preparedness on the basis of the Basic Law for Emergency Preparedness clarify measures necessary to prevent occurrence and progression of nuclear emergency, where an abnormal level of radioactivity is released outside the nuclear facility, and to recover from the emergency.

(5) The Law for Technical Standards of Radiation Hazards Prevention

The objectives of the Law for Technical Standards of Radiation Hazards Prevention are to clarify the basic policy for defining technical standards for radiation hazards prevention and to establish the Radiation Review Council within MEXT, so that coordination of technical standards for radiation hazards prevention can be realized. "The Radiation Review Council Orders" are stipulated under the Law for Technical Standards of Radiation Hazards Prevention.

(6) Specified Radioactive Waste Final Disposal Act

Specified Radioactive Waste Final Disposal Act, enacted in May 2000, established an implementing body for disposal, the funds reserved for disposal, the procedure for selecting disposal site, etc., so that the disposal of designated radioactive waste, that is, vitrified waste package from spent fuel reprocessing plant, should be promoted steadily in a planned manner. The Minister of METI determines the basic policy on and the basic plan for disposal. The Nuclear Waste Management Organization of Japan, which is the implementing body, draws up an implementing plan for disposal and carries out the plan. Power reactor operators deposit funds for disposal to the Nuclear Waste Management Organization.

Safety regulation on disposal of specified radioactive waste will be established separately from this act.

E.2.3 Regulatory Framework for the Safety of Spent Fuel Management

As described in Section E.2.2 (1), the safety of management of spent fuel on a reactor facility or a reprocessing facility is regulated by the provisions of the Reactor Regulation Law concerning the establishment and operation of reactor facility or a reprocessing business, respectively. More specifically, spent fuel management facilities are regulated as facilities attached to main facilities operated in the respective business. Details of the safety regulations for spent fuel management are reported in Section G.

On the other hand, safety management of spent fuel stored outside a reactor site or a reprocessing plant site is regulated in accordance with the provisions of the Reactor Regulation Law concerning spent fuel storage business, and provisions on licensing, permission, approval and inspections of a spent fuel storage facility are applied as an independent facility. At present, there is no independent storage facility

in operation, under construction or in the process of license application.

E.2.4 Regulatory Framework for the Safety of Radioactive Waste Management

As described in Section E.2.2 (1), radioactive wastes generated at enrichment and/or fuel manufacturing facilities, reactor facilities, spent fuel storage facilities, reprocessing facilities, fuel material use facilities, etc. are stored or processed in associated facilities to the main, and the safety of their management is regulated by the provisions on respective businesses.

The provisions on disposal business regulate the safety of waste disposal and related waste management. Specified Radioactive Waste Final Disposal Act, mentioned above, provides for the funds reserved for HLW disposal and the procedure for selecting disposal site, leaving safety regulations for HLW disposal to be established separately from the Act. Details of the safety regulations for the radioactive waste management in the disposal business are reported in Section H.

The safety of the radioisotope waste management at facilities licensed under the Radiation Hazards Prevention Law is regulated as described in Section E.2.2 (2).

The safety of the radioactive waste management at facilities licensed under the Medical Care Law, etc. is regulated as described in Section E.2.2 (3), and relevant provisions are similar to those in the Radiation Hazards Prevention Law. Therefore, description of the safety of waste management under the Medical Care Law is omitted in Sections F and thereafter.

E.2.5 The Enforcement of Applicable Regulations and the Terms of the Licenses

The Reactor Regulation Law and the Radiation Hazards Prevention Law prescribes imprisonment and/or fines under circumstances such as establishing a nuclear facility without a License, violating a Shut-Down Order, or failing to take relevant emergency measures. The competent minister, on the basis of the Reactor Regulation Law, the Radiation Hazards Prevention Law or the Medical Care Law, etc., may revoke the License or impose other administrative measures under circumstances such as operating a nuclear facility without a License, violating an order legally issued by the regulatory body, failing to implement measures necessary for safety preservation prescribed by the regulatory body, operating nuclear facility without the Safety Preservation Rules or the Internal Rules for Prevention of Radiation Hazards (the Safety Preservation Rules, etc.) approved by the regulatory body, or failing to comply with the Safety Preservation Rules, etc.

The regulatory body may order changes in the Safety Preservation Rules, etc., whenever it is deemed necessary for preventing accident. License holders failing to abide by such orders could be punished with a fine.

E.2.6 Clear Allocation of Responsibilities in the Different Steps

The regulatory body issues a license to an operator of nuclear business for each of the steps in a series of processes including generation, storage and reprocessing of spent fuel, as well as generation, processing, storage and disposal of radioactive waste. The allocation of responsibilities within the regulatory body that issues license for each of these steps is clearly defined as illustrated in a report of Article 20 (Section E.3.3, Table E.3-1).

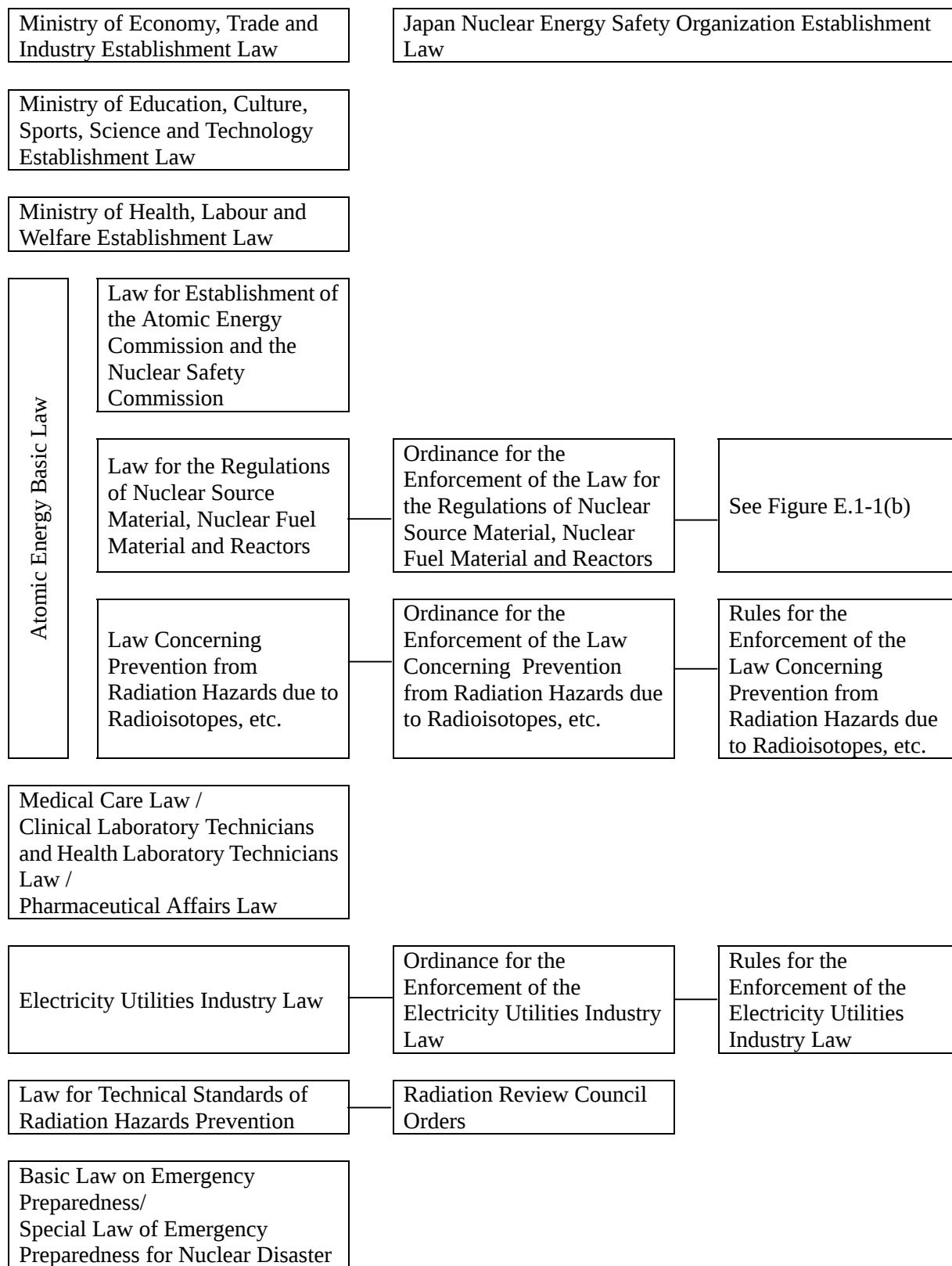


Figure E.2-1(a) Major Laws, etc. for the Safety Regulation of the Nuclear facility

The Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors, and Ordinance for its Enforcement					
Waste management outside of plant or place of business	Use of nuclear fuel material, etc.			Major safety examination guidelines, etc. for nuclear fuel cycle facility (Table E.2-1)	
	Disposal business	Rules for waste management business for nuclear fuel materials or those which are contaminated therewith			Major safety examination guidelines, etc. for nuclear fuel cycle facility (Table E.2-1)
		Rules for waste disposal business for nuclear fuel materials or those which are contaminated therewith			
	Reprocessing business	Rules for reprocessing business for spent fuel			Major safety examination guidelines, etc. for research reactor, fast breeder reactor, and advanced thermal reactor (Table E.2-1)
	Storage business	Rules for storage business for spent fuel			Major safety examination guidelines, etc. for light water nuclear power reactor facility (Table E.2-1)
	Establishment, operation, etc. of nuclear reactors	Rules for the establishment, operation, etc. of research reactors			
		Rules for establishment, operation, etc. of reactors at a stage of research and development			Major safety examination guidelines, etc. for nuclear fuel cycle facility (Table E.2-1)
		Rules for establishment, operation, etc. of commercial power reactors			
Fabrication business	Rules for fabrication business for nuclear fuel				
				Industry association level guidelines, etc. (Table E.2-2)	
				Industry association level guidelines, etc. (Table E.2-2)	

Figure E.2-1(b) Major Laws, etc. for the Safety Regulation of the Nuclear facility

Table E.2-1 Major Safety Examination Guidelines, etc.

For light water nuclear power reactor facility, etc.	
Siting	- Examination guide for nuclear reactor siting evaluation and application criteria
Design	- Examination guide for safety design of light water nuclear power reactor facilities - Examination guide for classification of importance of safety functions for light water nuclear power reactor facilities - Examination guide for seismic design of nuclear power reactor facilities - Examination guide for fire protection of light water nuclear power reactor facilities - Examination guide for radiation measurement in accidents of light water nuclear power reactor facilities - Terms or fundamentals to be considered in the safety examination of liquid radioactive waste processing facilities
Safety evaluation	- Evaluation guide for safety assessment of light water nuclear power reactor facilities - Meteorological guide for safety analysis of nuclear power reactor facilities
Numerical guide for dose	- Numerical guide for dose of general public in the vicinity of light water nuclear power reactor facilities - Evaluation guide for dose of general public in the vicinity of light water nuclear power reactor facilities - Guide for measurement of radioactive materials released from light water nuclear power reactor facilities
For research reactor, fast breeder reactor, advanced thermal reactor, etc.	
Research reactor	- Examination guide for safety design of water cooled research reactor facilities - Examination guide for safety evaluation of water cooled research reactor facilities
Fast breeder reactor	- Safety evaluation principles for fast breeder reactor - Reference dose for plutonium intake in relation to siting evaluation of reactors with plutonium contained fuel
Advanced thermal reactor	- Principles for safety evaluation of advanced thermal reactor demonstration reactor
Dismantling/decommissioning	- Basic philosophy to assure safety for dismantling nuclear reactor facilities
For nuclear fuel cycle facility	
	- Basic guide for safety examination of nuclear fuel facilities - Safety evaluation guide for uranium fuel fabrication facilities - Examination guide for specific uranium fuel fabrication facilities - Regulatory guide for licensing of reprocessing plants - Reference dose for plutonium intake in relation to siting evaluation of nuclear fuel facilities - Examination guide for uranium and plutonium mixed oxide fuel fabrication facility - Examination guide for spent fuel interim storage facility utilizing dry metal casks - Fundamental guidelines of licensing review of land disposal facility of low-level radioactive waste - Basic philosophy to assess safety of waste management facilities

Source: The collection of safety commission's guidelines

<http://nsc.jst.go.jp/anzen/sisin/contents/contents.html>

Table E.2-2 Industry Association Level Guidelines, etc.
(Codes and Guides of the Japan Electric Association)

Number	Title
JEAG 4101-2000	Guide of Quality Assurance for Nuclear Power Plants
JEAG 4102-1996	Emergency Response Guidelines for Nuclear Power Plants
JEAC 4205-2000	In-service Inspections of Light Water Cooled Nuclear Power Plant Components
JEAG 4207-2000	Ultrasonic Examination for In-service Inspections of Light Water Cooled Nuclear Power Plant Components
JEAG 4209-1996	Guide for Maintenance and Inspection for Nuclear Power Plant Equipment
JEAG 4601-1987	Technical guidelines for Aseismic Design of Nuclear Power Plants
JEAG 4601-1984	Technical guidelines for Aseismic Design of Nuclear Power Plants : Allowable Stress Classification
JEAG 4601-1991	Technical guidelines for Aseismic Design of Nuclear Power Plants: Supplement
JEAG 4603-1992	Guide for Design of Emergency Power Supply Systems for Nuclear Power Plants
JEAG 4604-1993	Guide for Design of Safety Protection System for Nuclear Power Plants
JEAC 4605-1992	Definitions and Engineered Safety Features and Related Systems of Nuclear Power Plants
JEAG 4606-1996	Radiation Monitoring for Nuclear Power Plants
JEAG 4607-1999	Guide for Fire Protection of Nuclear Power Plants
JEAG 4608-1998	Lightning Protection Guidelines for Nuclear Power Plants
JEAG 4609-1999	Application Criteria for Programmable Digital Computer System in the Safety-Related System of Nuclear Power Plants
JEAG 4610-1996	Personal Dose Monitoring for Nuclear Power Plants
JEAG 4611-1991	Guide for Design Instrumentation and Control Equipment with Safety Functions
JEAG 4612-1998	Guide for Safety Grade Classification of Electrical and Mechanical Equipment with Safety Functions
JEAG 4613-1998	Technical Guidelines for Protection Design against Postulated Piping Failures in Nuclear Power Plants
JEAG 4801-1995	Guide for Operating Manual of Nuclear Power Plants
JEAG 4802-2002	Guide for Education and Training for Nuclear Power Plants
JEAG 4803-1999	Guide for Operational Safety Preservation of Light Water Cooled Reactors

(Equipment Standards for Power Reactors by Japan Society of Mechanical Engineers)

Number	Title
JSME S NB1-2001	Welding Standards
JSME S NC1-2001	Design and Construction Standards
JSME S FA1-2001	Structure Standards for Metal Casks

(Standards by Atomic Energy Society of Japan)

Number	Title
AESJ-SC-F002: 2002	Standards for Safety Design and Inspection of Metal Casks for Spent Fuel Interim Storage Facilities: 2002

E.3 Regulatory Body (Article 20)

Each Contracting Party shall establish or designate a regulatory body entrusted with the implementation of the legislative and regulatory framework referred to in Article 19, and provided with adequate authority, competence and financial and human resources to fulfill its assigned responsibilities.

Each Contracting Party, in accordance with its legislative and regulatory framework, shall take the appropriate steps to ensure the effective independence of the regulatory functions from other functions where organizations are involved in both spent fuel or radioactive waste management and in their regulation.

E.3.1 Mandate of the Regulatory Bodies

The mandate of the regulatory bodies is to ensure public safety through securing safety of nuclear facilities, and their duties are to implement the legislative and regulatory framework described in the report of Article 19. The regulatory bodies are responsible for conducting regulatory activities prescribed in the Reactor Regulation Law, the Radiation Hazards Prevention Law, etc. on the basis of the Atomic Energy Basic Law. Their organizations and assigned duties are clearly defined in their respective establishment laws, and their financial resources are covered by the national budget.

The Minister of METI serves as the competent minister for safety regulation over all activities concerning utilization of nuclear energy, and NISA administers the regulatory activities as a special organization for METI. Moreover, the Minister of MEXT serves as the competent minister for the safety regulation over the nuclear utilization associated with science and technology and the utilization of radioisotopes (except medicines, etc.), etc., and the STPB administers the regulatory activities. The Minister of Health, Labor and Welfare governs the safety regulation concerning medical facilities as the competent minister, and the PFSB and the HPB administer the regulatory activities.

These regulatory bodies have clearly defined duties on safety regulation, and their effective independence is ensured both in legislation and in substance. Furthermore, in the regulatory procedure on the utilization of nuclear energy and research reactor facilities, the NSC, with five members who are appointed by the Prime Minister with the consent of the Diet, independently monitors and reviews the regulatory activities conducted by the regulatory body concerned.

E.3.2 The Structure of the Regulatory Body and Supporting Organizations

(1) Nuclear and Industrial Safety Agency (NISA)

The Minister of METI, as the competent minister stipulated in the Reactor Regulation Law and the Electric Utilities Industry Law, governs the safety regulation over all activities on the utilization of nuclear energy including nuclear power generation, and NISA was established as a special organization of METI to administer the safety regulation.

NISA, under the Minister of METI, has the authority to issue a license for the establishment of a nuclear facility, after conducting safety examination that the siting, structure and equipment has no hindrance to the prevention of disasters

It also has the authority to cancel the license under certain circumstances such as violation of applicable laws and regulations by the license holder.

Within NISA, there are eleven divisions that administer safety regulations for nuclear facility associated with utilization of nuclear energy. The assigned duties of each of these divisions are illustrated in Table E.3-1. The Nuclear Safety Inspectors are assigned to resident position at each nuclear facility, with duties to conduct the Nuclear Safety Inspection four times a year to confirm compliance with the Safety Preservation Rules by the operator, and to address abnormal events if they occur. The locations of offices of the Nuclear Safety Inspectors are illustrated in Figure E.3-1 and Table E.3-2.

Staff members who are in charge of nuclear safety regulation are required to have expertise in nuclear technology. Knowledgeable and experienced persons are constantly recruited from outside, and specialized and advanced education and training programs are implemented. Staff members are provided with opportunities to attend international meetings or take long-term assignments of working in international organizations, etc

Moreover, NISA maintains and develops its ability, as well as contributes to improve international nuclear safety regulation, through exchange of technical experts and information on safety regulation and safety technology, under bilateral cooperation arrangements with foreign regulatory bodies and in the framework of multilateral cooperation (IAEA and OECD/NEA).

On the basis of METI Establishment Law, the Advisory Committee for Natural Resources and Energy is established, a subcommittee of which is the Nuclear and Industrial Safety Subcommittee that proposes policies on nuclear safety and safety of electric power as the terms of reference. The organization of the Subcommittee is illustrated in Table E.3-3. The experts in the Subcommittee are assigned based on their knowledge and experience in specialized fields including nuclear and thermal-hydraulic design, system design, seismic design, radiation control, radioactive waste disposal, etc., and when necessary, NISA solicits the views of these experts about what ensuring safety should be.

NISA entrusts the Institute of Nuclear Safety of Nuclear Power Engineering Corporation (NUPEC) with siting evaluation and safety evaluation during accidents, which is an evaluation made by a party other than the applicant. Japan Power Engineering and Inspection Corporation and four other organizations are the designated organizations for Welding Safety Management Inspections, and the Nuclear Safety Technology Center is the designated organization for the Safety Verification of Waste Disposal, etc.

A law for the establishment of an incorporated administrative agency, "Japan Nuclear Energy Safety Organization" as a technical support organization of NISA was approved in December 2002 by the Diet. The objectives of this organization, which is scheduled to be established in October 2003, is to provide a foundation for the nuclear safety preservation with regard to utilization of nuclear energy. The scope of work to be performed by the organization includes the following: 1) inspections of nuclear and reactor facilities; 2) analysis and evaluation of safety design for nuclear and reactor facilities; 3) work related to the prevention of occurrence and progression of, and the recovery from, nuclear hazards; 4) study, test, research and training concerning the nuclear safety preservation; and 5) collection, sorting and supply of information.

(2) Science and Technology Policy Bureau (STPB), Ministry of Education, Culture, Sports, Science and Technology (MEXT)

The safety regulation concerning the activities around the nuclear utilization from a scientific and technological aspect and the utilization of radioisotopes (excluding medicines, etc.) is governed by the Minister of MEXT as the competent minister, and is administered by the Science and Technology Policy Bureau (STPB).

With regard to the licensing of a new business under the Reactor Regulation Law and the radioisotope

waste management business under the Radiation Hazards Prevention Law, the Minister of MEXT has the authority to issue the respective licenses, after conducting an examination of the site, structure and equipment from the standpoint of disaster prevention. He or she also has the authority to revoke the licenses under certain circumstances, such as the violation of applicable laws and regulations by the license holder.

STPB contains the Nuclear Safety Division, which has a further three offices. The assigned duties of the divisions and offices are listed in Table E.3-1. Moreover, an inspector for the safety management of nuclear facility shall be assigned to resident position at each research reactor facilities and major fuel material use facilities, whose duties are to conduct examinations and inspections stipulated in the Reactor Regulation Law four times a year to confirm compliance with the Safety Preservation Rules and surveillance of reactor operation management, and to respond to an emergency situation. The locations of offices of Nuclear Safety Inspectors are illustrated in Figure E.3-1.

As to the education and training programs for the staff members in charge of nuclear safety regulations as well as the cooperation with international regulatory organizations, similar arrangements described in section (1) which NISA takes, are adopted, thereby contributing to the improvement of international nuclear safety regulation as well as to the improvement of the nuclear safety regulation by the regulatory bodies in Japan.

The STPB holds advisory committee on nuclear safety regulation, etc. with an objective to contribute to the transparent and efficient administration of nuclear safety by MEXT. Under this committee, sub-committees are held, as listed in Table E.3-4, in order to consider the safety regulations for research reactor, etc, and for radiation under the jurisdiction of MEXT.

As to the activities of the STPB related to the safety regulation for the nuclear facility, Nuclear Safety Technology Center is designated as an organization for welding inspections of the nuclear facility under the Reactor Regulation Law, periodic inspections of the facilities for radioisotope waste management business under the Radiation Hazards Prevention Law, etc.

(3) Ministry of Health, Labour and Welfare (MHLW)

The Ministry of Health, Labour and Welfare (MHLW) administer the safety regulations for radioactive medicines and the regulations for the protection against clinical radiation.

The PFSB exercises jurisdiction over the safety regulations concerning the production of radioactive medicines in conformity with the Regulations for Buildings and Facilities for Pharmacies, etc. and the Regulations for Manufacturing and Handling of Radio Pharmaceuticals based on the Pharmaceutical Affairs Law, and the Regional Bureau of Health and Welfare of the MHLW conducts periodic inspections of manufacturing plants that produce radioactive medicines. And, the PFSB also designates those who can be entrusted by manufacturers of radioactive medicines with the disposal of radioactive materials, while conducting safety regulations concerning the entrustment of the disposal.

As a part of the safeguards in a medical facility, the HPB manages preventive measures against the radiation hazard, standards for the structure and equipment, etc. in the case where the medical facility is equipped with an X-ray device according to the Rules for the enforcement of the Medical Care Law, etc. This enforcement rule also provides standards for the storage, and disposal, etc. of clinical radioisotopes, etc.

E.3.3 Nuclear Safety Commission (NSC)

The Nuclear Safety Commission (NSC), which was established within the Cabinet Office under the

Atomic Energy Basic Law, consists of five members who are appointed by the Prime Minister with the consent of the Diet. The chairperson is elected by mutual vote.

The NSC has duties of planning, deliberation and decisions on matters that are related to ensuring safety of the utilization of nuclear energy, and establishes guidelines to be used at the safety examination.

If the NSC deems it necessary as part of its assigned duties, it may advise, and request reports and cooperation including the submission of materials, statement of views, and explanation from, the heads of relevant administrative organization by way of the Prime Minister.

Before the regulatory body issues an establishment license for nuclear facility (excluding fuel material use facility and RI facility), the competent minister inquires about the opinions of the NSC on whether the applicant has adequate technical capability, and whether the site, the structure and the equipment of the nuclear facility are adequate for preventing nuclear accidents. The NSC responds to the inquiries by conducting independent investigation.

Furthermore, at construction and operational stage of the nuclear facility, the NSC receives quarterly reports from the regulatory body on the changes of the Safety Preservation Rules, the compliance with the Safety Preservation Rules by the operator, results of the Periodical Inspection of Facility, etc. And the NSC independently monitors and reviews the situation and adequacy of the regulatory activities

The NSC has a secretariat in the Cabinet Office. The Secretariat of the NSC is composed of the Secretary-General, the General Affairs Division, the Regulatory Guides and Review Division, the Radiation Protection and Accident Management Division and the Subsequent Regulation Review Division. Under the NSC, two Committees for Examination, eight Special Committees and others are organized, as shown in Table E.3-5.

E.3.4 Other Administrative Bodies

(1) The Atomic Energy Commission (AEC)

The Atomic Energy Commission (AEC) consists of the chairperson and four other members appointed by the Prime Minister with the consent of the Diet.

The AEC has duties of planning, deliberation and decisions concerning the research, development and utilization of nuclear energy (excluding safety regulations).

If the AEC deems it necessary as part of its assigned duties, it may advise, and request reports and cooperation including the submission materials, statement of views, and explanation from, the heads of relevant administrative organizations by way of the Prime Minister. Furthermore, before the regulatory body issues an establishment license for a nuclear facility (excluding fuel material use facility), the competent minister inquires about the opinions of the AEC on whether the nuclear facility will be used for peaceful purposes, whether the license is in line with the planned development or utilization of nuclear energy, and whether the applicant has an adequate financial basis to construct and maintain the nuclear facility.

(2) Radiation Review Council

The Radiation Review Council is established within MEXT under "the Law for Technical Standards of Radiation Hazards Prevention" so that coordination of technical standards for radiation hazards prevention is realized. When drawing up technical standards for radiation hazard prevention, the council deliberates with the basic policy that the radiation doses received by occupational personnel and the general public be less than that may cause any hazards. The council answers inquiries from the heads of relevant administrative organizations, and can present its opinion to the heads of such

organizations.

The Radiation Review Council consists of a maximum of 20 members, and a basic committee composed of experts from different fields is established under the council.

(3) Others

As the establishment of a nuclear facility involves requirements of laws such as the Fire Protection Law, the Port Regulation Law, etc., the Fire Protection Agency, the Ministry of Land, Infrastructure and Transport, and other competent administrative bodies administer the related regulations.

The Basic Law for Emergency Preparedness, the Special Law of Emergency Preparedness for Nuclear Disaster and related regulations apply to a nuclear emergency. Administrative bodies having jurisdiction over these laws are described in Section F.5 (Article 25).

Table E.3-1 The Allocated Duties of Safety Regulation Related Divisions of Nuclear Facilities

1. Nuclear and Industrial Safety Agency, Ministry of Economy, Trade and Industry
(Director-General, Deputy Director-General, Inspectors, Senior Safety Examiner, Divisions, Offices
Approx. 400 members)

Policy Planning and Coordination Division	General management of NISA
Nuclear Safety Regulatory Standard Division	Planning and coordination of the matters relating to technical and institutional affairs concerning securing the nuclear safety. Regulations of power reactors at the stage of research and development.
Nuclear Safety Special Investigation Division	Management of allegation and litigation concerning nuclear safety
Nuclear Safety Administration Division	Administration of Nuclear Safety Inspectors and Senior Specialists for Nuclear Emergency
Nuclear Power Licensing Division	Regulations of commercial power reactors in establishment stage
Nuclear Power Inspection Division	Regulations of commercial power reactors in construction and operation stage
Nuclear Fuel Cycle Regulation Division	Regulations of milling, fuel fabrication and reprocessing business
Nuclear Fuel Transport and Storage Regulation Division	Regulations of spent fuel storage business; Regulations of off-site transportation of nuclear fuel materials
Radioactive Waste Regulation Division	Regulations of radioactive waste disposal business, and dismantling of nuclear facilities (including fuel cycle facilities)
Nuclear Emergency Preparedness Division	Establishing measures to deal with a nuclear emergency; Response to failures and incidents at nuclear facilities
Electric Power Safety Division	Regulations for turbines, etc.; Environmental impact assessment

* In addition, Offices of Inspectors for Safety Management of Nuclear Installations are located throughout the country, where the Nuclear Safety Inspectors are stationed. The inspectors belong to Nuclear Power Inspection Div., Nuclear Safety Regulatory Standard Div., Nuclear Fuel Cycle Regulation Div., or Radioactive Waste Regulation Div.

2. Ministry of Education, Culture, Sports, Science and Technology; Science and Technology Policy Bureau
(Director-General, Deputy Director-General, Nuclear Safety Division, Offices; 89 members in total)

Nuclear Safety Division	General management of Nuclear Safety Division
Nuclear Safety Division Office for Nuclear Regulation	Regulations for research reactor facility and fuel material use facility
Nuclear Safety Division Office for Radiation Regulation	Regulations for radioisotopes, etc.
Nuclear Safety Division Office for Emergency Planning and Environmental Radioactivity	Nuclear emergency measures Environmental radiation measures

* In addition, Offices of Inspectors for Safety Management of Nuclear Installations are located throughout the country, where Nuclear Safety Inspectors are stationed to perform safety inspections and belong to Office for Nuclear Regulation

3. Ministry of Health, Labour and Welfare

Pharmaceutical and Food Safety Bureau, General Affairs Division	Regulations concerning the entrustment of disposal of radioactive medicines, etc.
Pharmaceutical and Food Safety Bureau, Safety Division	Provision of preventive measures against the radiation hazard and regulations for the structure and equipment, etc. in the case where the medical facility is equipped with an X-ray device, etc.
Pharmaceutical and Food Safety Bureau, Compliance Division	Regulations for Manufacturing, etc. of Radioactive Medicines

Table E.3-2 Nuclear Facilities covered by Offices of Nuclear Safety Inspectors and Offices of Nuclear Safety Management

Offices of Inspectors for Safety Management of Nuclear Installations	Nuclear Facilities
- Tomari Office of the Inspectors for Safety Management of Nuclear Installations	- Tomari Power Station (Hokkaido Electric Power Co., Inc.)
- Rokkasho Office of the Inspectors for Safety Management of Nuclear Installations	- Reprocessing Business Division, - Enrichment Business Division, - Radioactive Waste Disposal Business Division (Japan Nuclear Fuel Limited)
- Kashiwazaki-Kariwa Office of the Inspectors for Safety Management of Nuclear Installations	- Kashiwazaki-Kariwa Nuclear Power Station (Tokyo Electric Power Co., Inc.)
- Shika Office of the Inspectors for Safety Management of Nuclear Installations	- Shika Nuclear Power Station (Hokuriku Electric Power Co., Inc.)
- Tsuruga Office of the Inspectors for Safety Management of Nuclear Installations	- Tsuruga Power Station (The Japan Atomic Power Co.) - Monju Construction Office (Japan Nuclear Cycle Development Institute) -Fugen Nuclear Power Station (Japan Nuclear Cycle Development Institute)
- Mihama Office of the Inspectors for Safety Management of Nuclear Installations	- Mihama Power Station (The Kansai Electric Power Co., Inc.)
- Ohi Office of the Inspectors for Safety Management of Nuclear Installations	- Ohi Power Station (The Kansai Electric Power Co., Inc.)
- Takahama Office of the Inspectors for Safety Management of Nuclear Installations	- Takahama Power Station (The Kansai Electric Power Co., Inc.)
- Shimane Office of the Inspectors for Safety Management of Nuclear Installations	- Shimane Nuclear Power Station (The Chugoku Electric Power Co., Inc.)
- Kamisaibara Office of the Inspectors for Safety Management of Nuclear Installations	- Ningyo-Toge Environmental Engineering Center (Japan Nuclear Cycle Development Institute)
- Genkai Office of the Inspectors for Safety Management of Nuclear Installations	- Genkai Nuclear Power Station (Kyushu Electric Power Co., Inc.)
- Ikata Office of the Inspectors for Safety Management of Nuclear Installations	- Ikata Power Station (Shikoku Electric Power Co., Inc.)
- Sendai Office of the Inspectors for Safety Management of Nuclear Installations	- Sendai Nuclear Power Station (Kyushu Electric Power Co., Inc.)
- Hamaoka Office of the Inspectors for Safety Management of Nuclear Installations	- Hamaoka Nuclear Power Station (Chubu Electric Power Co., Inc.)
- Osaka Branch Office of the Inspectors for Safety Management of Nuclear Installations	- Atomic Energy Research Institute (Kinki University)
- Kumatori Office of the Inspectors for Safety Management of Nuclear Installations	- Kumatori Works (Nuclear Fuel Industries, Ltd.)
- Osaka Office of the Inspectors for Safety Management of Nuclear Installations	- Research Reactor Institute (Kyoto University)
- Onagawa Office of the Inspectors for Safety Management of Nuclear Installations	- Onagawa Nuclear Power Station (Tohoku Electric Power Co., Inc.)
- Fukushima No.1 Office of the Inspectors for Safety Management of Nuclear Installations	- Fukushima Daiichi Nuclear Power Station (Tokyo Electric Power Co., Inc.)
- Fukushima No.2 Office of the Inspectors for Safety Management of Nuclear Installations	- Fukushima Daini Nuclear Power Station (Tokyo Electric Power Co., Inc.)

Offices of Inspectors for Safety Management of Nuclear Installations	Nuclear Facilities
- Tokai Oarai Office of the Inspectors for Safety Management of Nuclear Installations	- Tokai-1, 2 Power Station (The Japan Atomic Power Co.) - Nuclear Fuel Industries, Ltd. Tokai Works (Mitsubishi Nuclear Fuel Co., Ltd.) - Tokai, Oarai Research Establishment (Japan Atomic Energy Research Institute) - Tokai Engineering Center (Japan Nuclear Cycle Development Institute)
- Ibaraki Office of the Inspectors for Safety Management of Nuclear Installations	- Tokai Works (Nuclear Fuel Industries, Ltd.) - (Mitsubishi Nuclear Fuel Co., Ltd.) - Tokai, Oarai Research Establishment (Japan Atomic Energy Research Institute) - Tokai, Oarai Engineering Center (Japan Nuclear Cycle Development Institute) - Tokai Safeguards Center (Nuclear Material Control Center) - Fuel Hot Laboratory (Nuclear Development Corporation) - NFD Hot Laboratory (Nippon Nuclear Fuel Development Co., Ltd.) - Nuclear Engineering Research Laboratory, Graduate School of Engineering (The University of Tokyo)
- Kanagawa Office of the Inspectors for Safety Management of Nuclear Installations	- Research Reactor Center, - Nuclear Engineering Laboratory (Toshiba Corporation) - Power & Industrial Systems R&D Laboratory Ozenji Branch Section (Hitachi, Ltd.) - Hitachi Training Reactor (Hitachi Engineering Co., Ltd.) - Atomic energy Research Laboratory (Musashi Institute of University)
- Yokosuka Office of the Inspectors for Safety Management of Nuclear Installations	(Global Nuclear Fuel - Japan Co., Ltd.)
- Kanagawa Minami Office of the Inspectors for Safety Management of Nuclear Installations	- Institute for Atomic Energy (Rikkyo University)

As for the plants, refer to
Table E.3-2

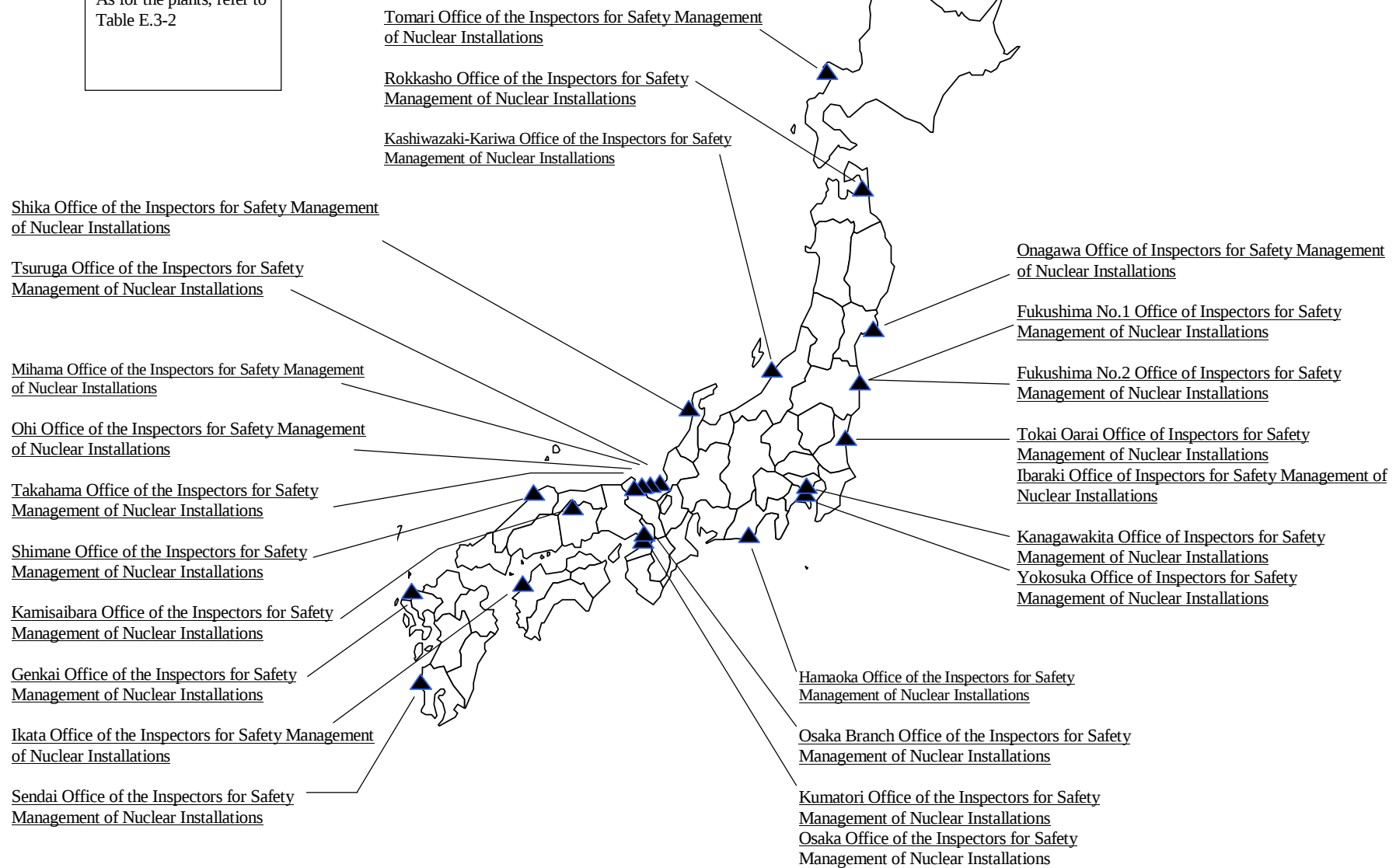


Figure E.3-1 The Locations of Offices of Inspectors for Safety Management of Nuclear Installations

Table E.3-3 The Organization of the Nuclear and Industrial Safety Subcommittee

Basic Safety Policy Subcommittee	General matters securing safety
Nuclear Reactor Safety Subcommittee	Technical matters on commercial power reactors at the stage of research and development
Nuclear Fuel Cycle Safety Subcommittee	Fabrication and reprocessing of nuclear fuel, storage of spent fuel, transportation of nuclear fuel material, and the technical standards
Decommissioning Safety Subcommittee	Decommissioning of nuclear facilities
Radioactive Waste Safety Subcommittee	Securing safety of disposal and storage of radioactive waste
Soil and Earthquake Engineering Subcommittee	Technical matters on seismic design of nuclear facilities
Nuclear facility Operation Management and Emergency Preparedness Subcommittee	Technical matters in operation, incidents and accidents, and emergencies of nuclear facilities
INES Evaluation Subcommittee	Assessment of incidents and accidents against INES scale
Subcommittee for the Convention on Nuclear Safety	Matters related to the Convention on Nuclear Safety and international standards on nuclear safety
Electric Power Safety Subcommittee	Securing safety of electrical power r
Subcommittee on Appropriateness of the Inspection System	Appropriateness of the inspection systems concerning nuclear power generation facilities and nuclear fuel cycle facilities
Subcommittee for the Convention on the Nuclear Safety of Radioactive Waste Management, etc.	Matters concerning Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
Subcommittee for Legislation for Nuclear Safety Regulation	Consideration of necessary legal systems, etc. for the verification of background and the prevention of recurrence, in the case of malpractice such as alteration of self-controlled inspection records
Subcommittee for Integrity Assessment of Nuclear Power Generation Equipment	Evaluation of plant integrity when cracks are found in the core shroud, etc.

Table E.3-4 Subordinate Organization of Advisory Committee on Nuclear Safety Regulation, etc.

Subcommittee on Safety Regulation for ITER	Directions for safety regulation of ITER
Subcommittee on Safety Regulation for Research Reactors, etc.	Directions for safety regulation of research reactors, nuclear source materials, etc.
Subcommittee on Safety Regulation for Radiation	Directions for radiation safety regulation

Table E.3-5 List of Special Committees within the Nuclear Safety Commission

Committee on Examination of Reactor Safety	- Matters concerning the safety of nuclear facilities
Committee on Examination of Nuclear Fuel Safety	- Matters concerning the safety of nuclear fuel materials
Emergency Technical Advisory Body	- Technical advice in nuclear emergency
Special Committee on Comprehensive Nuclear Safety	- Safety regulation of radioactive waste - Safety of transportation of radioactive materials - Regulation of technical ability of licensees - Accident management - Safety of dismantling of nuclear facilities - Measures against aging of nuclear facilities - Risk assessment - Others -
Special Committee on Safety Goal	- Safety goal, including quantitative goal with practical use of probabilistic safety assessment, etc.
Special Committee on Fundamentals of Prevention of Radiation Hazards	- Fundamentals of prevention of radiation hazards, and securing safety of radioisotopes - Environmental radiation monitoring in the vicinity of nuclear facilities and survey of general radioactive levels -
Special Committee on Safety Standards	- Standards and guides of reactors, nuclear fuel facilities, intermediate storage facilities of spent fuel, etc. - Standards and guides of radioactive waste - Others
Special Committee on Nuclear Safety Research	- Planning of annual safety research program - Implementation of annual safety research program - Review of safety research program
Special Committee on Investigation of Nuclear Accident and Failures	- Analysis and evaluation of accidents and incidents domestic and abroad - Investigation of specific accidents and incidents indicated by the NSC, and assessment of the measures taken
Emergency Technical Advisory Body on Countermeasure for Disaster by the Nuclear Warship	- Matters concerning the technical advice on emergency countermeasures for the possible or actual cases of nuclear disaster by the nuclear warship.
Special Committee on Nuclear Emergencies.	- Technical and expert matters on emergency measures taken in nuclear emergencies
Committee on Safety Investigation of Special Radioactive Waste	- Investigation and deliberation of technically essential aspects for safety assurance of HLW disposal
Special Advisory Board for International Activities on Radiation Protection	- Matters pertaining to the technical aspects of international contribution on the subject of radiation protection
Project Team on the Safety Assessment of the Nuclear Power Plant	- Matters pertaining to the safety assessment of various facilities and equipments of the nuclear power plants of Tokyo Electric Power Company (TEPCO), etc, especially regarding the cracks that were made public following the disclosure of TEPCO's falsified safety report.
Project Team for Regulatory Review of Reprocessing Facility Safety	- Check and review to the regulatory activities for the Rokkasho - Reprocessing Plant during its operational tests.

F. Other General Safety Provisions

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Section F. Other General Safety Provisions

F.1 Responsibility of the Licence Holder (Article 21)

- 1. Each Contracting Party shall ensure that prime responsibility for the safety of spent fuel or radioactive waste management rests with the holder of the relevant licence and shall take the appropriate steps to ensure that each such licence holder meets its responsibility.**
- 2. If there is no such licence holder or other responsible party, the responsibility rests with the Contracting Party which has jurisdiction over the spent fuel or over the radioactive waste.**

F.1.1 Responsibility of the Licence Holder

The prime responsibility for the safety of a nuclear facility including the safety of spent fuel or radioactive waste management rests with the licence holder of the nuclear facility. That is, the licence holder is responsible for adopting necessary measures to fully meet the regulatory requirements stipulated either in the Reactor Regulation Law, the Electricity Utilities Industry Law or the Radiation Hazards Prevention Law, etc. at all of the stages of planning, establishment, operation and maintenance of the nuclear facility, as described in Sections G and H. In addition to meeting with regulatory requirements, the licence holder is required to make efforts for improving safety and reliability of the nuclear facility, through implementing education and training programs of personnel, preparing operation manuals, collecting, studying and sharing information on operating experience and applying it to design, operation and maintenance, adopting the latest progress in technology, performing safety research, and promoting quality assurance activities.

F.1.2 Steps to Ensure that Each Licence Holder Meets its Responsibility.

Steps to ensure that each licence holder meets its responsibility are shown below. The details are described in Sections G and H.

The regulatory body regulates licence holders' activities at all of the stages of a nuclear facility in accordance with the regulations provided by the Reactor Regulation Law, the Electricity Utility Industry Law or the Radiation Hazards Prevention Law. Especially in the stage of establishment of a major nuclear facility, the competent minister examines the location, structure and the equipment are such that the occurrence of disaster can be prevented, and issue the licence.

The regulatory body, on the basis of the Reactor Regulation Law or the Electricity Utilities Industry Law, conducts the Periodical Facility Inspection to confirm nuclear facility's compliance with the technical standards, and the Nuclear Safety Inspection to confirm licence holder's compliance with the Safety Preservation Rules. Also, it may conduct the On-the-Spot Inspection as necessary. In case the business operator does not observe the Safety Preservation Rules, the regulatory body has authority to revoke the licence or order shutdown of the operation.

For the radioisotope waste management facilities subject to the Radiation Hazards Prevention Law, the regulatory body conducts the Periodical Inspection to confirm nuclear facility's compliance with the technical standards, and the Radiation Inspector conducts the On-the-Spot inspection of a use facility as necessary. In case the business operator does not observe provisions of the Radiation Hazards Prevention Law, regulatory body has authority to revoke the licence or order shutdown of the operation

In addition, on the basis of the Reactor Regulation Law and the Electricity Utilities Industry Law, the licence holder shall cooperate inquiry by the NSC when the NSC reconfirms the adequacy of the

activities of the regulatory body

F1.3 Steps Taken against Absence of the License Holder

In Japan, the management of spent fuel and radioactive waste are subject to the licence issued under the Reactor Regulation Law or the Radiation Hazards Prevention Law. The laws include provisions on succession of a license or steps to be taken by liquidator or administrator in bankruptcy, ensuring safety of spent fuel management or radioactive waste management in such a case.

A license holder of radioisotope waste management facility issued under to the Medical Care Law etc. is allowed to close its business operation only after it completes necessary measures for the closure of business stipulated by the law.

F.2 Human and Financial Resources (Article 22)

Each Contracting Party shall take the appropriate steps to ensure that:

- (i) Qualified staff are available as needed for safety-related activities during the operating lifetime of a spent fuel and a radioactive waste management facility;**
- (ii) Adequate financial resources are available to support the safety of facilities for spent fuel and radioactive waste management during their operating lifetime and for decommissioning;**
- (iii) Financial provision is made which will enable the appropriate institutional controls and monitoring arrangements to be continued for the period deemed necessary following the closure of a disposal facility.**

F.2.1 Human Resources of a Licence Holder to Maintain Major Nuclear Facilities

(1) Human Resources

In issuing establishment licence of a nuclear facility, the regulatory body confirms that the applicant possesses technical capability necessary to establish and operate it adequately. (Exempted are the reprocessing activities by JNC and JAERI, two national institutes established by legislation.)

The applicant for a license under the Reactor Regulation Law attaches an explanation on its technical capability to the application format. Following is an example of items to be included for reprocessing business licence.

- 1) Curriculum vitae of major technical experts
- 2) Other items concerning technical capability relating reprocessing
 - a. Information on technical experts
 - a) departments and divisions in charge of reprocessing
 - b) the number of engineers
 - c) experience of engineers (years engaged in nuclear field)
 - d) the number of qualified staff including the Supervisors of Nuclear Fuel and the Class 1 Supervisors of Radiation Protection.
 - e) the number of engineers trained in domestic and foreign training courses
 - b. Training program of technical experts
 - a) on-the-job training program for technical experts through operation and maintenance of a reprocessing facility
 - b) operation training at reprocessing facilities in domestic and/or foreign plants and at nuclear power plants, improvement of technical capability and management capability through on-the-job training

The operator of facilities licensed under the Radiation Hazards Prevention Law, before starting their facility operation, appoints the Supervisor of Radiation Protection and prepares the Internal Rules for Prevention of Radiation Hazards in which safety management of radioisotopes, work scope and organization of workers, and education and training programs are provided.

(2) Qualification of Personnel Engaged in Safety Activities

Any operator of facilities licensed under the Reactor Regulation Law appoints, and notifies the regulatory body of, a Chief Engineer of Reactors to supervise safety preservation in the operation of a reactor facility, a Chief Nuclear Fuel Engineer to supervise safety preservation in the operation of a nuclear fuel fabrication facility or a reprocessing facility, a Supervisor of Spent Fuel to supervise safety preservation in the handling of spent fuel in a spent fuel storage facility and a Supervisor of Radioactive Waste to supervise safety preservation in the handling of nuclear fuel materials etc. in

radioactive waste management facilities.

Any operator of facilities licensed under the Radiation Hazards Prevention Law appoints, and notifies the regulatory body of, the Supervisor of Radiation Protection to supervise prevention of radiation hazards, before starting facility operation.

(3) Staff Training and Retraining

Any operator of facilities licensed under the Reactor Regulation Law is requested to provide following items concerning training and education, in the Safety Preservation Rules.

- 1) matters relating to regulations and the Safety Preservation Rules
- 2) structure, performance and the operation of the facility
- 3) matters relating to radiation management
- 4) matters relating to the handling of nuclear fuel materials and material contaminated with nuclear fuel material
- 5) steps to be taken in the case of emergency

Any operator of facilities licensed under the Radiation Hazards Prevention Law is requested to provide education and training programs on the following items

- 1) radiation impact on human body
- 2) safe handling of radioisotopes
- 3) regulation relating to the prevention of radiation hazards due to radioisotopes
- 4) Internal Rules for Prevention of Radiation Hazards

F.2.2 Financial Resources and Financial Rules

In issuing establishment licence of a nuclear facility (except for the nuclear fuel material use facility) the regulatory body, in accordance with the Reactor Regulation Law, confirms that the applicant for the licence possesses necessary financial basis. For example, it requires applicant for reprocessing business to submit “Amount of Funds Required for Construction and Finance Procurement Plan” and “Financial Plan and Estimated Annual Financial Balance for the First Decade After the Commissioning of Reprocessing Business” as attached to the application format.

Electric utilities deposit funds for reprocessing of spent fuel and decommissioning on the basis of the Ministerial Order concerning Reserves for Reprocessing of Spent Fuel and Decommissioning Nuclear Power Generation Facilities established under the Electricity Utilities Industry Law.

In accordance with the Specified Radioactive Waste Final Disposal Act enacted in May 2000, operators of power reactor facilities deposit funds for disposal of high level radioactive waste to the Nuclear Waste Management Organization of Japan, the implementing body for disposal, who entrusts management of the fund to the Radioactive Waste Management Funding and Research Center.

Financial basis of a license holder of fuel material use is to be confirmed through procedures to approve the Safety Preservation Rules and the steps to be taken at the time of decommissioning.

Financial Basis of the operator of radioisotope waste management facility licensed under the Radiation Hazards Prevention Law is to be confirmed through the Periodical Inspection, obligation to maintain the facility in compliance with technical standards, implementation of education and training programs, notification of the Internal Rules for Prevention of Radiation Hazards and the steps to be taken at the time of decommissioning.

F.3 Quality Assurance (Article 23)

Each Contracting Party shall take the necessary steps to ensure that appropriate quality assurance programmes concerning the safety of spent fuel and radioactive waste management are established and implemented.

F.3.1 Regulatory Activities to Ensure Appropriate Quality Assurance (QA) Programs

The regulatory body, on the basis of the Regulation Law, the Electricity Utilities Industry Law and the Radiation Hazards Prevention Law, requests a license holder, or an applicant for a license, to submit relevant documents at every stage of license application, construction, operation and decommissioning, and confirms the license holder's technical capability including quality assurance (QA). The regulatory activity at each stage is as follows.

(1) Examination of the Policy for QA at business licensing

The regulatory body requests the applicant to submit the "Policy for Quality Assurance" attached to the application format, and examines it.

(2) Examination of QA Program in Construction Stage

At the construction stage of a commercial power reactor facility, the regulatory body requests the licence holder to submit the "Description on Quality Assurance Program" as specified in the Rules for the Electricity Utilities Industry Law, which describes licence holder's QA activities through detailed design, manufacturing, installation and functional tests, and examines it. Also, the regulatory body instructs the license holder to promote and oversee subcontractor's quality control, material control, etc., in addition to its QA audit of primary contractor and primary contractor's own management of manufacturing process.

(3) Confirmation of QA Activities Throughout Service Life

Regulatory body confirms QA activities of the licence holder throughout service life of nuclear facility by

- 1) requesting explanation on QA management plan in the Periodical Inspection, and
- 2) periodically receiving report on QA activities in the nuclear facility.
- 3) requiring the licence holder to specify QA program in the Safety Preservation Rules and to comply with it,

F.3.2 Outline of QA Program by Operator of Facilities

Operators prepare and implement QA program at every stage from the licensing to the operation of major nuclear facilities based on JEAG-4101 that is an industrial association level guideline. The QA program covers document management, design control, procurement control, management of inspection and testing, nonconformity management, and audit, etc.

The licence holder submits the "Policy for Quality Assurance" and "Description on Quality Assurance Program" to regulatory body as shown in section F.3.1.

JEAG 4101 refers to the "Quality Assurance for Safety in Nuclear Power Plants" by the IAEA in 1988,

and describes details of QA activities with examples. JEAG 4101 is now being revised in accordance with the IAEA Safety Series 50-C/SG-Q “Quality Assurance for Safety in Nuclear Power Plants and Other Nuclear facilities”.

F.4 Operational Radiation Protection (Article 24)

Each Contracting Party shall take the appropriate steps to ensure that during the operating lifetime of a spent fuel or radioactive waste management facility:

- (i) the radiation exposure of the workers and the public caused by the facility shall be kept as low as reasonably achievable, economic and social factors being taken into account;**
- (ii) no individual shall be exposed, in normal situations, to radiation doses which exceed national prescriptions for dose limitation which have due regard to internationally endorsed standards on radiation protection; and**
- (iii) measures are taken to prevent unplanned and uncontrolled releases of radioactive materials into the environment.**

Each Contracting Party shall take appropriate steps to ensure that discharges shall be limited:

- (i) to keep exposure to radiation as low as reasonably achievable, economic and social factors being taken into account; and**
- (ii) so that no individual shall be exposed, in normal situations, to radiation doses which exceed national prescriptions for dose limitation which have due regard to internationally endorsed standards on radiation protection.**

Each Contracting Party shall take appropriate steps to ensure that during the operating lifetime of a regulated nuclear facility, in the event that an unplanned or uncontrolled release of radioactive materials into the environment occurs, appropriate corrective measures are implemented to control the release and mitigate its effects.

F.4.1 Summary of Laws, Regulations and Requirements on Radiation Protection

The national standards for radiation protection at nuclear facilities are prescribed by the Reactor Regulation Law, the Electric Utilities Industry Law, and the Radiation Hazards Prevention Law, etc. and related government ordinances, ministerial ordinances, orders and notifications, and guidelines based on these laws. The recommendations of the International Commission on Radiological Protection (ICRP) are given due consideration and are incorporated into legislation and regulation. The Radiation Review Council coordinates technical standards in the laws and regulations on prevention of radiation hazards.

Ministerial ordinances include the Rules for Enrichment and/or Fuel Manufacturing, the Rules for Commercial Power Reactors, the Rules for Research Reactors, the Rules for Spent Fuel Storage, the Rules for Spent Fuel Reprocessing, the Rules for Waste Disposal, the Rules for Waste Management and the Rules for Fuel Material Use on the basis of the Reactor Regulation Law, and the Rules for the Enforcement of the Law Concerning Radiation Hazards Prevention and other rules on the basis of the Radiation Hazards Prevention Law. These regulations prescribe area control for radiation protection, radiation control of personnel engaged in radiation controlled areas, measurement and surveillance of radiation levels, monitoring of discharged radioactive materials, and maintenance of radiation control equipment. The Notification for Dose Limits on the basis of each of these rules prescribes dose limits and concentration limits of radioactive materials both inside controlled area and outside peripheral monitoring area, and dose limits and concentration limits of radioactive materials for personnel engaged in radiation work, and dose limits for personnel engaged in emergency activities.

In order to ensure compliance with these regulations, operators are required to prescribe in the Safety

Preservation Rules, 1) controlled areas, conservation areas and peripheral monitoring area and access control to these areas, 2) monitoring equipment at air ventilation and water discharge, 3) monitoring of the dose, dose equivalent, the concentration of radioactive materials in the air and the density of radioactive materials on the surface of contaminated objects, and the decontamination, and 4) maintenance of radiation monitoring equipment. In examining application of a license for a nuclear facility, it is confirmed that the application conforms to the Examination Guides established by the NSC as well as the legislation and technical standards. In these guides, operators are required to reasonably reduce discharge of radioactive materials from a nuclear facility into environment and the dose to the public.

F.4.2 National Requirements on Radiation Protection and the Implementation

(1) Allowable Dose Limits

1) Definition of Controlled Areas

The abovementioned rules and dose limit notifications define a controlled area as an area where dose of external radiation may exceed 1.3mSv for a period of three months, the concentration of radioactive material in the air may exceed the limit specified in the notification, or the density of radioactive material on the surface of contaminated objects may exceed the limit specified in the notification, and request operators to take necessary measures in the area.

2) Allowable Dose Limits for Occupational Exposure

The abovementioned rules and dose limit notifications provide for the allowable dose limits for occupational exposure listed in Table F. 4-1.

Table F.4-1 Dose limits for personnel engaged in radiation work

Items	Limits
1. Effective dose limits	
(1)Personnel engaged in radiation work	100mSv/5 years but do not exceed 50mSv/1 year
(2)Female personnel	In addition to the provision (1), 5mSv/3 months
(3)Pregnant female personnel	In addition to the provision (2), 1mSv for internal exposure during a period from notification of pregnancy to delivery
2. Equivalent dose limits	
(1)Eye lens	150mSv/1 year
(2)Skin	500mSv/1 year
(3)Pregnant female's abdominal region	2mSv during a period from notification of pregnancy to delivery
3. Dose limits for the personnel engaged in emergency radiation work	
(1)Effective dose limits	100mSv
(2)Equivalent dose limits for eye lens	300mSv
(3)Equivalent dose limits for skin	1Sv

3) Dose Limits for the Public

The abovementioned rules and dose limit notifications provide for the allowable dose limits for the public listed in Table F.4-2.

Table F. 4-2 Dose limits for the public

Items	Limits
Dose limits outside the peripheral monitoring area	
Effective dose	1mSv/year
Equivalent dose for eye lens	15mSv/year
Equivalent dose for skin	50mSv/year

(2) Numerical Guide to Reduce Dose to the Public in Vicinity and Discharge Control

At major nuclear facilities licensed on the basis of the Reactor Regulation Law, an operator, in addition to comply with dose limits and concentration limits of radioactive materials outside peripheral monitoring area, establishes an annual numerical discharge control guide, which corresponds to a dose well below the dose limit of 1mSv/year, and makes efforts to keep the numerical discharge control guide. The regulatory body acknowledges the numerical discharge control guide and receives report on it from the operator

At radioisotope waste management facilities licensed on the basis of the Radiation Hazards Prevention Law, an operator, in addition to comply with concentration limits of gaseous and liquid discharge, makes efforts to keep dose at site boundary below 250μSv/3 months

(3) Measurement of Environmental Radiation

An operator of major nuclear facility licensed on the basis of the Reactor Regulation Law conducts radiation monitoring at the site vicinity during normal operation, assesses the impact upon the environment of the discharge of radioactive materials from the facility, and feedbacks the results in improving discharge control and facility management.

Local governments hosting nuclear facilities also monitor radiation level independently at the site vicinity to protect public health and safety.

Meanwhile, the NSC indicates fundamentals of the monitoring plan and its implementation and the evaluation of radiation dose in the Guide on Environmental Radiation Monitoring, in order to improve and standardize monitoring technology. Local governments and operators implement monitoring in accordance with the guide.

An operator of radioisotope waste management facility licensed on the basis of the Radiation Hazards Prevention Law monitors radiation level and measures contamination by radioactive materials at controlled area boundary, site boundary and any appropriate points.

F.4.3 Regulatory Control Activities

(1) Discharge Control of Radioactive Materials

The abovementioned rules provide for concentration limits of radioactive materials in both gaseous and liquid discharge from nuclear facilities monitored outside peripheral monitoring area, and dose limit due to radioactive materials in liquid discharge from reprocessing facilities monitored at the outlet to the ocean. The rules also provide that operators shall immediately report to the regulatory body when any of these limits are exceeded, and report within 10 days on details of the event and corrective measures taken.

(2) Control of Personal Exposure

The abovementioned rules require operators to keep records of doses to personnel engaged in radiation work.

F.4.4 Unplanned or Uncontrolled Releases

Operators of Nuclear Facilities, on the basis of abovementioned rules, shall prepare the Safety Preservation Rules and have them approved by the regulatory body, which provide that operators, in case of emergency including unplanned or uncontrolled release of radioactive materials, should take measures against the spread of contamination by nuclear fuel materials or radioisotopes and carryout decontamination work, and rescue persons who suffer or may suffer from radiation damage. The Safety Examination Guide for Reprocessing Facility, which is used in safety examination of reprocessing facility with large inventory of radioactive materials, provides that fire and explosion due to fine metal particles from fuel cladding or organic solvent, criticality accident, leakage or loss of function due to damage or failure of equipment or piping, or spent fuel handling failure do not cause excessive exposure of radiation to the public.

When an unplanned or an uncontrolled release of radioactive materials initiates any specific events (Table F.5-1) defined in the Special Law for Nuclear Emergency, emergency activities start according to the procedure, and the Prime Minister declares Nuclear Emergency if the initial event progresses and exceeds the predetermined level.

Nuclear emergency will be described in detail in the ensuing section.

F.5 Emergency Preparedness (Article 25)

- 1. Each Contracting Party shall ensure that before and during operation of a spent fuel or radioactive waste management facility there are appropriate on-site and, if necessary, off-site emergency plans. Such emergency plans should be tested with appropriate frequency.**
- 2. Each Contracting Party shall take the appropriate steps for the preparation and testing of emergency plans for its territory insofar as it is likely to be affected in the event of a radiological emergency at a spent fuel or radioactive waste management facility in the vicinity of its territory.**

F.5.1 Laws, Regulations and Requirements for Nuclear Emergency Preparedness

The Special Law of Emergency Preparedness for Nuclear Emergency (hereinafter referred to as the Special Law of Nuclear Emergency) came into force in June 2000 in order to take special measures addressing special characteristics of nuclear emergency. Also, the NSC revised in May 2000 the "Emergency Preparedness Guidelines" on technical and special matters of a nuclear emergency measures. The Special Law of Nuclear Emergency was enacted within the legal framework already established by the Basic Law on Emergency Preparedness, which had defined roles of the national government, local governments, etc. in emergencies such as earthquakes, typhoons, conflagrations and nuclear emergency. The Special Law of Nuclear Emergency defines a nuclear emergency as a situation where, as a result of the operation of a nuclear facility, unusually high level of radioactive materials or radiation is released or streams outside the nuclear facilities, and a nuclear disaster as a situation where a nuclear emergency damages the life, body or property of the public. The part of "Nuclear Emergency Preparedness" in the Basic Plan for Emergency Preparedness based on the Basic Law on Emergency Preparedness, was extensively revised in accordance with the Special Law of Nuclear Emergency, clarifying roles and responsibilities of the national government, local governments, and nuclear business operators. In this Article, nuclear business operators include operators of enrichment and/or fuel manufacturing business, nuclear reactor facilities, spent fuel storage business, reprocessing business and radioactive waste disposal business.

At radioisotope waste management facilities licensed under the Radiation Hazards Prevention Law, a nuclear emergency defined by the Special Law of Nuclear Emergency is not postulated to occur. However, the law and relevant regulations provide measures of communication, evacuation, decontamination, etc. to be taken by an operator in case of earthquake, fire, etc.

This section describes preparedness for emergencies defined by the Special Law of Nuclear Emergency.

(1) An Outline of Emergency Preparedness concerning Major Nuclear Facilities

The summary of emergency preparedness on the basis of the Special Law of Nuclear Emergency is given by Fig. F.5-1. Details are given below.

1) Initial Responses in Nuclear Emergency

Quick response and coordinated cooperation among related organizations are important in a nuclear emergency.

- The Special Law of Nuclear Emergency defines specific initial events in a major nuclear facilities (see Table F.5-1), the occurrence of which the operator shall immediately notify the competent minister and the heads of related local governments of.

- The competent minister, receiving the notification, starts activities according to the procedure stipulated by the law. Staff with expertise in emergency measures will be sent to local governments on request. The Senior Specialist for Nuclear Emergency collects information and coordinates activities preventing expansion of the events.
- When the competent minister recognizes that the specific initial event exceeds the predetermined level and has developed into an emergency, the minister immediately reports it to the Prime Minister.
- The Prime Minister declares "Nuclear Emergency", and advises or directs related local governments on necessary measures such as sheltering or evacuation to be taken by them.
- The Prime Minister establishes the "Nuclear Emergency Response Headquarters" in Tokyo, which he will head, and the "Local Nuclear Emergency Response Headquarters" in the district where emergency measures are to be taken.
- Local governments establish their own emergency response headquarters following declaration of "Nuclear Emergency."
- In order to tighten cooperation among the national government, related local governments etc., the "Joint Council for Nuclear Emergency Response" is established at the Off-Site Center mentioned later.

2) Strengthening of the National Emergency Preparedness

The national government establishes following preparation to prevent occurrence of nuclear emergency and to take measures in emergency.

- The competent minister stations a Senior Specialist for Nuclear Emergency in the vicinity of each nuclear facility, who guides and advise the operator in preparing Operator's Plan for Emergency Preparedness and, in emergency, takes necessary measures preventing progression of the emergency.
- The competent minister designates a facility in the vicinity of a nuclear facility as Off-Site Center to be used in an emergency. In the case of an emergency, the national government, the local governments and the operator establish at the Off-Site Center the "Joint Council for Nuclear Emergency Response", in order to share information and to coordinate their activities. Off-Site Centers were established on the point shown in Fig. F.5-2 by March 2002. Off-Site Centers have communication equipment with the Prime Minister's Official Residence, the NSC, the Emergency Response Centers of NISA and MEXT and related local governments, and other necessary equipment.
- The national government establishes arrangements to secure quick and coordinated activities in an emergency.
- The national government conducts comprehensive nuclear emergency exercise once a year.

3) Clarification of the Operator's Responsibility

- The operator develops its own Operator's Plan for Nuclear Emergency Preparedness after consulting with related local governments, and submits it to the competent minister.
- The operator establishes on-site organization for nuclear emergency preparedness, and designates a Manager for Nuclear Emergency Preparedness who administers the organization.
- The Manager for Nuclear Emergency Preparedness shall notify specific initial events to the competent authorities.

(2) On-site and Off-site Nuclear Emergency Preparedness of Major Nuclear Facilities

Organizations related to nuclear emergency preparedness keep themselves ready to collect and send information and start quick response against an emergency, and conduct exercises, disseminate knowledge and promote research on emergency preparedness. Outline of roles and responsibilities of related organization are as follows.

1) On-Site Emergency Preparedness of Major Nuclear Facilities

When the operator detects abnormal release of radioactive material or abnormal level of radiation at a nuclear facility, it takes necessary measures to prevent progression of the event into an emergency.

The operator develops Operator's Plan for Nuclear Emergency Preparedness after consulting with related local governments, which provides for prevention of, emergency measures against, and post-emergency restoration of, a nuclear emergency, including on-site and off-site cooperation with other organizations. Especially, quick and accurate notification of occurrence of specific initial events to related organizations is a very important obligation of the operator.

Moreover, the operator is required to take part in comprehensive exercise with related organizations, and keep close contact with them.

2) Off-Site Emergency Preparedness of Major Nuclear Facilities

Roles and responsibilities of the national government and local governments in emergency preparedness are defined in the Special Law of Nuclear Emergency and the Basic Plan for Emergency Preparedness. Each local government develops its own detailed local plan for emergency preparedness. They conduct emergency environmental radiation monitoring, and implement evacuation or sheltering of residents receiving advice or direction from the Prime Minister based on the report of the competent minister.

Emergency activities are roughly divided into five categories.

- a. to convey information, directions, etc. to residents
- b. to conduct emergency environmental radiation monitoring
- c. to advise or direct local residents on sheltering or evacuation.
- d. to restrict intake of foods and drinks.
- e. to conduct emergency medical treatment

(3) Trainings and Exercises

The purpose of nuclear emergency exercise is 1) to enhance understanding of the nuclear emergency preparedness by responsible personnel of the national government, local governments and the operator, and residents, and 2) to verify whether emergency measures function in predetermined way, and whether information sharing and cooperation among related organizations are adequate. The national government, local governments, designated public organizations and the operator cooperate and participate in exercises, which cover communication, monitoring, making decision on emergency measures to be taken, sheltering or evacuation etc., ranging from large scale national exercise to operator's on-site exercise. Exercises in the past years are shown below.

1) Exercise Planned by the National Government (Table F.5-2 (1))

The first comprehensive exercise after the enactment of the Special Law of Nuclear Emergency was conducted on October 28, 2000, at Unit 2 of Shimane Nuclear Power Station, Kashima Town, Shimane Prefecture. The exercise was participated by 83 organizations and 13,000 persons, as well as the Prime Minister, the then Minister of MITI and other ministers. The exercise included the declaration of "Nuclear Emergency" and the establishment of the Nuclear Emergency Headquarters, in addition to verifying the function of the Joint Council for Nuclear Emergency Response established at the Off-Site Center, and the communication with local residents. The subsequent comprehensive exercise was conducted at Unit 1 of Tomari Nuclear Power Station, Hokkaido, on October 27, 2001 and Unit 3 of Ohi Power Station, Fukui

Prefecture, on November 7, 2002.

2) Exercises Planned by Local Governments (Table F.5-2 (2))

The local plan for emergency preparedness prescribes local exercise to be planned and conducted by local governments, which national government supports by sending expert staff.

3) Exercise Planned by the Operator

The operators have conducted on-site exercises including establishment of emergency response headquarters, communication, monitoring, evacuation or sheltering, etc. based on Operator's Plan for Emergency Preparedness for each site.

4) Participation in International Nuclear Emergency Exercise

Japan participated in the Joint International Nuclear Emergency Exercise (JINEX1) held in May 2001 sponsored by the IAEA, learning lessons on cross border radiological emergency, and will participate in future international exercises.

F.5.2 Emergency in the Vicinity of the Territory

Japan is a contracting party to the Convention on Early Notification of a Nuclear Accident, and to the Conventions on Assistance in the Case of a Nuclear Accident or Radiological Emergency. The Ministry of Foreign Affairs has been designated as the authority for notification and the competent ministry for radiological emergency in the vicinity of the territory.

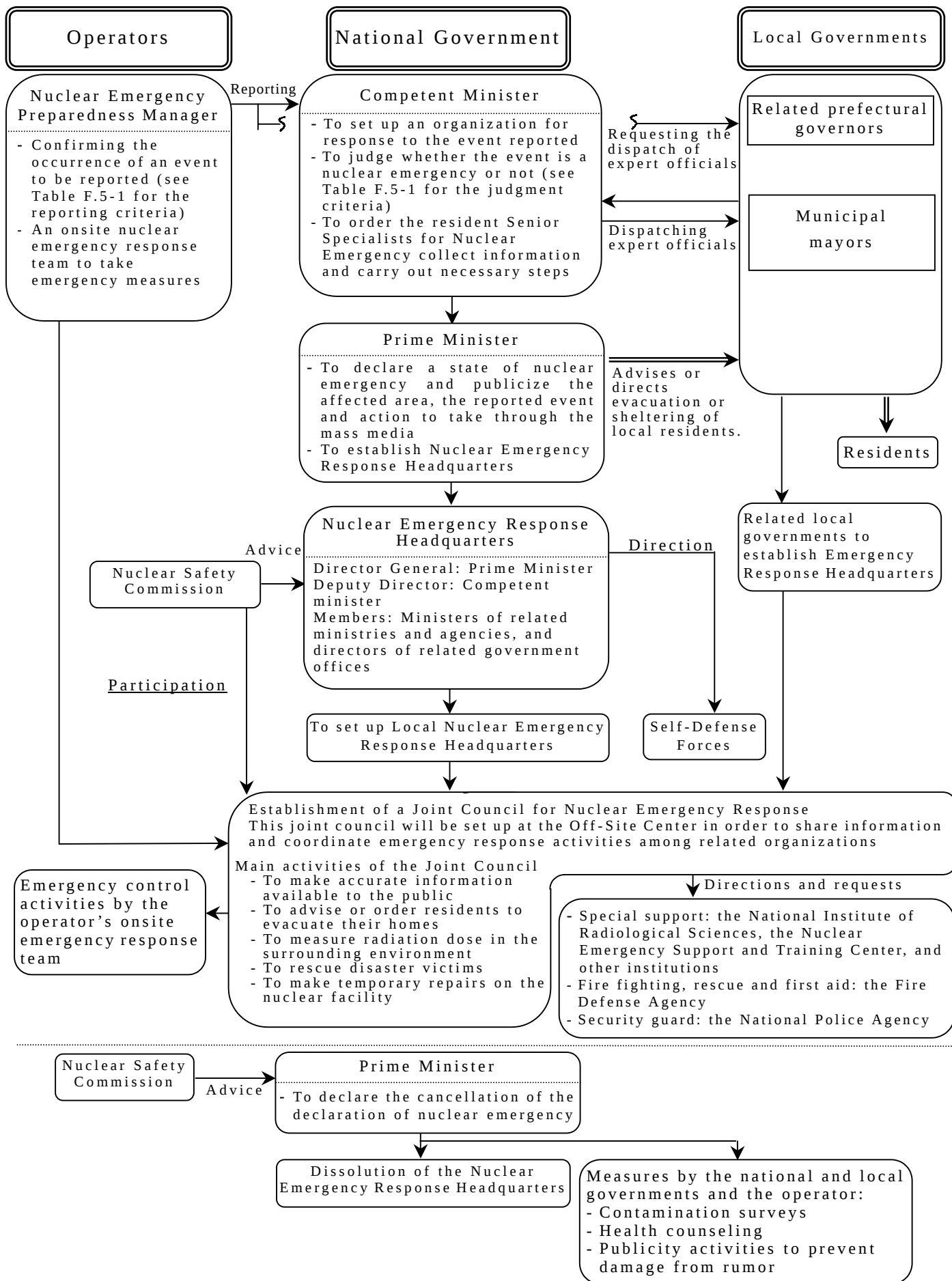


Fig. F.5-1 Measures Based on the Special Law for Nuclear Emergencies

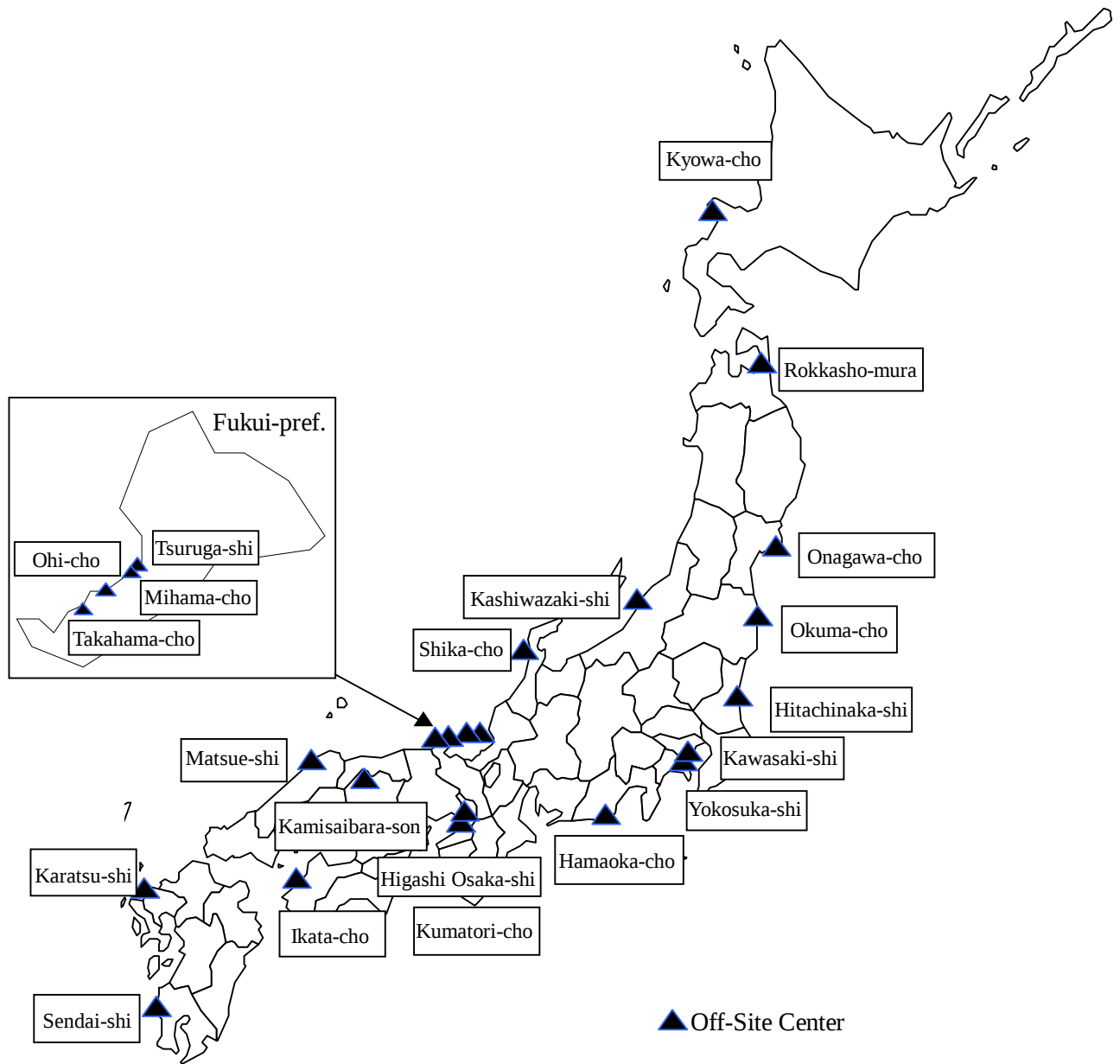


Fig. F5-2 Off-Site Center Site

Table F.5-1 Main Specific Events, Nuclear Emergencies and Countermeasures Prescribed by the Special Law for Nuclear Emergencies

	Events	Reporting Criteria for Nuclear Business Operators and the Criteria for the National Government's Declaration of Emergency	
			Conditions whereby to judge the occurrence of an emergency
Events to be reported by nuclear business operators	a) Detection of radiation near the site boundary	Exceeding 5 μ Sv/h at one point for more than 10 minutes Exceeding 5 μ Sv/h at more than two points at the same time	Exceeding 500 μ Sv/h at one point for more than 10 minutes Exceeding 500 μ Sv/h at more than two points at the same time
	b) Detection of radioactive material at the usual release points, such as exhaust pipes c) Detection of radiation or radioactive material (at places other than the controlled area) due to a fire or an explosion d) Separate events depending on the characteristics of nuclear facilities Examples: - Failure of scram - Loss of reactor coolant - Loss of all AC power supplies - A decline in the spent fuel pool water level at a reprocessing facility	The concentration of radioactive material remains at a level equivalent to exceeding 5 μ Sv/h for more than 10 minutes, or radioactive material release at a level equivalent to exceeding 5 μ Sv/h has taken place. Radiation dose exceeding 50 μ Sv/h Release of radioactive material equivalent to exceeding 5 μ Sv/h A nuclear reactor shut down can not be achieved by usual neutron absorbers. Reactor coolant leakage that requires the activation of the emergency core cooling system (ECCS) has occurred. All AC power supplies have been stopped for more than five minutes. The spent fuel pool water level has dropped to a level at which fuel assemblies are exposed.	The concentration of radioactive material remains at a level equivalent to exceeding 500 μ Sv/h for more than 10 minutes, or radioactive material release at a level equivalent to exceeding 5mSv/h has taken place. Radiation dose exceeding 5mSv/h Release of radioactive material equivalent to exceeding 500 μ Sv/h All reactor shutdown functions have been lost. All the ECCSs are unable to flood the reactor for cooling. All AC power sources have been lost and all core cooling functions have been lost.
		 	
The national government's response		The competent minister sends staff with expertise to local governments at their request. Resident senior specialists for nuclear emergencies carry out necessary response operations. Although these activities are not required by the Special Law for Nuclear Emergencies, related ministries and agencies will carry out the following activities in accordance with agreements: - Officials from related ministries and agencies will gather together to have a liaison conference for emergency response among related ministries and agencies in Tokyo. - Interested parties will gather together at the Off-Site Center to hold a liaison conference for field disaster control.	- The competent minister confirms the occurrence of a nuclear emergency and reports it to the Prime Minister. - The Prime Minister declares a state of nuclear emergency and takes the following action: - To advise or direct the heads of related local governments to order residents to evacuate their homes or take shelter indoors; - To establish Nuclear Emergency Response Headquarters in Tokyo and Local Nuclear Emergency Response Headquarter at the appropriate Off-Site Center; and - To set up the Joint Council for Nuclear Emergency Response in order to exchange information between the national and local governments.

Table F.5-2 Nuclear Emergency Exercise

Conductor	Date	Nuclear Power Station
(1) Exercise conducted by National Government		
National Government	2000/10/28(Sat.)	The Chugoku Electric Power Co., Inc. Shimane Nuclear Power Station
National Government	2001/10/27(Sat.)	Hokkaido Electric Power Co., Inc. Tomari Power Station
National Government	2002/11/07(Thurs.)	The Kansai Electric Power Co., Inc. Ohi Power Station
(2) Exercise conducted by Local Government (From April 2001 To July 1, 2003)		
Miyagi-pref.	2001/07/11(Wed.)	Tohoku Electric Power Co., Inc. Onagawa Nuclear Power Station
Ibaraki-pref.	2001/09/29(Sat.)	Japan Nuclear Cycle Development Institute Tokai Reprocessing)
Kanagawa-pref	2001/10/25(Thurs.)	Global Nuclear Fuel-Japan Co., Ltd.
Okayama-pref.	2001/10/29(Mon.)	Japan Nuclear Cycle Development Institute Ningyo-Toge Environmental Engineering
Ehime-pref.	2001/11/01(Thurs.)	Shikoku Electric Power Co., Inc. Ikata Power Station
Shimane-pref.	2001/11/07(Wed.)	The Chugoku Electric Power Co., Inc. Shimane Nuclear Power Station
Niigata-pref.	2001/11/20(Tues.)	The Tokyo Electric Power Co., Inc. Kashiwazaki Kariwa Nuclear Power Station
Saga-pref.	2001/11/26(Mon.)	Kyushu Electric Power Co., Inc. Genkai Nuclear Power Station
Fukushima-pref.	2001/11/28(Wed.)	The Tokyo Electric Power Co., Inc. Fukushima Daiichi Nuclear Power Station
Ishikawa-pref.	2002/01/11(Fri.)	Hokuriku Electric Power Co., Inc. Shika Nuclear Power Station
Kagoshima-pref.	2002/01/31(Thurs.)	Kyushu Electric Power Co., Inc. Sendai Nuclear Power Station
Shizuoka-pref.	2002/02/21(Thurs.)	The Chubu Electric Power Co., Inc. Hamaoka Nuclear Power Station
Fukui-pref.	2002/03/30(Sat.)	The Kansai Electric Power Co., Inc. Mihama Power Station
Miyagi-pref.	2002/09/03(Tues.)	Tohoku Electric Power Co., Inc. Onagawa Nuclear Power Station
Ibaraki-pref.	2002/09/30(Mon.)	Japan Nuclear Cycle Development Institute Oarai Engineering Center
Hokkaido	2002/10/25(Fri.)	Hokkaido Electric Power Co., Inc. Tomari Power Station
Ehime-pref.	2002/10/25(Fri.)	Shikoku Electric Power Co., Inc. Ikata Power Station
Kagoshima-pref.	2002/10/29(Tues.)	Kyushu Electric Power Co., Inc. Sendai Nuclear Power Station
Fukushima-pref.	2002/11/08(Thurs.)	The Tokyo Electric Power Co., Inc. Fukushima Daiichi Nuclear Power Station
Shimane-pref.	2002/11/08(Fri.)	The Chugoku Electric Power Co., Inc. Shimane Nuclear Power Station
Niigata-pref.	2002/11/09(Sat.)	The Tokyo Electric Power Co., Inc. Kashiwazaki Kariwa Nuclear Power Station
Ishikawa-pref.	2002/11/11(Mon.)	Hokuriku Electric Power Co., Inc. Shika Nuclear Power Station
Saga-pref.	2002/11/25(Mon.)	Kyushu Electric Power Co., Inc. Genkai Nuclear Power Station
Okayama-pref.	2002/11/26(Tues.)	Japan Nuclear Cycle Development Institute Ningyo-Toge Environmental Engineering
Aomori-pref	2002/12/18(Wed.)	Japan Nuclear Fuel Ltd. Reprocessing Plant
Nagasaki-pref	2003/01/30(Thurs.)	Kyushu Electric Power Co., Inc. Genkai Nuclear Power Station
Shizuoka-pref.	2003/02/03(Mon.) /04(Tues.)	The Chubu Electric Power Co., Inc. Hamaoka Nuclear Power Station

Each Contracting Party shall take the appropriate steps to ensure the safety of decommissioning of a nuclear facility. Such steps shall ensure that:

- (i) qualified staff and adequate financial resources are available;**
- (ii) the provisions of Article 24 with respect to operational radiation protection, discharges and unplanned and uncontrolled releases are applied;**
- (iii) the provisions of Article 25 with respect to emergency preparedness are applied; and**
- (iv) records of information important to decommissioning are kept.**

The AEC's Long-term Program states that nuclear facilities licensed on the basis of the Reactor Regulation Law should be decommissioned safely at the responsibility of their operators, while obtaining local community's understanding and support, and that the land, after decommissioning of commercial power reactors, is expected to serve as sites for new nuclear power plants, again with the understanding of their communities.

The Nuclear and Industrial Safety Committee Decommissioning Safety Subcommittee at the Advisory Board for Natural Resources and Energy published a report "A Concept for Assuring and Regulating the Safety of Decommissioning Commercial Power Reactor Facilities", August 2, 2001. The regulatory body applies existing regulations of the Notification of Dismantling and the Change of the Safety Preservation Rules on the basis of the Reactor Regulation Law together with the report to ensure that operators implement safety measures in dismantling commercial power reactor facilities.

In these regulations operators are required to notify the regulatory body of method and process of dismantling and method of management of nuclear fuel materials and objects contaminated by them, and to submit to the regulatory body for approval the Safety Preservation Rules which include method of and organization for facility maintenance, radiation control, waste management, etc.

In order to make long-term regulation on decommissioning more effective, the regulatory body allows operators to submit, at first, summary of long-term decommissioning plan and details of initial short-term work process, leaving details of later work processes to later submissions as decommissioning work progresses. Also, the regulatory body requests operators to apply for the Change of the Safety Preservation Rules as decommissioning work progresses.

Also, operators of other nuclear facilities such as research reactor facilities, enrichment and/or fuel manufacturing facilities, spent fuel storage facilities and reprocessing facilities are required to submit the Notification of Dismantling in accordance with the Reactor Regulation Law and relevant regulations. Operators of fuel material use facility, when terminating their businesses, are required to make decontamination and take other measures within 30 days of the closure.

F.6.1 Human and Financial Resources

(1) Human Resources

Operators clarify, in the Safety Preservation Rules, organizations responsible for ensuring safety in decommissioning processes, and planning and implementation of relevant safety education programs

for management and workers including subcontractors. The regulatory body conducts the Nuclear Safety Inspection four times a year to supervise operators' compliance with the rules.

(2) Financial Resources

Electric utilities have deposited funds for decommissioning of commercial power reactor facilities using the Dismantling Reserve Funds.

NISA requires electric utilities to clarify financial resources in the Notification of Dismantling, and confirms it.

F.6.2 Radiation Protection at the Decommissioning Stage

The regulations on radiation protection applied to nuclear facilities in operation, which is described at Article 24 (Section F.4), are also applicable to nuclear facilities in the process of being decommissioned.

F.6.3 Emergency Preparedness

The regulations on emergency preparedness applied to nuclear facilities in operation, which is described at Article 25 (Section F.5), are also applicable to nuclear facilities in the process of being decommissioned.

F.6.4 Keeping Records of Information Important to Decommissioning

The Reactor Regulation Law requests operators to keep important records such as inspection records, radiation control records, etc. at decommissioning stage in the same way as at operating stage, and other records specific to decommissioning such as each equipment or system being dismantled, time period and method for dismantling it, etc. at the end of each dismantling process, thus allowing the regulatory body to confirm that decommissioning has been completed ensuring safety and in compliance with the approved Notification of Dismantling of that facility.

G. Safety of Spent Fuel management

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Section G. Safety of Spent Fuel Management

The safety of spent fuel management is ensured in accordance with the regulatory framework for the safety of spent fuel management set forth in Section E.2.3. In other words, the safety management of spent fuel on a reactor facility site or a reprocessing plant site is regulated by the provisions of the Reactor Regulation Law concerning the establishment and operation of nuclear reactors or a reprocessing facilities. More specifically, spent fuel management facilities are regulated as associated facilities operated in the respective reactors or facilities. On the other hand, the safety management of spent fuel stored outside a reactor or a reprocessing plant site is regulated in accordance with the provisions for storage business in the Reactor Regulation Law, as specialized facilities concerning licensing, permission, approval and inspections. At present, there is no storage facility which is in operation, under construction or for which an application for permission of construction has been filed.

Fig. G.1 outlines a flow of regulations concerning spent fuel storage facilities in relation to the terms used in the joint convention. A flow of regulations begins with an application for a business license. The regulatory body grants a business operator license to conduct a business after safety examination. Prior to construction of an installation, the regulatory body examines a design and a construction plan and approves them if they are deemed acceptable. When the construction of a facility requires prescribed welding operations, the regulatory body checks the validity of welding through welding inspections or welding safety management inspections. Moreover, the regulatory body conducts pre-service inspections to make sure that the construction works are being carried out in accordance with the approved design and construction plan. The regulatory body requires a business operator to specify safety precautions in Safety Preservation Rules and approves the Safety Preservation Rules. And when an operator has notified the regulatory body of the commencement of business operations (excluding reactor facilities), they are allowed to put nuclear facilities into active service.

After the facility went into service, the regulatory body conducts periodical inspections and checks safety at the facility in order to ascertain the integrity of the facility and the operator's compliance with the Safety Preservation Rules.

As for decommissioning, the operator files notification of dismantling with the regulatory body and enters into decommissioning of a nuclear facility. After the nuclear facility was dismantled and removed, the operator files notification of closure with the regulatory body and the decommissioning comes to an end.

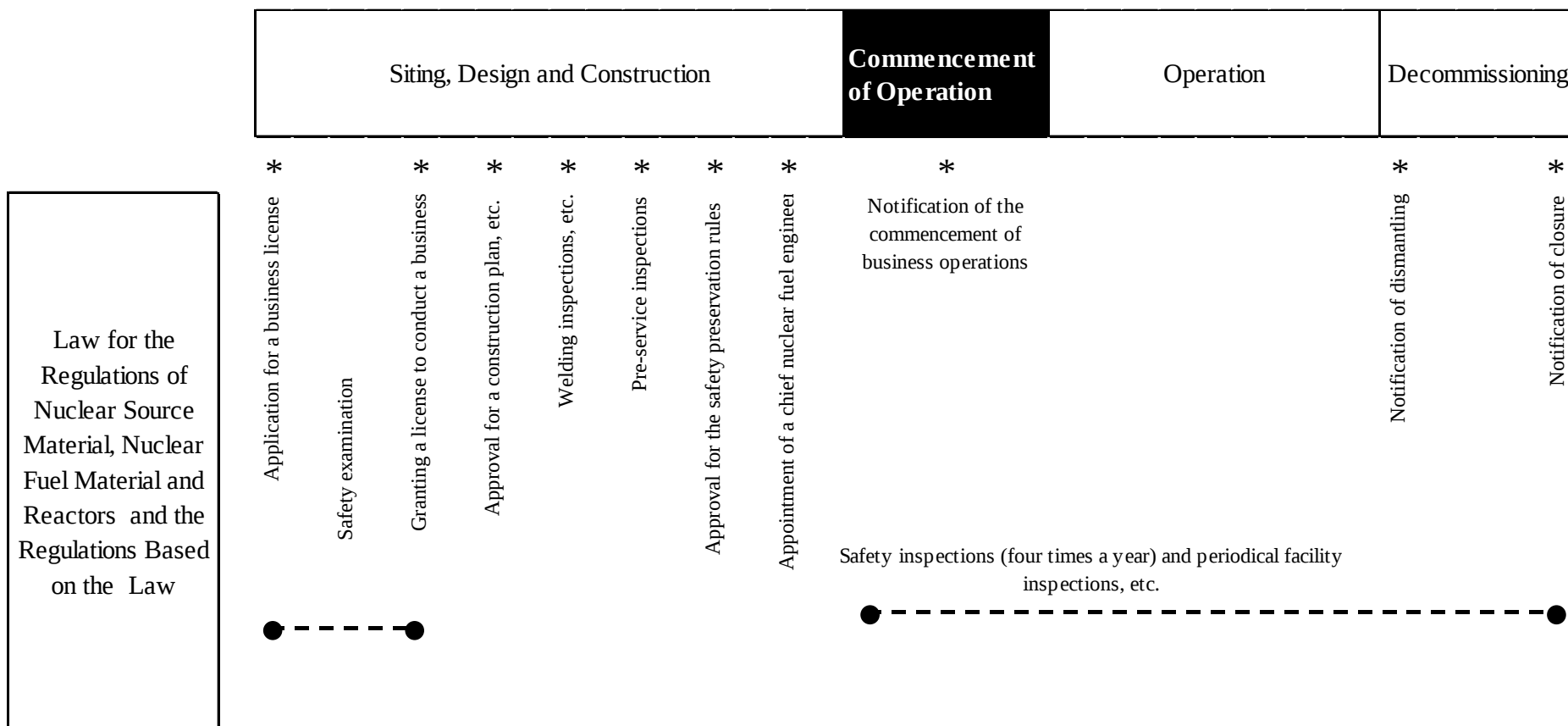


Fig. G.1 A Flow of Regulations Concerning Spent Fuel Storage Facilities

G.1 General Safety Requirements (Article 4)

Each Contracting Party shall take the appropriate steps to ensure that at all stages of spent fuel management, individuals, society and the environment are adequately protected against radiological hazards.

In so doing, each Contracting Party shall take the appropriate steps to:

- (i) ensure that criticality and removal of residual heat generated during spent fuel management are adequately addressed;**
- (ii) ensure that the generation of radioactive waste associated with spent fuel management is kept to the minimum practicable, consistent with the type of fuel cycle policy adopted;**
- (iii) take into account interdependencies among the different steps in spent fuel management;**
- (iv) provide for effective protection of individuals, society and the environment, by applying at the national level suitable protective methods as approved by the regulatory body, in the framework of its national legislation which has due regard to internationally endorsed criteria and standards;**
- (v) take into account the biological, chemical and other hazards that may be associated with spent fuel management;**
- (vi) strive to avoid actions that impose reasonably predictable impacts on future generations greater than those permitted for the current generation;**
- (vii) aim to avoid imposing undue burdens on future generations.**

G.1.1 Criticality and Removal of Residual Heat

In accordance with the Reactor Regulation Law, the regulations concerning the storage of spent fuel require operators of facilities to take steps necessary for the cooling of spent fuel and take the appropriate steps to prevent spent fuel from attaining criticality in any circumstances at spent fuel management facilities that use either the water pool storage method or the metal dry cask storage method.

Furthermore, the guidelines enacted by the NSC require the operators of spent fuel storage and handling facilities to take the appropriate steps to prevent spent fuel from reaching criticality. Table G.1-1 shows specific safety requirements that must be met at commercial power reactors.

Operators of the facilities are required by regulations and guidelines based on the Reactor Regulation Law, to install cooling equipment capable of cooling pool water and adequately removing decay heat generated by spent fuel stored at facilities using the water pool storage method. In the case of using the metal dry cast storage method, operators of the facilities are obligated to install a facility of such construction as being capable of cooling metal dry casks through natural air-cooling and adequately removing decay heat generated by spent fuel stored. In addition, this facility must be constructed so that stored spent fuel casks are well spaced out and, even if spent fuel is stored at full capacity, spent fuel remains sub-critical.

G.1.2 Minimization of the Generation of Radioactive Waste in Spent Fuel Management

Minimization of radioactive waste generation is described in Section H.1.2.

G.1.3 Interdependencies Among Different Steps in Spent Fuel Management

As mentioned in Section E.1.6, operators performing facility operations at each step of spent fuel generation, storage and reprocessing are required to obtain licenses for business operation corresponding to each step in accordance with the Reactor Regulation Law. The details of regulations for reactor, spent fuel storage and reprocessing facility operation are prescribed by the regulations and standards under the Reactor Regulation Law.

The operators are responsible for storing spent fuel, which has been removed from a nuclear reactor after being used for a given period, in a spent fuel storage pool at a reactor facility for a proper period of time in order to allow radioactivity to decay and to attenuate residual heat, and then shipping it to a reprocessing facility. During spent fuel storage, operators are required to maintain, manage and monitor a storage conditions by installing pool water clean-up equipment at a storage facility if the water pool storage method is used, or providing inert gas-filled storage containers at a storage facility if the dry storage method is used. Moreover, when spent fuel is carried out, operators are required to check to make sure that spent fuel to be carried out meets the specifications for acceptance at reprocessing facilities.

G.1.4 Regulations for Radiation Protection

Radiation protection concerning the safety of spent fuel management is described in Section F.4.

G.1.5 Taking into Account Biological, Chemical and Other Hazards

The regulatory body, when issuing a license to a major nuclear facility in accordance with the Reactor Regulation Law, conducts safety examination to ensure that the location, structure and equipment of the facility are adequate to prevent hazards due to nuclear fuel material or materials contaminated with it.

G.1.6 Taking into Account Impacts on Future Generations

As mentioned in Section B, the Government of Japan makes it a basis of its nuclear energy policy to domestically establish a nuclear fuel cycle in which spent fuel is reprocessed in order to make effective use of uranium resources. Spent fuel generated by nuclear power plant is considered as a useful recyclable fuel resource, so that it will be stored and managed safely until it is reprocessed.

G.1.7 Taking into Account Burdens on Future Generations

The competent minister is required by the law to examine an application for a license for a major nuclear facility to ensure that issuing the license does not pose any impediment to the development and planned utilization of nuclear energy and that an applicant has a financial basis necessary for adequate business operations.

In accordance with the ministerial ordinance concerning reserves for reprocessing of spent nuclear fuel under the Electric Utilities Industry Law, electric utilities are required to set up reserves for reprocessing of spent fuel every business year to meet expenses entailed in reprocessing of spent nuclear fuel.

Table G.1-1 Requirements for the Design of Spent Fuel Management Facilities under Examination Guide for Safety Design of Light Water Nuclear Power Reactor Facilities

Items	Requirements
Spent fuel storage and handling system	- Appropriate periodical testing and inspection of structures, systems and components with safety functions shall be possible - Storage system shall have appropriate containment and air purification system. - Storage system shall have appropriate storage capacity. - Handling system shall have capability to prevent the dropping of fuel assemblies during transfer. - Proper shielding for radiation protection shall be available. - Storage system shall have the system capable of fully removing decay heat and transporting it to an ultimate heat sink with associated purification system. - Prevention of excessive decrease of cooling water inventory in the storage systems and proper leakage detection shall be possible. - Storage systems shall not lose their safety functions even in case of postulated dropping of fuel assemblies during handling.
Prevention of fuel criticality	Fuel storage and handling systems shall be so designed that criticality can be prevented in any postulated case by use of geometrical safety layout or other appropriate means.
Monitoring of a fuel handling place	Fuel handling area shall be so designed that the situation leading to the loss of decay heat removal capability and excessive radiation levels can be detected and that such situation can be properly communicated to the personnel or corrective measures can be automatically taken against such situation.

G.2 Existing Facilities (Article 5)

Each Contracting Party shall take the appropriate steps to review the safety of any spent fuel management facility existing at the time the Convention enters into force for that Contracting Party and to ensure that, if necessary, all reasonably practicable improvements are made to upgrade the safety of such a facility.

G.2.1 Existing Spent Fuel Management Facilities

The regulatory body conducts following inspections on spent fuel management facilities associated to major nuclear facilities. On the basis of inspections conducted to this day, none of spent fuel management facilities were found to require significant corrective actions to continue operation.

(1) Periodical Inspections of Facility

The regulatory body conducts periodical inspections of facility once a year (once every 13 months in the case of commercial power reactor facilities) to confirm if the performance of the facilities and equipment complies with the technical standards prescribed by laws and ordinances.

(2) Nuclear Safety Inspections

The regulatory body conducts nuclear safety inspections by resident Nuclear Safety Inspectors four times a year to check for nuclear business operators' compliance with the Safety Preservation Rules.

G.3 Siting of Proposed Facilities (Article 6)

Each Contracting Party shall take the appropriate steps to ensure that procedures are established and implemented for a proposed spent fuel management facility:

- (i) to evaluate all relevant site-related factors likely to affect the safety of such a facility during its operating lifetime;**
- (ii) to evaluate the likely safety impact of such a facility on individuals, society and the environment;**
- (iii) to make information on the safety of such a facility available to members of the public;**
- (iv) to consult Contracting Parties in the vicinity of such a facility, insofar as they are likely to be affected by that facility, and provide them, upon their request, with general data relating to the facility to enable them to evaluate the likely safety impact of the facility upon their territory.**

In so doing, each Contracting Party shall take the appropriate steps to ensure that such facilities shall not have unacceptable effects on other Contracting Parties by being sited in accordance with the general safety requirements of Article 4.

G.3.1 Evaluation of Site-Related Factors and Impact of Proposed Facilities

The regulatory body, when issuing a license to operate a nuclear facility in accordance with the Reactor Regulation Law, conducts safety examination to ensure that siting and the basic design of facility, equipments and components of a major nuclear facility are adequate to prevent hazards due to nuclear fuel material or materials contaminated with it. The regulatory body also uses examination guide in safety examination.

The Basic Guides for Safety Examination of Nuclear Fuel Facilities, one of the safety examination guides, provide that a site shall satisfy the following conditions:

- Basic conditions: No event liable to induce large accident is likely to occur at and near a proposed site for a nuclear fuel facility and there have also been very few events deemed liable to propagate disaster.
- Condition during normal operations: Radiation dose to which members of the public may be exposed during normal operations of a proposed nuclear fuel facility are kept ALARA.
- Condition at an accident: The maximum postulated accident at the proposed nuclear fuel facility should not cause excessive exposure to the public.

As for the basic conditions, the guides governing each types of facilities provide that operators must take into account the possible impacts from the natural environment such as earthquake, tidal wave, flood, typhoon, snowfall and other natural phenomena, as well as the possible impacts on the social environment of a fire and explosion at nearby factories, a falling object from an aircraft accident, and other similar events.

Details of public exposure during normal operations, and in accidents, of nuclear facilities, are given in Section F.4. and in Section G.5.1., respectively.

Siting of a spent fuel management facility attached to a reactor facility is examined in accordance with the Examination Guide for Nuclear Reactor Siting Evaluation and Application Criteria as part of examinations of a whole reactor facility.

G.3.2 Information Disclosure

Information on the safety of nuclear facilities, including application documents, is made available to members of the public as part of administrative services. Moreover, government documents are made available to the general public upon request made in accordance with the Law on the Disclosure of Information Held by Administrative Agencies, which came into force on April 1, 2001, unless reasons for non-disclosure apply.

Furthermore, application documents submitted by operators for licenses to conduct business operations or construct nuclear facilities are made available for public at the National Diet Library and other institutions.

G.3.3 Relationship with Neighboring Countries

Being an insular country, Japan is located at a considerable distance from its neighboring countries. Therefore, as long as the safety of nuclear facilities is properly secured within Japan, nuclear facilities in the country are highly unlikely to have safety impacts on the neighboring countries. The Japanese government does not have it a rule to consult the neighboring countries about siting of nuclear facilities. The Japanese government provides neighboring countries with information on nuclear energy in the country through bilateral consultation, etc.

G.4 Design and Construction of Facilities (Article 7)

Each Contracting Party shall take the appropriate steps to ensure that:

- (i) the design and construction of a spent fuel management facility provide for suitable measures to limit possible radiological impacts on individuals, society and the environment, including those from discharges or uncontrolled releases;**
- (ii) at the design stage, conceptual plans and, as necessary, technical provisions for the decommissioning of a spent fuel management facility are taken into account;**
- (iii) the technologies incorporated in the design and construction of a spent fuel management facility are supported by experience, testing or analysis.**

G.4.1 Limitation of Radiological Impacts on Individuals, Society and the Environment

The regulations under the Reactor Regulation Law provide that an applicant for a license for a nuclear facility should attach to application documents explaining: (i) meteorological conditions, the ground conditions, hydrological conditions, a social environment, and others at the site; (ii) safety design of the facility; (iii) radiation protection from nuclear fuel material (including spent fuel) and matters contaminated by it, and radioactive waste management; (iv) types, extent and possible consequences of postulated accidents at the facility initiated by operational error, equipment or system failure, earthquake, or a fire.

The regulatory body examines application and attached documents to confirm that appropriate measures are taken in the design to satisfy basic conditions, conditions during normal operations and conditions in an accident as mentioned in Section G.3.1.

The Reactor Regulation Law and its regulations require operators to take appropriate measures in the design to limit radiation hazards on individuals, society and the environment to ensure that:

- (1) nuclear facility is capable of confining radioactive material to a limited section;
- (2) proper radiation shield is provided to hold public exposure to direct radiation and skyshine rays sufficiently low.
- (3) adequate radiation shield is provided for personnel engaged in radiation work considering the working conditions;
- (4) appropriate measures are taken to oversee and manage the working environment for personnel engaged in radiation work;
- (5) the concentration of radioactive material releases to the environment is kept ALARA by, for example, properly processing radioactive waste produced from storage facility;
- (6) appropriate measures are taken to properly monitor the concentration of radioactive material at a radioactive waste release pathway; and
- (7) appropriate safety precautions to cope with an accident, such as an emergency alarm system, a communication channel, and measures for evacuation of personnel engaged in radiation work, are taken.

The details about safety evaluation during an accident are described in Section G. 5.1.

The operators are required to prepare construction plan, to obtain the approval by the competent minister, and to go through welding inspections during the construction of a nuclear facility at an each construction process, when related work is completed. The regulatory body confirms that the construction work has been carried out as approved and is consistent with the technical standards. Pre-service inspections include various inspections and tests ranging from the components structure, strength or leakage inspections to the functions and performance tests of a nuclear facility as a whole.

G.4.2 Conceptual Plans and Technical Provisions for Decommissioning

The Reactor Regulation Law provides that operators shall, when dismantling a nuclear facility, submit to the competent minister in advance a notification setting forth a method of dismantling and a method of disposing of nuclear fuel material and materials contaminated with it.

With respect to the development of technologies for dismantling commercial power reactors, actual dismantling of the JPDR and dismantling technologies usable in the decommissioning of commercial power reactors were developed under the long-term program formulated by the AEC. The JPDR was dismantled in accordance with the Decision by NSC named “Basic Concept of Securing the Safety of the Dismantling of Reactor Facilities: Dismantling JPDR.”* The NSC decided that basic concept to ensure the safety of future dismantling of nuclear facilities should be formulated on the basis of experience in the dismantling of the JPDR, the progress of dismantling technology, and international trends.

* : In August 2001, the name of this decision was changed as "Basic Policy of Securing the Safety of the Dismantling of Reactor Facilities", and the content was revised partly.

The Advisory Committee on Decommissioning, an advisory body to the then Ministry of International Trade and Industry, in January 1997, summarized tasks that should be addressed on decommissioning technology, safety measures and procedures, and the processing and disposal of waste. Moreover, based on data obtained from the dismantling of the JPDR, the Nuclear and Industrial Safety Subcommittee’s Decommissioning Safety Subcommittee at the Advisory Committee for Natural Resources and Energy published a report in August 2001. In this report, the subcommittee spelled out concrete steps on planning for ensuring safety of decommissioning, on safety management, on decommissioning activity, on considerations in ensuring safety, and on a safety regulation policy. Nuclear business operators decommission nuclear facilities in accordance with these policies.

G.4.3 Steps to Support the Reliability of Technologies

Operators incorporate sufficiently time-tested domestic and foreign technologies in the design and construction of nuclear facilities.

Since 1976 the NSC has been promoting research on the safety of environmental radioactivity and radioactive waste at major nuclear facilities. Researches have been conducted on the safety of major nuclear facilities with the aim of meeting the possible expansion and diversification of nuclear power development and utilization, as well as contributing to form a national consensus on the safety of major nuclear facilities. Specifically, the JAERI and other institutions are carrying out research projects aimed at developing safety standards, guidelines and acceptance criteria in safety examination, as well as improving safety.

The regulatory body, in a safety examination of nuclear facilities, conducts a cross-check and analysis as necessary to validate the results of safety analyses made by an applicant.

G.5 Assessment of Safety of Facilities (Article 8)

Each Contracting Party shall take the appropriate steps to ensure that:

- (i) before construction of a spent fuel management facility, a systematic safety assessment and an environmental assessment appropriate to the hazard presented by the facility and covering its operating lifetime shall be carried out;**
- (ii) before the operation of a spent fuel management facility, updated and detailed versions of the safety assessment and of the environmental assessment shall be prepared when deemed necessary to complement the assessments referred to in paragraph (i).**

G.5.1 Systematic Safety Assessment and Environmental Assessment

The competent minister, when issuing a license for a nuclear facility on the basis of the Reactor Regulation Law, requires the applicant to explain meteorology, geology, hydrology and social environment of the site, and safety design of the facility, and examine them.

The safety examination guides, used to examine an application documents, require the applicant to perform safety assessment on the maximum postulated accidents in each nuclear facilities prescribed in the guides, and confirm that these accidents do not cause excessive public exposure of radiation

The safety examination guides require operators of reactor facilities and reprocessing facilities, which contain quantities of radioactive material, to perform both safety design assessment to confirm the adequacy of safety design of the facility and siting assessment to assess the isolation between the facility and the public from the point of view of radiation safety. Moreover, in a series of safety assessments, the safety assessment guides require that postulated drop of a fuel assembly does not cause excessive public radiation exposure for a water pool type spent fuel management facility, that is attached to a power reactor facility.

G.5.2 Updating of Assessments Before Operation of Facilities

The Reactor Regulation Law provides that nuclear business operators shall apply for alteration of license application of safety examination, when change of license is necessary to incorporate the latest technical knowledge, and that he shall apply for change to the Construction Plan, when major change in detailed design is necessary.

Each Contracting Party shall take the appropriate steps to ensure that:

- (i) the licence to operate a spent fuel management facility is based upon appropriate assessments as specified in Article 8 and is conditional on the completion of a commissioning programme demonstrating that the facility, as constructed, is consistent with design and safety requirements;**
- (ii) operational limits and conditions derived from tests, operational experience and the assessments, as specified in Article 8, are defined and revised as necessary;**
- (iii) operation, maintenance, monitoring, inspection and testing of a spent fuel management facility are conducted in accordance with established procedures;**
- (iv) engineering and technical support in all safety-related fields are available throughout the operating lifetime of a spent fuel management facility;**
- (v) incidents significant to safety are reported in a timely manner by the holder of the licence to the regulatory body;**
- (vi) programmes to collect and analyse relevant operating experience are established and that the results are acted upon, where appropriate;**
- (vii) decommissioning plans for a spent fuel management facility are prepared and updated, as necessary, using information obtained during the operating lifetime of that facility, and are reviewed by the regulatory body.**

G.6.1 Verification through Pre-service Inspection

An operator, in accordance with the Reactor Regulation Law or the Electric Utilities Industry Law, prepares Construction Plan and submits it to the regulatory body for approval. Also, the operator undergoes the regulatory body's pre-service inspection at each construction process and at the end of all construction works, to verify that the construction is completed as approved and is consistent with the technical standards. Passing Pre-service inspections, the nuclear business operator is allowed to commence operation of the facility.

G.6.2 Operational Requirements and Conditions

Before the operation of a nuclear facility, an operator subject to the Reactor Regulation Law notifies the regulatory body of an Operational Plan and prepares Safety Preservation Rules specifying methods of operation, inspection and radiation monitoring and submit it to the regulatory body for approval. The Safety Preservation Rules shall specify operational limits, and the facility shall be operated and maintained in compliance with the rules. Table G.6-1 shows the contents of the Safety Preservation Rules of a commercial power reactor facility. The competent minister, finding noncompliance with the operational requirements, orders the operator to take corrective measures.

Operator assigns, a Chief Engineer of Reactor, a Supervisor of Nuclear Fuel Material, or a Supervisor of Spent Fuel, who has passed national examinations, and is put in charge of overseeing safety in the operation of a nuclear facility.

G.6.3 Procedures and Conduct of Maintenance, Operation, Inspection, Etc.

In accordance with the Reactor Regulation Law or the Electric Utilities Industry Law, operators, after commencement of the operation of nuclear facilities, are required to undergo periodical facility inspections and safety inspections of the facilities.

(1) Periodical Inspections of Facilities

The regulatory body conducts Periodical Facility Inspections once a year (once every 13 months in the case of commercial power reactor facilities) to see if the performance of the facilities and equipment complies with the technical standards prescribed by laws and ordinances.

(2) Nuclear Safety Inspections

The regulatory body posts Nuclear Safety Inspector to each nuclear facility to conduct the Nuclear Safety Inspection four times a year to supervise the compliance with the Safety Preservation Rules and release the results to the public the results.

G.6.4 Technical Support throughout the Operation Lifetime

Throughout the operation lifetime of a nuclear facility, the regulatory body obtains engineering and technical advice from a committee, which is composed of experts on operational management, inspection and radiation control, and reflects it in the operation, maintenance and safety regulations as necessary.

METI is promoting demonstration of the reliability of main facilities and equipment, as well as various safety research projects, in order to enhance safety. MEXT is carrying out a safety research project as part of nuclear science research.

Meanwhile, nuclear business operators are collecting information about operating experience both at home and abroad, and accumulating the up-to-date technical information through the self-financed development of technologies and repair work.

Private-sector organizations are providing various forms of support.

G.6.5 Reporting of Incidents and Failures

The Reactor Regulation Law or the Electric Utilities Industry Law require operators to report to the regulatory body about the situation and the measures taken to incidents or failures at major nuclear facilities. The reporting criteria prescribed in these laws for commercial power reactor facilities where most of the spent fuel is stored are shown in Table G.6-2. Furthermore some minor failures below the criteria are also to be reported under a ministerial notification of METI. The regulatory body is further encouraging operators to feedback the measures to prevent a recurrence to other nuclear facilities as well.

G.6.6 Reflecting Operating Experience

Upon receipt of a report on an incident or a failure at a nuclear facility, the regulatory body immediately make it public and, when the cause has been cleared up and the measures to prevent a recurrence have been decided, makes them known to the public. Moreover, the regulatory body assesses each incidents or failures in detail to get the lessons learned with respect to safety, being advised by committee composed of experts on operation management, inspection and radiation control, and reflects them in

the operation, maintenance and safety regulations as necessary.

Furthermore, an agency established by a supporting organization at the behest of the regulatory body is collecting and analyzing information about operating experience both at domestic and overseas nuclear facilities, and providing information to related organizations. A mechanism is established to exchange information about incidents and failures at nuclear facilities with overseas institutions and international organizations, such as the IAEA and the OECD/NEA, as well as under bilateral cooperation agreements.

Meanwhile, electric utilities and the Central Research Institute of Electric Power Industry (CRIEPI), an institution financed by electric utilities, are collecting and analyzing information about operating experience both domestic and abroad. Japanese electric utilities are exchanging information about operating experience with overseas entities through the Institute of Nuclear Power Operations (INPO) and the World Association of Nuclear Operators' (WANO) Tokyo Center. Moreover, each individual electric utility is collecting information under information exchange agreements it has entered into with electric utilities and reactor manufacturers in France, Germany, the United States and other countries. Recognizing the importance of safety information sharing and safety culture throughout the nuclear power industry, related organizations jointly established a private institution NS Net in December 1999. The NS Net is carrying out peer reviews and other routine activities.

G.6.7 Decommissioning Plans and Updating of Information

As described in Section G.4.2, operators intending to dismantle a nuclear facility are obligated to submit to the competent minister in advance a notification setting forth a dismantling method and a method of disposing of nuclear fuel material and articles contaminated by nuclear fuel material.

Table G.6-1 Examples of the Contents of the Safety Preservation Rules for Commercial Power Reactor Facilities

1. The duties of personnel engaged in the operation and management of commercial power reactor, and organization
2. The following items with respect to the safety preservation education for personnel engaged in the operation and management of commercial power reactor
 - (1) Policy for the safety preservation education
 - (including preparation of education program)
 - (2) The contents of the safety preservation education as follows
 - 1) Relevant laws and the Safety Preservation Rules
 - 2) Constitution, performance and operation of commercial power reactor
 - 3) Radiation management
 - 4) Handling of nuclear fuel materials and objects contaminated by them
 - 5) Measures to be taken in emergencies
 - (3) Other necessary items for the safety preservation education of commercial power reactor
3. Operation of commercial power reactor
4. Safety examination on the operation of commercial power reactor
5. Designation of controlled areas, conservation areas and environment monitoring areas, and restriction of access to these areas
6. Ventilation and discharge monitoring equipment
7. Monitoring of the dose, the dose equivalent, the concentration of radioactive materials and the density of radioactive materials on the surface of objects contaminated by radioactive materials, and the decontamination
8. Management of radiation measuring instruments
9. Patrols and checks of commercial power reactor and their associated measures
10. Voluntary periodical inspections of commercial power reactor
11. Receipt, delivery, transport, storage and other handling of nuclear fuel materials
12. Disposal of radioactive waste
13. Measures to be taken in emergency
14. Records on safety preservation of commercial power reactor (including observance status)

Table G.6-2 Incident and Failure Reporting Standards at Commercial Power Reactor Facilities

Upon the occurrence of any one of the following events, nuclear business operators shall immediately give notice to that effect to the Minister of Economy, Trade and Industry, and shall report to the minister about the situation of the event and corrective actions taken within ten days of the event:

- (1) Nuclear fuel material is stolen or its whereabouts is unknown;
- (2) A reactor has shut down or the necessity has arisen to shut down a reactor due to a failure in the reactor facility;
- (3) A failure of reactor facility is found during its outage, that is likely to affect the operation of a reactor;
- (4) The concentration of radioactive material in the air outside a peripheral monitoring area has exceeded the concentration limits due to the gaseous radioactive waste release through ventilation equipment;
- (5) Gaseous nuclear fuel material or an article contaminated by nuclear fuel material has leaked outside the controlled area;
- (6) The concentration of radioactive material in water on the boundary outside a peripheral monitoring area has exceeded the concentration limits due to the liquid radioactive waste release through discharge facilities;
- (7) Liquid nuclear fuel material or an article contaminated by nuclear fuel material has leaked outside the controlled area;
- (8) Nuclear fuel material or an article contaminated by nuclear fuel material has leaked inside a controlled area, and remedial measures, such as declaration of off-limits and control of keys, have been newly taken at a place where leakage has occurred, or the leak has spread to outside of the controlled area;
- (9) Personnel engaged in radiation work have been exposed to radiation that exceeds or is likely to exceed the dose limits; or
- (10) A hazard to personnel (excluding minor hazards other than radiation hazards) has occurred or is likely to occur at a reactor facility.

Source: Rules for the Installation, Operation, Etc. of Commercial Power Reactors

H. Safety of Radioactive Waste Management

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Section H. Safety of Radioactive Waste Management

The safety of radioactive waste management is ensured within the regulatory framework described in Section E.2.4. The safety of management of radioactive waste generated, processed and stored at enrichment and/or fuel manufacturing facilities, reactor facilities, spent fuel storage facilities, reprocessing facilities or fuel material use facilities are regulated by the respective provisions of the Reactor Regulation Law. Moreover, radioactive waste management facilities are regulated as facilities attached to the main facilities. The safety management of radioactive waste that generated at radioisotope use facilities, etc. is regulated by the Radiation Hazards Prevention Law, as described in Section E.2.4.

The safety management of radioactive waste that is to be disposed of, or radioactive waste that is to be processed or stored by independent businesses, is regulated by the provisions of the Reactor Regulation Law on the waste disposal business and other independent waste management business, and facilities are regulated as independent facilities with respect to licensing, permission, approval and inspection.

As mentioned in Section B, HLW and uranium waste produced domestically is stored in storage facilities where it is generated. HLW produced by the overseas reprocessing contract of spent fuel is returned to the Japanese utilities in stable vitrified waste packages, which are stored at JNFL's facilities before disposal. At present, high-level radioactive waste is not yet disposed of, and the regulatory bodies are preparing related regulations. Therefore, this section describes regulations on LLW, the disposal of which has already started.

Fig. H.1 outlines the flow of regulations on LLW disposal. Flow of regulations begins with application for license. The regulatory body issues license after safety examination. At a prescribed construction process, the regulatory body conducts the Safety Verification of Disposal Facility. The operator starts operation after they notify the regulatory body of it. After start of operation, the regulatory body conducts Safety Preservation Inspections four times a year, and conducts Safety Verification of Radioactive Waste Packages at emplacement of each waste package. The regulatory body conducts Safety Verification of Disposal Facility, again, at the closure of the disposal facility.

As the institutional control of the closed disposal facility, operator implements Step-wise Control taking account of types and levels of radioactive waste. Radiation monitoring is carried out at the first and second stages, or at the disposal stage

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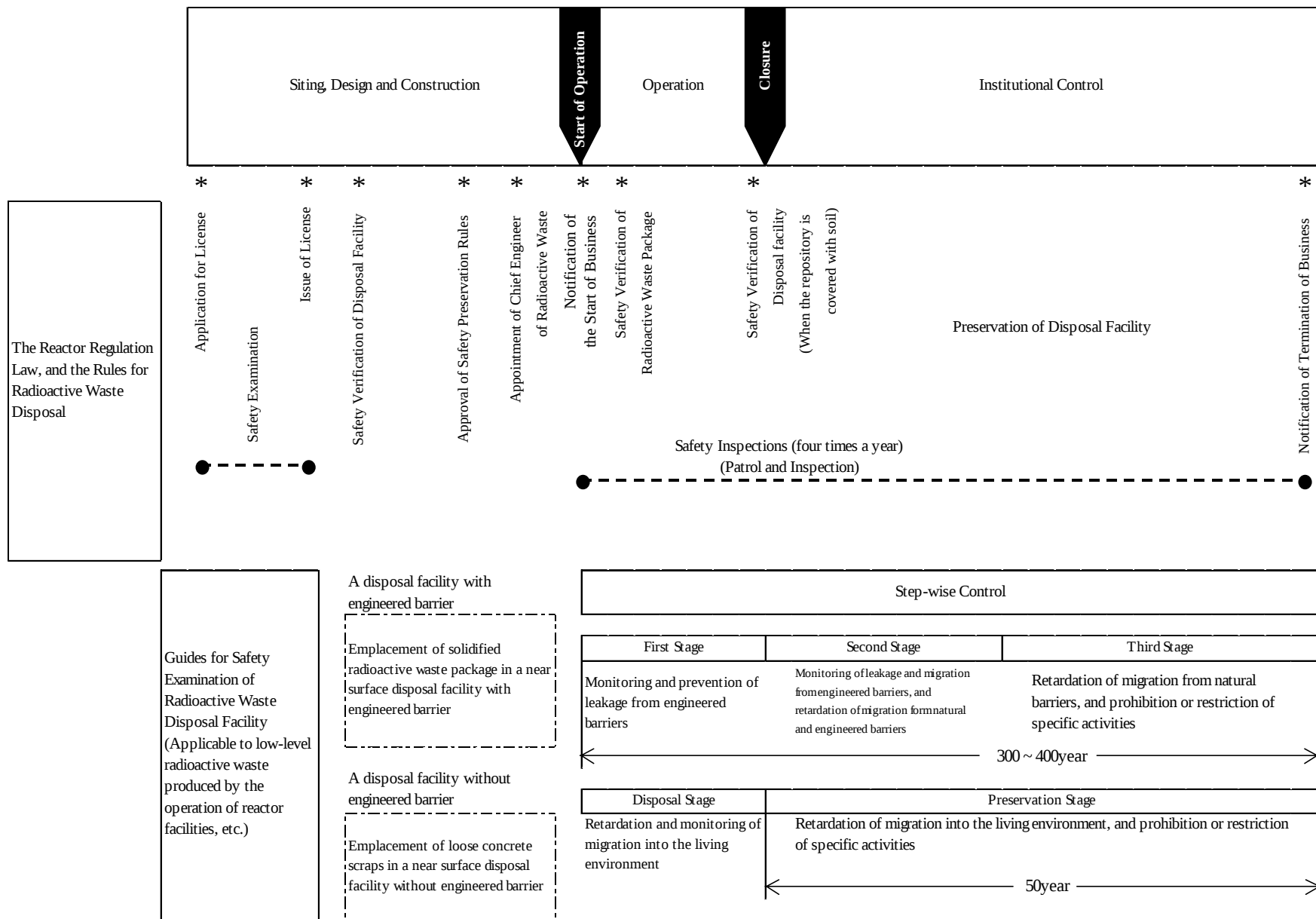


Fig.H-1 A Flow of Regulations on LLW Disposal Facility

H.1 General Safety Requirements (Article 11)

Each Contracting Party shall take the appropriate steps to ensure that at all stages of radioactive waste management individuals, society and the environment are adequately protected against radiological and other hazards. In so doing, each Contracting Party shall take the appropriate steps to:

- (i) ensure that criticality and removal of residual heat generated during radioactive waste management are adequately addressed;**
- (ii) ensure that the generation of radioactive waste is kept to the minimum practicable;**
- (iii) take into account interdependencies among the different steps in radioactive waste management;**
- (iv) provide for effective protection of individuals, society and the environment, by applying at the national level suitable protective methods as approved by the regulatory body, in the framework of its national legislation which has due regard to internationally endorsed criteria and standards;**
- (v) take into account the biological, chemical and other hazards that may be associated with radioactive waste management;**
- (vi) strive to avoid actions that impose reasonably predictable impacts on future generations greater than those permitted for the current generation;**
- (vii) aim to avoid imposing undue burdens on future generations.**

H.1.1 Criticality and Removal of Residual Heat

The regulatory body, when issuing a license to operate a nuclear facility in accordance with the Reactor Regulation Law, conducts safety examination to ensure that the location, structure and equipment of a nuclear facility are adequate to prevent disasters caused by nuclear fuel material or matters contaminated by it.

In the safety examination of a radioactive waste management facility, the regulatory body confirms that the appropriate measures are taken to prevent criticality and remove residual heat.

Furthermore, the Ordinance for the Reactor Regulation Law specifies upper boundary of radionuclide concentration that should not be exceeded when radioactive waste is emplaced for disposal.

The regulatory body conducts inspections, as described in Section E.1.2(1), to confirm that the conditions on which the license has been issued are satisfied at the design and facility operation.

Facilities licensed under the Radiation Hazards Prevention Law do not necessitate any consideration of criticality or removal of residual heat.

H.1.2 Minimization in the Generation of Radioactive Waste

As mentioned in Section B.3, activities are implemented to minimize the generation of radioactive waste at nuclear facilities.

The Examination Guide for Safety Design of Light Water Nuclear Power Reactor Facilities and the Guidelines for Examination of the Safety of Nuclear Fuel Facilities, request operators to keep public radiation exposure ALARA. Operators of nuclear facilities keep discharge of radioactive gaseous and liquid waste ALARA. Discharge of radionuclides in gaseous waste is reduced by removing radioactive materials through filtration or absorption, and by decay in storage tanks. Discharge of radionuclides in liquid waste are reduced by removing radioactive materials through filtration, ion exchange, or distillation. Solid waste is packed in metal drums, which are stored in dedicated storage pits. Before storing, solid waste is sorted into several categories according to properties of waste, substances that are likely to harm the integrity of waste packages are removed, and the volume of solid waste is reduced through incineration and compaction.

The annual discharge of gaseous and liquid waste, the production of solid waste, the volume reduction, and the inventory of waste are reported to the regulatory body in fiscal year, which reports them to the NSC and disclose them to the public.

Operators of radioisotope waste management facilities licensed under the Radiation Hazards Prevention Law report to the regulatory body amount of annual collection and inventory of liquid and solid waste in the fiscal year.

Furthermore, the development of technologies are carried out to minimize generation of radioactive waste, such as decontamination technology, metal melting technology, and recycling technology of concrete scraps.

The NSC, as mentioned in Section B, has published clearance levels and its verification methods for concrete and metal scraps, which account for a greater portion of waste produced by nuclear facility. The regulatory body is in the process of establishing relevant regulations. Waste below a clearance level needs not be dealt with as radioactive material and can be handled in the same manner as non-radioactive waste. The AEC encourages to recycle this type of waste as far as reasonably achievable.

H.1.3 Interdependencies among the Different Steps in Waste Management

As described in Section E.1.6, operators are required to take appropriate steps to properly manage radioactive waste at processing and storage stages at nuclear facilities (excluding disposal facility), and at disposal stage at disposal facility, in order to appropriately protect individuals, society and the environment against radiation hazards.

Radioactive waste is classified into two categories, HLW (liquid waste generated from spent fuel reprocessing and its vitrified package) and other LLW. The LLW is sub-classified according to origin of waste (difference in composite radioactive nuclides) and level of radioactivity, in order to ensure that these wastes are properly processed, stored and disposed of. Establishment of regulations at the disposal stage (see Table B.4-2) is under way in consistency with the classification of radioactive waste (see Table B.4-1).

H.1.4 Regulations for Radiation Protection

Radiation protection in radioactive waste management is described in Section F.4. One of the criteria specific to waste disposal facility is an application dose criteria at the end of institutional control of a disposal facility. The Guides for Safety Examination of Radioactive Waste Disposal Facility provide that “the

institutional control should be completed within a reasonable time period, after which public exposure should be kept at such a low level as does not need any management for radiation control.”

H.1.5 Taking into Account the Biological, Chemical and Other Hazards

The regulatory body, when issuing a license for a major nuclear facility in accordance with the Reactor Regulation Law, conducts safety examination to ensure that the location, structure and equipment of the facility are adequate to prevent hazards due to nuclear fuel material or matters contaminated with it.

The provisions on the Safety Verification of Disposal Facility stipulates that explosive materials, corrosive materials and other hazardous materials shall not be put at disposal facility, and that effective anti-corrosion measures should be taken giving due consideration to the properties of surface water, groundwater and soil.

In addition, the provisions on the Safety Verification of Radioactive Waste Package stipulates that waste package shall not contain the following materials which are likely to harm the integrity of waste package:

- (1) explosive material or material that explosively reacts with water;
- (2) volatile material;
- (3) pyrophoric material;
- (4) corrosive material; and
- (5) gas emitting material.

Also, the regulatory body, when issuing a license for radioisotope waste management business in accordance with the Radiation Hazards Prevention Law, conducts safety examination to ensure that there should be no radiation hazards caused by radioisotopes or objects contaminated by them.

H.1.6 Taking into Account Impacts on Future Generations

As mentioned in Section B, the policy is stated that the present generation, who enjoy the benefits of nuclear energy, has the obligation to do its utmost for the safe disposal of radioactive waste generated in the research, development and utilization of nuclear energy, and should pay continued efforts to that direction.

In accordance with this policy, radioactive waste produced by nuclear facilities has been, is, will be transported to and disposed of at waste disposal facilities. In issuing license to disposal facility, safety examinations are conducted in accordance with the Guides for Safety Examination of Radioactive Waste Disposal Facility to avoid imposing excessive impacts on future generations.

H.1.7 Taking into Account Burdens on Future Generations

The regulatory body examines an application for a license for a major nuclear facility, to ensure that issuing the license does not pose any impediment to the development and planned utilization of nuclear energy, and that the applicant has capacities necessary for adequate business operation.

Also, as mentioned in Section B, in accordance with the Law on Final Disposal of Designated Radioactive Waste enacted in May 2002, operators of commercial power reactor facility have deposited funds for disposal to the Nuclear Waste Management Organization of Japan (NUMO), an implementing body responsible for disposal, who entrusts the Radioactive Waste Management Funding and Research Center with management of the fund.

H.2 Existing Facilities and Past Practices (Article 12)

Each Contracting Party shall in due course take the appropriate steps to review:

- (i) the safety of any radioactive waste management facility existing at the time the Convention enters into force for that Contracting Party and to ensure that, if necessary, all reasonably practicable improvements are made to upgrade the safety of such a facility;**
- (ii) the results of past practices in order to determine whether any intervention is needed for reasons of radiation protection bearing in mind that the reduction in detriment resulting from the reduction in dose should be sufficient to justify the harm and the costs, including the social costs, of the intervention.**

H.2.1 Existing Radioactive Waste Management Facilities

The regulatory body conducts following inspections on radioactive waste management facilities. On the basis of the results of the Periodical Facility Inspections, the Nuclear Safety Inspections or On-the-Spot Inspections conducted to this day, none of major radioactive waste management facilities were found to require significant corrective action to continue operation.

(1) Major Nuclear Facilities licensed under the Reactor Regulation Law

1) Periodical Inspections of Facilities

The regulatory body conducts periodical inspections of major nuclear facilities (excluding disposal facilities) once a year (once every 13 months in the case of commercial power reactor facilities) to confirm if performance of the facilities and equipment complies with the technical standards prescribed by laws and ordinances.

2) Nuclear Safety Inspections

The regulatory body conducts the Nuclear Safety Inspections by resident Nuclear Safety Inspectors four times a year to confirm for operators' compliance with the Safety Preservation Rules.

(2) Radioisotope Waste Management Facilities licensed under the Radiation Hazards Prevention Law

1) Periodical Inspections

The regulatory body conducts the periodical inspections of nuclear facilities once within three years to confirm if the performance of the facilities and equipment complies with the technical standards prescribed by laws and ordinances.

2) On-the-Spot Inspections

The regulatory body dispatches the radiation inspectors to conduct On-the-Spot Inspections if necessary.

H.2.2 Examination of the Results of Past Practices

As results of review of the past practices, there are neither radioactive waste nor nuclear facilities that require any intervention for reasons of radiation protection.

H.3 Siting of Proposed Facilities (Article 13)

Each Contracting Party shall take the appropriate steps to ensure that procedures are established and implemented for a proposed radioactive waste management facility:

- (i) to evaluate all relevant site-related factors likely to affect the safety of such a facility during its operating lifetime as well as that of a disposal facility after closure;**
- (ii) to evaluate the likely safety impact of such a facility on individuals, society and the environment, taking into account possible evolution of the site conditions of disposal facilities after closure;**
- (iii) to make information on the safety of such a facility available to general public;**
- (iv) to consult Contracting Parties in the vicinity of such a facility, insofar as they are likely to be affected by that facility, and provide them, upon their request, with general data relating to the facility to enable them to evaluate the likely safety impact of the facility upon their territory.**

In so doing, each Contracting Party shall take the appropriate steps to ensure that such facilities shall not have unacceptable effects on other Contracting Parties by being sited in accordance with the general safety requirements of ARTICLE 11.

H.3.1 Evaluation of Site-related Factors and Impact of Proposed Facilities

The regulatory body, when issuing license to operate a nuclear facility in accordance with the Reactor Regulation Law, conducts safety examination to ensure that siting and the basic design of facility, equipments and components of a major nuclear facility are adequate to prevent hazards due to nuclear fuel material or materials contaminated with it. The regulatory body uses examination guides in safety examination.

The Basic Guides for Safety Examination of Nuclear Fuel Facilities, one of the safety examination guides, provide that a site shall satisfy the following conditions:

- Basic conditions: No event liable to induce large accident is likely to occur at and near a proposed site of the nuclear fuel facility and there have also been very few events deemed liable to propagate disaster.
- Condition during normal operation: Radiation dose to which members of the public may be exposed during normal operations of a proposed nuclear fuel facility are kept ALARA.
- Condition at an accident: The maximum postulated accidents at the proposed nuclear fuel facility should not cause excessive exposure to the public.

These requirements are the same as those provided in the Guides for Safety Examination of Radioactive Waste Disposal Facility.

As for the basic conditions, the guides governing each type of facilities provide that operators must take into account the possible impacts from the natural environment such as earthquake, tidal wave, flood, typhoon, snowfall and other natural phenomena, as well as the possible impacts from the social environment of a fire and explosion at nearby factories, a falling object from an aircraft accident, etc.

Details of public exposure during normal operations, and in accidents, of nuclear facilities, are given in Section F.4. and in Section H.5.1., respectively.

Siting of a radioactive waste management facility attached to a reactor facility is examined in accordance with the Examination Guide for Nuclear Reactor Siting Evaluation and Application Criteria as part of examinations of the reactor facility.

The regulatory body, when issuing a license for operation of a radioisotope waste management facility in accordance with the Radiation Hazards Prevention Law, conducts safety examination using regulations and standards on the basis of the law, which provide that facilities should be located at a site where landslide or inundation is unlikely to occur, that main structures should be fireproof or fire-resistant, and that facility should be equipped with shielding walls for radiation protection.

Evaluation of disposal facilities after closure is described in the ensuing Section H.3.2.

H.3.2 Evaluation of Site-related Factors and Impact of Disposal Facilities

Evaluation of disposal facilities after closure is described in Section H.5.2. It should be noted that appropriate measures are to be taken when the siting conditions would have changed during institutional control after closure.

H.3.3 Information Disclosure

Information on the safety of nuclear facilities, including application documents, is made available to the public as part of administrative services. Moreover, government documents are made available to the public upon request made in accordance with the Law on the Disclosure of Information held by Administrative Agency, which came into force on April 1, 2001, unless reasons for non-disclosure apply.

Furthermore, application documents submitted by operators for licenses and other documents are available for public at the National Diet Library and other institutions.

Government documents containing information about the safety of radioisotope waste management facilities licensed under the Radiation Hazards Prevention Law are also available to the public upon request in accordance with the Law on the Disclosure of Information held by Administrative Agency, unless reasons for non-disclosure apply.

H.3.4 Relationship with Neighboring Countries

Being an insular country, Japan is located at a considerable distance from its neighboring countries. Therefore, as long as the safety of nuclear facilities is properly secured within Japan, nuclear facilities in the country are highly unlikely to have safety impacts on the neighboring countries. The Japanese government does not have it a rule to consult the neighboring countries about siting of nuclear facilities. The Japanese government provides neighboring countries with information on nuclear energy in the country through bilateral consultation, etc.

H.4 Design and Construction of Facilities (Article 14)

Each Contracting Party shall take the appropriate steps to ensure that:

- (i) the design and construction of a radioactive waste management facility provide for suitable measures to limit possible radiological impacts on individuals, society and the environment, including those from discharges or uncontrolled releases;**
- (ii) at the design stage, conceptual plans and, as necessary, technical provisions for the decommissioning of a radioactive waste management facility other than a disposal facility are taken into account;**
- (iii) at the design stage, technical provisions for the closure of a disposal facility are prepared;**
- (iv) the technologies incorporated in the design and construction of a radioactive waste management facility are supported by experience, testing or analysis.**

H.4.1 Limitation of Radiological Impacts on Individuals, Society and the Environment

The regulations under the Reactor Regulation Law provide that an applicant for a license for a nuclear facility should submit documents explaining: (i) meteorological conditions, the ground conditions, hydrological conditions, a social environment, and others at the site; (ii) safety design of the facility; (iii) radiation protection from nuclear fuel material (including spent fuel) and objects contaminated by it, and radioactive waste management; (iv) types, extent and possible consequences of postulated accidents at the facility initiated by operational error, equipment or system failure, earthquake, or a fire.

The regulatory body examines application and attached documents to confirm that appropriate measures are taken in the design to satisfy basic conditions, conditions during normal operations and conditions in an accident as mentioned in Section H.3.1.

The Reactor Regulation Law and its regulations require operators to take appropriate measures in the design to limit radiation hazards on individuals, society and the environment to ensure that:

- (1) nuclear facility is capable of confining radioactive material to a limited section;
- (2) proper radiation shield is provided to hold public exposure to direct radiation and skyshine rays sufficiently low.
- (3) adequate radiation shield is provided for personnel engaged in radiation work considering the working conditions;
- (4) appropriate measures are taken to oversee and manage the working environment for personnel engaged in radiation work;
- (5) the concentration of radioactive material releases to the environment is kept ALARA by, for example, properly processing radioactive waste produced from storage facility;
- (6) appropriate measures are taken to properly monitor the concentration of radioactive material at a radioactive waste discharge pathway; and
- (7) appropriate safety precautions to cope with an accident, such as an emergency alarm system, a communication channel, and measures for evacuation of personnel engaged in radiation work, are taken.

The details about safety evaluation of an accident are described in Section H. 5.1.

Operators of major nuclear facilities, other than fuel material use facilities or disposal facilities, are required to submit a construction plan to the competent minister for approval, and undergo welding

inspections and pre-service inspections. The regulatory body confirms that the construction work has been carried out as approved and consistent with the technical standards. Pre-service inspections include various inspections and tests ranging from the components structure, strength or leakage inspections to the functions and performance tests of a nuclear facility as a whole.

Operator of fuel material use facility undergoes welding inspections, when necessary, and undergoes facility inspection by the regulatory body at each construction process and when all work is completed. The regulatory body confirms that the construction work has been carried out consistent with the technical standards.

Operator of disposal facility undergoes the Safety Verification of Disposal Facility by the regulatory body at a prescribed construction process.

Those intending to gain a license to conduct a radioisotope waste management business pursuant to the Radiation Hazards Prevention Law are obligated to submit a license application to the competent minister. The application must be accompanied by an explanatory statement setting forth the method of waste management and the locations, structure and equipment of waste refilling facilities and waste storage facilities and waste management facilities. The provisions concerning the location, structure and equipment of each facility require the applicant to take the appropriate steps to restrain possible radiological impacts to ensure that shielding walls, other shields, ventilation equipment, and effluent equipment are consistent with the following technical standards prescribed by laws and ordinances:

- (1) shielding walls and other shields are capable of preventing the radiation exposure doses of occupational personnel engaged in radiation work, and on-site and off-site personnel from exceeding the respective dose limit;
- (2) ventilation equipment is capable of holding the concentration of radioisotopes in the air at frequently entered places in working rooms and at the exhaust outlets down below the respective specified concentration limits;
- (3) effluent equipment are capable of holding the concentration of radioisotopes in draining water or effluent down below the specified concentration limit; and
- (4) the surface concentration of materials contaminated with radioisotopes in a working room is to be held down below the surface concentration limit.

Moreover, a license holder of radioisotope waste management business is obligated to undergo the regulatory body's Pre-Service Facility Inspections and obtain its validation that facilities comply with the technical standards.

H.4.2 Conceptual Plans and Technical Provisions for Decommissioning

The Reactor Regulation Law provides that operators other than operators of nuclear fuel material use facility and disposal facility shall, when dismantling a nuclear facility, submit to the competent minister in advance a notification providing a method of dismantling and a method of disposing of nuclear fuel material and materials contaminated with it.

Moreover, an operator of any kind of facilities shall, when terminating its business, notify the competent minister of that effect in accordance with the Reactor Regulation Law. The operator shall take measures to transfer or dispose of nuclear fuel material, and to decontaminate materials contaminated with it within 30 days. If necessary, the competent minister shall order the operator to implement measures to prevent hazards.

Under the Long-Term Program formulated by the AEC, dismantling technologies applicable to the decommissioning of commercial power reactors were developed by field tests conducted at dismantling

of the JPDR. The JPDR was dismantled in accordance with a NSC's decision, "Basic Concept of Securing the Safety of the Dismantling of Reactor Facilities: the Dismantling of the JPDR"*. The decision provided that a basic concept of ensuring safety of dismantling nuclear facilities should be based on experience of the JPDR and progress of dismantling technology in this country and in the foreign countries.

The Advisory Committee on Decommissioning, an advisory body to the then Ministry of International Trade and Industry (MITI), in January 1997, summarized tasks that should be addressed on decommissioning technology, safety measures and procedures, and the processing and disposal of waste. Moreover, based on data obtained from the dismantling of the JPDR, the Nuclear and Industrial Safety Subcommittee's Decommissioning Safety Subcommittee at the Advisory Committee for Natural Resources and Energy published a report in August 2001. In this report, the subcommittee spelled out concrete steps on planning for ensuring safety of decommissioning, on safety management, on decommissioning activity, on considerations in ensuring safety, and on a safety regulation. Nuclear business operators decommission nuclear facilities in accordance with the report.

Operator of a radioisotope waste management facility licensed under the Radiation Hazards Prevention Law shall, when terminating its business, give notice to that effect to the competent minister in accordance with the law and related regulations. The operator shall take measures to transfer or dispose of radioactive waste, and to decontaminate materials contaminated by radioisotopes within 30 days. If necessary, the competent minister shall order the operator to implement measures to prevent radiation hazards

* : In August 2001, the name of this decision was changed as "Basic Concept of Securing the Safety of the Dismantling of Reactor Facilities", and the content was revised partly.

H.4.3 Technical Provisions for the Closure of a Disposal Facility

Technical requirements for the closure of a disposal facility are prescribed by the Rules for Waste Disposal Facility for Nuclear Fuel Materials or Materials Contaminated with Nuclear Materials (Rules for Waste Disposal Facility). Table H.4-1 shows the technical requirements for waste disposal facility.

H.4.4 Steps to Support the Reliability of Technologies

Operators incorporate sufficiently time-tested domestic and foreign technologies in the design and construction of nuclear facilities.

Since 1976, the NSC has been promoting research on the safety of nuclear facilities, environmental radioactivity and radioactive waste. To respond to the possible expansion and diversification of nuclear power development and utilization, has the NSC utilized the results of safety research in the establishment of safety policy, basic principles, and various standards and guidelines.

From fiscal year 2001 onward, the relevant organizations have planned to implement research projects in the areas of near surface disposal, geological disposal, and clearance level, contributing to the establishment of standards on the disposal of radioactive waste (see Table B.4-2). Subjects of research include, in the area of near surface disposal, research on migration of radionuclides and safety analysis of disposal of radioactive waste from medical, industrial and research facilities, and, in the area of geological disposal, research on stability of geological environment and long-term behavior of engineered barriers and rock bed, and, in the area of clearance level, research on verification methods of clearance level of dismantled waste.

Table H.4-1 The Technical Requirements for Waste Disposal Facilities

- (1) The cumulative amount of each radionuclides contained in all of radioactive waste packages emplaced in the disposal facility shall not exceed the amount of radioactivity of each radionuclide permitted for the disposal facility;
- (2) Disposal facility shall be well drained off before start of emplacement, and rainwater shall be prevented to leak into the disposal facility after the start of emplacement;
- (3) Off-site dispersion of radioactive material shall be prevented when non-solidified concrete scraps and other loose solids are emplaced;
- (4) Disposal facility shall be tightly filled in with soil leaving no gaps beneath when emplacement is completed;
- (5) Explosives, corrosives, and other hazardous materials shall not be emplaced at disposal facility;
- (6) Surface of disposal facility, after emplacement is completed, shall be covered with soil less permeable to water than soil surrounding disposal facility; so that the equipments placed to the disposal facility will not be uncovered easily, and
- (7) Engineered barrier, if any, shall meet following requirements:
 - Engineered barrier structures shall be structurally strong enough to withstand self weight, soil pressure, and seismic force;
 - Anti-corrosion steps shall be taken against surface water, groundwater and soil; and
 - Appropriate measures shall be taken against destruction of equipment or leakage of radioactive material, if necessary.

Source: Article 6 of the Rules for Waste Disposal Facility

H.5 Assessment of Safety of Facilities (Article 15)

Each Contracting Party shall take the appropriate steps to ensure that:

- (i) before construction of a radioactive waste management facility, a systematic safety assessment and an environmental assessment appropriate to the hazard presented by the facility and covering its operating lifetime shall be carried out;**
- (ii) in addition, before construction of a disposal facility, a systematic safety assessment and an environmental assessment for the period following closure shall be carried out and the results evaluated against the criteria established by the regulatory body;**
- (iii) before the operation of a radioactive waste management facility, updated and detailed versions of the safety assessment and of the environmental assessment shall be prepared when deemed necessary to complement the assessments referred to in paragraph (i).**

H.5.1 Systematic Safety Assessment and Environmental Assessment

The competent minister, when issuing a license for a nuclear facility on the basis of the Reactor Regulation Law, requires the applicant to submit documents explaining meteorology, geology, hydrology and social environment of the site, and safety design of the facility, and examine them.

The safety examination guides, used to examine an application documents, require the applicant to perform safety assessment on the maximum postulated accidents in each nuclear facility prescribed in the guides, and confirm that these accidents do not cause excessive public exposure of radiation.

The safety examination guides require operators of reactor facilities and reprocessing facilities, which contain quantities of radioactive material, to perform both safety design assessment to confirm the adequacy of safety design of the facility and siting assessment to assess the isolation between the facility and the public from the point of view of radiation safety. Moreover, in a series of safety assessments, the guides require that postulated damage to radioactive waste management equipment does not cause excessive public exposure of radiation.

The competent minister, when issuing a license for a radioisotope waste management facility on the basis of the Radiation Hazards Prevention Law, requires the applicant to assess the shielding design and the radionuclide concentration at the exhaust of the ventilation equipment and at the site exit of drainage equipment, and confirms that the concentration limit specified in the regulations should not be exceeded.

H.5.2 Assessment for the Period following Closure of a Disposal Facility

The basic site conditions prescribed by the Guides for Safety Examination of Radioactive Waste Disposal Facility are that no event liable to induce large accident is likely to occur at and near the site for a waste disposal facility and there have also been very few events deemed liable to propagate disaster.

The regulatory body, when issuing license for waste disposal facility, confirms these conditions will remain valid during step-wise control (institutional control) following closure. Period of Step-wise control is supposed to be 300 to 400 years for disposal facilities with engineered barrier, and 50 years for disposal facilities without engineered barrier.

The details of institutional control are described in Section H.7.2.

H.5.3 Updating of Assessments Before Operation of Facilities

The Reactor Regulation Law provides that operators shall apply for alteration of license application of safety examination, when alteration of license is necessary to incorporate the latest technical knowledge, and that they shall apply for alteration to the Construction Plan, when major change in detailed design is necessary.

The Radiation Hazards Prevention Law also requires operators to apply for alteration to the license application of safety examination, when necessary.

H.6 Operation of Facilities (Article 16)

Each Contracting Party shall take the appropriate steps to ensure that:

- (i) the licence to operate a radioactive waste management facility is based upon appropriate assessments as specified in Article 15 and is conditional on the completion of a commissioning programme demonstrating that the facility, as constructed, is consistent with design and safety requirements;**
- (ii) operational limits and conditions, derived from tests, operational experience and the assessments as specified in Article 15 are defined and revised as necessary;**
- (iii) operation, maintenance, monitoring, inspection and testing of a radioactive waste management facility are conducted in accordance with established procedures. For a disposal facility the results thus obtained shall be used to verify and to review the validity of assumptions made and to update the assessments as specified in Article 15 for the period after closure;**
- (iv) engineering and technical support in all safety-related fields are available throughout the operating lifetime of a radioactive waste management facility;**
- (v) procedures for characterization and segregation of radioactive waste are applied;**
- (vi) incidents significant to safety are reported in a timely manner by the holder of the licence to the regulatory body;**
- (vii) programmes to collect and analyse relevant operating experience are established and that the results are acted upon, where appropriate;**
- (viii) decommissioning plans for a radioactive waste management facility other than a disposal facility are prepared and updated, as necessary, using information obtained during the operating lifetime of that facility, and are reviewed by the regulatory body;**
- (ix) plans for the closure of a disposal facility are prepared and updated, as necessary, using information obtained during the operating lifetime of that facility and are reviewed by the regulatory body.**

H.6.1 Verification through Pre-service Inspection

A operator (excluding operator of waste disposal facility), in accordance with the Reactor Regulation Law or the Electric Utilities Industry Law, prepares Construction Plan and submits it to the regulatory body for approval. Also, the operator undergoes the regulatory body's pre-service inspection at each construction process and at the end of all construction works, to verify that the construction is completed as approved and is consistent with the technical requirements. Passing Pre-service inspections, the operator is allowed to commence operation of the facility.

Operator of a waste disposal facility, in accordance with the Rules for Waste Disposal Facility, undergoes the Safety Verification of Disposal Facility by the regulatory body at a prescribed construction process.

Operator of a radioisotope waste management facility licensed under the Radiation Hazards Prevention Law undergoes the Facility Inspections by the regulatory body. Passing the inspection, the operator is allowed to commence operation of the facility.

H.6.2 Operational Requirements and Conditions

Operator licensed under the Reactor Regulation Law, before the start of operation, notifies the regulatory body of the Operational Plan and prepares the Safety Preservation Rules specifying methods of operation, inspection and radiation monitoring and submit it to the regulatory body for approval. The Safety Preservation Rules shall specify operational limits, and the facility shall be operated and maintained in compliance with the rules. Table H.6-1 shows the contents of the Safety Preservation Rules of a waste disposal facility. The regulatory body, finding noncompliance with the operational requirements, orders the operator to take corrective measures.

Operator assigns, a Chief Engineer of Reactor, a Supervisor of Nuclear Fuel Material, a Supervisor of Spent Fuel or a Supervisor of Radioactive Waste, who has passed national examinations, and is put in charge of overseeing safety in the operation of a nuclear facility.

Operator licensed under the Radiation Hazards Prevention Law, before the start of operation, prepares the Internal Rules for Prevention of Radiation Hazards specifying inspections, radiation monitoring and radioactive waste processing, and notifies it to the regulatory body. The Internal Rules shall specify operational requirements, and the facility shall be operated and maintained in compliance with the rules. Table H.6-2 shows the details of the Internal Rules. Also, operator assigns, from among qualified persons, a Supervisor of Radiation Protection who is put in charge of overseeing prevention of radiation hazards in operation of facility.

H.6.3 Procedures of Operation and Updating of Assessment of a Disposal Facility

In accordance with the Reactor Regulation Law, the Electric Utilities Industry Law, or the Radiation Hazards Prevention Law, operator of a nuclear facility, during the operation of nuclear facilities, is required to undergo the following inspections.

(1) Nuclear Facilities Subject to the Reactor Regulations Law

1) Periodical Facility Inspection

The regulatory body conducts Periodical Facility Inspections (excluding disposal facilities) once a year (once every 13 months in the case of commercial power reactor facilities) to see if the performance of the facilities and equipment complies with the technical standards.

2) Nuclear Safety Inspection

The regulatory body posts Nuclear Safety Inspector to each nuclear facility to conduct the Nuclear Safety Inspection four times a year to supervise the compliance with the Safety Preservation Rules and release the results to the public the results.

3) Safety Verification of Radioactive Waste Packages

The regulatory body, or a body designated by it, conducts Safety Verification of Radioactive Waste Packages each time when waste packages are emplaced in disposal facilities. Table H.6-3 shows the technical standards used in Safety Verification of Radioactive Waste Packages.

For the purpose of updating assessment of a disposal facility, the regulatory body, in accordance with the Rules for Waste Disposal Facility, conducts the Safety Verification of Disposal Facility once again when the facility is covered with soil and closed, and confirms compliance with the technical

standards, one of which prescribes that the cumulative amount of radioactivity of each radionuclide contained in all of radioactive waste packages emplaced in the disposal facility shall not exceed the amount of radioactivity of each radionuclide permitted for the disposal facility. The operator, in accordance with the Rules for Waste Disposal Facility Business, keeps records of disposal, including the results of the Safety Verification of Disposal Facility, until the waste disposal business is terminated.

(2) Radioisotope Waste Management Business Facilities Subject to the Radiation Hazards Prevention Law

1) Periodical Inspection

The regulatory body conducts Periodical Facility Inspections once every three years to see if the performance of the facilities and equipment complies with the technical standards.

2) On-the-Spot Inspection

The regulatory body sends Radiation Inspector to the facility to conduct On-the-Spot Inspections as necessity arises.

H.6.4 Technical Support throughout the Operating Lifetime

Throughout the operating lifetime of a nuclear facility, the regulatory body obtains engineering and technical advice from advisory committees, which are composed of experts on operational management, inspection and radiation control, and makes the advice reflected in the operation, maintenance and safety regulation as necessary.

The NSC, as described in Section H.4.4, has been promoting research project on safety of radioactive waste disposal and other research projects, which have been implemented by JAERI, JNC and other institutes.

Meanwhile, nuclear business operators are collecting information on operating experience both domestic and abroad, and accumulating the up-to-date technological knowledge through the self-financed development project or their own maintenance activities

H.6.5 Characterization and Segregation of Radioactive Waste

The Reactor Regulation Law provides that radioactive waste shall be discharged, processed, stored or disposed of by any of the following methods according to types of radioactive wastes:

(1) Gaseous radioactive waste:

- 1) Gaseous radioactive waste shall be discharged through ventilation facilities; or
- 2) Gaseous radioactive waste shall be stored in tanks capable of preventing radiation hazards.

(2) Liquid radioactive waste:

- 1) Liquid radioactive waste shall be discharged through discharge facilities (including discharge into ocean);
- 2) Liquid radioactive waste shall be stored in liquid waste storage tanks capable of preventing radiation hazards;
- 3) Liquid radioactive waste shall be packaged or solidified in a container, which shall be stored in a

- storage facility capable of preventing radiation hazards;
 - 4) Liquid radioactive waste shall be incinerated in an incinerator capable of preventing radiation hazards; or
 - 5) Liquid radioactive waste shall be solidified in a solidification facility capable of preventing radiation hazards.
- (3) Solid Radioactive Waste:
- 1) Solid radioactive waste shall be incinerated in an incinerator capable of preventing radiation hazards;
 - 2) Solid (loose) radioactive waste shall be sealed or solidified in a container, which shall be stored in a storage facility capable of preventing radiation hazards;
 - 3) Radioactive wastes such as large machines or radioactive wastes waiting for decay of radioactivity shall be stored in a storage facility capable of preventing radiation hazards; or
 - 4) Solid radioactive waste shall be emplaced in a disposal facility in accordance with the technical standards on waste disposal facilities and waste packages.

The Ordinance of the Reactor Regulation Law classifies radioactive waste to be disposed of into five categories as is shown in Table H.6-4, and prescribes upper bounds of radioactivity of each radionuclide for each category.

The Radiation Hazards Prevention Law provides that radioactive waste shall be discharged, processed or stored by any of the following methods according to types of radioactive wastes:

- (1) Gaseous Radioactive Waste:
- 1) Gaseous radioactive waste shall be cleansed or discharged through ventilation equipment.
- (2) Liquid Radioactive Waste:
- 1) Liquid radioactive waste shall be cleansed or discharged through discharge facilities;
 - 2) Liquid radioactive waste shall be packaged in a container or solidified with concrete or other solidifying material in a container at a solidification facility, and the container shall be stored in a storage facility;
 - 3) Liquid radioactive waste shall be incinerated in an incinerator; or
 - 4) Liquid radioactive waste shall be solidified with concrete or other solidifying material in a solidification facility.
- (3) Solid Radioactive Waste:
- 1) Solid radioactive waste shall be incinerated in an incinerator;
 - 2) Solid radioactive waste shall be packaged in a container or solidified with concrete or other solidifying material in a container at a solidification facility, and the container shall be stored in a storage facility; or
 - 3) Radioactive wastes of large machines, which are hard to be packaged in a container, shall be stored in a storage facility with special measures preventing spread of contamination.

H.6.6 Reporting of Incidents and Failures

The Reactor Regulation Law or the Electric Utilities Industry Law require operators to report to the regulatory body about the situation and the measures taken to incidents or failures at major nuclear facilities. The reporting criteria prescribed in these laws for waste disposal facility are shown in Table H.6-5. Furthermore some minor failures below the criteria are also to be reported under a ministerial notification of METI. The regulatory body is further encouraging operators to feedback the measures to prevent a recurrence to other nuclear facilities as well.

Operators of radioisotope waste management facilities subject to the Radiation Hazards Prevention Law, in accordance with the law, also report to the regulatory body on the details of major incidents occurred at the facilities and corrective measures taken. Table H.6-6 shows the reporting standards under the Radiation Hazards Prevention Law.

H.6.7 Reflecting Operating Experience

Upon receipt of a report on an incident at a major nuclear facility, as noted in the preceding section, the regulatory body publishes to the public immediately of the incident and also publishes the cause and measures to prevent similar incidents when they become available. Moreover, the regulatory body scrutinizes the cause of each of the incidents at nuclear facilities soliciting advice from committees composed of experts on operational management, inspection and radiation control, draws lessons from incidents, and requires lessons learned should be implemented upon in the operation, maintenance or safety regulations where appropriate.

Furthermore, the regulatory body entrusts its supporting organization to collect and analyze information about operating experience both at domestic and overseas nuclear facilities, and to provide information to relevant organizations. The regulatory body has international mechanism to share information on incidents and accidents through international organizations, such as the IAEA and the OECD/NEA, as well as under bilateral cooperation agreements.

Meanwhile, electric utilities are collecting and analyzing information about operating experience, both domestic and abroad, within themselves and at CRIEPI. Also they have international mechanism to exchange information through INPO and WANO Tokyo Center. Moreover, some of electric utilities have information exchange agreements electric utilities or reactor manufacturers in France, Germany, the United States and other countries. Recognizing the importance of sharing safety information and nurturing safety culture throughout the nuclear industry, related organizations jointly established a private institute “NS Net” in December 1999. The NS Net performs peer reviews and other routine activities.

H.6.8 Preparation of Plans for Decommissioning of Nuclear facilities

An operator with a license issued under the Reactor Regulation Law, in order to terminate the business, shall take measures to transfer nuclear fuel material in its possession and decontaminate materials contaminated by nuclear fuel material, and report to the regulatory body about the measures taken. Moreover, as mentioned in Section H.4.2, operators other than operators of fuel material use facility and disposal facility, when dismantling a nuclear facility, submit to the regulatory body, in advance, a notification providing method of dismantling and method of disposing of nuclear fuel material and materials contaminated with it.

Operator of a radioisotope waste management facility licensed under the Radiation Hazards Prevention Law, in order to terminate the business, shall take measures to transfer radioisotopes in its possession, decontaminate materials contaminated by radioisotopes, and transfer contaminated materials, and report to the regulatory body about the measures taken.

H.6.9 Preparation of Plans for the Closure of Disposal Facilities

Operator of a waste disposal facility, when applying for a license, is required to submit a plan for closure

of the disposal facility and a plan after closure, and obtain approval of the regulatory body. Moreover, the operator, when closing a disposal facility, shall undergo the Safety Verification of Disposal Facility by the regulatory body, as mentioned in Section H.4.3.

Table H.6-1 Contents of the Safety Preservation Rules for Radioactive Waste Disposal Facility

1. Duties and organization of personnel engaged in the management of radioactive waste disposal facility
2. Safety education for personnel engaged in radiation work at disposal facility concerning:
 - (1) Safety education policy (including its implementation plan);
 - (2) Details of safety education concerning:
 - 1) related laws, regulations and Safety Preservation Rules;
 - 2) structure, performance and operation of disposal facility;
 - 3) radiation control;
 - 4) handling of nuclear fuel material and materials contaminated by nuclear fuel material; and
 - 5) emergency preparedness;
 - (3) Other necessary matters concerning safety education;
3. Steps to be taken for the safety preservation of disposal facility taking account of attenuation of radioactivity;
4. Establishment of a controlled area, a peripheral monitoring area and preservation area of a disposal facility, and restriction of access to these areas;
5. Gaseous and liquid discharge monitoring equipment;
6. Monitoring of dose, dose equivalent, radioactive material concentration and surface contamination by radioactive materials, and decontamination works;
7. Management of radiation monitoring equipment and monitoring method;
8. Patrol and inspection of disposal facility and measures to be taken after patrol and inspection;
9. Receipt, transport, storage and handling of radioactive waste;
10. Emergency preparedness;
11. Records of the safety of disposal facility (including compliance with the Safety Preservation Rules); and
12. Other matters necessary for the safety preservation of disposal facility.

Table H.6-2 Examples of Details of the Internal Rules for the Prevention of Radiation Hazards

1. Duties and an organization of personnel engaged in the handling of radioisotopes, etc.
2. Duties and an organization of the Supervisor of Radiation Protection and personnel engaged in the management of safety in the handling of radioisotopes, etc.
3. Appointment of a person acting in place of a Supervisor of Radiation Protection
4. Maintenance and management of radiation handling facilities
5. Inspections of radiation handling facilities (or a controlled area)
6. Use of radioisotopes, etc.
7. Repacking, storage, transport or waste management of radioisotopes, etc.
8. Measurement, recording and preservation of records of radiation doses and contamination with radioisotopes
9. Education and training necessary for the prevention of radiation hazards
10. Medical examinations
11. Measures needed for the health of persons who have suffered or are suspected to have suffered from radiation hazards
12. Keeping and maintenance of books on the storage or disposal of radioisotopes, etc.
13. Emergency measures for dealing with an earthquake, a fire and other disaster (excluding those measures mentioned in the ensuing 14)
14. Emergency measures in case of danger
15. Reporting on situation of radiation control
16. Other matters necessary for the prevention of radiation hazards

Table H.6-3 Technical Standards for Safety Verification of Radioactive Waste Packages

1. Standards Concerning Waste Packages

- (1) Waste packages shall be solidified in containers;
- (2) Radioactive concentration shall not exceed the maximum radioactive concentration as applied.
- (3) Surface concentration of radioactive material shall be in compliance with laws and regulations;
- (4) Waste packages shall not contain any material that impairs its integrity;
- (5) Waste packages shall have the strength to withstand a load at emplacement;
- (6) Waste packages shall be free from large damage; and
- (7) Waste packages shall have markers for collation.

2. Standards Concerning Large Metal Waste Packages

- (1) Radioactive concentration shall not exceed the maximum radioactive concentration as applied;
- (2) Surface concentration of radioactive material shall be in compliance with laws and regulations;
- (3) Waste packages shall not contain any material that impairs its integrity;
- (4) Waste packages shall have the strength to withstand a load at emplacement;
- (5) Waste packages shall be free from remarkable damage;
- (6) Waste packages shall have markers for collation; and
- (7) Openings of large metal waste packages shall be sealed or otherwise processed.

3. Standards Concerning Concrete Scraps and Other Non-Solidified Waste Packages

- (1) Radioactive concentration shall not exceed the maximum radioactive concentration as applied;
- (2) Waste packages shall not contain explosive material; and
- (3) Waste packages shall be designed to allow collation.

Source: Article 8 of the Regulations Concerning Waste Disposal Business of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Table H.6-4 Classification of Radioactive Wastes from Reactor Facilities
and the Concept of Disposal

1. Radioactive wastes generated at reactor facilities, to be disposed of at near surface disposal facility with engineered barrier: (1) Radioactive wastes solidified in containers, and (2) Metal radioactive wastes whose openings are sealed or otherwise processed. 2. Radioactive wastes from dismantling of reactor facilities including concrete scrap, reinforcing bars and other materials solidified in containers, to be disposed of at near surface disposal facility with engineered barrier. 3. Radioactive wastes generated at reactor facilities not solidified in containers, to be disposed of at near surface disposal facility with concrete vault. 4. Radioactive concrete scraps and other wastes from dismantling reactor facilities, to be disposed of at near surface disposal facility without engineered barrier. 5. Radioactive wastes generated at reactor facilities, such as reactor internals, to be disposed of at sub surface disposal facility: (1) Wastes solidified in containers; and (2) Other solid wastes.

The regulations provide for the radioactive nuclide upper bounds for each category 1. through 5..
Source: Rewritten for simplification on the basis of Article 13-9 of the Ordinance for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

Table H.6-5 The Incidents Reporting Criteria at Disposal Facilities in Accordance with the Reactor Regulation Law

Upon occurrence of any of the following incidents, operator of disposal facility shall immediately give notice to that effect to the regulatory body, and report within ten days on the details of the event and corrective actions taken:

1. Nuclear fuel material being stolen or missing;
2. Failure of disposal facility (excluding minor failure);
3. Atmospheric radiation monitoring outside peripheral monitoring area exceeding limit because of gaseous waste discharge;
4. Radiation monitoring of discharge at the outer boundary of peripheral monitoring area exceeding limit because of liquid waste discharge;
5. Leakage of nuclear fuel material, etc. inside controlled area and remedial activities, such as access control, control of keys, etc., or leakage of nuclear fuel material, etc. outside controlled area;
6. Exposure of personnel engaged in radiation work to radiation exceeding or likely to exceed dose limits; or
7. Any other hazards to personnel occurring or likely to occur at the facility (excluding minor non-radiation hazards).;

Source: Article 27-2 of the Regulations Concerning Waste Disposal Facilities of Nuclear Fuel Material or Materials Contaminated by Nuclear Fuel Material

Table H.6-6 The Accident and Failure Reporting Standards in accordance with the Radiation Hazards Prevention Law

Upon the occurrence of any one of the following events, operators of nuclear business shall immediately give notice on the effects to the Minister of MEXT and report to the minister about the situation of the event and appropriate action taken within ten days of the event:

1. Theft or missing of radioisotope has occurred;
2. Radioisotopes, etc. have abnormally leaked;
3. Occupational Personnel engaged in radioisotope handling have been exposed to radiation that has exceeded or is likely to exceed the effective dose limits or the equivalent dose limits; or
4. In other cases, radiation hazards have occurred or are likely to occur.

Source: Article 39, Paragraph 1, of the Rules for the Enforcement of the Law Concerning Prevention of the Radiation Hazards Due to Radioisotopes, etc.

H.7 Institutional Measures after Closure (Article 17)

Each Contracting Party shall take the appropriate steps to ensure that after closure of a disposal facility:

- (i) records of the location, design and inventory of that facility required by the regulatory body are preserved;**
- (ii) active or passive institutional controls such as monitoring or access restrictions are carried out, if required; and**
- (iii) if, during any period of active institutional control, an unplanned release of radioactive materials into the environment is detected, intervention measures are implemented, if necessary.**

H.7.1 Records Keeping of Waste Disposal Facilities

Operators shall keep and preserve records of the waste disposal facilities for a period of time as prescribed by laws and regulations. The operator shall keep records of:

- radioactive waste packages emplaced in the disposal facility;
- radiation control;
- maintenance records;
- incidents at the disposal facility;
- rainfall;
- groundwater level; and
- safety education.

H.7.2 Implementation of Institutional Controls

The Guides for Safety Examination of Radioactive Waste Disposal Facilities, established by the NSC, require that operators of disposal facilities should, in accordance with the ALARA principle, manage a disposal facility taking account of types and radioactivity levels of waste, until the radioactivity of waste emplaced in a near surface disposal facility decays with the lapse of time to the level as low as it poses no safety hazards to the public (hereinafter referred to as Step-wise Control).

The regulatory body requests applicant for waste disposal business license to submit a Step-wise Control plan and examines it to see if it meets the requirements specified in the Guides for Safety Examination of Radioactive Waste Disposal Facilities, which is as follows.

- (1) A disposal facility with engineered barrier (emplacement of waste package with container in concrete vault):

- 1) The First Stage:

A peripheral monitoring area where access is controlled, and a disposal facility preservation area where patrol and inspection are conducted, are established. Leakage of radioactive materials out of engineered barrier is monitored, and if leakage occurs remedial measures are taken. (Monitoring and prevention of leakage from engineered barriers)

- 2) The Second Stage:

A peripheral monitoring area where access is controlled, and a disposal facility preservation area where patrol and inspection are conducted, are established. Leakage of radioactive materials out of engineered barrier through groundwater to the living environment is monitored. (Monitoring of leakage and migration from engineered barrier, and retardation of migration by natural and engineered barriers)

3) The Third Stage:

A disposal facility preservation area where patrol and inspection are conducted is established. Farming and other specific activities in this area are restricted or prohibited. (Retardation of migration by natural barrier, and prohibition or restriction of specific activities)

(2) A disposal facility without engineered barrier (emplacement of concrete scraps without container in trench)

1) The Disposal Stage:

A peripheral monitoring area where access is controlled, and a disposal facility preservation area where patrol and inspection are conducted, are established. Leakage of radioactive materials out of disposal facility through groundwater to the living environment is monitored. (Retardation and monitoring of migration into the living environment)

2) The Preservation Stage:

A disposal facility preservation area where patrol and inspection are conducted is established. Farming and other specific activities in this area are restricted or prohibited (Retardation of migration into the living environment, and prohibition or restriction of specific activities)

The control period is supposed to last 300 to 400 years for a disposal facility with engineered barrier, and the end of control period for a disposal facility without engineered barrier is supposed to be 50 years after covered soil is stabilized.

H.7.3 Intervention Measures if Necessary

When issuing a license, the regulatory body requests operator to take following steps during each stage.

In the First Stage, if a leakage of radioactive material from engineered barriers is detected, the operator should immediately repair the disposal facility to prevent leakage. In the Second Stage, the operator should monitor leakages from engineered barriers and, if necessary, implement steps to retardate migration of radioactive material. At the same time, the operator should inspect the disposal facility and, if necessary, fix covered soil and others. In the Third Stage, the operator should conduct patrol and inspection to prevent any action specified in regulations, and, if necessary, fix covered soil, etc.

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I. Transboundary Movement

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Section I. Transboundary Movement (Article 27)

- 1. Each Contracting Party involved in transboundary movement shall take the appropriate steps to ensure that such movement is undertaken in a manner consistent with the provisions of this Convention and relevant binding international instruments. In so doing:**
 - (i) a Contracting Party which is a State of origin shall take the appropriate steps to ensure that transboundary movement is authorized and takes place only with the prior notification and consent of the State of destination;**
 - (ii) transboundary movement through States of transit shall be subject to those international obligations which are relevant to the particular modes of transport utilized;**
 - (iii) a Contracting Party which is a State of destination shall consent to a transboundary movement only if it has the administrative and technical capacity, as well as the regulatory structure, needed to manage the spent fuel or the radioactive waste in a manner consistent with this Convention;**
 - (iv) a Contracting Party which is a State of origin shall authorize a transboundary movement only if it can satisfy itself in accordance with the consent of the State of destination that the requirements of subparagraph (iii) are met prior to transboundary movement;**
 - (v) a Contracting Party which is a State of origin shall take the appropriate steps to permit re-entry into its territory, if a transboundary movement is not or cannot be completed in conformity with this Article, unless an alternative safe arrangement can be made.**
- 2. A Contracting Party shall not licence the shipment of its spent fuel or radioactive waste to a destination south of latitude 60 degrees South for storage or disposal.**
- 3. Nothing in this Convention prejudices or affects:**
 - (i) the exercise, by ships and aircraft of all States, of maritime, river and air navigation rights and freedoms, as provided for in international law;**
 - (ii) rights of a Contracting Party to which radioactive waste is exported for processing to return, or provide for the return of, the radioactive waste and other products after treatment to the State of origin;**
 - (iii) the right of a Contracting Party to export its spent fuel for reprocessing;**
 - (iv) rights of a Contracting Party to which spent fuel is exported for reprocessing to return, or provide for the return of, radioactive waste and other products resulting from reprocessing operations to the State of origin.**

The electric utilities in Japan have concluded reprocessing contracts with British and French firms and have exported 7,100 tons of spent fuel between 1969 and 2001. They, in return, receive new nuclear fuel material recovered from the spent fuel and vitrified packages (HLW) generated in the reprocessing. Six hundred and sixteen vitrified packages were sent back to Japan between 1995 and March 2003 and the remaining packages will be returned in the next ten-odd years. As they started constructing a reprocessing plant at Rokkasho-Mura in Aomori Prefecture in 1993, there would be no plan to export more spent fuel after 2002, with an exception of the US produced fuel for research reactor (which should be returned under the bilateral agreement between Japan and the US.)

I. 1 Transboundary Movement

I. 1. 1 Steps to Ensure Prior Notification and Consent of the State of Destination

For the export of the spent fuel or the radioactive waste, the Foreign Exchange and Foreign Trade Control Law provides that an applicant should apply for and obtain the Export Permit from the Minister of METI. This Export Permit should be applied once it is confirmed that the authorities of the State of destination recognized the administrative and technical capacity of the importer.

I. 1. 2 Steps to Ensure Transboundary Movement Subject to International Obligations

Japanese domestic laws, such as the Ship Safety Law, etc, have incorporated obligations under the IAEA Regulations for the Safe Transport of Radioactive Materials and relevant international conventions on each mode of transport, such as International Convention for the Safety of Life at Sea (SOLAS), etc.

I. 1. 3 Consent as a State of Destination

After being notified by a State of origin of a transboundary movement to Japan of the spent fuel or the radioactive waste, the government of Japan decides whether it gives consent to the transport, and notifies its decision to the State of origin.

Japan expressed that, upon notification from a State of origin, it would consent to the import of returned radioactive waste as long as such transport would comply with the safety regulation of Japan.

I. 1. 4 Confirmation of the Capacity of a State of Destination

The Foreign Exchange and Foreign Trade Control Law provides that an exporter should apply for and obtain the Export Permit from the Minister of METI for the export of the spent fuel or the radioactive waste. The Minister of METI issues the Export Permit after confirming the general conditions of safety of the country of destination such as its regulatory structure, the membership in relevant international agreements, and the administrative and technical capacity of the importing body. In other words, the export shall be permitted only if it is confirmed that importing body has administrative and technical capacity of management of spent fuel and radioactive waste.

I. 1. 5 Steps to Permit Re-entry in case of Uncompleted Transboundary Movement

The Import Trade Control Order allows, as special exemption, re-entry of exported goods, in case of uncompleted transboundary movement so long as original characteristics and configuration of exported goods are preserved, and the other case of the exemption is a transport accident. Re-entry of exported spent fuel and radioactive waste is allowed by that provision.

I. 2 Steps to Ban Shipment to a Destination South of Latitude 60° South

The Foreign Exchange and Foreign Trade Control Law provides that an applicant should apply for and obtain the Export Permit from the Minister of METI for the export of the spent fuel or the radioactive waste. The Export Permit shall not be granted for the export of spent fuel or radioactive waste to a

destination south of latitude 60 degrees south for storage or disposal.

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J. Disused Sealed Sources

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Section J. Disused Sealed Sources (Article 28)

- 1. Each Contracting Party shall, in the framework of its national law, take the appropriate steps to ensure that the possession, remanufacturing or disposal of disused sealed sources takes place in a safe manner.**
- 2. A Contracting Party shall allow for reentry into its territory of disused sealed sources if, in the framework of its national law, it has accepted that they be returned to a manufacturer qualified to receive and possess the disused sealed sources.**

J.1 Standards for the Storage of Disused Sealed Sources

In Japan, only business operators who are authorized in accordance with the Radiation Hazards Prevention Law can handle sealed sources. Actually, disused sealed sources are transferred or taken over as sealed sources by such authorized business operators. The storage of sealed sources for possession or renewing is subject to the following storage standards specified in above mentioned laws and relevant regulations.

- (1) Sealed sources shall be put in containers and stored in storage pits or bins.
- (2) Sealed sources shall not be stored in quantities exceeding storage capacity.
- (3) Appropriate steps, such as 1) installing a shield, 2) distancing personnel from sealed sources, and 3) shortening the time during which personnel may be exposed to radiation, shall be taken in order to prevent personnel engaged in handling of radioactive substances from being exposed to radiation exceeding the effective dose limit.
- (4) Appropriate steps, such as immobilizing storage bins, shall be taken in order to prevent containers storing sealed sources from being carried from one place to another without permission.
- (5) Appropriate steps shall be taken in order to keep the air concentration of radioisotopes in storage facilities from exceeding the concentration limit.
- (6) Personnel shall be prohibited from eating, drinking or smoking in a place where an oral intake may occur.
- (7) Appropriate steps shall be taken to prevent surface contamination from exceeding the surface contamination limit.
- (8) Radioactive contaminated substances whose surface concentration exceeds one-tenth of the surface concentration limit shall not be transported from the controlled area without permission.
- (9) Appropriate steps shall be taken in order to prevent unauthorized persons from entering the controlled area.

J.2 Reentry of Returning Sealed Sources

As long as a manufacturer has permission and meets the standards specified in the Radiation Hazards Prevention Law, reentry of approved type of sealed sources returning from abroad are allowed within the permission of storage capacity. In this case, the manufacturer intending to possess or renew returned sealed sources is required to store them in accordance with the above mentioned storage standards.

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K. Planned Activities to Improve Safety

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Section K. Planned Activities to Improve Safety

Activities aimed at improving safety have already been described in the preceding sections. This section summarizes planned activities for improving safety.

(1) Preparation of Laws and Ordinances

Table B.3-2 shows the status of activities concerning preparation of regulation on radioactive waste disposal. These activities will continue.

(2) Safety of Existing Spent Fuel and Radioactive Management Facilities (G.2.1&H.2.1)

The regulatory body conducts periodical inspections and safety checks at spent fuel management facilities and radioactive waste management facilities to confirm the safety of existing facilities. The regulatory body will continue these activities. The NSC independently monitors and reviews the situation and adequacy of regulatory activities. The NSC will intensively continue these activities.

(3) Quality Assurance (QA) Activities

Regulatory requirements on QA activities concerning spent fuel management and radioactive waste management are to be intensified reflecting the lessons learned from the falsification on voluntary inspection activities by Tokyo Electric Power Company. NISA is now establishing new regulatory activities pertaining to QA and inspections.

(4) Emergency Drills and Exercises (F5.1.3)

The important objective of drills in emergency preparedness is to make sure that responsible agencies and officials of the national and local governments, nuclear business operators, and members of the public have a clear understanding measures for nuclear emergency and respond properly in an emergency. These activities, including participation in international exercises, will continue.

(5) Steps to Support Reliability of Technology (G.4.3 & H.4.4)

Since fiscal year 1976, the NSC has been promoting research projects concerning the safety of environmental radioactivity and radioactive waste at nuclear installations. The products of these safety research projects have been reflected in the formulation of various standards and guidelines, including principles such as safety policy and basic ideas, standards on specific means of achieving safety, and specific guidance.

From fiscal 2001 on, the commission plans to carry out research projects in the fields of near surface disposal, geological disposal, and clearance, based on the formulation of standards on radioactive waste disposal (see Table B.4-2).

These activities will continue.

Annex 1 :
Legislations and Guidelines

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I. LONG-TERM PROGRAM FOR RESEARCH, DEVELOPMENT AND UTILIZATION OF NUCLEAR ENERGY (EXCERPT)

(Atomic Energy Commission, November 24, 2000)

Part I: The Current Status of Research, Development and Utilization of Nuclear Energy, and Future Plans

2. Nuclear Fuel Cycle

2-2. Significance of the Nuclear Fuel Cycle for Japan

From the state of the world, and the situation in Japan in particular, it is apparent that diverse efforts must be made over the long term to secure a steady supply of energy through technological means.

Nuclear power generation contributes to economic efficiency, supply stability and the environmental acceptability of Japan's energy supply systems. Nuclear fuel cycle technologies have the potential to improve further on these attributes, and to permit the benefits of nuclear power generation to be enjoyed for a longer period of time. Technology for reprocessing spent fuel, rather than directly disposing of it, and recovering plutonium and uranium for use as fuel, require facilities enabling nuclear material control as well as safety control, in light of the nature of such technology, which is to chemically treat material with high radioactivity and separate plutonium and other elements, necessitating, therefore, a great deal of facility investment. On the other hand, such technology economizes on uranium resources and improves supply stability. It is, therefore, appropriate to basically reprocess spent fuel and make effective use of plutonium, uranium and other elements, while securing safety and nuclear non-proliferation. Taking economic efficiency into account, Japan should make the reprocessing of spent fuel and the use of recovered plutonium and uranium its basic policy, considering the geographical and resource conditions of the country.

(omission)

In the use of plutonium through the reprocessing of spent fuel, there are concerns about safety and nuclear proliferation, and doubts about economy and the economic efficiency of research and development investment. In order, therefore, to promote the use of plutonium, it is important to ensure safety, and to dedicate effort to explaining the concept to the people, focusing on securing a stable supply of energy. It is equally important, at the same time, to actively carry out promotional activities to enhance understanding on the part of the international community of Japan's policy on the use of plutonium, and to reiterate to the world Japan's philosophy of firmly adhering to the peaceful uses of nuclear power and its systems.

(omission)

Part II : Future Prospects for Research, Development and Utilization of Nuclear Energy

Chapter 3: Nuclear Power Generation and the Nuclear Fuel Cycle

1. Basic Policy

The present generation, which enjoys the benefits of nuclear power, has the obligation to do its utmost for the safe disposal of radioactive waste resulting from the research, development and utilization of this energy source. Accordingly, continued efforts will be exerted to achieve steady progress in the proper disposal of such waste.

3. Nuclear Fuel Cycle Projects

3-4. Reprocessing of Spent Fuel from Light Water Reactors

Spent fuel from light water reactors in Japan, with the exception of a portion contracted out to the Tokai Reprocessing Facility of the Japan Nuclear Cycle Development Institute, has been reprocessed by overseas contractors. Meanwhile, taking into account various relevant factors, specifically the demand for domestic reprocessing, private Japanese nuclear operators conceived the Rokkasho-mura Spent Fuel Reprocessing Plant based on the operational experience accumulated at the Tokai Reprocessing Facility, and on technologies and experience in countries advanced in the reprocessing field. The parties are now pushing forward with construction of the plant in order to have it in commercial operation by 2005.

Mainly from the viewpoint of securing fuel cycle independence, Japan intends in principle to reprocess all spent fuel domestically from now on, and the private nuclear operators are expected to make steady progress with the construction and operation of the Rokkasho-mura facility, the first commercial-scale reprocessing plant in Japan, so that commercial reprocessing technology will be firmly established domestically. As long as the reprocessing plant and intermediate storage projects progress smoothly and on schedule, it is unlikely that an overseas reprocessing option will be needed. In dealing with this topic, it is also important for Japan to consider reactions in the countries facing the sea lanes used for the

transportation of nuclear materials.

(omission)

3-5. Intermediate Spent Fuel Storage

Intermediate storage of spent fuel provides an adjustable time period until the fuel is reprocessed and thus lends an element of flexibility to the nuclear fuel cycle as a whole. In Japan, a law concerning intermediate storage was enacted in 1999, and the private sector is now making preparations for commercial operation of storage facilities by 2010. It is expected that an implementing entity capable of properly operating and managing these facilities will carry out the project in the years ahead under the basic principle of securing safety.

(omission).

4. Treatment/Conditioning and Disposal of Radioactive Wastes

Radioactive waste is generated primarily at nuclear power plants and nuclear fuel cycle facilities (including waste returned from abroad after spent fuel reprocessing under contract), but some does come from universities, research institutes, medical institutions and other facilities. Such waste should be safely treated/conditioned and disposed of by the generators. The government should provide guidance to or regulate the generators to ensure that the treatment/conditioning and disposal are carried out properly and safely.

4-1. Commitment to Waste Disposal

Some low-level radioactive waste from nuclear power plants has already been buried underground. Based on studies of methods of disposal, a basic policy has been presented on the disposal of other radioactive waste, excluding uranium waste, the disposal of which is now under investigation and discussion.

As to radioactive waste for which no specific disposal plan has yet been proposed, it is essential that the generators and other interested parties formulate and implement a specific plan through sufficient consultation and cooperation so that they can promptly start safe, efficient treatment/conditioning and disposal. During the implementation of the plan, the government should support the interested parties' efforts, whenever necessary, to prevent waste disposal problems from adversely affecting the development and utilization of nuclear energy.

Since radioactive waste varies greatly in its level of radioactivity and in the type of radioactive material contained, arrangements should be made to classify the waste by method of disposal, regardless of the facility from which it comes, and take specific measures for its treatment/conditioning and disposal.

(1) Waste for Geological Disposal

Radioactive waste having relatively high radioactivity and containing large amounts of radioactive materials with a long halflives should be disposed of by a method capable of securing safety for a long period of time, so that the living environment will not be affected. This requires the use of geological disposal, which, after providing engineering barriers to prevent radioactive materials from leaking out, buries the waste in stable underground zones several hundred meters deep, which serves as a natural barrier.

(High-Level Radioactive Waste)

Japan's policy is that high-level radioactive waste remaining after the recovery of plutonium, uranium and other useful materials from spent fuel by reprocessing should be solidified in a stable form and, after being stored for 30 to 50 years for cooling, buried under the ground by the geological disposal method. Vitrified high-level radioactive waste is already stored at a repository in Rokkasho-mura, Aomori Prefecture. According to the "Final Disposal of Designated Radioactive Waste Program," which was issued on October 2, 2000, under the Law on Final Disposal of Designated Radioactive Waste, "final disposal will start sometime in the latter half of the 2030's."

In selecting disposal sites, an important factor is gaining understanding and support from residents concerned. In order to do so, it is important to ensure transparency through thorough information disclosure. The government, electric utilities and the implementing entity, a leading player in site selection, should perform each duty with proper role sharing and mutual cooperation. For this purpose, the government should clarify the political significance of final disposal and its efforts to secure safety, and endeavor to obtain understanding from residents. It should also provide all necessary systems and setups for coexistence between the planned disposal facility and the local community; while the utilities and others having basic responsibility as the waste generators should carry out activities to gain public understanding of the disposal project, with cooperation from the implementing entity and the government, and should work actively with the implementing entity in selecting disposal sites.

(omission)

(Radioactive Waste Other than High-Level Waste)

In addition to high-level radioactive waste, some other radioactive waste also requires geological disposal. As that waste varies widely in its chemical and physical properties, it is important for waste generators and other interested parties to closely cooperate with one another in carrying out research and development of waste treatment and disposal technologies to pave the way for reasonable disposal of this waste, taking into consideration the diversity of its properties and making use of the results of research and development efforts for the disposal of high-level radioactive waste.

(Partitioning and Transmutation Technology)

The technology to separate radioactive materials with long half-lives contained in high-level radioactive waste and convert them into short-lived or non-radioactive, stable materials using a reactor or an accelerator is still at an early stage of research and development, but it should be able to contribute to reducing the burden of waste treatment and disposal, and to effective utilization of available resources. Research and development activities for partitioning and transmutation technology should be carried out based on periodic assessments, in coordination with the development of nuclear fuel cycle technology as a whole. It should be borne in mind that commercialization of partitioning and transmutation technology will not eliminate the need for geological disposal of radioactive waste.

(2) Waste for Disposal with Institutional Control

Radioactive waste whose radioactivity attenuates to a sufficiently low level as to no longer affect the living environment within a period for which institutional management is realistic can be safely disposed of in the ground at a relatively shallow depth, usually by combining engineering and natural barriers, and, after disposal, managing it properly according to its radioactivity. Even waste containing radioactive materials with long half-lives can be safely disposed of by the same method and with the same post-disposal management if the concentration of such materials is low enough.

From now on, therefore, specific measures should be taken to pave the way for disposal of low-level radioactive waste, other than that which the nuclear power plants have already begun disposing of it in concrete vaults. In implementing these measures, a study should be conducted not only on the disposing of waste at different sites based on its place of origin, but on disposing of waste by two or more disposal methods at the same site, and on disposing of waste subject to the same disposal method at the same site, regardless of its place of origin.

4-2. Decommissioning of Nuclear Facilities

Such nuclear installations as commercial power reactors, test and research reactors, and nuclear fuel cycle facilities, should be decommissioned when the time comes at the responsibility of their operators, under the basic principle of securing safety while gaining the local community's understanding and support. It is expected that the land, after the decommissioning of commercial power reactors, will serve as sites for new nuclear power plants, again with the understanding of their communities.

4-3. Reduction of Waste Generation and Promotion of its Effective Use

Steps should be taken to reduce the amount of waste generated and to recycle/reuse it. Research and development to those ends should be actively pushed forward. Interested parties and the competent authorities should jointly conduct an extensive study on the uses of such waste and the development of systems for that purpose, including satisfactory safety checks. Waste with a radioactivity concentration below the "clearance level" need not be dealt with as radioactive material, and may be handled in the same way as conventional waste in respect of safety. In principle, it is important to recycle waste to the fullest extent practical and reasonable.

(omission)

II. LEGISLATIONS, GUIDES, ETC.

Preface

1. Atomic Energy Basic Law (Excerpt)

Text is the same as Annex 3.1(A3.1 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention. (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention

2. Law for Establishment of the Atomic Energy Commission and the Nuclear Safety Commission

(1) Law for Establishment of the Atomic Energy Commission and the Nuclear Safety Commission (Excerpt)

Text is the same as Annex 3.2(A3.1 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention

Additional description concerning this National Report follows in the next sections.

(2) Rules for Nuclear Safety Commission Secretariat Organization (Excerpt)

Text is the same as Annex 3.2(A3.3 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention

3. Law for Technical Standards of Radiation Hazards Prevention(Excerpt)

Text is the same as Annex 3.5(A3.28page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention

4. Law for Establishment of the Ministry of Economy, Trade and Industry

Text is almost the same as Annex 3.3(A3.4 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention Additional description concerning this National Report follows in the next sections.

(1) Law for Establishment of the Ministry of Economy, Trade and Industry (Excerpt)

(2) Ordinance for Organization of Ministry of Economy, Trade and Industry (Excerpt)

(3) The Rules for Organization of Ministry of Economy, Trade and Industry (Excerpt)

5. Law for Establishment of the Ministry of Education, Culture, Sports, Science and Technology

(1) Law for Establishment of the Ministry of Education, Culture, Sports, Science and Technology (Excerpt)

(2) Ordinance for Organization of the Ministry of Education, Culture, Sports, Science and Technology (Excerpt)

(3) The Rules for Organization of the Ministry of Education, Culture, Sports, Science and Technology (Excerpt)

6. Law for Establishment of the Ministry of Health, Labour and Welfare

(1) Law for Establishment of the Ministry of Health, Labour and Welfare (Excerpt)

(2) Ordinance for Organization of the Ministry of Health, Labour and Welfare (Excerpt)

7. Law for Establishment of Japan Nuclear Energy Safety Organization

8. The Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors

Text is almost the same as Annex 3.4(A3.7 page) of National Report of Japan for Second

Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention Additional description concerning this National Report follows in the next sections.

- (1) **The Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (Excerpt)**
- (2) **The Ordinance for Enforcement of the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (Excerpt)**
- (3) **The Rules for Establishment, Operation, etc. of Nuclear Power Reactors (Excerpt)**
- (4) **The Rules for Waste Disposal facility Business for Nuclear Materials or Materials Contaminated with Nuclear Materials (Excerpt)**
- (5) **The Rule for Disposal of Nuclear Fuel Materials etc. Outside of the Factory or Place of Business (Excerpt)**

9. The Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc.

- (1) **The Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc. (Excerpt)**
- (2) **Ordinance for the Enforcement of the Law Concerning Prevention from Radiation Hazards Due to Radioisotopes, etc. (Excerpt)**
- (3) **The Rules for the Enforcement of the Law Concerning Prevention from Radiation Hazards Due to Radioisotopes, etc. (Excerpt)**

10. Electricity Utilities Industry Law (Excerpt)

Text is the same as Annex 3.8(A3.30 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention

11. Basic Law for Emergency Preparedness

Text is the same as Annex 3.9(A3.42 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention.

- (1) **Basic Law for Emergency Preparedness (Excerpt)**
- (2) **Ordinance for the Enforcement of the Basic Law on Emergency Preparedness (Excerpt)**
- (3) **Basic Plan for Emergency Preparedness (Summary)**

12. Special Law for Emergency Preparedness for Nuclear Disaster (Excerpt)

Text is the same as Annex 3.10(A3.46 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention

- (1) **Special Law for Emergency Preparedness for Nuclear Disaster (Excerpt)**
- (2) **Ordinance for the Special Law of Emergency Preparedness for Nuclear disaster (Excerpt)**

13. Specified Radioactive Waste Final Disposal Act (Excerpt)

14. Guides, Etc.

- (1) **Examination Guide for Safety Design of Light Water Nuclear Power Reactor Facility (Excerpt)**

Text is the same as Annex 3.12 (3)(A3.58 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention.

- (2) **Basic Guide for Safety Examination of Nuclear Fuel Facilities (Excerpt)**
- (3) **Radioactive Waste Processing and Disposal Policy**

- (4) Basic Concept Concerning Safety Regulations for Land Disposal of Low Level Solid Radioactive Wastes**
- (5) Guides for Safety Examination for the Radioactive Waste Disposal Facility (Excerpt)**
- (6) Clearance levels in Main Nuclear Facilities (Excerpt)**
- (7) On Methods for Certification of Clearance Levels for Reactor Facilities (Excerpt)**
- (8) On Clearance Levels for Heavy Water Reactors and Fast Neutron Reactors (Excerpt)**
- (9) Basic Concepts for Safety Assurance and Safety Regulations for Decommissioning of Commercial Power Reactor Facilities (Excerpt)**

1. Atomic Energy Basic Law (Excerpt)

(Law No.186, December 19, 1955)

Latest Revision: Law No. 178, December 12, 2002

Text is the same as Annex 3.1(A3.1 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention.

2 Law for Establishment of the Atomic Energy Commission and the Nuclear Safety Commission

Text is the same as Annex 3.2(A3.1 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention.

Additional description concerning this National Report follows in the next sections.

Law for Establishment of the Atomic Energy Commission and the Nuclear Safety Commission (Excerpt)

(Law No. 188, December 19, 1955)

Latest Revision: Law No. 178, December 18, 2002

Article 13

1. Nuclear Safety Commission may advise the Director/s of relevant governmental organization/s to take appropriate measures necessary, based on the investigation performed concerning the allegation registered in accordance with the provision of Article 66-2. first paragraph of Reactor Regulation Law.

3 Law for Technical Standards of Radiation Hazards Prevention (Excerpt)

(Law No.162, May 21, 1958)

Latest Revision: Law No.160, December 22, 1999

Text is the same as Annex 3.5(A3.28 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention

4 Law for Establishment of the Ministry of Economy, Trade and Industry

Text is almost the same as Annex 3.3(A3.4 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention

Additional description concerning this National Report follows in the next sections.

The Rules for Organization of the Ministry of Economy, Trade and Industry (Excerpt)

(Ministerial Order No. 1 of METI, January 6, 2001)

Latest Revision: Ministerial Order No.79 of METI, July, 1, 2003

Chapter 2. External Agencies

Section 1. Agency of Natural Resources and Energy

(Assigned Affairs of the Nuclear Safety Regulatory Standard Division)

Article 264. The Nuclear Safety Regulatory Standard Division shall manage the affairs as shown in the followings:

1. Matters relating to planning, projecting and promoting the technical aspects of basic policy for securing the nuclear safety.
2. Matters relating to collecting, analyzing and publishing the information relating the safety preservation of nuclear installation operation
3. Matters relating to managing affairs concerning the enforcement of the Reactor Regulation Law.
4. Matters relating to managing affairs concerning the reporting to the NSC as provided in Paragraph 3, Article 72 of the Reactor Regulation Law and affairs concerning liaison and coordination to the NSC.
5. Matters relating regulation and securing safety of power reactor facilities at the stage of research and development

(Assigned Affairs of the Nuclear Safety Special Investigation Division)

Article 265. The Nuclear Safety Special Investigation Division shall manage the affairs as shown in the followings:

1. Matters relating to the allegation as provided in paragraph 1, Article 66-2 of the Reactor Regulation Law.
2. Matters relating to managing affairs concerning the reporting as provided in paragraphs 1 and 2, Article 67 of the Reactor Regulation Law.
3. Matters relating to managing affairs concerning the litigation on securing the nuclear safety

(Assigned Affairs of the Nuclear Fuel Cycle Regulation Division)

Article 268. The Nuclear Fuel Cycle Regulation Division shall manage the affairs as shown in the followings:

1. Matters relating to regulations of nuclear milling business (except the assigned affairs in the next article Paragraph2 and Paragraph 3 and article269 Paragraph 2) and others for ensuring safety (except matters relating to international cooperation) of this business (except matters relating to the Nuclear Safety Administration Division. and the Nuclear Emergency Preparedness Division).
2. Matters relating to regulations (except the fuel fabrication business relating assigned affairs in the next article Paragraph2 and Paragraph 3 and article269 Paragraph 2) of nuclear fuel fabrication business (except the fuel fabrication business relating to advanced reactor) and others for ensuring safety (except matters relating to international cooperation) of this business (except matters relating to the Nuclear Safety Administration Division. And the Nuclear Emergency Preparedness Division).
3. Matters relating to regulations (except the fuel fabrication business relating assigned affairs in the next article Paragraph2 and Paragraph 3 and article269 Paragraph 2) of reprocessing business and others for ensuring safety (except matters relating to international cooperation) of this business (except matters relating to the Nuclear Safety Administration Division. and the Nuclear Emergency Preparedness Division).

(Assigned Affairs of the Nuclear Fuel Management and Regulation Division)

Article 268.-2 The Nuclear Fuel Management and Regulation Division shall manage the affairs as shown in the followings:

1. Matters relating to regulations of nuclear fuel storage business (except the assigned affairs in the next article Paragraph2 and Paragraph 3 and article269 Paragraph 2) and others for ensuring safety (except matters relating to international cooperation) of this business (except matters relating to the Nuclear Safety Administration Division. and the Nuclear Emergency Preparedness Division)
2. Matters relating to transportation defined in Article 59-2 of the Nuclear Regulation Law.
3. Matters relating to affairs contracted storage defined in Article 60 of the Nuclear Regulation Law

Article 269 Radioactive Waste Regulation Division shall manage the affairs as shown in the followings:

1. Matters relating to regulations of waste disposal business (except the assigned affairs in the previous article Paragraph2) and others for ensuring safety (except matters relating to international cooperation) of this business (except matters relating to the Nuclear Safety Administration Division. and the Nuclear Emergency Preparedness Division)
2. Matters relating to safety verification of waste disposal defined in Article 58-2 of the Nuclear Regulation Law.
3. Matters relating to decommissioning of facilities related to nuclear fuel fabrication, nuclear fuel storage, and reprocessing business and facilities related to reactors.
4. In addition to the matters defined above, matters for ensuring nuclear safety of radioactive waste (except matters relating to the Policy Planning and Coordination Division and the Nuclear Emergency Preparedness Division).

5. Law for Establishment of the Ministry of Education, Culture, Sports, Science and Technology

(1) Law for Establishment of the Ministry of Education, Culture, Sports, Science and Technology (Excerpt)

(Law No. 96, July 16, 1999)

(Latest Revision: Law No. 148, December 7, 2001)

Chapter 2. The establishment of the Ministry of Education, Culture, Sports, Science and Technology and its duties and assigned affairs

Section 2. Assigned duties and assigned affairs of the Ministry of Education, Culture, Sports, Science and Technology
(Assigned Duties)

Article 3. The Ministry of Education, Culture, Sports, Science and Technology shall engage in enhancement of education of creative talented people of plentiful humanity with a nucleus of educational advancement and promotion of lifelong, promotion of arts and sciences, sports, and cultures, and overall promotion of scientific technologies, and in appropriate implementation of civil services for religion as duties.

(Assigned Affairs)

Article 4. In order to achieve assigned duties as described in the preceding article, the Ministry of Education, Culture, Sports, Science and Technology shall administer the following affairs.

- omission -

70. Matters relating to the regulations for nuclear reactors for testing and research, and nuclear reactors in the research and development stage (except those for generation of electricity), matters relating to the regulations for use of nuclear source materials and nuclear fuel materials, and other matters to ensure those safety.

71. Scientific technological matters to ensure nuclear safety.

72. Matters relating to prevention of radiation hazards.

73. Matters relating to monitoring and measurement of radioactivity levels for recognition.

- omission -

Chapter 3. The functions and agencies established in the main office of the ministry

Section 2. Council, etc.

Subsection 1. Establishment

Article 6.

- omission -

2. The councils other than those specified in the preceding paragraph for the Ministry of Education, Culture, Sports, Science and Technology established in the main office of the ministry as specified in other laws shall be as follows:

The Radiation Review Council

The Evaluation Commission incorporated Administrative agency

Subsection 4. The Radiation Review Council

Article 18. The Radiation Review Council shall be as specified in the Law for Technical Standards of Radiation Hazards Prevention (Law No. 162, 1958, including orders based on the Law

(2) Ordinance for Organization of the Ministry of Education, Culture, Sports, Science and Technology (Excerpt)

(Government Ordinance No. 251, June 7, 2000)

(Latest Revision: Ordinance No. 4, January 17, 2002)

(Assigned Affairs of the Science and Technology Policy Bureau)

Article 7. The Science and Technology Policy Bureau shall administer the following affairs:

- omission -

20. Matters relating to the regulations for nuclear reactors for testing and research, and nuclear reactors in the research and development stage (except those for generation of electricity), matters relating to the regulations for use of nuclear source materials and nuclear fuel materials, and other matters to ensure those safety.

21. Scientific technological matters to ensure nuclear safety.

22. Matters relating to prevention of radiation hazards (except matters assigned to the Research Promotion Bureau).

23. Matters relating to monitoring and measurement of radioactivity levels for recognition.

- omission -

26. Matters relating to the general affairs of the Science and Technology Council (except the matters relating to the Ocean Development Subcommittee and the Geodesy Subcommittee) and the general affairs of the Radiation Review Council.

(Director-General for Policy Coordination and Deputy Director-General)

Article 14. One Director-General for Policy Coordination and nine Deputy Director-Generals shall be assigned in the Office for Minister's Secretariat.

- omission -

3. Upon official orders, the Deputy Director-Generals shall participate in activities for planning and projecting of the matters important to the assigned affairs of the Ministry of Education, Culture, Sports, Science and Technology and shall manage the related affairs.

(3) The Rules for Organization of the Ministry of Education, Culture, Sports, Science and Technology (Excerpt)

(Ministerial Order No. 1, January 6, 2001)

(Latest Revision: Ministerial Order No. 22, April 1, 2002)

Subsection 5. Science and Technology Policy Bureau

(Office for Nuclear Regulation, Office for Emergency Planning and Environmental Radioactivity and Office for Radiation Regulation, and Director for Safeguards, Director for Safety Examination, Director for Nuclear Safety Inspection, Director for Nuclear Facility Operation, Director for Radiation Protection Policy and the Senior Specialist for Environmental Radioactivity Surveys)

Article 50. The Office for Nuclear Regulation, the Office for Emergency Planning and Environmental Radioactivity and Office for Radiation Regulation shall be established, and one Director for Safeguards, one Director for Safety Examination, one Director for Nuclear Safety Inspection, one Director for Nuclear Facility Operation, one Director for Radiation Protection Policy and one Senior Specialist for Environmental Radioactivity Surveys shall be assigned in the Nuclear Safety Division.

2. The Office for Nuclear Regulation shall manage the assigned affairs relating to the regulations for nuclear reactors for testing and research, and nuclear reactors in the research and development stage (except those for generation of electricity) (hereinafter termed "Nuclear Reactor Facilities" in this article), matters relating to use of nuclear source materials and nuclear fuel materials, and matters relating to ensure those safety (except matters relating to the enforcement of the Special Law of Emergency Preparedness for Nuclear disaster (Law No. 156, 1999).

3. The Director shall be assigned in the Office for Nuclear Regulation.

4. The Office for Emergency Planning and Environmental Radioactivity shall manage the affairs as shown in the following:

(i) Matters relating to the enforcement of the Special Law of Emergency Preparedness for Nuclear disaster;
(ii) Matters relating to radioactivity investigation in the circumference and the other places of nuclear facilities (except the matters assigned to the Office for Nuclear Regulation, and the matters relating to the enforcement of the Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc. (Law No. 167, 1962);

(iii) Matters relating to prevention of hazards due to large release of radioactive materials and the radiation (except the matters assigned to the Research Promotion Bureau and the matters assigned to the Office for Nuclear Regulation, and the matters relating to the enforcement of the Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc.;

(iv) Matters relating to coordination of countermeasures to be taken by related administrative agencies for prevention of hazards by the radioactive fallout;

(v) Matters relating to monitoring and measurement of radioactive levels for recognition.

5. The Director shall be assigned in the Office for Emergency Planning and Environmental Radioactivity.

6. The Office for Radiation Regulation shall manage the affairs relating to the enforcement of the Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc.

7. The Director shall be assigned in the Office for Radiation Regulation.

- omission -

9. Upon official orders, the Director for Safety Examination shall participate in activities for planning and projecting of the matters important to the safety review for nuclear reactor facilities and nuclear fuel material use facilities.

10. Upon official orders, the Director for Nuclear Safety Inspection shall guide and control affairs relating to operations control and site inspection of nuclear reactor facilities and nuclear fuel material use facilities.

11. Upon official orders, the Director for Nuclear Facility Operation shall participate in activities for planning and projecting of the matters important to control of safety preservation of nuclear reactor facilities and nuclear fuel material use facilities.

12. Upon official orders, the Director for Radiation Protection Policy shall participate in activities for planning and projecting of the specific matters of affairs relating to the enforcement of the Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc.

13. Upon official orders, the Senior Specialist for Environmental Radioactivity Surveys shall participate in activities for affairs important to radioactivity investigation in the circumference and the other places of nuclear facilities (except the matters assigned to the Office for Nuclear Regulation, and the matters relating to the enforcement of the Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc.), and shall participate in activities for affairs important to coordination of countermeasures to be taken by related administrative agencies for prevention of hazard due to the radioactive fallout and monitoring and measurement of radioactivity levels for recognition.

6. Law for Establishment of the Ministry of Health, Labour and Welfare

(1) Law for Establishment of the Ministry of Health, Labour and Welfare (Excerpt)

(Law No.97 July 16,1999)

(Latest Revision: Law 192, December 20, 2002)

(Assigned Affairs)

Article 4. In order to achieve assigned duties as described in the preceding article, the Ministry of Health, Labor and Welfare shall administer the following affairs:

11. Matters relating to improvement of medical system.

13. Matters relating to public health nurses, midwives, nurses, dental hygienists, radiation technicians, dental technicians, clinical laboratory technicians, health laboratory technicians, physical therapists, occupational therapists, orthoptists, clinical engineers, artificial limb fitters, emergency life guards, speech therapists, and other medical staffs.

31. Matters relating to securing of the quality, efficacy, and safety of drugs, quasi-drugs, cosmetics, medical devices, and other sanitary products.

(2) Ordinance for Organization of the Ministry of Health, Labour and Welfare (Excerpt)

(Government Ordinance No.252 June 7, 2000)

(Latest Revision: Government Ordinance No.275 June 25, 2003)

(Assigned Affairs of the Health Policy Bureau)

Article 4. Health Policy Bureau shall administer the following affairs:

5 Matters relating to safety in hospitals, clinics, and maternity clinics.

7 Matters relating to public health nurses, midwives, nurses, dental hygienists, radiation technicians, dental technicians, clinical laboratory technicians, health laboratory technicians, physical therapists, occupational therapists, orthoptists, clinical engineers, artificial limb fitters, emergency life guards, speech therapists, and other medical staffs (excluding those matters assigned to other Bureaus).

(Assigned Affairs of the Pharmaceutical and Food Safety Bureau)

Article 6. Pharmaceutical and Food Safety Bureau shall administer the following affairs:

1. Matters relating to securing of the quality, efficacy, and safety of drugs, quasi-drugs, cosmetics, medical devices, and other sanitary products.

7 The Law for Japan Nuclear Energy Safety Organization

(Law No. 179, December 18, 2002)

Contents

Chapter I. General Rules (Article 1 - Article 6)

Chapter II. Executives and Personnel (Article 7 - Article 12)

Chapter III. Duties etc. (Article 13 - Article 15)

Chapter IV. Miscellaneous Provisions (Article 16 - Article 18)

Chapter V. Penal Provisions (Article 19 - Article 20)

Supplemental Provisions (Omitted)

Chapter I. General Rules (Article 1 - Article 6)

(Purpose)

Article 1. This Law is enacted for the purposes of providing such items as the name, the objectives of the Japan Nuclear Energy Safety Organization (hereinafter referred to as "the Organization") and the scope of duties provided by the Organization.

(Definition)

Article 2. "Nuclear facilities" in this law means the refining facilities defined in Subparagraph (ii) of Paragraph 2 of Article 3 of the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (Law No. 166, 1957, hereinafter referred to as "the Reactor Regulation Law"), the fabrication facilities defined in Subparagraph (ii) of Paragraph 2 of Article 13 of the Reactor Regulation Law, the spent fuel storage facilities defined in Subparagraph (ii) of Paragraph 2 of Article 43-4 of the Reactor Regulation Law, the reprocessing facilities defined in Subparagraph (ii) of Paragraph 2 of Article 44 of the Reactor Regulation Law, and the waste disposal facility and the waste interim storage facilities defined in Subparagraph (ii) of Paragraph 2 of Article 51-2 of the Reactor Regulation Law.

2. "Reactor facilities" in this law means the reactors defined in Subparagraph (I) and (iv) of Paragraph 1 of Article 23 of the Reactor Regulation Law and their related facilities (in Paragraph 4, referred to as "reactor").

3. "Nuclear business" in this law means the refining business defined in Paragraph 1 of Article 3 of the Reactor Regulation Law, the fabrication business defined in Paragraph 1 of Article 13 of the Reactor Regulation Law, the spent fuel storage business defined in Paragraph 1 of Article 43-4 of the Reactor Regulation Law, the reprocessing business defined in Paragraph 1 of Article 44 of the Reactor Regulation Law, and the disposal business defined in Paragraph 1 of Article 51-2 of the Reactor Regulation Law.

4. "Nuclear disaster" in this law means those ones that would be caused by the operation of nuclear business or by the operation of reactors among the nuclear disasters defined in Subparagraph (I) of Article 2 of the Special Law of Emergency Preparedness for Nuclear Disaster (Law No. 156, 1999).

(Name)

Article 3. The name of the Incorporated Administrative Agency established in accordance with this law and the Law of the General Rules for Incorporated Administrative Agency (Law No. 103, 1999, hereinafter referred to as "the Law of the General Rules"), as provided in Paragraph 1 of Article 2 of the Law of the General Rules, shall be the Japan Nuclear Energy Safety Organization.

(Purpose of the Organization)

Article 4. The purpose of the Japan Nuclear Energy Safety Organization (hereinafter, referred to as "Organization") is to maintain the bases for ensuring the safety for utilization of energy produced by the nuclear power through performing the inspections of nuclear facilities and reactor facilities, the analysis and evaluation of the safety concerning the design of nuclear facilities and reactor facilities and other safety-related services.

.

(Scope of Duties)

Article 13. The Organization shall perform the following duties to achieve the purposes provided in Article 4:

- (i) Inspection of nuclear facilities and reactor facilities and others similar to those;
- (ii) Analysis and evaluation of the safety concerning design of nuclear facilities and reactor facilities;
- (iii) Duties on prevention of nuclear disasters, prevention of possible expansion of the nuclear disaster and the restoration from the nuclear disaster;
- (iv) Investigation, testing, research, and training for ensuring the safety of utilizing energy of the nuclear power (referred to as "ensuring safety" in the following subparagraph);
- (v) Collecting, classifying and providing of information for ensuring safety; and
- (vi) Duties that are accompanied with the ones described in each of the preceding subparagraphs.

2. The Organization, in addition to the duties described in the preceding paragraph, shall perform the following duties:

- (i) Entry and inspection, questioning and taking samples pursuant to the provisions of Paragraph 1 through Paragraph 3 of Article 68 of the Reactor Regulation Law; and
- (ii) Entry and inspection pursuant to the provisions of Paragraph 1 through Paragraph 3 of Article 107 of the Electricity Utilities Industry Law (Law No. 170, 1964).

3. The Organization, in addition to the duties provided in the preceding two paragraphs, may perform tasks for ensuring safety of the nuclear energy, so far as no obstacle takes place in performing any duties provided in the preceding two paragraphs, in response to the request of national administrative agencies.

8. The Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors

Text is almost the same as Annex 3.4(A3.7 page) of National Report of Japan for Second Review

Meeting of Convention on Nuclear Safety. October, 2001 Text is almost the same as Annex 3.3(A3.4 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention Additional description concerning this National Report follows in the next sections.

(1) The Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (Excerpt)
(Law No. 166, June 10, 1957)
Latest Revision: Law No.179, December 18,2002

Chapter 2. Regulations concerning milling business

(Authorization of business)

Article 3. Any person who wishes to operate a milling business shall obtain the authorization of the Minister of Economy Trade and Industry as provided for in the government ordinance.

Chapter 3. Regulations concerning nuclear fuel fabrication business

(Licensing for business)

Article 13. Any person who wishes to operate a nuclear fuel fabrication business shall obtain the license of the Minister of Economy Trade and Industry as provided for in the government ordinance.

(Inspection Prior to Usage)

Article 16-3. Any nuclear fuel fabricator shall not use fabrication facilities until they have been put successfully through the inspection of the competent minister as to the construction work (except for welding in the fabrication facilities defined in Paragraph 1 of next Article in which welding is performed - same in the following paragraph) and performance of the fabrication facilities, as provided by the order of the competent ministry. The same apply to the fabrication facilities when they are altered.

2. The performance inspection is considered as passed when the fabrication facilities conform to each of the following items.

(i) That the construction work has been done in accordance with the design and methods of construction provided for in the preceding Article.

(i) That their performance is, in accordance with the technical standards provided by the order of the competent ministry.

3. The Minister of Economy, Trade and Industry (hereinafter referred to as “the Minister of METI”) shall, as provided by the Ordinance of Ministry of Economy, Trade and Industry (hereinafter referred to as “METI”), make the Japan Nuclear Energy Safety Organization (hereinafter referred to as “the Organization”) to perform a part of affairs concerning inspections described in Paragraph 1.

4. When the Organization performed a part of affairs concerning the inspection under the provisions of the preceding paragraph, the Organization shall promptly, as provided by the Ordinance of METI, notify the Minister of METI of the results of inspection.

(Method of Welding and Inspection)

Article 16-4. An UF₆ heater vessel and other fabrication facility in which welding is performed shall be inspected by the competent minister as provided for by the order of the competent ministry, and the nuclear fuel fabricator may not use the fabrication facility until it passes the inspection. However, this shall not be applied to the cases specified in Paragraph 4 and the cases specified by the order of the competent ministry.

2. A person who wishes to receive the inspection mentioned in the above paragraph, he must obtain the approval of the competent minister concerning the method of welding according to the order of the competent ministry.

3. The inspection mentioned in paragraph 1 shall be considered as passed if the welding satisfies each of the following items.

(i) That the welding has been carried out according to the method approved as provided for in the previous paragraph.

(ii) That the welding is in conformity with the technical standards defined by the order of the competent ministry.

4. The fabrication facility that has been imported and involving welding defined in Paragraph 1 shall be inspected by the competent minister concerning welding as provided by the order of the competent ministry, and the nuclear fuel fabricator may not use the facility until it passes the inspection.

5. The inspection mentioned in the preceding paragraph shall be considered as passed if the welding is in conformity with the technical standards mentioned in item 2 of Paragraph 3.

(Periodical Inspection of Installation)

Article 16-5. Any nuclear fuel fabricator shall, according to the order of the competent ministry, submit those fabrication facilities designated by government ordinance to the annual inspection of the

competent minister that is made regularly once a year.

2. The Periodical inspection provided for in the preceding paragraph shall be made as to whether or not the performance of the fabrication facilities is up to the technical standards provided by the order of the competent ministry.

3. The Minister of METI shall, as provided by the Ordinance of METI, make the Organization to perform a part of affairs concerning the inspection described in Paragraph 1.

4. When the Organization performed a part of affairs concerning the inspection under the provisions of the preceding paragraph, the Organization shall promptly, as provided by the Ordinance of METI, notify the Minister of METI of the results of inspection.

(Inspection Prior to Usage)

Article 28. Any reactor establisher shall not use reactor facilities until they have been put successfully through the inspection of the competent minister as to the construction work (except for welding in the reactor facilities defined in Paragraph 1 of Article 28-2 in which welding is performed - same in the following paragraph) and performance of the reactor facilities, as provided by the order of the competent ministry. The same apply to the reactor facilities when they are altered.

2. The performance inspection is considered as passed when the reactor facilities conform to each of the following items.

(i) That the construction work has been done in accordance with the design and methods of construction provided for in the preceding Article.

(i) That their performance is, in accordance with the technical standards provided by the order of the competent ministry.

3. The provisions described in Paragraph 3 and Paragraph 4 of Article 16-3 shall be applied with necessary modifications to the inspection described in Paragraph 1 (limited to those relevant to commercial power reactors or reactors described in Subparagraph (iv) of Paragraph 1 of Article 23).

(Periodical Inspection of Installation)

Article 29. Any reactor establisher shall, according to the order of the competent ministry, submit those reactor facilities designated by government ordinance to the annual inspection of the competent minister that is made regularly once a year.

2. The Periodical inspection provided for in the preceding paragraph shall be made as to whether or not the performance of the reactor facilities is up to the technical standards provided by the order of the competent ministry.

3. The provisions described in Paragraphs 3 and Paragraph 4 of Article 16-5 shall be applied with necessary modifications to the inspection described in Paragraph 1 (limited to those relevant to commercial power reactors or reactors described in Subparagraph (iv) of Paragraph 1 of Article 23).

Chapter 4-2. Regulations concerning spent fuel storage business

(Licensing for business)

Article 43-4. Any person who wishes to operate a spent fuel (applied only to those generated from operation of commercial power reactors and from those reactors provided by government ordinance as the reactors that might generate spent fuel more than the capacity of spent fuel storage facility) storage (excluding the storage by reactor establisher and reprocessing business operator, at the storage facility (applied only to those capacity is greater than that was provided by governmental ordinance (hereinafter referred to as spent fuel storage facility) of reactor facility of reprocessing facility) business shall obtain the license of the Minister of Economy Trade and Industry as provided for in the government ordinance.

(Inspection Prior to Usage)

Chapter 4. Regulations concerning reprocessing business

(Authorization of business)

Article 44. Any person other than Japan Nuclear Cycle Development Institute and Japan Atomic Energy Research Institute, who wishes to operate a reprocessing business shall obtain the authorization of the Minister of Economy Trade and Industry as provided for in the government ordinance.

(Inspection Prior to Usage)

Chapter 5-2. Regulations Concerning the Radioactive Disposal Business

(Licensing for Business)

Article 51-2. Any person who intends to carry on the radioactive waste management business falling under any of the following subparagraphs (excluding operations which are conducted by refining business operators, fabrication business operators, reactor establishers, operators of foreign nuclear vessel, reprocessing business operators and persons who have obtained licenses provided in Paragraph 1 of Article 52 at their refining facilities, fabrication facilities, reactor facilities, reprocessing facilities or waste

management facilities defined in Subparagraph (ix) of Paragraph 2 of the said article which is accompanied to the use facilities defined in the Subparagraph (vii) of the said paragraph) shall obtain the license of the Minister of the Ministry of Economy, Trade and Industry (hereinafter referred to as the Minister of METI) by each type of radioactive waste management business described in the following subparagraphs, as provided by the Government Ordinance:

(i) The final disposal of nuclear fuel materials or materials contaminated with nuclear fuel materials by the methods provided by the Government Ordinance (hereinafter referred to as "Waste Repository Disposal"); or

(ii) The management of nuclear fuel materials or materials contaminated with nuclear fuel materials, for the purpose of preventing radiation hazards and other type of management or conditioning provided by the Government Ordinance, during the period from the beginning of disuse until disposal at disposal facility, or other final disposal is made, (hereinafter referred to as "Waste Management").

2. Any person who wishes to obtain the license described in the preceding paragraph shall submit to the Minister of METI an application containing the following subparagraphs:

(i) The name and the address and, in the case of a juridical person, the name of its representative;

(ii) The name and the location of the place of business at which the waste disposal facility and its related facilities (hereinafter referred to as "Waste Disposal facility") or the waste management equipments and its related facilities (hereinafter called "Waste Management Facility") will be established;

(iii) The characteristic and quantity of the nuclear fuel materials or materials contaminated with nuclear fuel materials that are to be disposed/processed/stored of;

(iv) The location, structure and equipment of the Waste Disposal facility or the Waste Management Facility and the method of disposal/processing/storing;

(v) The planned timing of the alterations to the measures that should be taken for the safety preservation of Waste Repository Disposal according to the decay of radioactivity; and

(vi) The plan for the construction of the Waste Disposal facility or the Waste Management Facility.

3. When the Minister of the Ministry of Education, Culture, Sports, Science and Technology (hereinafter referred to as, "the Minister of MEXT"), the Minister of METI, and the Minister of Land, Infrastructure, and Transport plan to enact, amend or repeal the Government Ordinance relating to Subparagraph (i) of Paragraph 1, they must hear and pay due respect, in advance, to the opinions of the Atomic Energy Commission and the Nuclear Safety Commission.

(Criteria for License)

Article 51-3. When an application for the license under Paragraph 1 of the preceding article is rendered, the Minister of METI shall not give the license unless the he recognizes that the application comes under all of the following subparagraphs:

(i) The license will cause no hindrance to the execution of the planned development and utilization of nuclear energy;

(ii) The applicant has technical abilities and financial foundations sound enough to operate the business competently; and

(iii) The location, structure and equipment of the Waste Disposal facility or the Waste Management Facility are such that they will cause no hindrance to the prevention of the hazard of nuclear fuel materials or materials contaminated with nuclear fuel materials.

2. In giving a license described in Paragraph 1 of the preceding article, the Minister of METI shall hear and respect, in advance, the opinion of the Nuclear energy Commission with respect to the application of standards specified in Subparagraph (i) and Subparagraph (ii) (regarding the portion related to the financial foundation only) of the preceding paragraph, and the opinion of the Nuclear Safety Commission with respect to the application of standards specified in Subparagraph (ii) (regarding the portion related to the technical capability only) and Subparagraph (iii) of the said paragraph.

(Ineligibility for the License)

Article 51-4. No person who comes under one of the following subparagraphs shall be given the license described in Paragraph 1 of Article 51-2:

(i) A person whose license described in Paragraph 1 of Article 51-2 has been cancelled as provided in Paragraph 2 of Article 51-14 and two years have not yet elapsed from the day of the cancellation;

(ii) A person who has been condemned to the fine or heavier penalty for violation of the provisions of this Law or the Orders based on this Law, and for whom two years have not yet elapsed after the execution of or after the relief from the execution of the penalty;

(iii) A legally incompetent person; or

(iv) A juridical person any of whose executive officers comes under one of the preceding three subparagraphs.

(Licensing and Notification of the Alteration)

Article 51-5. When a person who has obtained the license described in Paragraph 1 of Article 51-2 (hereinafter referred to as "Radioactive Waste Management/Disposal Business Operator") wishes to alter any matter described in Subparagraph (ii) through Subparagraph (v) of Paragraph 2 of the said article, the operator shall obtain the license of the Minister of METI, as provided by the Government Ordinance.

However this shall not be applied to the alteration related to Sub-paragraph (ii) of the said paragraph where only the name of the place of business is to be changed.

2. When a Radioactive Waste Management/Disposal Business Operator has altered any matter described in Subparagraph (i) or Subparagraph (vi) of Paragraph 2 of Article 51-2, except the case provided in Paragraph 1 of Article 51-11, the operator shall notify the alteration to the Minister of METI within thirty days of the day of the alteration. This shall also be applied to the alteration described in Subparagraph (ii) of the said paragraph where only the name of the place of business has been altered.

3. The provisions of Article 51-3 shall be applied with conditions to the license described in Paragraph 1.
(Safety Verification of Waste Repository Disposal)

Article 51-6. A person who has obtained the license of Waste Repository Disposal business as provided in Paragraph 1 of Article 51-2 (hereinafter referred to as "Waste Repository Business Operator") must obtain the safety verification by the Minister of METI, as provided by the Ordinance of METI, as to the conformity of the waste disposal facility and the conformity of the related safety measures with the technical standards provided by the Ordinance of METI.

2. When the Waste Repository Business Operator wishes to perform Waste Repository Disposal, the operator must obtain the safety verification by the Minister of METI, as provided by the Ordinance of METI, as to the conformity of the nuclear fuel materials or the material contaminated with nuclear fuel materials that is to be disposed of and the conformity of the safety related measures with the technical standards provided by the Ordinance of METI.

3. The Minister of METI shall, as provided by the Ordinance of METI, make the Organization to perform a part of affairs concerning safety verifications described in Paragraph 1.

4. When the Organization performed a part of affairs concerning safety verifications under the provisions of the preceding paragraph, the Organization shall promptly, as provided by the Ordinance of METI, notify the Minister of METI of the results of Safety verification.

(Approval of Design and Construction Methods)

Article 51-7. Any person who has obtained the license of Waste Management business as provided in the provisions of Paragraph 1 of Article 51-2 (hereinafter referred to as "Waste Management Business Operator") shall, as provided by the Ordinance of METI, obtain the approval of the Minister of METI, with respect to design and construction methods of the Waste Management Facility provided by the Government Ordinance (hereinafter referred to in this chapter, as "Specific Waste Management Facility") (excluding the method of welding in the specific disposal facility defined in Paragraph 1 of Article 51-9 in which welding is performed, same in the following paragraph and Paragraph 3 before starting the construction of the specific disposal facility. This shall also be applied to the alteration of the specific disposal facility.

2. When the Waste Management Business Operator wishes to change design and construction methods of the specific disposal facility for which the approval described in the preceding paragraph has been obtained, the operator must obtain the approval of the Minister of METI, as provided by the Ordinance of METI. This shall not be applied to any of the minor alterations provided by the Ordinance of METI.

3. The Minister of METI shall give the approval described in the preceding two paragraphs, if the Minister recognizes that design and construction methods relevant to the application for approval described in the preceding Paragraph 2 satisfies all of the following subparagraphs:

(i) The design and construction method have been given approval as provided in the provisions of Paragraph 1 of Article 51-2 or Paragraph 1 of Article 51-5 or have been notified in accordance with the provisions of Paragraph 2 of the said article; and

(ii) The design and construction methods conform to the technical standards provided by the Ordinance of METI.

(Pre-service Inspection)

Article 51-8 Any Waste Management Business Operator shall not use the Specific Waste Management Facilities until they clears the inspection of the Minister of METI as to the construction work (excluding welding in the Specific Waste Management Facilities described in paragraph 1 of following article in which welding is performed, same in the following paragraph) and the performance of the Specific Waste Management Facilities, as provided by the Ordinance of METI, the same shall be applied to the alteration of specific disposal facilities.

2. The inspection described in the preceding paragraph shall be considered as passed if the Specific Waste Management Facility satisfies all of the following subparagraphs:

(i) The construction has been carried out in accordance with the method approved described in the previous article; and

(ii) The performance is in conformity with the technical standards provided by the Ordinance of METI.

3. The provisions described in Paragraphs 3 and Paragraph 4 of Article 16-3 shall be applied with necessary modifications to the inspection described in Paragraph 1.

(Method and Inspection of Welding)

Article 51-9. A liquid waste tank for nuclear fuel materials or the materials contaminated with nuclear fuel materials and other Specific Waste Management Facilities provided by the Ordinance of METI in which welding is performed shall be inspected by the Minister of METI as provided by the Ordinance of METI,

and the Waste Management Business Operator may not use the Specific Waste Management Facility until it clears the inspection. However, this shall not be applied to the cases provided in Paragraph 4 and the cases provided by the Ordinance of METI.

2. A person who wishes to receive the inspection described in the above paragraph, the person must obtain the approval of the Minister of METI concerning the method of welding as provided by the Ordinance of METI.

3. The inspection described in Paragraph 1 shall be considered as passed if the welding satisfies all of the following subparagraphs:

(i) Welding has been carried out in accordance with the method approved as provided in the previous paragraph; and

(ii) Welding is in conformity with the technical standards provided by the Ordinance of METI.

4. The Specific Waste Management Facility that has been imported and fabricated by welding as defined in Paragraph 1 shall be inspected by the Minister of METI concerning the weld as provided by the Ordinance of METI, and the disposal business operator shall not use the Specific Waste Management Facility until it clears the inspection.

5. The inspection described in the preceding paragraph shall be considered as passed if the welding is in conformity with the technical standards described in Subparagraph (ii) of Paragraph 3.

(Periodical Inspection of Facilities)

Article 51-10. Any Waste Management Business Operator is subject to periodical inspection, as provided by the Ordinance of METI, carried out by the Minister of METI at intervals which are not less than one year, with respect to the performance of those Specific Waste management Facilities provided by the Government Ordinance.

2. Such inspection as described in the preceding paragraph shall be carried out to determine whether or not the performance of the Specific Waste Management Facilities is in conformity with the technical standards as provided by the Ordinance of METI.

3. The provisions described in Paragraphs 3 and Paragraph 4 of Article 16-5 shall be applied with necessary modifications to the inspection described in Paragraph 1.

(Notification of the Commencement of Business, etc.)

Article 51-11. Any Radioactive Waste Management /Disposal Business Operator who are starting, suspending, or resuming his business must notify it to the Minister of METI within 15 days from the date thereof.

(Merger)

Article 51-12. In the case of the merger of juridical persons as a Radioactive Waste Management /Disposal Business Operator (excluding the case where a juridical person who is a Radioactive Waste Management /Disposal Business Operator is merged with a juridical person who is not a Radioactive Waste Management /Disposal Business Operator, with the former continuing to exist), the juridical person who continues to exist after the merger or the juridical person who comes into existence in consequence of the merger shall succeed to the status of the Radioactive Waste Management /Disposal Business Operator when he obtains the approval of the Minister of METI as to the merger.

2. The provisions of subparagraphs from (i) to (ii) of Paragraph 1 of Article 51-3, Paragraph 2 of the said article, and those of Article 51-4 shall be applied with necessary modifications to such approval described in the preceding paragraph.

(Inheritance)

Article 51-13. In the case of an inheritance with regard to a Radioactive Waste Management /Disposal Business Operator, the inheritance shall succeed to the status of the Radioactive Waste Management /Disposal Business Operator.

2. An inheritance of the status of Radioactive Waste Management /Disposal Business Operator as provided in the provisions of the preceding paragraph must give notification to the Minister of METI, along with a paper certifying the fact, within 30 days from the date of succession.

(Cancellation of the License etc.)

Article 51-14. When a Radioactive Waste Management /Disposal Business Operator does not start his business, without a justifiable reason, within the period provided by the Ordinance of METI, or continues to suspend the business for more than one year, the Minister of METI may cancel the license described in Paragraph 1 of Article 51-2.

2. When a Radioactive Waste Management /Disposal Business Operator comes under one of the following subparagraphs, the Minister of METI may cancel the license described in Paragraph 1 of Article 51-2, or may order suspension of the operator's business for the period of not more than one year:

(i) When the operator has come under one of the subparagraphs from (ii) to (iv) of Article 51-4;

(ii) When the operator has carried out the matters without a license for which a license must be obtained as provided in the provisions of Paragraph 1 of Article 51-5;

(iii) When the operator has violated the provisions of Article 51-6;

(iv) When the operator has violated the order provided in the provisions of Article 51-17;

(v) When the operator has violated the provisions of Paragraph 1, Paragraph 2 or Paragraph 5 of Article

51-18 or when he has violated the order provided in the provisions of Paragraph 4 of the said article;
(vi) When the operator has violated the order provided in the provisions of Article 51-22;
(vii) When the operator has violated the provisions of Paragraph 1 of Article 51-23;
(viii) When the operator has violated the order based on the provisions of Paragraph 3 of Article 12-2 as applied with necessary modifications provided in Paragraph 2 of Article 51-23;
(ix) When the operator has violated the provisions of Paragraph 4 of Article 12-2 as applied with necessary modification to provisions in Paragraph 2 of Article 51-23;
(x) When the operator has violated the provisions of Paragraph 1 of Article 51-24;
(xi) When the operator has violated the order provided in the provisions of Article 12-5 as applied with necessary modifications to Paragraph 2 of Article 51-24;
(xii) When the operator has violated the provisions of Paragraph 2 of Article 58-2, or when the operator has violated the order provided in the provisions of Paragraph 3 of the said article;
(xiii) When the operator has violated the provisions of Paragraph 2 of Article 59-2, or when the operator has violated the order provided in the provisions of Paragraph 4 of the said article;
(xiv) When the operator has violated the provisions of Paragraph 2 of Article 59-3;
(xv) When the operator has violated the provisions of Paragraph 1 or Paragraph 4 of Article 61-8, or when the operator has violated the order provided in the provisions of Paragraph 3 of the said article;
(xvi) When the operator has violated the conditions of Paragraph 1 or Paragraph 2 of Article 62;
(xvii) When the operator has violated the provisions of Article 6 of the Nuclear Liability Law; or
(xviii) When the operator has violated the order provided in Paragraph 4 of Article 7, Paragraph 5 of Article 8, Paragraph 7 of Article 9 or Paragraph 6 of Article 11 of the Special Law of Emergency Preparedness for Nuclear disaster.

(Records)

Article 51-15. Any Radioactive Waste Management /Disposal Business Operator shall, as provided by the Ordinance of METI, record the items provided by the Ordinance of METI concerning the operation of Waste Repository Disposal or Waste Management Business and keep this record at the place of business.

(Measures for Safety Preservation and the Protection of Specific Nuclear Fuel Materials)

Article 51-16. Any Waste Repository Business Operator shall, as provided by the Ordinance of METI, take necessary measures for safety preservation concerning the following subparagraphs, according to the decay of radioactivity of nuclear fuel materials or materials contaminated with nuclear fuel materials:

(i) Maintenance of Waste Disposal Facilities; and

(ii) Transport or disposal of nuclear fuel materials or materials contaminated with nuclear fuel materials (limited to the transport or disposal in the place of business where the Waste Disposal facility is located).

2. Any Waste Management Business Operator shall, as provided by the Ordinance of METI, take necessary safety measures concerning the following subparagraphs:

(i) Maintenance of Waste Management Facilities;

(ii) Operation of waste management equipments; and

(iii) Transport or waste management of nuclear fuel materials or materials contaminated with nuclear fuel materials (limited to the transport or waste management in the place of business where the Waste Management Facility is located).

3. Any Waste Management Business Operator who handles specific nuclear fuel materials at the place of business equipped with Waste Management Facilities shall, if provided by the Government Ordinance, take protection measures as provided by the Ordinance of METI.

(Suspension of Use of Facilities etc.)

Article 51-17. When the Minister of METI deems that the performance of Waste Management Facilities is not in conformity with the technical standards described in Paragraph 2 of Article 51-10, or that measures concerning the maintenance of Waste Disposal Facilities or Waste Management Facilities, and concerning the operation of Waste Management Equipments, or for the transport or Waste Management (limited to the transport or Waste Management in the place of business where the Waste Disposal facility or Waste Management Facility is located) of nuclear fuel materials or the materials contaminated with nuclear fuel materials are in violation of the provisions of the Ordinance of METI based on the provisions of Paragraph 1 or Paragraph 2 of the preceding article, the Minister may order the Radioactive Waste Management /Disposal Business Operator to suspend use, remodel, repair or move the Waste Disposal Facilities or the Waste Management Facilities, to specify methods for the operation of the Waste Management Equipments, or to take other measures necessary for safety preservation.

2. When the Minister of METI deems that the protection measures are in violation of the provisions of the Ordinance of METI based on Paragraph 3 of the preceding article, he may order the Waste Management Business Operator to take corrective measures etc.

(Safety Preservation Rules)

Article 51-18. Any Waste Repository Business Operator shall, as provided by the Ordinance of METI, establish safety preservation rules (including the provisions to the safety preservation education for the handling of nuclear fuel materials, the same applies in this article) defining the measures that should be taken for the safety preservation of Waste Repository Disposal corresponding to the decay of radioactivity

and obtain the approval of the Minister of METI before starting business. This shall also be applied to the alteration of it.

2. Any Waste Management Business Operator must, as provided by the Ordinance of METI, establish safety preservation rules and obtain the approval of the Minister of METI before starting business. This shall also be applied to the alteration of it.

3. The Minister of METI shall not give the approval described in the preceding two paragraphs, when he deems that the safety preservation rules is not satisfactory in preventing fully the hazards due to nuclear fuel materials or the materials contaminated with nuclear fuel materials.

4. When the Minister of METI deems it necessary for the sake of the prevention of hazards due to nuclear fuel materials or materials contaminated with nuclear fuel materials, the Minister may order the Radioactive Waste Management/Disposal Business Operator to alter the safety preservation rules.

5. The Radioactive Waste Management/Disposal Business Operator and its employees shall observe the safety preservation rules.

6. Any Radioactive Waste Management/Disposal Business Operator shall be inspected regularly by the Minister of METI as provided by the Ordinance of METI of the conformity with the requirements of the preceding paragraph.

7. The provisions of Paragraph 2 through 8 of Article 12 shall be applied with necessary modifications to the inspection described in the preceding paragraph.

(Transfer of the Waste Disposal Facility)

Article 51-19. Any person who wishes to receive the waste disposal facility or the whole facilities including the waste disposal facility from a Waste Repository Business Operator shall obtain the license of the Minister of METI, as provided by the Government Ordinance.

2. The provisions of Article 51-3 and Article 51-4 shall be applied with necessary modifications to the licensing provided in the preceding paragraph.

3. A person who, with the license provided in Paragraph 1, has received the waste disposal facility or the whole facilities including the waste disposal facility from a waste repository business operator shall succeed to the status of the waste repository business operator with respect to the relevant the waste disposal facility.

(Chief Engineer of Radioactive Wastes)

Article 51-20. Any Radioactive Waste Management/Disposal Business Operator shall, as provided by the Ordinance of METI, appoint the Chief Engineer of Radioactive Wastes who supervises the maintenance of safety preservation concerning the handling of nuclear fuel materials or materials contaminated with nuclear fuel materials, and this person must have a certificate of the Chief Engineer of Nuclear Fuel Materials provided in Paragraph 1 of Article 22-3 or otherwise be qualified in accordance with the Ordinance of METI,

2. When any Radioactive Waste Management/Disposal Business Operator has appointed the Chief Engineer of Radioactive Wastes in accordance with the provisions of the preceding paragraph, the Operator shall notify the appointment to the Minister of METI within thirty days from the day of the appointment. This shall also be applied to the dismissal of him.

(Duties of the Chief Engineer of Radioactive Wastes)

Article 51-21. The Chief Engineer of Radioactive Wastes shall be faithful in the discharge of his duties related to the handling of nuclear fuel materials or materials contaminated with nuclear fuel materials in the business of Waste Repository Disposal or Waste Management.

2. Any person who is engaged in the handling of nuclear fuel materials or materials contaminated with nuclear fuel materials in the business of Waste Repository Disposal or Waste Management shall obey the instructions for the safety preservation given by the Chief Engineer of Radioactive Wastes.

(Order to Dismiss the Chief Engineer of Radioactive Wastes)

Article 51-22. When the Chief Engineer of Radioactive Wastes has violated the provisions of this Law or the order based on this Law, the Minister of METI may order the Radioactive Waste Management/Disposal Business Operator to dismiss him.

(Safety Verification of Waste Management)

Article 58-2

User, milling business operator, nuclear fuel fabricator, reactor establisher, spent fuel storage business operator, reprocessing business operator, and Radioactive Waste Management/Disposal Business Operator (hereafter called as users etc.) must take appropriate steps to preserve safety when users etc. try to process/store/dispose nuclear fuel materials or materials that are contaminated with nuclear fuel materials at outside of usage facility, milling facility, nuclear fuel fabrication facility, reactor facility, spent fuel storage facility, reprocessing facility, Waste Management Facility and Waste Disposal facility as provided by governmental ordinance.

2. In the case corresponding to the previous paragraph, and when it corresponds to the case that prevention of hazards due to nuclear fuel materials or materials contaminated with nuclear fuel materials are necessary as provided in governmental ordinance, users etc. needs confirmation by competent minister of the steps concerning the Waste Management and Waste Repository Disposal are in conformance to the provisions in

governmental ordinance that is applied to the previous paragraph.

2. In the case corresponding to the first paragraph, competent minister may order the suspension of process/store/disposal or other steps that is necessary to the preservation of safety when the minister recognize that the steps by users etc. for the process/store/disposal of nuclear fuel materials or materials contaminated with nuclear fuel materials are in violation to the provisions in governmental ordinance that are applied to the first paragraph.

(Restriction of Sea Disposal(Dumping))

Article 61-2-2 Sea disposal(dumping) of nuclear fuel materials or materials contaminated with nuclear fuel materials are forbidden unless situation corresponds to either one of paragraphs below.

- 1) User, milling business operator, nuclear fuel fabricator, reactor establisher, spent fuel storage business operator, reprocessing business operator, and radioactive disposal business operator has safety verification of the steps concerning the disposal in conformance to the provisions in Article 58-2 paragraph2.
 - 2) Those operators have confirmation of the steps concerning the disposal in conformance to the provisions in Article 58-2 paragraph2 as provided in the subsequent 2 paragraphs.
 - 3) In unavoidable circumstance like lifesaving, or securing the safety of ship, airplane, or artificial marine structure
2. The provision of Article 58-2 applies to the milling business operator who wishes to make sea disposal(dumping) of nuclear fuel materials or materials contaminated with nuclear fuel materials.
3. The provision of Article 58-2 applies to the Radioactive Waste Management/Disposal Business Operator who wishes to make sea disposal(dumping) of nuclear fuel materials or materials contaminated with nuclear fuel materials.
6. Sea disposal(dumping) in this Article means the disposal to sea or incineration of materials from/at ship, airplane and artificial marine structure and it doesn't include the disposal to sea of the materials that are generated by the operation of ship, airplane and artificial marine structure, and it doesn't include incineration of the materials that are generated by the disposal operation of ship, airplane and artificial marine structure

Chapter 6-3. Welding Inspection etc. Performed by the Organization

(Welding Inspection Performed by the Organization)

Article 61-24. The Minister of METI shall make the Organization to perform the inspection described in Paragraph 1 and Paragraphs 4 of Article 16-4, Paragraph 1 and Paragraphs 4 of Article 28-2 (limited to the portion related to commercial power reactors and reactors described in Subparagraph (iv) of Paragraph 1 of Article 23 and the associated facilities), Paragraph 1 and Paragraphs 4 of Article 43-10, Paragraph 1 and Paragraphs 4 of Article 46-2 and Paragraph 1 and Paragraphs 4 of Article 51-9.

2. The Minister of MEXT may, as provided by the Ministerial Order of MEXT, make the Organization to perform the inspection described in Paragraph 1 or Paragraph 4 of Article 28-2 (limited to the portion related to reactors described in Subparagraphs 3 and 5 of Paragraph 1 of Article 23 and the associated facilities) or Paragraph 1 of Article 55-3.

(Safety Verification of Waste Management Performed by the Organization)

Article 61-25. The Minister of METI shall make the Organization to perform Safety Verifications described in the followings:

- (i) Safety Verification s of Paragraph 2 of Article 51-6 and Paragraph 2 of Article 58-2 (limited to the portion related to persons described in Subparagraph (ii) and Subparagraph (iii) of Paragraph 1 of the said Article (limited to the portion related to commercial power reactors and reactors described in Subparagraph (iv) of Paragraph 1 of Article 23));
- (ii) Safety Verifications of Paragraph 2 of Article 58-2 applied with necessary modifications to Paragraph 2 and Paragraph 3 of Article 61-2-2; and
- (iii) Safety verifications of Paragraph 2 of Article 58-2 applied with necessary modifications to Paragraph 2 of Article 66 (limited to those relevant to items concerning refining business operators, fabrication business operators, spent fuel storage business operators, reprocessing business operators, radioisotope disposal business operators or reactor establishers (limited to persons concerning commercial power reactors or reactors described in Subparagraph (iv) of Paragraph 1 of Article 23)).

2. The Minister of MEXT may, as provided by the Ministerial Order of MEXT, make the Organization to perform safety verifications described in the followings:

- (i) Safety verifications of Paragraph 2 of Article 58-2 (limited to those concerning persons described in Subparagraph (i) and Subparagraph (iii) of Paragraph 1 of the said article (limited to the portion related to reactors described in Subparagraph (iii) and Subparagraph (v) of Paragraph 1 of Article 23);
- (ii) Safety verifications of Paragraph 2 of Article 58-2 applied with necessary modifications to Paragraph 4 and Paragraph 5 of Article 61-2-2; and
- (iii) Safety verifications of Paragraph 2 of Article 58-2 applied with necessary modifications to Paragraph 2 of Article 66 (limited to those relevant to items concerning users, users of internationally regulated

substances and reactor establishers (limited to persons concerning reactors described in Subparagraph (iii) and Subparagraph (v) of Paragraph 1 of Article 23)).

(Conditions of Designation or Licensing)

Article 62. Except as established in the following paragraphs, the conditions may be attached to the authorization or the license provided by this Law.

2. In the licensing of paragraph 1 of Article 23, necessary condition to observe international commitment in relation to the limitation of utilization and transfer of international restricted material may be attached.

3. The conditions of the preceding two paragraphs shall be confined to the minimum necessary to ensure the enforcement of the items concerning the authorization or the license, and shall not be such that they may obligate unreasonably the persons who wish to obtain the authorization or license.

(Emergency Measures)

Article 64. With respect to the nuclear fuel material, the material contaminated with nuclear fuel material or the reactor which is possessed by a reactor establisher, a business operator, etc., (hereinafter referred to as "business operators" in this Article), and any person who has been entrusted with transportation or storage by those persons, when there is a possibility of accident by nuclear fuel material, material contaminated with nuclear fuel material or a reactor through earthquake, fire or any other disaster, or when such accident has actually occurred, they shall take the emergency measures at once, as provided by the order of the competent ministry.

2. Any person who has discovered the situation provided for in the preceding paragraph shall inform it to a police officer or a maritime security officer.

3. When the minister of MEXT, minister of METI or minister of MLT considers it urgently necessary for the purpose of preventing hazards due to nuclear fuel material, the material contaminated with nuclear fuel material or reactors, in the case stated in Paragraph 1, he may order such persons as mentioned in the said paragraph, in accordance with the division of business operators mentioned in the following items, to suspend the use of reactor facilities; to change the place where nuclear fuel material or the material contaminated with nuclear fuel material is located; or to take other measures necessary to prevent hazards from nuclear fuel material, the material contaminated with nuclear fuel material or reactors.

(i) The person who has been entrusted with transportation or storage by a radioisotope disposal business operator or those: the Minister of METI.

(iii) Reactor establishers and the person who is entrusted to transportation: the minister established in the item corresponding to the division of the reactor according to the item no. of paragraph 1 of Article 23.

(Notification of Termination of Business)

Article 65. When a radioisotope disposal business operator discontinue his business and when a reactor establisher discontinue operation of reactors relevant to the concerned license, the radioisotope disposal business operator shall notify the discontinuance to the competent minister as provided in the Ordinance of the competent ministry.

(Cancellation of the Authorization or the License, Measures Taken in Consequence of the Termination of Business, Etc.)

Article 66. A reactor establisher or radioactive disposal business operator whose authorization has been cancelled, in accordance with the provisions of Article 33 shall, as provided by the order of the competent ministry, take measures to transfer nuclear fuel material to eliminate contamination with nuclear fuel material or to dispose of nuclear fuel material or the material contaminated with nuclear fuel material, or to transfer internationally regulated substances (except nuclear fuel material).

4. When the competent minister recognizes that the measures taken by the persons defined in Paragraph 1 of Article 4 shall not be appropriate, he may order the persons defined in said paragraph to take the following measures.

(i) Measures necessary for the prevention of hazards due to nuclear fuel material, the material contaminated with nuclear fuel material or reactors.

(Rule for Affairs)

Article 66-2. The Organization shall define rules for implementation of affairs (hereinafter referred to as "rules of affairs") of inspection etc. (which means inspections and verifications, as well as a part of affairs concerning inspections and verifications, described in the following subparagraphs, the same shall be applied hereinafter.) before starting business concerning affairs of inspection etc., and shall notify this to the minister as provided in the subparagraph concerned (hereinafter referred to as "the competent minister" in this Article and Article 68-2). The same shall be applied when the Organization intends to modify them.

(i) A part of affairs concerning inspections provided in Paragraph 3 of Article 16-3 (including the case where the said paragraph is applied with necessary modifications to Paragraph 3 of Article 28, Paragraph 3 of Article 43-9, Paragraph 3 of Article 46 and Paragraph 3 of Article 51-8) and Paragraph 3 of Article 16-5 (including the case where the said paragraph is applied with necessary modifications to Paragraph 3 of Article 29, Paragraph 3 of Article 43-11, Paragraph 3 of Article 46-2-2 and Paragraph 3 of Article 51-10);

The Minister of METI

- (ii) Inspections provided in Paragraph 1 of Article 61-24; The Minister of METI
 (iii) Inspections provided in Paragraph 2 of Article 61-24; The Minister of MEXT
 (iv) A part of affairs concerning verifications provided in Paragraph 3 of Article 51-6; The Minister of METI
 (v) Verifications provided in subparagraphs of Paragraph 1 of Article 61-25; The Minister of METI
 (vi) Verifications provided in subparagraphs of Paragraph 2 of Article 61-25; The Minister of MEXT
 (vii) Verifications provided in subparagraphs of Paragraph 1 of Article 61-26; The Minister of METI
 (viii) Verifications provided in subparagraphs of Paragraph 2 of Article 61-26; The Minister of MEXT
 (ix) Verifications of Article 61-27; The Minister of MLIT
2. The competent minister may order to modify the rules of affairs concerning notification provided in the preceding paragraph where the minister deems the said rules of affairs is not in conformity to perform the affairs of inspection etc. appropriately and assuredly.
3. Items to be defined in the rules of affairs shall be provided by the order of competent ministry (which means the order by the competent minister, the same shall be applied to the following article).
 (Persons to Perform the Affairs of Inspection etc.)
- Article 66-3.** When the Organization performs the affairs of inspection etc., the Organization shall make the qualified person provided by the order of competent ministry to perform the said affairs
 (Allegation to Competent Minister etc.)
- Article 66-4** The employee of any milling business operator, nuclear fuel fabricator, reactor establisher, spent fuel storage business operator, reprocessing business operator, and radioactive disposal business operator may allege the fact of violation when any reactor establisher violates the law or the order based on the law to competent minister or nuclear safety commission.
2. The milling business operator, nuclear fuel fabricator, reactor establisher, spent fuel storage business operator, reprocessing business operator, and radioactive disposal business operator shall not dismiss or act against him for his allegation.
 (Collection of Reports)
- Article 67.** The minister of MEXT, minister of METI, minister of MLT or prefectural public safety commissions may request milling business operator, nuclear fuel fabricator, reactor establisher, spent fuel storage business operator, reprocessing business operator, and radioactive disposal business operator, as far as necessary for the enforcement of this Law, to produce reports on his operations, as provided by the government ordinance, in accordance with the division of business operators listed in the items of Paragraph 3 of Article 64.
2. Other than the request of the report as provided in the previous paragraph, the minister of MEXT, minister of METI, minister of MLT may request milling business operator, nuclear fuel fabricator, reactor establisher, spent fuel storage business operator, reprocessing business operator, and radioactive disposal business operator, as far as necessary for the enforcement of this Law, to produce reports on his maintenance and inspection activity done to his facility, as recognized as necessary to prevent the hazards due to reactor, nuclear fuel material and material contaminated with nuclear fuel.
3. The Minister of MEXT, the Minister of METI or the Minister of MLIT may, as far as necessary for the enforcement of this Law, make the Organization to submit reports concerning their business in accordance with divisions of affairs of inspection etc. described in subparagraphs of Paragraph 1 of Article 66-2.
 (Nuclear facility inspector and Nuclear safety inspector)
- Article 67-2.** Nuclear Facility Inspectors and Nuclear Safety Inspectors are assigned in the MEXT and the METI.
2. Nuclear Facility Inspectors assigned in the MEXT shall engage in the affairs concerning inspection provided in Article 28 through Article 29, and Nuclear Facility Inspectors assigned in the METI shall engage in the affairs concerning inspection provided in Article 28 through Article 29 or Article 51-8 through Article 51-10.
3. Nuclear Safety Inspectors assigned in the MEXT shall engage in the affairs concerning inspection provided in Paragraph 5 of Articles 37, and Nuclear Safety Inspectors assigned in the METI shall engage in the affairs concerning inspection provided in Paragraph 5 of Articles 37 or Paragraph 6 of Articles 51-18.
4. The necessary matters concerning the number and qualification of Nuclear Facility Inspectors and Nuclear Safety Inspectors shall be defined by the Government Ordinance..
 (Entry and Inspection, Etc.)
- Article 68.** The minister of MEXT, minister of METI, minister of MLT or prefectural public safety commissions may cause their officials, as far as necessary for the enforcement of this Law (for the enforcement of this Law according to the division of business operators listed in the items of Paragraph 3 of Article 64, to enter the offices, factories or places of business so as to examine their books, documents and other necessary matters, ask questions of persons concerned, and take samples

of nuclear source material, nuclear fuel material and other necessary materials in the minimum of amount required for test.

2. The minister of MEXT, minister of METI or minister of MLT may cause their officials, as far as necessary for the enforcement of this law (for the enforcement of the provisions of Paragraph 1 of Article 28-2 related to commercial power reactors and their related facilities : the Minister of Economy, Trade and Industry), to enter the offices factories, or the places of business of the persons who conduct welding of the facilities specified in Paragraph 1 of Article 28-2 so as to examine their books, documents and other necessary matters and ask questions of persons concerned.

5. Competent minister may cause their officials, as far as necessary for the enforcement of this Law (for the enforcement of this Law according to the division of business operators listed in the items of Paragraph 3 of Article 64, to enter the offices, factories or places of business so as to examine their books, documents and other necessary matters, ask questions of persons concerned.

6. The authority provided for in the provisions from Paragraph 1 through Paragraph 4 shall not be construed as having been granted for the purpose of criminal investigation.

7. Competent minister may cause the Organization officials, as far as necessary for the enforcement of this Law (for the enforcement of this Law according to the division of business operators listed in the items of Paragraph 1 of Article 66-2, to enter the offices, factories or places of business so as to examine their books, documents and other necessary matters, ask questions of persons concerned and take samples.

8. Competent minister may instruct the Organization of place of entry inspection and items when he entrust the entry inspection to the.

9. The Organization shall report the inspection result to competent minister when the Organization implemented the inspection provided in paragraph 7 in accordance with the instruction

10. When officials of the Organization make entrance in accordance with the provisions of the preceding three paragraphs, they shall carry their identification cards with them and show them when requested by persons concerned.

11. The authority as provided in Paragraph 1 through Paragraph 5 shall not be considered as having been granted for the purpose of criminal investigation.

(Order to the Organization)

Article 68-2. Competent minister may order the work to the Organization, when he recognize it is necessary to implement the work concerning the inspection and the work provided in paragraph 7 of previous Article appropriately.

(Statement of Dissatisfaction, etc.)

Article 70. Persons, who are dissatisfied with disposition concerning business of inspection for safeguards implemented by the designated organization for implementation of the safeguard inspection etc. in accordance with the provisions of this Law, or disposition or inaction concerning business of inspections or safety verifications performed by the Organization, may request for reconsideration based on the Law of Administrative Tribunals (Law No. 160, 1962) to the Minister of MEXT for disposition made by the designated organization for implementation of the safeguard inspection etc. or to the minister as provided in the following subparagraphs in accordance with the divisions of inspections or verifications provided in subparagraphs concerned:

(i) Inspections provided in Paragraph 1 of Article 61-24;

(ii) Inspections provided in Paragraph 2 of Article 61-24;

(iii) Verifications provided in subparagraphs of Paragraph 1 of Article 61-25;

(iv) Verifications provided in subparagraphs of Paragraph 2 of Article 61-25;

(v) Verifications provided in subparagraphs of Paragraph 1 of Article 61-26;

(vi) Verifications provided in subparagraphs of Paragraph 2 of Article 61-26;

(vii) Verifications of Article 61-27;

2 and 3. (Omitted)

(Report to Nuclear Safety Commission)

Article 72-3. The competent minister shall report to Nuclear Safety Commission quarterly of the licensing and inspection activity done concerning to the items shown in the following, in previous quarter, if necessary he may ask the opinion of NSC, he will take necessary measures to prevent hazard due to reactor, nuclear fuel material and material contaminated with nuclear fuel material.

1) safety preservation rule and its alteration

2) Approval of Design and Construction Methods

3) Inspection prior to usage

4) Method of welding and inspection

5) Periodical facility inspection

(Co-operation to the investigation by Nuclear Safety Commission)

Article 72-4 Milling business operator, nuclear fuel fabricator, reactor establisher, spent fuel storage business operator, reprocessing business operator, and radioactive disposal business operator must cooperate Nuclear Safety Commission, when it conducts investigation concerning

The Minister of METI

Minister of MEXT

The Minister of METI

Minister of MEXT

The Minister of METI

Minister of MEXT

Minister of MLIT

items relating the report which is filed in accordance with provisions of paragraph 1 and 2 of previous Article.

(Exception from application)

Article 73. The provisions of Article 27,28 and 29 shall not apply to the commercial power reactors which are the reactor facilities which are to be inspected by the provisions of the Electricity Utilities Industry Law (Law No.170,1964) and the order based on that Law.

(The special provisions concerning management of affairs)

Article 74-2. The Inspection concerning the safeguard shall be submitted to the officer of METI in accordance with the provision of Ordinance.

2. The affairs that can be managed by the officer of MEXT in accordance with the provision of Paragraphs 1, 4, 10 and 11 of Article 68, may be managed by the officer of METI in accordance with the provision of Ordinance.

3. The requirement of paragraph 5 and 6 of Article 68 shall apply mutatis mutandis to such on-the-spot inspection as prescribed in the preceding paragraph.

Chapter 8 Penal Provisions

See the text of the National Report for Second review Meeting Annex page A.3.13-14

(2) The Rules for Waste Repository Business for Nuclear Materials or Materials Contaminated with Nuclear Materials (Excerpt)

(Ordinance No. 1 of the Prime Minister's Office, January 13, 1988)

(Latest Revision: Ordinance No. 21 of the METI, March 17, 2003)

(Definition)

Article 1. The meaning of the terms used in this ministerial order are after that of the terms used in the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (hereinafter referred to as "the Law")

2. In this ministerial order, the meaning of terms falling under any of the following subparagraphs shall be as defined in the following respective subparagraphs concerned:

(i) "Radiation" means the radiation specified in Paragraph 5 of Article 3 of the Atomic Energy Basic Law or electron beams or X-rays of energy less than one mega electron volt (eV) other than the natural radiation;

(ii) "Radioactive Waste" means nuclear fuel materials or materials contaminated with nuclear fuel materials (hereinafter referred to as "nuclear fuel materials etc." which is in the line of disposal;

(iii) "Controlled Areas" means the place installed with waste disposal facilities where there is a possibility of hazard that the dose equivalent due to external radiation may exceed the limit provided by the Minister of METI, that the concentration of radioactive materials in the atmosphere (excluding radioactive materials contained in the natural air or water, the same, hereinafter) may exceed the level of concentrations provided by the Minister of METI, or that the density of radioactive materials on the surface of materials contaminated with radioactive materials may exceed the level of density provided by the Minister of METI;

(iv) "Peripheral Monitoring Area" means the disposal facility and the peripheral area (excluding the controlled area), and the outside of which there is no possibility of the dose equivalent at any location exceeding the limit of the dose equivalent provided by the Minister of METI;

(v) "Repository Preservation Area" means a place which needs management especially for maintenance of a waste disposal facility other than the controlled area; and

(vi) "Personnel Engaged in Radiation Work" means personnel engaged in the preservation of waste disposal facilities, transfer or m of nuclear fuel material etc. in controlled areas,

(License Application for Waste Repository Business)

Article 2. Pursuant to Paragraph 2 of Article 51-2 of the Law, the application for the license shall be described in accordance with the following subparagraphs:

(i) For the characteristic and quantity of the nuclear fuel materials etc. defined in Subparagraph (iii) of Paragraph 2 of Article 51-2 of the Law, the maximum radioactivity concentration and the total amount of radioactivity shall be described for each type and quantity of radioactive wastes, and for each type of radioactive materials contained in the radioactive waste concerned for waste repository disposal;

(ii) The location, structure and equipment of a waste disposal facility defined in Subparagraph (iv) of Paragraph 2 of Article 51-2 of the Law shall be described under the following divisions:

1. Location of the waste disposal facility;
 2. General structure of the waste disposal facility;
 3. Structure of buildings;
 4. Structure and equipment of the waste disposal facility;
 5. Structure and equipment of the receiving facility for radioactive wastes;
 6. Equipment of the radiation control facility; and
 7. Structure and equipment of other associated facility of the waste disposal facility:
- (1) Discharge facility of gaseous waste;

- (2) Discharge facility of liquid waste;
 - (3) Waste management facility of solid waste; and
 - (4) Other main items.
- (iii) The disposal method defined in Subparagraph (iv) of Paragraph 2 of Article 51-2 of the Law shall be described in accordance with the following divisions:
- A. Outline of waste repository disposal method; and
 - B. Process flow sheet indicating waste repository disposal procedures.
- (iv) For the planned timing of the alterations described in Subparagraph (v) of Paragraph 2 of Article 51-2 of the Law, each timing shall be made for alterations or discontinuance of the peripheral monitoring area established according to the decay of radioactivity and measures to be taken provided in Article 17 respectively shall be described; and
- (v) For the construction plan described in Subparagraph (vi) of Paragraph 2 of Article 51-2 of the Law, the construction sequence and schedule of the waste disposal facility shall be described.
2. Business plans and other documents to be attached to the application described in the preceding paragraph and as provided by the Ordinance of METI, provided in Paragraph 2 of Article 13-8 of the Ordinance for the Enforcement of the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (hereinafter referred to as "the Ordinance") shall be as described in the following subparagraphs:
- (i) Business plans describing the following items:
- A. Planned starting date of the waste repository business;
 - B. Receiving plans and planned waste repository disposal quantities of radioactive wastes by business years after the year including the starting date of the waste repository business;
 - C. Financial plans and estimated balance of the business; and
 - D. Other items that explain clearly the soundness of financial position enough for the waste repository business.
- (ii) The expository documents related to the technical capability for the waste repository disposal describing the following items:
- A. The summary of waste repository disposal methods based on patent rights and other rights of technologies or special technologies, or other corresponding equivalents;
 - B. The personal history of main engineers; and
 - C. Other items related to the technical capability for the waste repository disposal.
- (iii) Expository documents on the meteorological, ground, hydraulic, seismic, social environment and other conditions of the location where the waste disposal facility is to be installed;
- (iv) A 1:50,000 map for the area covering the distance of 5 km from the center of the location where the waste disposal facility is to be installed;
- (v) Expository documents related to the safety design of the waste disposal facility (including layout drawings of main equipment);
- (vi) Expository documents related to the management of the radiation exposure to be caused by nuclear fuel materials, and to the disposal of the radioactive waste;
- (vii) Expository documents related to the types, levels, impacts, etc. of waste disposal facility accidents to be assumed to occur in the event of operational error of the waste disposal facility, of the failure of the machinery or devices, or by the flood, earthquake, fire, etc.;
- (viii) When the business is carried on actually, expository documents on the outline of the business; and
- (ix) In the case of a juridical person, the articles of association or the endowment, names and the personal history of the directors of the board, the abridged copies of the register and the recent inventory, balance sheet and profit and loss statement.

3. The number of submission of the application described in Paragraph 1 shall be one original and two duplicates.

(License Application for Alterations)

Article 3. The license application for alterations provided in Paragraph 2 of Article 13-11 of the Ordinance, shall be described in accordance with the following subparagraphs:

- (i) For the matters of alteration defined in Subparagraph (iii) of Article 13-11 of the Ordinance, in the case of alteration of the characteristic and quantity of the nuclear fuel materials etc. described in Subparagraph (iii) of Paragraph 2 of Article 51-2 of the Law, the type and quantity of radioactive wastes for waste repository disposal and the maximum radioactivity concentration and the total amount of radioactivity for each type of radioactive materials contained in the radioactive waste to be disposed of in the waste disposal facility, in the case of alteration of the location, structure and equipment of the waste disposal facility defined in Subparagraph (iv) of Paragraph 2 of Article 51-2 of the Ordinance, the date of alterations shall be described according to divisions as indicated in the Subparagraph (ii) of Paragraph 1 of the Law, in the case of alteration of the method of disposal defined in Subparagraph (iv) of Paragraph 2 of Article 51-2 of the Law, it shall be described according to divisions as indicated in the Subparagraph (iii) of Paragraph 1 of the preceding article, and in the case of alteration of the planned timing of the alterations defined in Subparagraph (v) of Paragraph 2 of Article 51-2 of the Law, each timing of alterations or discontinuance of

the peripheral monitoring area established according to the decay of radioactivity or measures to be taken provided in Article 17; or

(ii) For the construction plan defined in Subparagraph (v) of Article 13-11 of the Ordinance, the construction sequence and schedule shall be described.

2. The application in the preceding paragraph must append the documents described in the following subparagraphs:

(i) Business plans describing the following items:

- A. The planned timing of the alteration (in the case of alternation to matters listed in Subparagraph (iv) of Paragraph 2 of Article 51-2 of the Law and when suspend the waste repository business, the planned starting timing of the waste repository business using the waste disposal facility of the alternation concerned);
- B. Receiving plans and planned waste repository disposal quantities of radioactive wastes by business years after the year including the date of the alternation (in the case of alternation to matters listed in Subparagraph (iv) of Paragraph 2 of Article 51-2 of the Law and when suspend the waste repository business, the starting date of the waste repository business using the waste disposal facility of the alternation concerned);
- C. Financial plans and estimated balance of the business after the alternation; and
- D. Other items that explain clearly the soundness of financial position enough for the waste repository business.

(ii) The expository documents related to the technical capability for the waste repository disposal concerned to the alternation describing the following items:

- A. Patent rights and other rights of technologies, or waste repository disposal methods based on special technologies, or summary corresponding to those concerned to the alternation;
- B. Personal histories of main engineers concerned to the alternation; and
- C. Other items related to the technical capability for the waste repository disposal after the alternation.

(iii) Expository documents concerning the condition of the meteorological, ground, hydraulic, seismic, social environmental and other conditions of the location of the waste disposal facility concerned to the alternation;

(iv) A 1:50,000 map for the area covering the distance of 5 km from the center of the location where the waste disposal facility concerned to the alternation is to be installed;

(v) Expository documents related to the safety design of the waste disposal facility after the alternation (including layout drawings of main equipments);

(vi) Expository documents related to the management of the radiation exposure to be caused by nuclear fuel materials etc. and to the disposal of the radioactive waste; and

(vii) Expository documents related to the types, levels, impacts, etc. of waste disposal facility accidents to be assumed to occur in the event of operational error of the waste disposal facility, of the failure of the machinery or devices, or by the flood, earthquake, fire, etc after the alternation.

3. The number of submission of the application described in Paragraph 1 shall be one original and two duplicates.

(Application for Safety Verification of Waste Repository Disposal concerning the Waste Disposal facility etc.)

Article 4. Any person who intends to obtain the safety verification concerning the waste disposal facility, as provided in Paragraph 1 of Article 51-6 of the Law, shall submit an application of in the Form No. 1 as provided separately, with the documents indicated in the following subparagraphs to the Minister of METI:

(i) Design drawings, structure drawings, and design calculation reports of the waste disposal facility concerned, and for the waste disposal facility, documents and drawings to clarify the situation of geographical feature, geology, and underground water in the place of the waste disposal facility concerned;

(ii) Sketch drawings in the vicinity of the waste disposal facility concerned, and

(iii) Construction schedules and for the waste disposal facility, documents indicating the plan of waste repository disposal.

2. The number of submission of the application described in the preceding paragraph shall be one original and two duplicates.

(Implementation of Safety Confirmation of Waste Repository Disposal concerning the Waste Disposal facility etc.)

Article 5. The safety verification of waste repository disposal provided in Paragraph 1 of Article 51-6 of the Law shall be implemented on the indicated items of the following subparagraphs at the time provided in the said subparagraphs:

(i) Items for assembling of the waste disposal facility other than the radiation management facility; when dimensional measurement of main parts of each facility can be performed;

(ii) Items for assembling of the radiation management facility; when the facility is completed; and

(iii) Items other than those items described in the preceding two subparagraphs, when the waste disposal facility is backfilled, and when the Minister of METI recognizes appropriate.

(Technical Standards for Waste Disposal Facilities etc.)

Article 6. Technical standards provided in Paragraph 1 of Article 51-6 of the Law (hereinafter referred to as "technical standards for waste disposal facilities etc."), shall be as described in the following subparagraphs:

- (i) The total amount of the radioactivity for each type of radioactive materials contained in the radioactive waste to be emplaced at the place of business where the waste disposal facility is constructed shall not exceed the total amount of radioactivity for each type of radioactive materials indicated on the application concerning the license as provided in the provisions of Paragraph 1 of Article 51-2 of the Law or Paragraph 1 of Article 51-5 of the Law, and the document which describe the conditions required for the license as provided in the provision of Paragraph 1 of Article 62 of the Law ("referred to as "the application etc.", hereinafter in this article and Article 8);
- (ii) Before starting waste repository disposal, the stagnant water at the places for disposal in the waste disposal facility (when the waste disposal facility is demarcated with internal partition equipment of Subparagraph (iii) of the following article, the demarked area for the waste repository disposal, the same, hereinafter in this subparagraph) shall be removed, and measures shall be taken to prevent the infiltration of rain water etc. into the places concerned;
- (iii) In the case of waste repository disposal of non-solidified concrete etc. described in Subparagraph (iii) of Paragraph 1 of Article 7, measures shall be taken to prevent the scattering of radioactive materials when there is a possibility that the materials may disperse out of the waste disposal facility;
- (iv) The waste disposal facility shall be taken measures by filling up with the soil etc., so that a void does not remain after waste repository disposal is completed in the waste disposal facility concerned;
- (v) Explosive materials, materials that corrode other materials remarkably, and other hazardous substances shall not be disposed of in the waste disposal facility;
- (vi) The waste disposal facility where the disposal is completed, the surface shall be covered with the soil which permeability is not large compared with the surrounding soil of the waste disposal facility concerned, so that the disposed materials and the equipment installed in the waste disposal facility does not expose easily; and
- (vii) Waste disposal facilities shall have the structure and equipment described in the application etc. other than those provided in the preceding subparagraphs.

2. In case where waste repository disposal is carry out by the method of installing an artificial barrier structure based on the description of an application etc., technical standards for the waste disposal facilities etc. shall be as described in the following subparagraphs, in addition to those provided in the preceding paragraphs:

- (i) It shall be constructed following the methods provided by the Minister of METI for the prevention of radiation hazards;
- (ii) The artificial barrier structure shall be in conformity with the following requirements;
 - A. The structure shall be safe from the view point of yield strength against the self weight, earth pressure, seismic force, etc.; and
 - B. The measure shall be taken for the effective corrosion prevention to the quality of the surface water, underground water, and the soil.
- (iii) The waste disposal facility, which area of opening exceeds 50 square meters or which disposal volume exceeds 250 cubic meters, shall be in conformity with the requirements of the preceding article, and for the prevention of radiation hazards, the place shall be demarcated so that one demarcated area shall not exceed about 50 square meters or one demarcated disposal volume exceed about 250 cubic meters by a method applied with the internal partition equipment provided by the Minister of METI;
- (iv) When the waste repository disposal is carried out, the artificial barrier structure and the internal partition equipment described in Subparagraph (iii) shall be inspected at any time, and when there is a possibility of destruction of these equipments or leak of radioactive materials, required measures shall be taken to prevent destruction of these equipments, or leak of radioactive materials; and
- (i) Waste disposal facility where the waste repository disposal is completed, or where the place is demarcated by the internal partition equipment described in Subparagraph (iii), the demarcated area where the disposal is completed, shall be covered by the method provided by the Minister of METI for the prevention of radiation hazards as provided in Subparagraph (vi) of the preceding article, soon before covering with the soil.

3. Technical standards for waste disposal facilities etc., in the case of waste repository disposal of those radioactive wastes described in each subparagraph of Paragraph 1 of the following article (hereinafter referred to as "radioactive waste materials etc."), at a waste disposal facility based on the description of an application etc. by a method of solidification into one piece, shall be specified under the following subparagraphs in addition to those provided in Paragraph 1:

- (i) It shall be constructed following the methods provided by the Minister of METI for the prevention of radiation hazards; and
- (ii) Radioactive waste materials etc. solidified in one piece shall be in conformity with the requirements described in Subparagraph (ii) of the preceding Paragraph, and the volume shall not exceed about 500 cubic meters,

(Application for Safety Verification of Waste Repository Disposal Concerning Radioactive Waste Form etc.)

Article 7. Any person, who wishes to obtain the safety verification of waste repository disposal (excluding what the Designated Organization for Safety Verification of Waste Disposal performs) as provided in the provisions of Paragraph 2 of Article 51-6 of the Law, shall submit an application described in each subparagraph concerned to the Minister of METI according to the division of the radioactive waste falling under any of the following subparagraphs:

(i) Materials falling under Item A of Subparagraph (i) or Subparagraph (ii) of the table of Paragraph 1 of Article 13-9 of the Ordinance (hereinafter referred to as "radioactive waste form"): An application in the Form No. 2, as provided separately;

(ii) Materials falling under Item B of Subparagraph (i) of the table of Paragraph 1 of Article 13-9 of the Ordinance (hereinafter referred to as "large-sized metal radioactive waste form"): An application in the Form No. 3, as provided separately; and

(iii) Materials falling under Subparagraph (iii) or Subparagraph (iv) of the table of Paragraph 1 of Article 13-9 of the Ordinance (hereinafter referred to as "non-solidified concrete waste"): An application in the Form No. 4, as provided separately.

2. The application under each subparagraph of the preceding paragraph shall be attached with, for the waste repository disposal of radioactive waste form, the documents described in the Subparagraph (i) through Subparagraph (iii), Subparagraph (v), and Subparagraph (vi), for the waste repository disposal of large-sized metal radioactive waste form, the documents described in Subparagraph (i), the Subparagraph (iv) through Subparagraph (vi), for the repository disposal of wastes, such as non-solidified concrete waste, the documents described in Subparagraphs (i) and Subparagraph (v):

(i) The expository documents related to radioactive wastes to be emplaced;

(ii) The expository documents related to mechanical strength and sealing performance of containers for solidifying radioactive wastes;

(iii) The expository documents related to the quality of solidifying material;

(iv) The expository documents related to the details of processing method provided by Paragraph 3 of the following article as the Minister of METI shall describe

(v) The expository documents related to the methods for the radioactivity concentration measurement or determination etc. of radioactive wastes; and

(vi) The expository documents related to the method for mechanical strength measurement or determination etc. of radioactive waste form or large-sized metal radioactive waste form concerning the provisions of Subparagraph (v) of Paragraph 2 (including the case where it is applied with necessary modification concerning Paragraph 3 of the said Article) of the following article, and the results of the mechanical strength.

3. The number of submission of the application described in Paragraph 1 shall be one original and two duplicates.

4. Any person, who wishes to obtain the safety verification of Paragraph 2 of Article 51-6 of the Law, shall submit an application to the Designated Organization for Safety Verification of Waste Disposal with the form that is approved by the Minister of METI.

(Technical Standards for Radioactive Waste Form etc.)

Article 8. Technical standards specified in Paragraph 2 of Article 51-6 of the Law shall be as provided in the following paragraph through Paragraph 4.

2. Technical standards of radioactive waste form shall be as described in the following subparagraphs:

(i) For the prevention of radiation hazards, radioactive wastes shall be solidified in the container using the methods provided by the Minister of METI;

(ii) The radioactivity concentration shall not exceed the maximum radioactivity concentration indicated in the application etc.;

(iii) The density of radioactive materials on the surface shall not exceed one tenth of the surface density limit specified in Item C of Paragraph 1 of Article 14;

(iv) Any materials with a possibility of spoiling the integrity of radioactive waste materials as designated by the Minister of METI shall not be contained;

(v) It shall have enough strength to bear the potential load that may be extended during waste repository disposal;

(vi) There shall be no marked damage; and

(vii) Waste form etc. shall be labelled with tag indicating the radioactive waste, tag indicating surface dose is exceeding the level designated by the Minister of METI if necessary, tag with serial number identifying the waste form as provided by Subparagraph (i) of Paragraph 1 of the preceding Article. These tag should use the method which does not disappear easily, and be marked at visible spot

3. The provisions of Subparagraph (ii) through Subparagraph (vii) of the preceding paragraph shall be applied as technical standards for large-sized metal radioactive waste form with necessary modifications, and the openings shall be treated by sealing or by other methods as provided by the Minister of METI for

the prevention of radiation hazards. In this case, the wording "radioactive waste form" in Subparagraph (iv) and Subparagraph (vii) of Paragraph 4 of the said article shall be construed to mean "Large-sized metal radioactive waste form and the wording "Subparagraph (i) of Paragraph 1 of the preceding article" in the Subparagraph (vii) of the said paragraph to mean "Subparagraph (ii) of Paragraph 1 of the preceding article".

4. The provisions of Subparagraph (ii) of Paragraph 2 shall be applied as technical standards to wastes, such as non-solidified concrete waste with necessary modifications and the wastes shall be as described in the following subparagraphs:

(i) An explosive material shall not be included; and

(ii) The measure to compare with items described in the application corresponding to Subparagraph (iii) of Paragraph 1 of the preceding article shall be taken for the non-solidified concrete waste.

(Issuance of a Safety Verification Certification)

Article 9. The Minister of METI or the Designated Organization for Safety Verification of Waste Disposal shall issue a Safety Verification Certification when the Minister has implemented Safety Verification provided in the Article 51-6 of the Law.

(Application for Merger Approval)

Article 10. Any person, who wishes to obtain a merger approval provided in Paragraph 1 of Article 51-12 of the Law, shall submit an application which indicate items falling under any of the following subparagraphs with joint signs of the concerned persons to the Minister of METI:

(i) The name and the address and, the name of its representative;

(ii) The name and the address of the place of the waste repository business;

(iii) The name and the address and, the name of its representative of the juridical person who is to continue to exist after the merger, or the juridical person who has been established by the merger;

(iv) The method and conditions of the merger;

(ii) The method and conditions of the merger;

(iii) The reason of the merger; and

(iv) The date of the merger.

2. The documents falling under any of the following subparagraphs shall be attached to the application of the preceding paragraph:

(v) Other items which explain clearly the soundness of financial position enough for the waste repository business.

(Records)

Article 13. For the record provided in Article 51-15 of the Law, items as listed in the upper column of the following Table (omitted) shall be recorded as listed correspondingly in the middle column of the following Table for each business place, and shall be preserved for the time period as listed correspondingly in the lower column of the Table.

2. For the record items provided in the preceding paragraph, when those are difficult to measure directly, the said items may be replaced with records which may estimate indirectly the items concerned.

3. The dose equivalent described in Item B and Item C of the Subparagraph (ii) of the Table of Paragraph 1, and the radiation dose described in Item D and Item E of the said subparagraph shall be recorded as provided by the Minister of METI, respectively.

4. When the radiation dose of Item D of Subparagraph (ii) of the Table of Paragraph 1 is recorded, for the record of the exposure by inhalation of the air contaminated with radioactive materials out of the total radiation exposure, the situation of the exposure and the method of measurement shall be indicated collectively.

5. For the preservation period of the record of Item D through Item F of Subparagraph (ii) of the Table of Paragraph 1 shall be time periods until a waste repository business operator hands over the record to the agency designated by the Minister of METI when the person concerning the record is not a person engaged in the radiation work anymore, or when the time period which preserves the record exceeds five years.

6. The waste repository business operator shall submit a copy of the record described in Item D of Subparagraph (ii) of the Table of Article 1 to the person engaged in radiation work concerned to the record when the person leaves the work concerned.

(Access Control to the Controlled Area, etc.)

Article 14. Waste repository business operators shall define the controlled area and the peripheral monitoring area in accordance with the provisions of Paragraph 1 of Article 51-16 of the Law, and shall take measures in the area falling under any of the following subparagraphs. However, this shall not be applied where it is decided in the Safety Preservation Rules that the area is not defined that is approved or approved of alternation as provided in Paragraph 1 of Article 51-18 of the Law:

(i) The following measures shall be taken for the controlled area:

A. It shall be demarcated with demarcating structures, such as walls or fences and shall be marked to distinguish from other places clearly, and measures shall be taken to control the access of people and entry keys according to the degree of danger, such as the radiation;

B. Eating, drinking and smoking shall be forbidden in the area with a possibility for ingestion of

- radioactive materials;
- C. The density of surface radioactive materials on floors, walls, or other places with a possibility to be touched and contaminated with radioactive materials shall not exceed the surface density limits provided by the Minister of METI; and
- D. When people leaves from a controlled area or when goods are going to be carried out, the density of surface radioactive materials of wears such as clothes, footwear, etc. and the goods (when the goods are in containers or forms, the container or packaging) to be carried out shall not exceed one tenth of the surface density limits of Item C.
- (ii) The following measures shall be taken for the peripheral monitoring area:
 - A. Habitation of people shall be forbidden; and
 - B. The boundary of the peripheral monitoring area shall be marked to limit the access to the area of people other than those who enter on business, by methods, such as fencing or marking. However this shall not be applied where it is clear that there is no possibility that people enter into the area concerned.

(Measures for Radiation Doses etc)

Article 15. Waste repository business operators shall take the measures for radiation doses etc. of the persons engaged in radiation work, falling under any of the following subparagraphs in accordance with the provisions of Paragraph 1 of Article 51-16 of the Law:

(i) Radiation doses of a person engaged in radiation work shall not exceed the dose limits provided by the Minister of METI; and

(ii) The concentration of radioactive materials in the air, of which persons engaged in radiation work breathes, shall not exceed the dose limits provided by the Minister of METI.

2. Irrespective of provisions of the foregoing paragraph, when unavoidable emergency situation, such as occurrence or possibility of occurrence of an emergency arises in the waste repository disposal, etc., persons engaged in radiation work, (for women, those who are diagnosed as pregnancy being impossible and those who offered the waste repository business operator by letter of a principle of no intention of pregnancy) may be engaged in the emergency work within the limits not exceeding the dose limits provided by the Minister of METI.

(Patrol and Inspection of Waste Disposal Facilities)

Article 16. In accordance with the provisions of Paragraph 1 of Article 51-16 of the Law, waste repository business operators shall make those who are engaged in the preservation of the waste disposal facility carry out patrol and inspection of the waste disposal facility once or more times every week as provided in the Safety Preservation Rules that is approved or approved of alteration provided in paragraph 1 of Article 51-18 of the Law.

(Preservation of Waste Disposal facility)

Article 17. In accordance with the provisions of Paragraph 1 of Article 51-16 of the Law, a waste repository business operator shall take the measures falling under any of the following subparagraphs in relation with preservation of the waste disposal facility where the waste repository disposal (emplacement) has been completed. However, this shall not be applied where it is decided in the Safety Preservation Rules that are approved or approved of alternation in accordance with the provision of Paragraph 1 of Article 51-18 of the Law, so that the measures as provided in the provisions of Subparagraph (i) and Subparagraph (ii) are not taken:

(i) When waste repository disposal is carried out by the method provided in Paragraph 2 or Paragraph 3 of Article 6, the leak of radioactive materials out of artificial barrier structures or radioactive waste materials etc. solidified in one piece shall be monitored, and when it is confirmed that there is a leak, repair of the artificial barrier structures and other necessary measures shall be taken to prevent a leak of radioactive materials promptly;

(ii) A repository preservation area shall be defined and the repository preservation area concerned shall be marked to distinguish from other places clearly, and measures for preserving the conditions of the waste disposal facility at the time of definition (excluding measures of the preceding subparagraph) shall be taken; and

(iii) In waste disposal facility, bulletin boards and other equipment shall be installed to display that it is a waste disposal facility and other items provided by the Minister of METI, kept in the legible conditions always, and rewritten promptly when change of items to be displayed occurs.

(Transportation within Business Places)

Article 18. In accordance with the provisions of Paragraph 1 of Article 51-16 of the Law, waste repository business operators shall take the measures falling under any of the following subparagraphs in relation with transportation of nuclear fuel materials within business places where waste disposal facilities are established:

(i) When nuclear fuel materials etc. are transported, they shall be enclosed in containers. However, this shall not be applied in any of the following cases:

- A. When materials contaminated with nuclear fuel materials (restricted to materials of which concentration of radioactivity is not exceeding the limits provided by the Minister of METI) are

- transported with measures for the prevention of leak and scattering of radioactive materials and other hazards, provided by the Minister of METI; or
- B. When materials, such as large mechanical equipment etc. contaminated with nuclear fuel materials and difficult to transport being enclosed in containers, are transported with measures for the prevention of hazards approved by the Minister of METI.
- (ii) Containers described in the preceding subparagraph shall be in conformity with the following standards:
- A. Dimension of each side of a rectangular parallelepiped circumscribing the container concerned is 10cm or more; and
- B. It can be dealt with easily and safely, and there is no possibility of occurrence of cracks, damages, etc. by change of temperature and/or internal pressure, vibration, etc. expected during transportation.
- (iii) The dose equivalent rate at the surface and 1m distance from the surface of the container which enclosed nuclear fuel materials etc. (when materials contaminated with nuclear fuel materials are transported without enclosing with a container in accordance with the provisions of the proviso of Subparagraph (i) described in Item A or Item B of the said subparagraph, materials contaminated with nuclear fuel materials concerned, hereinafter referred to as "transportation materials", or the vehicles, or other machines or instruments that transport nuclear fuel materials etc. (hereinafter referred to as "transportation equipment"), shall not exceed the dose equivalent rate provided by the Minister of METI, and the density of the radioactive material of the surface of the transportation materials shall not exceed one tenth of the surface density limits described in Item C of Subparagraph (i) of Article 14;
- (iv) Transportation materials shall be loaded on the transportation equipment not to move, tumble, or fall during transportation,
- (v) Nuclear fuel materials etc. shall not be loaded together with hazardous materials provided by the Minister of METI on the same transportation equipment;
- (vi) In the transportation route of transportation materials, persons other than those who are engaged in the transportation or vehicles other than the vehicles used for the transportation shall be limited to enter into by methods such as providing marks and watch persons;
- (vii) When transportation materials are transported with vehicles, the vehicles concerned shall run slowly, and when the transportation route is long, other vehicles shall accompany for safety preservation;
- (viii) Those who have considerable knowledge and considerable experience of handling of nuclear fuel materials etc. shall accompany to superintend for safety preservation as necessary; and
- (ix) Marks provided by the Minister of METI shall be attached to the appropriate place of transportation materials and the vehicles for transportation of the materials.

(Waste management in Business Places)

Article 19. In accordance with the provisions of Paragraph 1 of Article 51-16 of the Law, waste repository business operators shall take the measures falling under any of the following subparagraphs in relation with waste management of radioactive wastes carried out in the place of business where waste disposal facilities are installed:

- (i) Waste management of radioactive waste shall be carried out under supervision of those who have knowledge required for waste management and radiation protection for waste management, and make those who are engaged in waste management works wear working clothes etc. at the waste management work;
- (ii) When persons other than those who are engaged in the waste management work of radioactive waste into a waste management facility during the waste management activity of radioactive wastes, the persons shall follow the instructions of those who are engaged in the waste management work;
- (iii) Gaseous wastes shall be disposed of by any of the following methods:
- A. Discharge through ventilation facilities; or
- B. Retain in a gaseous waste storage tank that is effective for the prevention of radiation hazards, and store.
- (vi) When discharging by the method of the preceding Item A, the concentration of radioactive materials under ventilation shall be controlled as low as possible by filtering, decay radioactivity, dilution with a lot of air, etc. at the ventilation facilities. In this case, the concentration of radioactive materials in the air at the ventilation port, or at the exhaust monitoring equipment shall be monitored, so as not to exceed the concentration limits provided by the Minister of METI at outside boundary of peripheral monitoring area;
- (v) Liquid wastes shall be disposed of by any of the following methods:
- A. Discharge through discharge facilities;
- B. Store in a liquid waste storage tank that is effective for the prevention of radiation hazards, and stored;
- C. Enclose in a container or solidify in a container, and store in a storage facility that is effective for the prevention of radiation hazards;
- D. Incinerate by an incineration facility that is effective for the prevention of radiation hazards
- E. Solidify by a solidifying facility that is effective for the prevention of radiation hazards; or
- F. Waste repository disposal in a waste disposal facility in accordance with the technical standards

provided in Article 6 and Article 8.

(vi) When disposing by the method of the preceding Item A, the concentration of radioactive materials under discharge shall be made as low as possible by filtering, evaporation, adsorption by a ion exchange resin method etc., decay radioactivity, dilution by plenty of water, and other methods at the discharge facility. In this case, the concentration of radioactive materials in the underwater at the discharge port, or at the discharge water monitoring equipment, so as not to exceed the concentration limits at outside boundary of peripheral monitoring area provided by the Minister of METI;

(vii) When disposing by the method of Item C of Subparagraph (v), and when enclosing radioactive wastes in a container, the container concerned shall be in conformity with the following standards:

- A. The structure shall have low permeability, corrosion resistant and low leakage of radioactive wastes;
- B. There shall be no possibility of crack or damage; and
- C. The lid of the container shall not be taken off easily.

(viii) When disposing by the method of Item C of Subparagraph (v), and when solidifying radioactive wastes in a container, the container used for solidifying the radioactive wastes shall be protective against dispersion or leakage of the radioactive waste;

(ix) When disposing by the method of Item C of Subparagraph (v), and when storing in a storage facility that is capable of prevention of radiation hazards, the following items shall be subjected:

- A. When radioactive wastes are enclosed in a container, and are stored, the container concerned shall be wrapped with materials which are capable to absorb all of the enclosed radioactive wastes, or provided with a saucer which is capable to accommodate all of the wastes, when a crack or a damage arises to prevent spread of the contamination;
- B. The container in which radioactive wastes were enclosed or solidified, shall be attached with marks that shows that the content is radioactive wastes, and a serial number corresponding to the radioactive waste whose recorded content based on the provisions of Article 13 shall be displayed to compare; and
- C. Post up notes for administration and control of the disposal facility concerned in the place easily visible.

(x) When disposing by the method of Item F of Subparagraph (v), the concentration of radioactive materials in the underwater at the boundary of the outside of an peripheral monitoring area shall be controlled not to exceed the concentration limits of Subparagraph (vi) by monitoring the concentration of radioactive materials in the underwater of the peripheral monitoring area at the underwater monitoring facility; and

(xi) Solid wastes shall be processed and stored of by any of the following methods:

- A. Incinerate by an incineration facility that is effective for the prevention of radiation hazards;
- B. Enclose in a container or solidify in a container, and store in a storage facility that is effective for the prevention of radiation hazards, and dispose;
- C. Radioactive waste such as a large machine, which is very difficult to process by the method of Item B, shall be stored in a storage facility that is effective for the prevention of radiation hazards, and dispose; or
- D. Waste repository disposal in a waste disposal facility in accordance with the technical standards provided in Article 6 and Article 8.

(Safety Preservation Rules)

Article 20. Any person who wishes to obtain the approval of the Safety Preservation Rules as provided in Paragraph 1 of Article 51-16 of the Law, shall define the items falling under any of the following subparagraphs of the Safety Preservation Rules for every place of business for the approval, and shall submit the application describing the Safety Preservation Rules to the Minister of METI:

(i) Matters concerning the duty assignment and organization of persons engaged in the management of the waste disposal facility;

(ii) Matters concerning the safety preservation education to persons engaged in radiation work as follows:

- A. Matters concerning implementation plans of a safety preservation education (including planning of an implementation plan);
- B. Matters concerning the content of the safety preservation education are as follows:
 - (1) Matters concerning the relevant legislation and regulations, and Safety Preservation Rules;
 - (2) Matters concerning structures, performances, and operation of the waste disposal facility;
 - (3) Matters concerning the radiation management;
 - (4) Matters concerning the handling of nuclear fuel materials and the materials contaminated with nuclear fuel materials; and
 - (5) Matters concerning the measures that should be taken in the case of emergency.
- C. Other matters necessary to the safety preservation education of the waste disposal facility.

(iii) Matters concerning the measures that shall be taken for safety preservation of waste repository disposal according to the decay of radioactivity;

(iv) Matters concerning the establishment of a controlled area, an peripheral monitoring area, and a

repository preservation area, and entry restriction into these areas, etc.;

(v) Matters concerning the ventilation monitoring facility and the discharge monitoring facility;

(vi) Matters concerning the radiation doses, dose equivalents, concentrations of radioactive materials and density of radioactive materials on the surface of materials contaminated with radioactive materials, and decontamination;

(vii) Matters concerning the administration and control of radiation measuring instruments, and methods of radiation measurement;

(viii) Matters concerning patrols, inspections, and the measures accompanying these activities of a waste disposal facility;

(ix) Matters concerning receiving, transportation, disposal and other handling activities of radioactive wastes;

(x) Matters concerning the measures that should be taken in the case of emergency;

(xi) Matters concerning the record concerning safety preservation (including conformity situation of safety preservation rules) of a waste disposal facility; and

(xii) Other matters necessary to the safety preservation of a waste disposal facility.

2. The number of submission for the application described in the preceding paragraph shall be one original and two duplicates.

(Inspection of Conformity Situation of the Safety Preservation Rules)

Article 20-2. The inspection provided in Paragraph 6 of Article 51-18 of the Law shall be carried out four times every year.

2. The items provided by the Ordinance of METI of Paragraph 6 of Article 12 of the Law, to be applied with necessary modifications for Paragraph 7 of Article 51-18 of the Law, shall be as follows:

(i) Entry to an office, a factory, or a place of business;

(ii) Inspection of books, documents, facilities, the equipment, and other necessary materials;

(iii) Questions to workers and other persons concerned; and

(iv) Submittal of samples necessary of nuclear source materials, nuclear fuel materials, and materials contaminated with nuclear fuel materials (limited to the minimum quantity necessary for testing).

(License Application for Transfer of Waste Disposal facility)

Article 21. The entries in the application for the license for transfer provided in Article 13-15 of the Ordinance shall be made in accordance with the following subparagraphs:

(i) The characteristic and quantity of the nuclear fuel materials etc. described in Subparagraph (iv) of Article 13-15 of the Ordinance, the type and quantity of the radioactive waste for the waste repository disposal, and the maximum radioactivity concentration and the total amount of radioactivity for each type of radioactive materials contained in the concerned radioactive waste shall be described;

(ii) The location, structure and equipment of the waste disposal facility and the methods of disposal described in Subparagraph (v) of Article 13-15 of the Ordinance shall be described in accordance with the divisions provided in Subparagraph (ii) and Subparagraph (iii) of Paragraph 1 of Article 2; and

(iii) The planned time of alterations described in Subparagraph (vi) of Article 13-15 of the Ordinance, the time of alteration or discontinuance of the peripheral monitoring area according to the decay of radioactivity or the measures provided in Article 17 shall be described, respectively.

2. The application described in the preceding paragraph shall be attached with the documents indicated in the following subparagraphs:

(i) The business plan containing the following items:

A. Planned starting time of the waste repository disposal business;

B. Receiving plans and planned waste repository disposal quantities of radioactive wastes by business years on and after the year including the starting date of the waste repository business;

C. Financial plans and estimated balance of the business; and

D. Other items which explain sound financial position clearly enough for the waste repository business.

(ii) The expository documents related to the technical capability for the waste repository disposal containing the following items:

A. The summary of waste repository disposal methods based on patent rights and other rights of technologies or special technologies, or other corresponding equivalents;

B. The personal history of main engineers; and

C. Other items related to the technical capability for the waste repository disposal

(iii) The expository documents related to the safety design of the waste disposal facility (including the layout drawings of main equipment);

(iv) The expository documents related to the management of the radiation exposure to be caused by nuclear fuel materials etc. and the disposal of radioactive wastes;

(v) Expository documents related to the types, levels, impacts, etc. of waste disposal facility accidents to be assumed to occur in the event of operational error in the waste disposal facility, the failures of the machinery or devices, flood, earthquake and fire, etc.; and

(vi) When business is carried on actually, expository documents on the outline of the business.

(Appointment of Chief Engineers of Radioactive Wastes, etc.)

Article 22. Appointment of the Chief Engineer of Radioactive Wastes provided in Paragraph 1 of Article 51-20 of the Law shall be made for every place of business.

2. The qualification provided by the Ordinance of METI, provided in Paragraph 1 of Article 51-20 of the Law, shall be for those who have the license of the Chief Engineer of Nuclear Fuel Materials described in Paragraph 1 of Article 22-3 of the Law or the license of the Chief Engineer of Reactors described in Paragraph 1 of Article 41 of the Law.

(Measures in an Emergency)

Article 23. In accordance with the provision in Paragraph 1 of Article 64 of the Law, a waste repository business operator shall take the emergency measures provided in the following subparagraphs:

(i) When fire breaks out in the waste disposal facility, or when there is a possibility of fire reaching the waste disposal facility, every effort shall be made to extinguish the fire or to prevent its expansion and, at the same time, the situation shall be reported to the fire authorities;

(ii) When it is possible to transfer nuclear fuel materials to other locations, the materials shall be transferred to a safe location as necessary, and the entry shall be prohibited of persons other than those related by demarcating the periphery of the location with ropes, posts, etc., and by guards;

(iii) When there is a need to prevent the occurrence of radiation hazards, warning shall be made to persons present both within the waste disposal facility and its vicinity to evacuate;

(iv) When contamination with nuclear fuel materials etc. has taken place, its expansion shall be prevented and it shall be removed speedily;

(v) When there are persons who suffer or might suffer from radiation hazards, emergency measures shall be taken such as speedy rescue and evacuation; and

(vi) Other necessary measures shall be taken for the prevention of radiation hazards.

(Notification of Discontinuance of Business)

Article 24. When a waste repository business operator has discontinued his business, in accordance with the provisions of Paragraph 1 of Article 65 of the Law, the operator shall submit the documents containing the items falling under any of the following subparagraphs to the Minister of METI within 30 days after the day of the discontinuance:

(i) The name and the address and, in the case of a juridical person, the name of its representative;

(ii) The name and location of the place of business concerned with the discontinuance;

(iii) The date of the business license obtained;

(iv) The date of the business discontinued; and

(v) The reasons for the discontinuance.

2 The number of submission of the notification provided in the preceding paragraph shall be one original and two duplicates.

(Notification of Dissolution etc.)

Article 25. In the case of dissolution or death of a waste repository business operator, the liquidator, trustee in bankruptcy or the person who administrate the inheritance in the place of the inheritor, in the case of the absence of succession provided in provisions of Paragraph 1 of Article 51-12 of the Law or Paragraph 1 of Article 51-13 of the Law, respectively, in accordance with the provisions of Paragraph 3 of Article 65 of the Law, shall submit the documents containing the items falling under any of the following subparagraphs to the Minister of METI within 30 days after the day of the dissolution or death:

(i) The name and the address and, in the case of a juridical person, the name of its representative;;

(ii) The name and location of the place of business concerned with the dissolution or death;

(iii) The date of the dissolution or death; and

(iv) The reasons for dissolution.

2 The number of submission of the notification described in the preceding paragraph shall be one original and two duplicates.

(Measures Accompanied with Cancellation of the License etc.)

Article 26. The waste repository business operator whose license is cancelled in accordance with the provisions of Article 51-14 of the Law, the waste repository business operator who has discontinued the business, or in the case of dissolution or death of a waste repository business operator, the liquidator, trustee in bankruptcy or the person who administrate the inheritance for the inheritor in the case of the absence of succession provided in the provisions of Paragraph 1 of Article 51-12 of the Law or Paragraph 1 of Article 51-13 of the Law, in accordance with the provisions of Paragraph 1 of Article 66 of the Law, shall take measures to transfer nuclear fuel materials, to eliminate contamination with nuclear fuel material or to dispose of nuclear fuel materials etc., and shall deliver the radiation management records defined in Article 13 to the agency designated by the Minister of METI.

2. The measures provided in the preceding paragraph shall be taken within 30 days from the day of the revocation of license, the discontinuance of business, or dissolution or death.

3 The number of submission of the report provided in the provisions of Paragraph 3 of Article 66 of the Law shall be one original and two duplicates.

(Collection of Reports)

Article 27. The waste repository business operator shall prepare a report every year of the Form No. 5 as provided separately for every place of business covering the period from April 1 to March 31 of the next year for the annual radiation dose of the radiation workers, and the period from April 1 to September 30 and from October 1 to March 31 of the next year for others, and shall submit the report to the Minister of METI within 30 days after the lapse of the concerned period.

2. The waste repository business operator shall, in the case of coming under any of the following subparagraphs, report the case as such immediately, and the situation and the measures taken within 10 days to the Minister of METI:

- (i) When the nuclear fuel material has been stolen or is missing;
- (ii) When failures (excluding those such that troubles exerted on waste repository disposal are insignificant) have occurred in the waste disposal facilities;
- (iii) In the case of discharge of gaseous radioactive waste through the ventilation facilities, when the concentration of radioactive materials in the atmosphere outside the peripheral monitoring area exceeds the concentration limits specified in Subparagraph (iv) of Article 19;
- (iv) When the concentration of the radioactive material in water in the outer boundary of the peripheral monitoring area exceeds the concentration limits specified in Subparagraph (vi) of Article 19;
- (v) In the case of leakage of nuclear fuel materials etc. within the controlled area, when new measures such as human entry restriction into the leakage-related places and key control have been taken or when the leaked substances have spread outside the controlled area, or when nuclear fuel materials etc. has leaked out of the controlled area;
- (vii) When exposures of radiation workers exceed, or the exposures are possible to exceed the dose limits specified in Subparagraph (i) of Paragraph 1 of Article 15; or
- (viii) In addition to the preceding subparagraphs, when a human hazard at the waste disposal facility (excluding insignificant and non-radiation hazard) has occurred or is possible to occur.

(3) The Rule for Waste Management of Nuclear Fuel Materials etc. Outside of the Factory or Place of Business (Excerpt)

(Ordinance No. 56 of the Prime Minister's Office, December 28, 1978)

(Latest Revision: Ordinance No. 1 of the MEXT, METI and MLIT, March 17, 2003)

(Definition)

Article 1. In this ordinance, the meaning of terms falling under any of the following subparagraphs shall be as defined in the following respective subparagraphs concerned:

- (i) Radioactive waste; Nuclear fuel materials or materials contaminated with nuclear fuel materials which is in the line of disposal; (*For disposal see Subparagraph (ii) of First Paragraph of Article 51-2 of the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors (hereinafter referred to as the "Law")*),
- (ii) Waste management /disposal facility; The waste disposal facility and waste management equipments defined in Subparagraph (ii) Paragraph 2 of Article 51-2 of "Law", the waste management facilities defined in Subparagraph (ix) of Paragraph 2 of Article 52 of the Law, and the waste management facilities which are the associated facility of refining facilities defined in Subparagraph (ii) of Paragraph 2 of Article 3 of the Law, the associated facilities of fabrication facilities defined in Subparagraph (ii) of Paragraph 2 of Article 13 of the Law, the associated facilities of a nuclear reactor defined in Subparagraph (v) of Paragraph 2 of Article 23 of the Law (including the facilities concerning the foreign nuclear ship defined in Paragraph 1 of Article 23-2 of the Law), associated facilities of spent fuel storage facilities defined in Subparagraph (ii) of Paragraph 2 of Article 43-4 of the Law, and the associated facilities of reprocessing facilities defined in Subparagraph (ii) of Paragraph 2 of Article 44 of the Law,
- (iii) Record; (omitted, means records defined in Article 13. of rules on waste disposal facility under the Law); and
- (iv) Radiation; Radiation specified in Paragraph 5 of Article 3 of the Nuclear energy Basic Law or electron beams or X-rays of energy less than one mega electron volt (eV) other than the natural radiation.

(Measures Necessary for Safety Preservation, etc.)

Article 2. In accordance with the provisions of Paragraph 1 of Article 58-2 of the Law, users, refining business operators, fabrication business operators, reactor establishers, operators of foreign nuclear vessel, spent fuel storage business operator, reprocessing business operators, and radioisotope disposal operators (hereinafter referred to as "users etc.") shall take the measures falling under any of the following subparagraphs for radioactive wastes management performed out-side of use facilities, refining facilities, fabrication facilities, reactor facilities, spent fuel storage facilities, reprocessing facilities or waste disposal facilities, or the factory or place of business which installed the disposal facilities (including nuclear ships, the same, hereinafter):

- (i) Radioactive waste, excluding the case provided in Subparagraph (iii), shall be disposed of in waste management /disposal facility that is effective for the prevention of radiation hazards;

(ii) When radioactive wastes are managed in accordance with the provisions of the preceding subparagraph, the copy of the records of the radioactive wastes concerned shall be issued to the user who installed the waste management /disposal facility concerned;

(iii) When users, refining business operators, fabrication business operators, reactor establishers, spent fuel storage business operator, reprocessing business operators, who have imported radioactive wastes, wish to manage the radioactive wastes concerned (including the container defined in Item A of the following subparagraph, and hereinafter referred to as "imported wastes"), they shall be managed in the waste management equipment (referred to as the waste management equipment defined in Subparagraph (ii) of Paragraph 2 of Article 51-2 of the Law for management defined in Subparagraph (i) of Article 13 of the Ordinance for the Enforcement of the Law for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors, the same, hereinafter), taking the measures necessary for safety preservation falling under the following subparagraph to Subparagraph (vi);

(iv) The imported wastes shall be in conformity with the following standards:

A. Those shall be as solidified in a container for the prevention of radiation hazards;

B. Types (including dimension, weight, strength, and generating power, the same in Item D of the following subparagraph) and quantity shall be those as manageable by the waste management equipment concerned;

C. The radioactivity concentration for each type of radioactive materials shall be controllable by the waste management equipment concerned;

D. The radioactive material shall be those as not disperse or leak easily; and

E. There shall be no severe damage.

(v) When imported wastes are managed at a waste management equipment, the documents concerned with the imported waste as described in the following items shall be developed, and shall be issued to the waste management business operator who has installed the concerned waste management equipment:

A. The method of solidification;

B. The name and the address and, in the case of a juridical person, the name of its representative, who has solidified the wastes;

C. The name and the location of factory or place of business concerned with the solidification;

D. Types and quantities; and

E. The radioactivity concentration for each type of radioactive material.

(vi) A reference number shall be displayed at the easily visible place of the imported wastes using a method that does not disappear easily for comparison with the items described in the document of the preceding subparagraph; and

(vii) The radiation dose of those who are engaged in disposal works shall not exceeds the dose limits specified by the competent minister (the minister provided in each of the subparagraphs concerned according to the division of users etc. falling under the each subparagraphs of Paragraph 1 of Article 58-2 of the Law, the same, hereinafter).

2. When the items, which must be described in the documents in accordance with the provisions of Subparagraph (v) of the preceding paragraph, are recorded in electromagnetic methods (an electronic method, a magnetic method, and other methods which cannot be recognized by the consciousness of human-beings), and when the records concerned are issued in a form possible to be displayed immediately as necessary using the equipment such as a computer, the issue of the record concerned may be replaceable with the issue of documents describing the items concerned as provided in the said subparagraph.

(Application for Verification)

Article 3. Any person, who intends to obtain the safety verification (excluding cases that the designated safety verification organization provides) concerning the waste management as provided in Paragraph 2 of Article 58-2 of the Law (including the case to apply with necessary modification as provided in Paragraph 2 of Article 66 of the Law, the same, hereinafter), shall submit an application of Form No. 1 as provided separately with the documents indicated in the following subparagraphs to the competent minister:

(i) The detailed expository documents of the imported wastes;

(ii) The detailed expository documents of the method of solidification concerning the imported wastes;

(iii) The expository documents of the method by which the strength of the imported wastes is determined;

(iv) The expository documents of the method by which the generating power of the imported wastes is determined;

(v) The expository documents of the method by which the radioactivity concentration of the imported wastes is determined;

(vi) The expository documents of the containment of radioactive materials concerning the imported wastes; and

(vii) The expository documents for the disposal equipment that is intended to use for the management of the imported wastes.

2. The number of submission of the application for the safety verification described in the preceding paragraph shall be one original and two duplicates.

3. Any person, who intends to obtain the safety verification implemented by the designated safety

verification organization provided in Paragraph 2 of Article 58-2 of the Law, shall submit the application to the designated waste disposal verification agency as provided by the designated safety verification organization after obtaining the approval of the competent minister.

(Implementation of Safety Verification of Disposal)

Article 4. The safety verification of waste management defined in Paragraph 2 of Article 58-2 of the Law shall be carried out before the storage and processing of imported wastes at the waste management equipment.

(Grant of a Safety Verification cCertificate)

Article 5. A competent minister or a designated safety verification organization shall grant a verification certificate when he has confirmed as provided in Paragraph 2 of Article 58-2 of the Law.

(Emergency Measures)

Article 6. In accordance with the provisions of Paragraph 1 of Article 64 of the Law (limited to the case where users manage radioactive wastes outside the factory or place of business), users etc. shall take emergency measures falling under any of the following subparagraphs:

(i) In the case of arising the contamination with radioactive wastes, ropes or marks shall be provided around the place, and watches shall be stationed to prevent persons other than the persons concerned from entering;

(ii) In the case of arising the contamination with radioactive wastes, the spread of contamination shall be prevented and the contamination shall be removed promptly;

(iii) When there are persons who received or are possible to receive radiation hazards, emergency measures shall be taken for the persons such as rescue and evacuation; and

(iv) Other necessary measures shall be taken for the prevention of radiation hazards.

(Collection of Reports)

Article 7. When users etc. dispose of radioactive wastes outside their factory or place of business in the case coming under any of the following subparagraphs, they shall report immediately about the case, and the situation of and the measures for the case within ten days to the competent minister:

(i) When an unusual contamination with radioactive wastes arises,

(ii) When exposure of those who are engaged in the disposal exceed r possible to exceed the dose limits specified in Subparagraph (vii) of Paragraph 1 of Article 2 arises; or

(iii) When hazards to human (excluding insignificant and non-radiation hazards) arise or possible to arise other than the preceding two subparagraph.

9. The Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc.

(1) The Law Concerning Prevention from Radiation Hazards due to Radioisotopes, etc.

(Excerpt)

(Law No. 167, June 10, 1957)

Latest Revision: Law No. 96, July 31, 2002

Chapter I. General Provisions

(Purpose)

Article 1. It is the purpose of this Law, based on the Atomic Energy Basic Law (Law No. 186, 1955), to prevent from possible radiation hazards and to secure safety of the public, by regulating the use, sale, lease, waste management and others in which radioisotopes are handled and regulating the use of radiation generating devices, waste management and others in which the materials contaminated with radioisotopes are handled.

(License for Use)

Article 3. Persons intending to use radioisotopes (excluding those equipped on such certified radioisotope-equipped device provided in Paragraph 1 of the following article and those sealed and in quantities smaller than specified by the Government Ordinance in the said paragraph) or radiation generating devices shall, as provided in the Government Ordinance, obtain the license of the Minister of Education, Culture, Sports, Science and Technology (hereinafter referred to as "the Minister of MEXT).

2. Persons intending to obtain the license as provided in the preceding paragraph shall submit to the Minister of MEXT an application including the following items:

(i) The name or title and the address, and in the case of a legal person, the name of its representative;

(ii) Types and quantity of radioisotopes or types, number and performance of the radiation generating devices;

(iii) The purpose and method of the use;

(iv) The place of the use;

(v) The location, structure and equipment of the facilities where radioisotopes, or radiation generating devices (hereinafter referred to as "use facilities") are to be used or installed;

- (vi) The location, structure, equipment and storage capacity of the facilities, where radioisotopes are to be stored (hereinafter referred to as "storage facilities"); and
 - (vii) The location, structure and equipment of the facilities where radioisotopes and materials contaminated with radioisotopes are to be managed as waste (hereinafter referred to as "waste management facilities").
- (Notification of Use)

Article 3-2. Persons intending to use the certified radioisotope-equipped device (which means radioisotope-equipped device carrying a certified label as provided in Paragraph 2 of Article 12-4, the same shall be applied hereinafter), or sealed radioisotopes in quantities smaller than specified by the Government Ordinance (hereinafter referred to as far as the following paragraph, simply as "sealed radioisotopes"), shall, as provided in the Government Ordinance, notify in advance to the Minister of MEXT, if certified radioisotope-equipped device is to be used, the approval number on the certified radioisotope-equipped device (which means the serial number of approval given to the radioisotope-equipped device in accordance with the provision of Paragraph 1 of Article 12-2, the same shall be applied to the following paragraph), the quantity, the place of use, the location, structure and equipment of the facility in which the certified radioisotope-equipped device is installed (hereinafter referred to, simply as "device installed facility"), and other particulars provided by the Ordinance of the Ministry of Education, Culture, Sports, Science, and Technology (hereinafter referred to as "the Ordinance of MEXT"), and if sealed radioisotopes are to be used, the type and quantity of sealed radioisotopes, the place where they are used, the location, structure, equipment, and storage capacity of the facility in which they are stored, and other particulars provided by the Ordinance of MEXT.

2. When a person who has made such a notification as described in the preceding paragraph (hereinafter referred to as "notified user") intends to change some of the particulars of the report made in accordance with the Ordinance of MEXT, such as the approval number or quantity of the certified radioisotope-equipped device, the place where it is used or the location, structure or equipment of the facility in which it is installed, type or quantity of sealed radioisotopes, the place where they are used or the location, structure, equipment, or storage capacity of the facility in which they are stored, the notified user shall report this in advance to the Minister of MEXT.

3. In addition to the particulars provided in the preceding paragraph, the notified user shall report this to the Minister of MEXT, in accordance with the Ordinance of MEXT, within thirty days from the day of alteration, when a notified user changed particulars of the notification made after the provisions of Paragraph 1,

(License for Selling and Leasing Business)

Article 4. Persons intending to sell or lease any radioisotope, shall in accordance with the Government Ordinance, obtain the license of the Minister of MEXT.

2. Persons intending to obtain the license described in the preceding paragraph shall submit to the Minister of MEXT an application including the following items:

- (i) The name or title and the address, and in the case of a legal person, the name of its representative;
- (ii) Types of radioisotopes;
- (iii) The location of the selling or leasing place;
- (iv) The location, structure and equipment of the facilities where radioisotopes are to be refilled or repacked (hereinafter referred to as "refilling facilities");
- (v) The location, structure, equipment and storage capacity of the storage facilities; and
- (vi) The location, structure and equipment of the waste management facilities.

(License for Radioisotope Waste Management Business)

Article 4-2. A person intending to be engaged in radioisotope waste management business for radioisotopes or materials contaminated with radioisotopes shall, as provided in the Government Ordinance, obtain the license of the Minister of MEXT.

2. A person intending to obtain the license described in the preceding paragraph shall submit to the Minister of MEXT an application including the following items:

- (i) The name or title and the address, and in the case of a legal person, the name of its representative;
- (ii) The location of radioisotope waste management business;
- (iii) The method of waste management;
- (iv) The location, structure and equipment of the facilities where radioisotopes and materials contaminated with radioisotopes are to be refilled or repacked (hereinafter referred to as "waste refilling facilities");
- (v) The location, structure, equipment and storage capacity of the facilities where radioisotopes and materials contaminated with radioisotopes are to be stored (hereinafter referred to as "waste storage facilities"); and
- (vi) The location, structure and equipment of the waste management facilities.

(Ineligibility Clause)

Article 5. A person coming under any of the following subparagraph shall not be granted the license described in Paragraph 1 of Article 3, Paragraph 1 of Article 4 or Paragraph 1 of the preceding article:

- (i) A person whose license has been revoked in accordance with the provisions of Paragraph 1 of Article 26, and to whom two years have not yet elapsed from the day of revocation;

(ii) A person who has been fined or awarded the heavier punishment than penalty for violating the provisions of this Law or orders based on this Law, and to whom two years have not yet elapsed after his serving or having ceased to serve the sentence;

(iii) A legally incompetent person; or

(iv) A legal person that has a person who comes under one of the preceding three subparagraphs among its executives executing business.

2. A person coming under any of the following subparagraph may not be granted the license provided in Paragraph 1 of Article 3, Paragraph 1 of Article 4 or Paragraph 1 of the preceding Article:

(i) A person coming under provisions of the Ordinance of MEXT as those who cannot take the measures necessary for the prevention of radiation hazards due to serious mental disability or a lunatic; or

(ii) A legal person that has a person who comes under the preceding subparagraph among its executives executing business.

(Licensing Standards for Use)

Article 6. The Minister of MEXT shall not grant the license when an application for the license described in Paragraph 1 of Article 3 is submitted unless the Minister recognizes that the application is in conformity with each of the following subparagraph:

(i) The location, structure and equipment of use facilities conform to technical standards provided by the Ordinance of MEXT;

(ii) The location, structure and equipment of storage facilities conform to technical standards provided by the Ordinance of MEXT;

(iii) The location, structure and equipment of waste management facilities conform to technical standards provided by the Ordinance of MEXT; and

(iv) In addition, there is no fear of radiation hazards being caused by radioisotopes, materials contaminated with radioisotopes, or radiation generating devices.

(Licensing Standards for Selling and Leasing Business)

Article 7. When an application for the license described in Paragraph 1 of Article 4 is submitted, the Minister of MEXT shall not grant the license, unless the Minister recognizes that the application is in conformity with each of the following subparagraphs:

(i) The location, structure and equipment of refilling facilities conform to technical standards provided by the Ordinance of MEXT;

(ii) The location, structure and equipment of storage facilities conform to technical standards provided by the Ordinance of MEXT;

(iii) The location, structure and equipment of waste management facilities conform to technical standards provided by the Ordinance of MEXT; and

(iv) In addition, there is no fear of radiation hazards being caused by radioisotopes or materials contaminated with radioisotopes.

(Licensing Standards for Radioisotope Waste Management Business)

Article 7-2. When an application for the license in accordance with Paragraph 1 of Article 4-2 is submitted, the Minister of MEXT shall not grant the license unless the Minister recognizes that the application is in conformity with each of the following subparagraphs:

(i) The location, structure and equipment of waste refilling facilities conform to technical standards provided by the Ordinance of MEXT;

(ii) The location, structure and equipment of waste storage facilities conform to technical standards provided by the Ordinance of MEXT;

(iii) The location, structure and equipment of waste management facilities conform to technical standards provided by the Ordinance of MEXT; and

(iv) In addition, there is no fear of radiation hazards being caused by radioisotopes or materials contaminated with radioisotopes.

(Conditions for the License)

Article 8. Conditions may impose on the granting of the license described in Paragraph 1 of Article 3, Paragraph 1 of Article 4 or Paragraph 1 of Article 4-2.

2. The conditions as described in the preceding paragraph shall be restricted to the minimum required to prevent radiation hazards and shall be such as not to impose undue obligations on persons who obtain the license.

(Certificates of License)

Article 9. The Minister of MEXT shall issue a certificate of license when he has granted the license provided in Paragraph 1 of Article 3, Paragraph 1 of Article 4 or Paragraph 1 of Article 4-2.

2. The certificate of license to be issued, when the license has been granted described in Paragraph 1 of Article 3, shall contain the following items:

(i) The date and the number of the license;

(ii) The name or title and the address; and

(iii) The purpose of the use,

(iv) Types and the quantity of the radioisotopes, or types, the number and the performance of the radiation generating devices;

(v) The place of the use;

(vi) The capacity of the storage facilities; and

(vii) Conditions of the license;

3. The certificate of license to be issued, when the license provided in Paragraph 1 of Article 4 has been granted, shall contain the following items:

(i) The date and the number of the license;

(ii) The name or title and the address;

(iii) Types of radioisotopes;

(iv) The location of the selling or leasing place;

(v) The capacity of the storage facilities; and

(vi) Conditions for the license.

4. The certificate of license to be issued, when the license has been granted under Paragraph 1 of Article 4-2, shall contain the following items:

(i) The date and the number of the license;

(ii) The name or title and the address;

(iii) The place of working place for radioisotope waste management business;

(iv) The method of the waste management; and

(v) The storage capacity of waste storage facilities,

5. The certificate of license shall not be transferred or lent to any other person.

(Alteration of Use facilities, etc.)

Article 10. When a person who has obtained such license as provided in Paragraph 1 of Article 3 (hereinafter referred to as "licensed user"), changed such particulars as provided in Subparagraph (i) of Paragraph 2 of the said article, the licensed user shall make notification, as in accordance with the Ordinance of MEXT, to the Minister of MEXT within thirty days from the day of alteration. In this case, if the licensed user changed the name, title or address, the licensed user shall submit the certificate of license for correction by the Minister of MEXT at the time of notification.

2. When a licensed user intends to change any such matters as provided in subparagraph (ii) through (vii) of Paragraph 3 of Article 3 (excluding those described in Paragraph 6), the licensed user shall, in accordance with the Government Ordinance, obtain the license of the Minister of MEXT. But this shall not be applied where the alteration is as minor provided by the Ordinance of MEXT.

3. The provisions of Article 6 and Article 8 shall be applied correspondingly to the license described in the preceding paragraph.

4. A licensed user, who intends to obtain the license to make alterations in accordance with the provisions of Paragraph 2, shall submit the certificate to the Minister of MEXT at the time of license application for such alterations.

5. When a licensed user intends to make such minor alterations as specified by provision in Paragraph 2, the licensed user shall, as provided by the Ordinance of MEXT, notify the alterations in advance, with the certificate of license attached to the Minister of MEXT.

6. When a licensed user intends to alter such particulars provided in Subparagraph (iv), Paragraph 2 of Article 3, while making temporary use of radioisotopes in quantities smaller than as specified by the Government Ordinance, for non-destructive inspection and other purposes specified by the Government Ordinance, the licensed user shall, as provided by the Ordinance of MEXT, give notification of the alteration in advance to the Minister of MEXT.

(Alteration of Refilling facilities, etc.)

Article 11. When a person, who has obtained such a license for selling business (hereinafter referred to as a "seller") or a person who has obtained such a license for leasing business (hereinafter referred to as a "lessor") provided in Paragraph 1 of Article 4, altered any such particulars as described in Subparagraph (i) of Paragraph 2 of the said article, the person shall, in accordance with the Government Ordinance, notify the alteration to the Minister of MEXT within thirty days from the day of alteration. In this case, if the person altered his name, title or address, the person shall submit the certificate of license for correction by the Minister of MEXT at the time of notification.

2. When a seller or lessor who intends to changed any such particulars provided in Subparagraph (ii) through Subparagraph (iv) of Paragraph 2 of Article 4, the seller or lessor shall, as provided in the Government Ordinance, obtain the license of the Minister of MEXT.

3. The provisions of Article 7 and Article 8 shall be applied with necessary modifications to the license described in the preceding paragraph.

4. A seller or lessor, who intends to obtain a license to make changes in accordance with the provisions of Paragraph 2, shall submit the certificate to the Minister of MEXT at the time of license application for such alterations.

(Alteration of Waste Management Facilities, etc.)

Article 11-2. When a person, who has obtained such a license as described in Paragraph 1 of Article 4-2

(hereinafter referred to as "radioisotope waste management business operator") changes any such particulars provided in Subparagraph (i) of Paragraph 2 of the said article, the operator shall, in accordance with the Ordinance of MEXT, notify the alteration to the Minister of MEXT within thirty days from the day of alteration.

2. When a radioisotope waste management business operator intends to change any items provided in Subparagraphs (i) through Subparagraphs (vi) of Paragraph 2 of Article 4-2, the operator shall, in accordance with the Government Ordinance, obtain the license of the Minister of MEXT.

3. The provisions of Article 7-2 and Article 8 shall be applied correspondingly to the license described in the preceding paragraph.

4. A radioisotope waste management business operator, who intends to obtain a license to make alterations in accordance with the provisions of Paragraph 2, shall submit the certificate to the Minister of MEXT at the time of license application for such alterations.

Chapter III. Obligations of the User, Seller, Lessor and Radioisotope Waste Management Business Operator, etc.

(Facility Inspection)

Article 12-8. When a licensed user (limited to the user who uses a storage facility of a storage capacity not smaller than as specified by the Government Ordinance for the storage capacity of storage facilities concerning licensing as described in Paragraph 1 of Article 3, or a radiation generating devices) has built a use facility, a storage facility, or a waste management facility (hereinafter referred to as far as the following article, as "use facility, etc."), or when the user has made alterations (with the exception of such minor alterations provided by the Ordinance of MEXT), with such a license as described in Paragraph 2 of Article 10, on the location, structure or equipment of a use facility, etc., or on the storage capacity of a storage facility, as provided by the Ordinance of MEXT, the user shall subject the use facility, etc. to the inspection of the Minister of MEXT, and shall not use the use facility, etc. until it has passed the inspection.

2. When a seller (limited to the person who uses a storage facility of a storage capacity not smaller than as specified by the Government Ordinance for the storage capacity of storage facilities depending on such a license as provided in Paragraph 1 of Article 4, the same applies to a lessor in this paragraph) or a lessor has built a refilling facility, a storage facility or a waste management facility (hereinafter referred to as far as the following article, as "refilling facility, etc."), or when the person has made alterations (excluding such minor alterations provided by the Ordinance of MEXT), with such a license as described in Paragraph 2 of Article 11, on the location, structure or equipment of a refilling facility, etc., or on the storage capacity of a storage facility, the person shall, as provided by the Ordinance of MEXT, subject the refilling facility, etc. to the inspection of the Minister of MEXT, and shall not use the refilling facility, etc. until it has passed the inspection.

3. When a radioisotope waste management business operator has built a waste refilling facility, a waste storage facility or a waste management facility (hereinafter referred to as far as the following article, as "waste refilling facility, etc."), or when the radioisotope waste management business operator has made alterations (excluding such minor alterations provided by the Ordinance of MEXT), with such a license as described in Paragraph 2 of Article 11-2, on the location, structure or equipment of a waste refilling facility, etc., the operator shall subject the waste refilling facility, etc. to the inspection, as provided by the Ordinance of MEXT, to the inspection of the Minister of MEXT, and shall not use the waste refilling facility, etc. until after it has passed the inspection.

4. When the installation or the alteration of a use facility, etc., a refilling facility, etc., or a waste refilling facility, etc., upon inspection provided in the preceding three paragraphs (referred to as "facility inspection" in Article 41-9, in Subparagraph (vi) of Article 45-2, in Paragraph 1 of Article 49, and in Subparagraph (i) of Article 56), conforms to the particulars of such a license as described in Paragraph 1 of Article 3, in paragraph 1 of Article 4, or in Paragraph 1 of Article 4-2, or of such a license for alteration as provided in Paragraph 2 of Article 10, in Paragraph 2 of Article 11, or in Paragraph 2 of Article 11-2 (including conditions attached in accordance with the provisions of Paragraph 1 of Article 8 (including the case where the particulars are applied correspondingly to Paragraph 3 of Article 10, Paragraph 3 of Article 11, and Paragraph 3 of Article 11-2)), it shall be acceptable.

(Periodical Inspection)

Article 12-9. A licensed user (limited to the person who uses a storage facility of a storage capacity not smaller than as specified by the Government Ordinance for the storage capacity of storage facilities depending on such a license as described in Paragraph 1 of Article 3, or who uses a radiation generating devices) shall, as provided by the Ordinance of MEXT, subject the use facility, etc. to the inspection of the Minister of MEXT for periods provided by the Government Ordinance.

2. A seller (limited to the person who uses a storage facility of a storage capacity not smaller than as specified by the Government Ordinance for the storage capacity of storage facilities depending on such a license as described in Paragraph 1 of Article 4, and the same applies to a lessor in this paragraph) or a lessor shall, as provided by the Ordinance of MEXT, subject the refilling facility, etc., to the inspection the Minister of MEXT for periods in accordance with by the Government Ordinance.

3. A radioisotope waste management business operator shall, as provided by the Ordinance of MEXT,

subject the waste refilling facility, etc. to the inspection the Minister of MEXT for periods in accordance with by the Government Ordinance.

4. Such inspections as described in the preceding three paragraphs (referred to as "periodical inspections" in Article 41-9, in Subparagraph (vi) of Article 45-2, in Paragraph 1 of Article 49, and in Subparagraph (i) of Article 56) shall be conducted as to whether or not the use facility, etc., the refilling facility, etc., or the waste refilling facility, etc. conform to the technical standards listed in Subparagraph (i) through Subparagraph (iii) of Article 6, in Subparagraph (i) through Subparagraph (iii) of Article 7, or in Subparagraph (i) through Subparagraph (iii) of Article 7-2, respectively.

(Obligation of Conformity with Standards of Use facilities, etc.)

Article 13. The licensed user shall maintain the location, structure and equipment of the user's facilities, storage facilities and waste management facilities so that they conform to the technical standards of Subparagraph (i) through Subparagraph (iii) of Article 6.

2. A notified user shall maintain the location, structure and equipment of storage facilities or equipment installed facilities in such a manner as to conform to the technical standards in accordance with the Ordinance of MEXT.

3. The seller and the lessor shall maintain the location, structure and equipment of the refilling facilities, storage facilities and waste management facilities so that they conform to the technical standards of Subparagraph (i) through Subparagraph (iii) of Article 7.

4. The radioisotope waste management business operator shall maintain the location, structure and equipment of the waste refilling facilities, waste storage facilities and waste management facilities so that they conform to the technical standards of Subparagraph (i) through Subparagraph (iii) of Article 7-2.

(Ordinance for the Conformity with Standards of Use Facilities, etc.)

Article 14. When the Minister of MEXT recognizes that the location, structure or equipment of a use facility, a storage facility or a waste management facility does not conform to the technical standards provided in Subparagraph (i) Subparagraph (ii), or Subparagraph (iii) of Article 6, the Minister may order the licensed user to remove, repair or modify the use facility, the storage facility or the waste management facility so as to make them conform to the technical standards appropriately

2. When the Minister of MEXT recognizes the location, structure or equipment of a storage facility or a equipment installed facility does not conform to the technical standards described in Paragraph 2 of the preceding article, the Minister may order the notified user to remove, repair and modify the storage facility or the equipment installed facility so that it may conform to the technical standards.

3. When the Minister of MEXT deems that the location, structure or equipment of a refilling facility, a storage facility or a waste management facility fails to conform to the technical standards described in Subparagraph (i), Subparagraph (ii), or Subparagraph (iii) of Article 7, the Minister may order the seller or the lessor to remove, repair or remodel the refilling facilities, storage facilities or waste management facilities so as to make them conform to the appropriate technical standards.

4. When the Minister of MEXT recognizes that the location, structure and equipment of a waste storage facility, a waste refilling facility or a waste management facility does not conform to the technical standards described in Subparagraph (i), Subparagraph (ii), or Subparagraph (iii) of Article 7-12, the Minister may order the radioisotope waste management business operator to remove, repair or modify the waste refilling facility, the waste storage facility or the waste management facility so as to make them conform to the technical standards. appropriately

(Standards of Use)

Article 15. When a licensed user or a notified user (hereinafter referred to as "user") uses radioisotopes or radiation generating devices, the user shall take the measures necessary for the prevention of radiation hazards in accordance with technical standards provided by the Ordinance of MEXT.

2. When the Minister of MEXT recognizes that measures for the use of radioisotopes or radiation generating devices do not conform to such technical standards described in the preceding paragraph, the Minister may order the user to modify the method of use or to take other measures necessary for the prevention of radiation hazards.

(Standards of Refilling)

Article 16. When a licensed user (including persons who come under one of Subparagraph (iv) through Subparagraph (vi) of Article 30, the same shall be applied to the following paragraph), a notified user (including persons who come under Subparagraph (v) or Subparagraph (vi) of the said article, provided that they use sealed radioisotopes in quantities not larger than as specified in the Government Ordinance, the same shall be applied to the following paragraph), a seller (including persons who come under one of Subparagraph (iv) through Subparagraph (vi) of the said article, the same shall be applied to the following paragraph through Article 19-2 and to Article 30-2), a lessor (including persons who come under one of Subparagraph (iv) through Subparagraph (vi) of Article 30, the same shall be applied to the following paragraph through Article 19-2 and to Article 30-2) and a radioisotope waste management business operator (including persons who come under one of Subparagraph (iv) through Subparagraph (vi) of Article 30, the same shall be applied from the following paragraph through Article 19-2 and to Article 30-2) refills or repacks radioisotopes or materials contaminated with radioisotopes, the person shall take the measures

necessary for the prevention of radiation hazards in accordance with technical standards provided by the Ordinance of MEXT.

2. When the Minister of MEXT recognizes that measures for the refilling or repacking of radioisotopes or materials contaminated with radioisotopes do not conform to such technical standards as described in the preceding paragraph, the Minister may order the licensed user, the notified user, the seller, the lessor, or the radioisotope waste management business operator to cease the refilling or repacking operation or to take other measures necessary for the prevention of radiation hazards.

(Standards of Custody)

Article 17. When a user (including persons who come under one of Subparagraph (iv) through Subparagraph (vi) of Article 30, the same shall be applied to the following paragraph through Article 19-2 and to Article 30-2), a seller, a lessor or a radioisotope waste management business operator intends to store radioisotopes or materials contaminated with radioisotopes, the user shall take the measures necessary for the prevention of radiation hazards in accordance with technical standards as provided by the Ordinance of MEXT.

2. When the Minister of MEXT recognizes measures for storage of radioisotopes or materials contaminated with radioisotope to be not conformable to such technical standards as described in the preceding paragraph, he or she may order the user, the seller, the lessor or the radioisotope waste management business operator to modify the method of storage or take other measures necessary for the prevention of radiation hazards.

(Standards of Transportation)

Article 18. When a user, seller, a lessor or a radioisotope waste management business operator transports radioisotopes or materials contaminated with radioisotopes within the factory or business (in the case of the user, the factory or business equipped with use facilities, storage facilities, equipment installed facilities or waste management facilities, in the case of the seller and the lessor, the location of the selling or leasing place equipped with refilling facilities, storage facilities or waste management facilities, in the case of the radioisotope waste management business operator, the radioisotope waste management place equipped with waste refilling facilities, waste storage facilities or waste management facilities, the same shall be applied hereinafter), the person shall take the measures necessary for the prevention of radiation hazards in accordance with technical standards provided by the Ordinance of MEXT.

2. When the Minister of MEXT, in such a case as described in the preceding paragraph, recognizes that measures for the transportation of radioisotopes or materials contaminated with radioisotopes does not conform to such technical standards as described in the said paragraph, he

or she may order the user, the seller, the lessor or the radioisotope waste management business operator to cease the transportation or take other measures necessary for the prevention of radiation hazards.

(Verification of Transportation, etc.)

Article 18-2. When a user, a seller, a lessor, a radioisotope waste management business operator, or a person commissioned with transportation by any of them (referred to as "user, etc." in the following paragraph through Paragraph 5 and in Article 32 and Article 33) transports radioisotopes or materials contaminated with radioisotopes outside the factory or place of business (excluding when transporting by ship or by aircraft), the person shall take the measures necessary for the prevention of radiation hazards in accordance with technical standards provided by the Ordinance of MEXT (the Ordinance of the Minister of Land, Infrastructure and Transport in the case of transportation by rail, by track, by cable, by trackless car, by motor and by light vehicle, excluding measures concerning goods for transportation, the same shall be applied to the following paragraph).

2. When such a case as described in the preceding paragraph comes under cases provided particularly by the Government Ordinance for the prevention of radiation hazards from radioisotopes and materials contaminated with radioisotopes, the user, etc. shall, as provided by the Ordinance of MEXT, obtain the verification by the Minister of MEXT or of the Ordinance of the Minister of Land, Infrastructure, and Transport as to the conformity of the measures for transportation thereof with such technical standards as described in the said paragraph,

3. The user, etc. may, in accordance with the Ordinance of MEXT, to obtain the approval of the Minister of MEXT in advance with regard to containers for transportation. In this case, the containers received the approval of the Minister of MEXT (referred to as "approved containers") shall be considered to be satisfactory to the technical standards described in Paragraph 1 which relate to containers.

4. When the Minister of MEXT or the Minister of Land, Infrastructure, and Transport, in such a case as described in Paragraph 1, recognizes that measures for the transportation of radioisotopes and materials contaminated with radioisotopes does not conform to such technical standards as described in the said paragraph, the Minister may order the user, etc. to cease the transportation or take other measures necessary for the prevention of radiation hazards.

6. The Prefectural Public Safety Commission, after receiving such notification as provided in the preceding paragraph, may give instructions in accordance the Cabinet Order, if it is considered to be necessary to prevent and secure safety of the public from radiation hazards, as to the date and the route of transportation and other matters provided by the Cabinet Order.

(Standards of Waste Management)

Article 19. When a user, a seller, a lessor or a radioisotope waste management business operator manages the waste of radioisotopes or materials contaminated with radioisotopes in the factory or place of business, the person shall take the measures necessary for the prevention of radiation hazards in accordance with technical standards specified by the Ordinance of MEXT.

2. When a user, a seller, a lessor or a radioisotope waste management business operator manages the waste of radioisotopes or materials contaminated with radioisotopes outside the factory or place of business, the person shall take the measures necessary for the prevention of radiation hazards in accordance with technical standards specified by the Ordinance of MEXT.

3. When the Minister of MEXT recognizes that measures for the waste management of radioisotopes or materials contaminated with radioisotopes do not conform to such technical standards as described in the preceding two paragraphs, he or she may order the user, the seller, the lessor or the radioisotope waste management business operator to cease the waste management or take other measures necessary for the prevention of radiation hazards.

(Verification of Waste management)

Article 19-2. When a user, a seller, a lessor or a radioisotope waste management business operator manages the waste of radioisotopes or materials contaminated with radioisotopes outside the factory or place of business, and the waste management comes under cases provided by the Government Ordinance as the cases required in particular for the prevention of radiation hazards from radioisotopes and materials contaminated with radioisotopes, the person shall, as provided by the Ordinance of MEXT, obtain the verification by the Minister of MEXT as to the conformity of the measures for waste management thereof with such technical standards as described in Paragraph 2 of the preceding article.

(Monitoring)

Article 20. A user, a seller, a lessor and a radioisotope waste management business operator shall, as provided by the Ordinance of MEXT, measure the dose of radiation and the level of contamination with radioisotopes in places where there is a risk of radiation hazards.

2. A user, a seller, a lessor, or a radioisotope waste management business operator shall, as provided by the Ordinance of MEXT, measure the dose of radiation and the level of contamination with radioisotopes that may affect any person who may enter the premises of a use facility, a refilling facility, a waste refilling facility, a storage facility, a equipment installed facility (excluding facilities where only use certified radioisotope equipped devices provided by the Government Ordinance are used), a waste storage facility or a waste management facility.

3. A user, a seller, a lessor or a radioisotope waste management business operator shall keep a record and file of the results of such monitoring as described in the preceding two paragraphs and take other measures provided by the Ordinance of MEXT.

(Internal Rules for Prevention of Radiation Hazards)

Article 21. A user, a seller, a lessor or a radioisotope waste management business operator, with the aim of preventing radiation hazards, shall, as provided by the Ordinance of MEXT, draw up Internal Rules for Prevention of Radiation Hazards and submit them to the Minister of MEXT before the person begins using of radioisotopes or radiation generating devices, doing business in the sale or lease of radioisotopes, or doing business of the waste management of radioisotopes and materials contaminated with radioisotopes.

2. The Minister of MEXT may order the user, the seller, the lessor or the radioisotope waste management business operator to make modification of the Internal Rules for Prevention of Radiation Hazards, when it is considered to be necessary for the prevention of radiation hazards.

3. When a user, a seller, a lessor or a radioisotope waste management business operator has altered the Internal Rules for Prevention of Radiation Protection, the person shall notify the alteration to the Minister of MEXT within thirty days from the day of alteration.

(Education and Training)

Article 22. A user, a seller, a lessor or a radioisotope waste management business operator shall, as provided by the Ordinance of MEXT, ensure that Internal Rules for Prevention of Radiation Hazards and other related items are well understood by and the education and training required for the prevention of radiation hazards will be provided to persons entering the premises of use facilities, refilling facilities, waste refilling facilities, storage facilities, equipment installed facilities (excluding facilities where only use-certified radioisotope-equipped devices provided by the Government Ordinance are used), waste storage facilities, and waste management facilities.

(Health examination)

Article 23. A user, a seller, a lessor or a radioisotope waste management business operator shall, in accordance with the Ordinance of MEXT, provide health examinations to persons entering the premises of use facilities, refilling facilities, waste refilling facilities, storage facilities, equipment installed facilities, waste storage facilities and waste management facilities.

2. A user, a seller, a lessor or a radioisotope waste management business operator shall keep the record and file of the results of such health examinations as described in the preceding paragraph and shall take other measures provided by the Ordinance of MEXT.

(Measures for Persons Exposed or possibly Exposed to Radiation Hazards)

Article 24. A user, a seller, a lessor or a radioisotope waste management business operator shall, as provided by the Ordinance of MEXT, restrict entry into the use facilities, refilling facilities, waste refilling facilities, storage facilities, equipment installed facilities, waste storage facilities and waste management facilities, and shall take other measures essential to good health for persons who are exposed and are possible to be exposed to radiation hazards.

(Obligation to Record)

Article 25. A user shall, in accordance with the Ordinance of MEXT, keep books and record the following items:

- (i) Matters concerning the use, storage or waste management of radioisotopes;
- (ii) Matters concerning the use of radiation generating devices;
- (iii) Matters concerning the waste management of materials contaminated with radioisotopes; and
- (iv) Other necessary matters for the prevention from radiation hazards.

2. The seller or lessor shall, as provided by the Ordinance of MEXT, keep books and record items concerning selling, storage or waste management of radioisotopes and the items provided in Subparagraph (iii) and Subparagraph (iv) of the preceding paragraph.

3. A radioisotope waste management business operator shall, as provided by the Ordinance of MEXT, keep books and record items concerning storage or waste management of radioisotopes or materials contaminated with radioisotopes and items provided in Subparagraph (iv,) of Paragraph 1.

4. The books referred to in the preceding three paragraphs shall be preserved as provided by the Ordinance of MEXT.

(Revocation of the License, etc.)

Article 26. If a licensed user, a seller, a lessor or a radioisotope waste management business operator comes under any of the following subparagraphs, the Minister of MEXT may revoke such a license as described in Paragraph 1 of Article 3, Paragraph 1 of Article 4, or Paragraph 1 of Article 4-2, or may order cessation for a period not exceeding one year of the use of radioisotopes or radiation generating devices, of the sale or lease of radioisotopes, or of the waste management of radioisotopes or materials contaminated with radioisotopes:

(i) When the person has come under any of Paragraphs 2 through 5 of Article 5, or one of subparagraphs of Paragraph 2 of the said article;

(ii) When the person has violated such conditions as described in Paragraph 1 of Article 8 (including cases where this is applied in accordance with Paragraph 3 of Article 10, Paragraph 3 of Article 11, or Paragraph 3 of Article 11-2);

(iii) When the person has modified matters on which the person is required to obtain a license in accordance with the provisions of Paragraph 2 of Article 10, Paragraph 2 of Article 11, or Paragraph 2 of Article 11-2;

(iii-2) When the person has modified without notification matters of which the person is required to give notification as provided in Paragraph 5 or Paragraph 6 of Article 10;

(iii-3) When the person has violated such provisions as described in paragraphs 1 through 3 of Article 12-8, or Paragraph 1 through Paragraph 3 of Article 12-9;

(iii-4) When the person has violated provisions described in Paragraph 1, Paragraph 3 or Paragraph 4 of Article 13;

(iv) When the person has violated orders described in Paragraph 1, Paragraph 3 or Paragraph 4 of Article 14;

(v) When the person has violated such technical standards described in Paragraph 1 of Article 15, Paragraph 1 of Article 16, Paragraph 1 of Article 17, Paragraph 1 of Article 18, Paragraph 1 of Article 18-2, or Paragraph 1 or Paragraph 2 of Article 19;

(v-2) When the person has violated such orders provided in Paragraph 2 of Article 15, Paragraph 2 of Article 16, Paragraph 2 of Article 17, Paragraph 2 of Article 18, Paragraph 4 of Article 18-2, or Paragraph 3 of Article 19;

(v-3) When the person has violated the provisions of Paragraph 2 of Article 18-2 or Article 19-2;

(vi) When the person has violated the provisions of Article 20, Article 23, Article 24 or the preceding article;

(vii) When the person has violated the provisions of Subparagraph (i), Subparagraph (iii), Subparagraph (iv), or Subparagraph (v) of Article 29 or Subparagraph (i) or Subparagraph (iii) of Article 30;

(viii) When the person has violated the provisions of Paragraph 1 of Article 34 or Paragraph 1 or Paragraph 2 of Article 37; or

(ix) When the person has violated an order provided in Article 38.

2. The Minister of MEXT may, when a notified user comes under any of the following items, order the cessation of use of radioisotopes for a period not exceeding one year:

(i) When the user has changed without notification the items for which the user should have notified in accordance with the provisions of Paragraph 2 of Article 3-2;

(i-2) When the user has violated the provisions of Paragraph 2 of Article 13;

(ii) When the user has violated an order provided in Paragraph 2 of Article 14;

- (iii) When the user has violated technical standards provided in Paragraph 1 of Article 15, Paragraph 1 of Article 16, Paragraph 1 of Article 17, Paragraph 1 of Article 18, Paragraph 1 of Article 18-2, or Paragraph 1 or Paragraph 2 of Article 19;
 - (iii-2) When the user has violated such orders provided in Paragraph 2 of Article 15, Paragraph 2 of Article 16, Paragraph 2 of Article 17, Paragraph 2 of Article 18, Paragraph 4 of Article 18-2, or Paragraph 3 of Article 19;
 - (iii-3) When the user has violated the provisions of Paragraph 2 of Article 18-2, or of Article 19-2;
 - (iv) When the user has violated the provisions of Article 20, Article 23, Article 24 or Paragraph 1 or Paragraph 4 of the preceding article;
 - (v) When the user has violated the provisions of Subparagraph (ii) of Article 29 or Subparagraph (ii) of Article 30;
 - (vi) When the user has violated the provisions of Paragraph 1 of Article 34 or Paragraph 1 or Paragraph 2 of Article 37; or
 - (vii) When the user has violated the provisions of Article 38.
- (Notification for Cease of Use, etc.)

Article 27. Except for cases provided in Paragraph 1 of the preceding article, when a user has completely ceased the using of radioisotopes or radiation generating devices, or when a seller, a lessor or radioisotope waste management business operator has discontinued his business, the said user, seller, lessor or radioisotope waste management business operator shall notify this to the Minister of MEXT as provided by the Ordinance of MEXT.

2. When the notification provided in the preceding paragraph has been made, the granted license provided in Paragraph 1 of Article 3, Paragraph 1 of Article 4 or Paragraph 1 of Article 4-2 shall lose its validity.

3. When a user, a seller, a lessor or a radioisotope waste management business operator has died or when a user, a seller, a lessor or a radioisotope waste management business operator of a legal person has dissolved, his inheritor or the person who is to take charge of the inheritance on behalf of the inheritor, its liquidator, its trustee in bankruptcy or the representative of the legal person that continues to exist after merger or is established by merger shall, as provided by the Ordinance of MEXT, notify this to the Minister of MEXT.

(Measures in Consequence to the Revocation of License, Cease of Use, etc.)

Article 28. A licensed user, a seller, a lessor or a radioisotope waste management business operator whose license has been revoked in accordance with the provisions of Paragraph 1 of Article 26 or a person who must make a notification in accordance with the provisions of Paragraph 1 or Paragraph 3 of the preceding article shall, in accordance by the Ordinance of MEXT, take measures to transfer the radioisotopes to another user, a seller, a lessor or a radioisotope waste management business operator, to decontaminate or to manage the waste of radioisotopes or materials contaminated with radioisotopes, etc.

2. Any person provided in the preceding paragraph shall, in accordance with the Ordinance of MEXT, report the measures taken in accordance with the provisions of the said paragraph to the Minister of MEXT within thirty days from the day the person may have a license revoked, from the day the person may have ceased business in the use, sale, lease or waste management of radioisotopes, or from the day the user, seller, lessor or radioisotope waste management business operator may have died or the user, seller, lessor or radioisotope waste management business operator of a legal person may have dissolved his company.

3. When the Minister of MEXT recognizes that the measures taken by the persons defined in Paragraph 1 is not adequate, the Minister may order the persons defined in the said paragraph to take necessary measures to prevent from radiation hazards.

(Restrictions on Transfer , Take Over, etc.)

Article 29. Except for cases coming under any of the following subparagraphs, radioisotope shall not be transferred, taken over, lent, or borrowed:

(i) When a licensed user transfers or lends to other users, sellers, lessors or radioisotope waste management business operators the radioisotopes of the type stated in the user's certificate of license, or takes over or borrows radioisotopes of the type stated in the user's certificate of license within the capacity of the storage facilities stated in the user's certificate of license;

(ii) When a notified user transfers or lends to another user, seller, lessor or radioisotope waste management business operator the radioisotopes which are or have been fixed on the certified radioisotope-equipped device of which the user has given notification, or takes over or borrows radioisotopes to be fixed on the certified radioisotope-equipped device of which the user has given notice, and when the user transfers or lends to another user, seller, lessor or radioisotope waste management business operator radioisotopes of the type of which the user has given notification, or takes them over or borrows them in quantities up to the storage capacity of the storage facility of which the user has given in notification

(iii) When a seller exports radioisotopes of the type stated in the seller's certificate of license or transfers or lends them to users, other sellers, lessors or radioisotope waste management business operators, or takes them over or borrows them within the capacity of the storage facilities stated in the seller's certificate of license;

(iv) When a lessor exports radioisotopes of the type stated in the lessors certificate of license or transfers or lends them to users, sellers, other lessors or radioisotope waste management business operators, or takes

them over or borrows them within the capacity of the storage facilities stated in the lessors certificate of license;

(v) When a radioisotope waste management business operator transfers or lends to users, sellers, lessors, or other radioisotope waste management business operators radioisotopes of the type stated in his certificate of license, or he and she takes them over or borrows them within the capacity of the storage facilities stated in the user's certificate of license;

(vi) When a licensed user, a seller, a lessor or a radioisotope waste management business operator whose license has been cancelled in accordance with the provisions of Article 26 Paragraph 1, transfers, in accordance with by the Ordinance of MEXT, radioisotopes to other users, sellers, lessors or radioisotope waste management business operators on the day of being revoked;

(vii) When a person who has to make a notification in accordance with the provisions of Paragraph 1 of Article 27, transfers, as provided by the Ordinance of MEXT, to users, sellers, lessors or radioisotope waste management business operators radioisotope which the person owned on the day when the person ceases the using, selling, leasing or radioisotope waste management business; or

(viii) When a person who has to make a notification in accordance with the provisions of Paragraph 3 of Article 27, transfers, in accordance with the Ordinance of MEXT, to users, sellers, lessors, or radioisotope waste management business operators the radioisotopes which a user, a seller, a lessor, or a radioisotope waste management business operator owned on the day he died, or which a user, a seller, a lessor, a radioisotope waste management business operator who owned a legal person when it dissolved.

(Restrictions on Possession)

Article 30. Radioisotopes shall not be possessed except for cases which are based on legislations and regulations or which come under any of the following subparagraphs:

(i) When a licensed user, a seller, or a lessor possesses radioisotopes of the type stated in the user's certificate of license within the capacity of storage facilities stated in the user's certificate of license;

(ii) When a notified user possesses radioisotopes of the type of which the user has notified in quantities up to the storage capacity of the storage facility of which the user has notified, and when the user possesses radioisotopes to be fixed on the certified radioisotope-equipped device of which the user has notified (including cases where the user possesses, as provided by the Ordinance of MEXT. the radioisotopes which the user may have possessed at the end of the term of validity of certified label provided in Paragraph 3 of Article 12-4, for the certified radioisotope-equipped device);

(iii) When a radioisotope waste management business operator possesses radioisotopes of the type stated in the operator's certificate within the capacity of the storage facilities stated in the operator's certificate of license;

(iv) In case where, a licensed user, a seller, a lessor or a radioisotope waste management business operator whose license has been cancelled in accordance with the provisions of Paragraph 1 of Article 26, possesses, as provided by the Ordinance of MEXT, the radioisotopes which the person owned on the day of being revoked

(v) When a person who has to make a notification in accordance with the provisions of Paragraph 1 of Article 27, possesses as provided by the Ordinance of MEXT, the radioisotopes which the person possessed on the day when the person's using radioisotopes or selling, leasing, or radioisotope waste management business was ceased;

(vi) When a person, who has to make a notification in accordance with the provisions of Paragraph 3 of Article 27, possesses, as provided by the Ordinance of MEXT, the radioisotopes which a user, a seller, a lessor or a radioisotope waste management business operator possessed when the user, the seller, the lessor or the radioisotope waste management business operator died, or the user, the seller, the lessor or the radioisotope waste management business operator who owned a legal person dissolved;

(vii) When a person, who has been entrusted with the transportation of radioisotopes by persons provided in each of the preceding subparagraphs, possesses the radioisotopes the person has been entrusted with; or

(viii) When an employee of persons, described in each of the preceding subparagraphs, possesses radioisotopes for the person's business.

(Restrictions on Sea Disposal)

Article 30-2 Radioisotopes or materials contaminated with radioisotopes shall not be dumped for sea disposal except for cases falling under any of the following subparagraphs:

(i) When a user, a seller, a lessor or a radioisotope waste management business operator has obtained the verification provided in Article 19-2; or

(ii) In cases unavoidable for the purpose of assuring safety of human lives, ships, aircraft or artificial marine structures.

2. What is referred to as "sea disposal" in the preceding paragraph means dumping material into the sea from ships, aircraft or artificial marine structures, or burning material for the purpose of destruction on ships or artificial marine structures. But this shall not be applied to the dumping into the sea from ships, aircraft or artificial marine structures of material arising from the operation of the ships, aircraft or artificial marine structures, and the equipment thereof, nor to the burning on ships or artificial marine structures for the purpose of destruction of material arising from the operation of the ships or artificial marine structures,

and the equipment thereof.

(Reporting of Accidents)

Article 32. If theft, loss and other accidents happen with regard to the radioisotopes they possess, users, etc. shall notify it without delay to a police officer, or a maritime safety officer.

(Measures in an Emergency)

Article 33. If an earthquake, a fire and other disasters are likely to cause, or have caused radiation hazards due to radioisotopes or materials contaminated with radioisotope, or radiation generating devices, which users, etc. possess, users, etc. shall, in accordance with the Ordinance of MEXT (by the Ordinance of MEXT or by the Ordinance of the Minister of Land, Infrastructure and Transport in cases involving the transportation outside the factory or place of business (including transportation by ship and aircraft) of radioisotopes or materials contaminated with radioisotopes, the same shall be applied to Paragraph 3), immediately take emergency measures.

2. Persons who have chanced upon the situation of the preceding paragraph shall immediately inform it to a police official or a maritime safety official.

3. In the event of such a case as described in the preceding paragraph, users, etc. shall, as provided by the Ordinance of MEXT, notify without delay to the Minister of MEXT (to the Minister of MEXT or the Minister of Land, Infrastructure, and Transport in cases involving the transportation outside the factory or place of business (including transportation by ship and aircraft) of radioisotopes or materials contaminated with radioisotopes, the same shall be applied to the following paragraph).

4. In such a case as described in Paragraph 1, the Minister of MEXT may order any persons defined in the said paragraph, if considered to be urgently necessary for the prevention of radiation hazards, to change the location of radioisotopes or materials contaminated with radioisotopes, to decontaminate, or to take other measures necessary for the prevention of radiation hazards.

Chapter IV. Supervisor of Radiation Protection

(Supervisor of Radiation Protection)

Article 34. Users (excluding persons who use only use-certified radioisotope-equipped device provided by the Government Ordinance, and the same applies throughout this Chapter), sellers, lessors, and radioisotope waste management business operators shall assign a Supervisor of Radiation Protection, who is to supervise the prevention of radiation hazards, out of persons holding such Class I or Class II licenses for the handling of radiation described in Paragraph 1 of the following article, as classified by the Ordinance of MEXT. In this case, they may assign a Chief Engineer of Radiation Protection out of physicians and dentists when they use radioisotopes or radiation generating devices for purposes of health examination and treatment, and out of pharmacists when they use radioisotopes, or radiation generating devices in manufacturing of such medicines, medical accessories, cosmetics, and medical instruments provided in Article 2 of the Pharmaceutical Affairs Law (Law No. 145, 1960).

2. When users, sellers, lessors and radioisotope waste management business operators have assigned Supervisor of Radiation Protection, they shall, as provided by the Ordinance of MEXT, notify the fact to the Minister of MEXT within thirty days from the date of selection, the same shall be applied when such persons have been relieved of their assignments.

(Licence for the Supervisor of Radiation Protection)

Article 35. Licences for the Supervisor of Radiation Protection shall be Class I and Class II licences for person in charge of handling radiation.

2. The license for Class I Supervisor of Radiation Protection shall be granted to persons who have passed examinations conducted by the Minister of MEXT for the Supervisor of Radiation Protection and who have finished training courses provided with by the Minister of MEXT.

3. The license for Class II Supervisor of Radiation Protection shall be granted, according to divisions provided by the Government Ordinance, to persons who have passed examinations conducted by the Minister of MEXT for the Supervisor of Radiation Protection and who have finished training course provided with by the Minister of MEXT, or to persons who have finished only those training courses provided with by the Minister of MEXT.

4. The Minister of MEXT may not grant a license for the Supervisor of Radiation Protection to persons who come under any of the following subparagraphs:

(i) Persons who have been ordered to return their licence for the Supervisor of Radiation Protection described in the following paragraph and for whom one year has not passed from the day of order; or

(ii) Persons who have been sentenced to a fine or heavier penalty for violating the provisions of this Law or of orders based on this Law, and for whom two years have riot passed from the day the execution of such sentence was completed or from the day such execution ceased to be levied.

5. When a person granted a licence for Supervisor of Radiation Protection has violated this Law or orders based on this Law, the Minister of MEXT may order to return the certificates of the Supervisor of Radiation Protection.

6. Subjects of such examinations for supervisor of radiation protection as described in Paragraph 2 and Paragraph 3, procedures for receiving such examinations, and other details of the conduct of examinations for Supervisor of Radiation Protection, subjects of such courses as described in Paragraph 2 and Paragraph

3, procedures for taking such courses, and other details of the conduct of courses, and procedures for granting, re-granting and restoring the licence for Supervisor of Radiation Protection, shall be provided by the Ordinance of MEXT.

(Duties of the Supervisor of Radiation Protection, etc.)

Article 36. The Supervisor of Radiation Protection shall be faithful in charge of the duties.

2. Persons entering use facilities, refilling facilities, waste refilling facilities, storage facilities, machinery-mounted facilities, waste storage facilities and waste management facilities must follow instructions given by the Supervisor of Radiation Protection to ensure enforcement of this Law or orders based on this Law and of the Internal Rules for Prevention of Radiation Hazards.

3. Users, sellers, lessors, and radioisotope waste management business operators shall respect the opinion of the Supervisor of Radiation Protection with respect to the prevention of the radiation hazards, as well as matters described in the preceding Paragraph.

(Order of Dismissal)

Article 38. When the Supervisor of Radiation Protection or Supervisor's proxy violates the provisions of this Law or orders based on this Law, the Minister of MEXT may order a user, a seller, a lessor or a radioisotope waste management business operator to dismiss the Supervisor of Radiation Protection or the Supervisor's proxy.

Chapter V. Designated Mechanism Verification Agency, etc.

(Designation of Designated Mechanism Verification Agencies, etc.)

Article 39. The Minister of MEXT may, in accordance with the Ordinance of MEXT, cause persons whom the Minister designates (hereinafter referred to as "designated mechanism verification agencies") to perform such mechanism verification provided in Paragraph 1 of Article 12-4, and in Article 12-6 (including permitting radioisotope equipped devices to bear a certified label of having obtained the mechanism verification in accordance with Paragraph 2 of Article 12-4, the same shall be applied hereinafter).

2. The designated mechanism verification agency shall, as provided by the Ordinance of MEXT, be designated upon application by a person who intends to obtain the mechanism verification.

3. Persons falling under any of the following subparagraphs cannot be designated for a designated mechanism verification agency:

(i) Persons who have been sentenced to a fine or heavier penalty for violating the provisions of this Law or orders based on this Law, and for whom two years have not elapsed from the day they have served out their term or ceased to serve;

(ii) Persons whose designations have been revoked, and for whom two years have not elapsed from the day of revocation; or

(iii) Legal persons, any of whose officers falls under Subparagraph (i).

4. The Minister of MEXT shall not give a designation unless such application provided in Paragraph 2 is recognized to be satisfactory to the standards concerning technical ability and other matters provided by the Ordinance of MEXT.

(Obligations of Designated Mechanism Verification Agencies, etc.)

Article 40. The designated mechanism verification agency, when requested to give the mechanism verification, shall, except when there is reasonable ground, give such verification without delay.

2. The designated mechanism verification agency, when giving the mechanism verification, shall make the person perform the verification who is qualified by the Ordinance of MEXT.

(Business Rules)

Article 41. The designated mechanism verification agency shall develop rules for the business of mechanism verification (hereinafter referred to as "business rules") and subject them to the approval of the Minister of MEXT, the same shall be applied when the agency intends to alter them.

2. Details to be defined in such business rules shall be provided with by the Ordinance of MEXT.

3. The Minister of MEXT, when deeming business rules approved as described in Paragraph 1 to have become improper for the fair conduct of the mechanism verification, may order the designated mechanism verification agency to alter them

(Appointment and Removal of Mechanism Verifiers)

Article 41-4. The appoint of a person who is to give the mechanism verification provided in Paragraph 2 of Article 40 (referred to in the following paragraph as the "mechanism verifier") shall not come into force until it is approved by the Minister of MEXT.

2. When a mechanism verifier has violated the provisions of this Law, of orders based on this Law, or of business rules, and when the Minister of MEXT deems the verifier to be not appropriate to perform the functions, the Minister of MEXT may order the designated mechanism verification agency to remove the mechanism verifier.

(Revocation of Designation, etc.)

Article 41-6. When a designated mechanism verification agency has come to fall under Subparagraph (i) or Subparagraph (iii) of Paragraph 3 of Article 39, the Minister of MEXT must revoke the designation thereof.

2. When a designated mechanism verification agency has come to fall under any of the following

subparagraphs, the Minister of MEXT may revoke the designation thereof or order suspension of all or part of its business of the mechanism verification for a period of time not exceeding six months:

- (i) When the agency is recognized not to be in conformity with standards provided in Paragraph 4 of Article 39;
 - (ii) When the agency has violated the provisions of Article 40, Article 41-2 and Article 41-3;
 - (iii) When the agency has given the mechanism verification without recourse to business rules approved as described Paragraph 1 of Article 41;
 - (iv) When the agency has violated orders based on the provisions of Paragraph 3 of Article 41, and of Paragraph 2 of Article 41-4; or
 - (v) When the agency has violated conditions described in Paragraph 1 of Article 41-20.
- (Keeping Books, etc.)

Article 41-7. The designated mechanism verification agency, as provided by the Ordinance of MEXT, shall prepare and book documents concerning the business of mechanism verification provided by the Ordinance of MEXT.

(Mechanism Verification by the Minister of MEXT)

Article 41-8. When the Minister of MEXT has designated the mechanism verification agency provided in Paragraph 1 of Article 39, the Minister shall not give the mechanism verification.

2. When a designated mechanism verification agency has suspended all or part of its business of mechanism verification with permission as provided in Article 41-2, when the Minister of MEXT has ordered a designated mechanism verification agency as provided in Paragraph 2 of Article 41-6 to discontinue all or part of its business of mechanism verification, or when the Minister deems it necessary because a natural calamity and other causes have made it difficult for a designated mechanism verification agency to conduct all or part of its business of mechanism verification, the Minister of MEXT shall take all or part of the business of mechanism verification.

3. In the case of the Minister of MEXT taking all or part of the business of mechanism verification as provided in the preceding paragraph, the taking over of the business of mechanism verification and other necessary matters shall be provided with by the Ordinance of MEXT if the designated mechanism verification agency discontinues all or part of its business of mechanism verification with permission provided in Article 41-2, or if the designated mechanism verification agency has had its designation revoked as provided in Article 41-6.

(Designation of Designated Inspection Agencies, etc.)

Article 41-9. The Minister of MEXT may, as provided by the Ordinance of MEXT, cause persons whom the Minister designates to make facility inspections and periodical inspections (hereinafter referred to as "designated inspection agencies").

2. The designated inspection agency shall, as provided by the Ordinance of MEXT, be designated upon application by a person who intends to obtain facility inspections or periodical inspections.

3. The provisions of Paragraph 3 and Paragraph 4 of Article 39, and of Article 40 through the preceding article shall be applied correspondingly to the designated inspection agencies. In this case, what is referred to as "designated mechanism verification agencies", in these provisions shall be construed to mean "designated inspection agencies", "mechanism verification" to mean "facility inspection and periodical inspection", and "mechanism verifiers" in Article 41-4 to mean "inspectors".

Chapter VI. Miscellaneous Provisions

(Collection of Reports)

Article 42. The Minister of MEXT, the Minister of Land, Infrastructure, and Transport or the Prefectural Public Safety Commissions may, as provided by the Ordinance of MEXT, by the Ordinance of the Minister of Land, Infrastructure and Transport, or by the Cabinet Order, cause users, sellers, lessors and radioisotope waste management business operators, or persons entrusted by them with transportation, to present report as far as necessary for the enforcement of this Law (in the case of the Ordinance of the Minister of Land, Infrastructure, and Transport, the provisions of Paragraph 1, Paragraph 2 and Paragraph 4 of Article 18-2 and Paragraph 1 and Paragraph 4 of Article 33, in the case or the Prefectural Public Safety Commissions, the provisions of Paragraph 6 of Article 18-2).

2. The Minister of MEXT or the Minister of Land, Infrastructure, and Transport may, as provided by the Ordinance of MEXT or by the Ordinance of the Minister of Land, Infrastructure and Transport, cause designated mechanism verification agencies, designated inspection agencies, designated transporting material verification agencies, designated transportation mean verification agencies, designated examination agencies and designated training agencies, in the case of the Minister of MEXT, agencies other than the designated transportation mean verification agencies, in the case of the Minister of Land, Infrastructure, and Transport, the designated transportation mean verification agencies, to present reports as far as necessary for the enforcement of this Law.

3. The Minister of MEXT may, as far as necessary for the enforcement of the provisions of Paragraph 1 of Article 30-2, cause the commander of a ship or any other person concerned to produce necessary reports in addition to collecting such reports provided in the preceding two paragraphs.

(Radiation Inspectors)

Article 43. MEXT shall have radiation inspectors.

2. The necessary matters concerning the number and the qualification of the radiation inspectors shall be provided by the Government Ordinance.

(On-the-site Inspection)

Article 43-2. The Minister of MEXT, the Minister of Land, Infrastructure, and Transport or the Prefectural Public Safety Commissions may, as far as necessary for the enforcement of this Law (the Ordinance of the Minister of Land, Infrastructure, and Transport for the enforcement of the provisions of Paragraph 1, Paragraph 2 and Paragraph 4 of Article 18-2 and Paragraph 1 and Paragraph 4 of Article 33, the Prefectural Public Safety Commissions for the enforcement of the provisions of Paragraph 6 of Article 18-2), cause their the executive persons (radiation inspectors under the direction of the Minister of MEXT or police the executive persons under the direction of the Prefectural Public Safety Commissions) to enter the offices, factories, or the places of office, of users, sellers, lessors and radioisotope waste management business operators or persons entrusted by them with transportation, to check up on their books, papers and other necessary materials, to question the persons concerned, and to cause them, in the minimum of amount for test, to take away radioisotopes or materials contaminated with radioisotopes.

2. The Minister of MEXT may, as far as necessary for the enforcement of the provisions of Paragraph 1 of Article 30-2, cause the officials to enter the ships so as to check up on their books, documents and other necessary materials, to question the persons concerned, and to take away samples of radioisotopes and other necessary materials, in the minimum of amount required for test, in addition to on-the-site inspection, questioning and taking away of materials provided in the preceding paragraph.

3. Officials making on-the-site-inspections provided in the preceding two paragraphs shall carry their identification cards with them and must show the cards when requested by persons concerned.

4. The authority prescribed in Paragraph 1 and Paragraph 2 shall not be constructed as having been granted for the purpose of criminal investigation.

Article 43-3. The Minister of MEXT or the Minister of Land, Infrastructure and Transportation may, as far as necessary for the enforcement of this Law, cause their the executive persons to enter the offices of designated mechanism verification agencies, designated inspection agencies, designated transporting material verification agencies, designated transportation mean verification agencies, designated examination agencies or designated training agencies (in the case of the Minister of MEXT, all other than the designated transportation mean verification agencies, in the case of the Minister of Transport, the designated transportation mean verification agencies) to check up on their books, papers and other necessary materials and to question the persons concerned.

2. The provisions of Paragraphs 3 and Paragraphs 4 of the preceding article shall be applied correspondingly to such on-the-spot inspections as provided in the preceding paragraph.

Chapter VII. Penal Provisions

Article 52. Persons coming under any of the following subparagraphs shall be condemned to either penal servitude of not more than three years and/or a fine of not more than 1,000,000 yen :

(i) A person who has used radioisotopes or radiation generating devices provided in Paragraph 1 of Article 3 without the license provided in the said paragraph;

(ii) A person who has sold or leased radioisotopes as a business without the license provided in Paragraph 1 of Article 4;

(iii) A person who has managed the waste of radioisotopes or materials contaminated with radioisotopes as a business without the license provided in Paragraph 1 of Article 4-2; or

(iv) A person who has violated the order of suspension of use, selling, leasing or radioisotope waste management, provided in Paragraph 1 of Article 26.

Article 53. Persons coming under any of the following subparagraphs shall be condemned to either penal servitude of not more than one year and/or a fine of not more than one 500,000 yen:

(i) A person who has violated the provision of Paragraph 5 of Article 9;

(ii) A person who has changed the items provided in Subparagraph (ii) through Subparagraph (vii) of Paragraph 2 of Article 3 without the license provided in Paragraph 2 of Article 10;

(iii) A person who has changed the items provided in subparagraphs from (ii) to (vi) of Article 4 of Paragraph 2 without the license provided in Paragraph 2 of Article 11;

(iv) A person who has changed the items provided in Subparagraph (ii) through Subparagraph (vi) of Paragraph 2 of Article 4-2 without the license provided in Paragraph 2 of Article 11-2;

(v) A person who has violated the provisions of Paragraph 1, Paragraphs 2 or Paragraphs 3 of Article 12-8, Article 29, Article 30, Article 31, Paragraph 1 of Article 34, or Paragraph 1 or Paragraphs 2 of Article 37;

(v-ii) A person who has violated the provisions of Paragraph 1 of Article 30-2 (excluding any such person provided in Article 53-4); or

(vi) A person who has violated the provisions of Paragraph 1 of Article 33 or who has violated the orders based on the provisions of Paragraph 4 of the same article.

Article 53-2. A person who has violated the provisions of Article 41-16 shall be condemned to penal servitude for a term not exceeding one year or a fine not exceeding 500,000 yen.

Article 53-3. When a designated mechanism verification agency, a designated inspection agency, a

designated transporting material verification agency, a designated transportation mean verification agency, a designated examination agency or a designated training agency has violated such orders for a suspension of business as provided in Paragraph 2 of Article 41-6 (including cases where the prescription is applied correspondingly to Paragraph 3 of Article 41-9, Paragraph 3 of Article 41-10, Paragraph 3 of Article 41-11, Article 41-18, and Paragraph 3 of Article 41-19), it's the executive persons or persons shall be condemned to penal servitude for a term not exceeding one year or a fine not exceeding 500,000 yen.

Article 53-4. Any person who has violated the provisions of Paragraph 1 of Article 30-2 in a foreign ship (referring to any ship other than Japanese ship as defined in Article 1 of the Marine Act (Law No. 46 of 1899, hereinafter the same) situated in a sea area outside of Japanese territorial waters, shall be condemned to a fine not exceeding ten million yen.

Article 54. Persons coming under any of the following subparagraphs shall be condemned to a fine of not exceeding 300,000 yen:

- (i) A person who has used radioisotopes provided in Paragraph 1 of Article 3-2 without making a notification provided in the said paragraph or who has made a false notification;
- (ii) A person who has violated the conditions of Paragraph 1 of Article 8 (including cases where the provision is applied correspondingly to Paragraph 3 of Article 10, Paragraph 3 of Article 11 and Paragraph 3 of Article 11-2);
- (iii) A person who has violated the provisions of Article 12-5, Article 13, Paragraph 1 of Article 15, Paragraph 1 of Article 16, Paragraph 1 of Article 17, Paragraph 1 of Article 18, Paragraph 1 or Paragraph 7 of Article 18-2, and Paragraph 1 or Paragraph 2 of Article 19;
- (iv) A person who has violated the provisions of Article 14, Paragraph 2 of Article 15, Paragraph 2 of Article 16, Paragraph 2 of Article 17, Paragraph 2 of Article 18, Paragraph 4 of Article 18-2 and Paragraph 3 of Article 19;
- (iv-2) A person who has transported radioisotopes or materials contaminated with radioisotopes without obtaining such verification provided in Paragraph 2 of Article 18-2, without making a notification provided in Paragraph 5 of the said article, or submitting a false notification;
- (iv-3) A person who has managed the waste of radioisotopes or materials contaminated with radioisotopes without obtaining such verification as provided in Article 19-2;
- (v) A person who has violated the order of the suspension of use provided in the provisions of Paragraph 2 of Article 26; or
- (vi) A person who has violated the provisions of Paragraph 1 of Article 28 or who has violated the order based on the provisions of Paragraph 3 of the said article.

Article 55. Persons coming under any of the following subparagraph shall be condemned to a fine of not more than 200,000 yen:

- (i) A person who has changed the items provided in Paragraph 2 of Article 3-2 without making a notification provided in the said paragraph;
- (i-2) A person who has made such an alteration as provided in the provision of Paragraph 5 of Article 10 without making such a notification as provided in Paragraph 5 of the said article or submitting a false notification;
- (ii) A person who has changed items described in Subparagraph (iv) of Paragraph 2 of Article 3, without making such a notification as provided in Paragraph 6 of Article 10;
- (iii) A person who has refused, obstructed or evaded such an inspection as provided in Paragraph 1, Paragraph 2 or Paragraph 3 of Article 12-9;
- (iii-2) A person who has failed to obey a police officer's order for suspension, refused or obstructed an inspection provided in Paragraph 8 of Article 18-2, or has failed to obey such an order provided in the said paragraph;
- (iii-3) A person who has violated the provisions of Article 20, Article 22, Article 23, Article 24, and Paragraph 2 of Article 36-2;
- (iv) A person who has failed to keep books, and failed to make entries or has made false entries in violation of the provision of Paragraph 1, Paragraph 2 or Paragraph 3 of Article 25 or who has failed to preserve books in violation of the provisions of Paragraph 4 of the same article;
- (v) A person who has failed to make a notification provided in Paragraph 1 or Paragraph 3 of Article 27, Article 32 or Paragraph 3 of Article 33, or who has made a false notification;
- (vi) A person who has failed to make such a report as described in Paragraph 1 or Paragraph 3 of Article 42, or who has reported falsely; or
- (vii) A person who has refused, obstructed, or evaded such an entry, inspection, or removal as described in Paragraph 1 or Paragraph 2 of Article 43-2, or who has failed to answer questions, or made a false statement.

Article 56. If the executive persons or persons of a designated mechanism verification agency, a designated inspection agency, a designated transporting material verification agency, a designated transportation mean verification agency, a designated examination agency or a designated training agency has committed a violating act which comes under any of the following subparagraphs, they shall be punished with a fine not exceeding 200,000 yen:

(i) When they have discontinued all of the business of mechanism verification, facility inspection and periodical inspection, verification of transporting material in approved containers, or verification of transportation means, the affairs of examination, or the business of training and research study, without obtaining such a license as described in Article 41-2 (including cases where the provision applied correspondingly to Paragraph 3 of Article 41-9, Paragraph 3 of Article 41-10, Paragraph 3 of Article 41-11, Article 41-18, and Paragraph 3 of Article 41-19);

(ii) When they have failed to prepare books, failed to make entries in the book, made false entries in the books, or failed to preserve the books in violation of the provisions of Article 41-7 (including cases where the provisions be applied correspondingly to Paragraph 3 of Article 41-9, paragraph 3 of Article 41-10, Paragraph 3 of Article 41-11, Article 41-18, and Paragraph 3 of Article 41-19);

(iii) When they have failed to make such a report as described in Paragraph 2 of Article 42, or have made a false report; or

(iv) When they have refused, obstructed or evaded such an entry or inspection provided in Paragraph 1 of Article 43-3, or have failed to answer questions or made a false statement.

Article 57. When a representative of a leagal person or an agent of a leagal person or of a person, or some other employees have committed such violating act as described in Article 52, Article 53, Article 53-4, Article 54 or Article 55 with respect to the business of the leagal person or the person, the leagal person or the person shall be punished with such fine provided in the respective article, in addition to the punishment of the actual offender.

Article 58. Persons coming under any of the following subparagraph shall be punished with an administrative fine of not more than 100,000 yen:

(i) A person who has violated the provisions of Paragraph 1 of Article 21 or the order based on the provisions of Paragraph 2 of the same article;

(ii) A person who has failed to make a notification provided in Paragraph 2 of Article 34 or Paragraph 3 of Article 37; or

(iii) A person who has failed without justifiable reasons to return his license of a Supervisor of Radiation Protection in violation of such orders as provided in Paragraph 5 of Article 35.

Article 59. Persons coming under any of the following subparagraphs shall be punished with an administrative fine of not more than 50,000 yen:

(i) A person who has neglected to make a notification provided in Paragraph 3 of Article 3-2, Paragraph 1 of Article 10, Paragraph 1 of Article 11 or Paragraph 1 of Article 11-2;

(ii) A person who has failed to present a certificate of license in violation of the provisions of Paragraph 4 of Article 10, Paragraph 4 of Article 11 or Paragraph 4 of Article 11-2; or

(iii) A person who has failed to make a notification provided in Paragraph 3 of Article 21.

(2) Ordinance for the Enforcement of the Law Concerning Prevention from Radiation Hazards Due to Radioisotopes, etc. (Excerpt)

(The Government Ordinance No. 259, September 30, 1960)

Chapter II. License Application and Notification

(License Application for Use)

Article 3. Such a license as described in Paragraph 1 of Article 3 of the Law shall be obtained for each a factory or place of business.

2. Persons making application for such a license as described in the preceding paragraph shall make the application, stating the expected period of use, together with other papers provided by the Ordinance of the Ministry of Education, Culture, Sports, Science, and Technology (hereinafter referred to as "the Ordinance of MEXT").

(Notification of Use)

Article 4. Such quantity of sealed radioisotopes provided by the Government Ordinance as specified in Paragraph 1 of Article 3-2 and Paragraph 1 of Article 16 of the Law shall be the total of 3.7 GBq for each a factory or place of business.

2. Such a notification as described in Paragraph 1 of Article 3-2 of the Law shall be made for each a factory or place of business.

3. Persons intend to make such a notification as described in the preceding paragraph shall make a notification document stating the expected period of use, together with other papers provided by the Ordinance of MEXT.

(License Application for Selling and Leasing Business)

Article 5. The provisions of Article 3 shall be applied correspondingly to license application described in Paragraph 1 of Article 4 of the Law. In this case, the term "factory or place of business" as referred to in Paragraph 1 of Article 3 shall be construed to mean "the selling or leasing place," and the term "expected period of use" as referred to in Paragraph 2 of the said article shall be construed to mean "expected period

of business."

(License Application for Radioisotope Waste Management Business)

Article 6. The provisions of Article 3 shall be applied correspondingly to license application described in Article 4-2 of Paragraph 1 of the Law. In this case, the term "factory or place of business" as referred to in Paragraph 1 of Article 3 shall be construed to mean "working place for waste management" and the term "expected period of use" as referred to in Paragraph 2 of the said article shall be construed to mean "expected period of business."

(License Application for Alterations Affecting the License for Use)

Article 7. A licensed user, who plan to obtain a license for any alteration as provided in Paragraph 2 of Article 10 of the Law, , shall submit to the Minister of MEXT an application in which the following particulars are described, as provided by the Minister of Education, Culture, Sports, Science and Technology (hereinafter referred to as "the Minister of MEXT):

- (i) The name or title and address, and in the case of a legal person, the name of its representative;
- (ii) The name and the location of factory or business;
- (iii) Details of the alteration; and
- (iv) Reasons for the alteration.

(Notification of a Temporary Alteration in the Place of Use Affecting the License for Use)

Article 8. Quantity of radioisotopes provided by the Government Ordinance as specified in Paragraph 6 of Article 10 of the Law shall be 370 GBq.

2. Purposes provided by the Government Ordinance as specified in Paragraph 6 of Article 10 of the Law shall be as provided in the following:

- (i) Well logging;
- (ii) Examination of riverbed scouring;
- (iii) Demonstration as part of exhibition, display or lecture;
- (iv) Calibration of machines, devices, etc.; and
- (v) Such examination of densities or masses of materials as designated by the Minister of MEXT.

(License Application for Alterations Affecting Selling and Leasing Business)

Article 9. The provisions of Article 7 shall be applied correspondingly to license application for alterations as provided in Paragraph 2 of Article 11 of the Law. In this case, the term "the name and the location of factory or business" shall be construed to mean "the location of the selling or leasing place."

(License Application for Alterations Affecting Radioisotope Waste Management Business)

Article 10. The provisions of Article 7 shall be applied correspondingly to license application for alterations as provided in Paragraph 2 of Article 11-2 of the Law. In this case, the term "the name and the location of factory or business" shall be construed to mean "the location of working place for radioisotope waste management business."

Chapter III. Approval of Designs for Radiation Hazards Prevention Mechanism

(Storage Capacity of a Storage Facility Requiring Facility Inspection)

Article 13. The storage capacity provided by the Government Ordinance as specified in Paragraphs 1 and Paragraphs 2 of Article 12-8 of the Law shall be 37 TBq for sealed radioisotopes, and 740 MBq for unsealed radioisotopes.

(Storage Capacity of a Storage Facility Requiring Periodical Inspection)

Article 14. The storage capacity provided by the Government Ordinance as specified by Paragraphs 1 and Paragraphs 2 of Article 12-9 of the Law shall be 111 TBq for sealed radioisotopes, and 740 MBq for unsealed radioisotopes.

(Computation of Storage Capacity for unsealed radioisotopes)

Article 15. Storage capacity for unsealed radioisotopes as specified in the preceding two paragraphs shall be computed by summing up quantities obtained by multiplying the quantity of each type of radioisotope to be stored in the storage facility by the numerical value provided by the Minister of MEXT for each such type.

(Periods of Periodical Inspection)

Article 16. Such periods provided by the Government Ordinance, as specified in Paragraph 1 through Paragraph 3 of Article 12-9 shall be the periods set forth in the following subparagraphs according to the division of persons provided in the following respective subparagraphs:

- (i) A licensed user, seller or lesser, or radioisotope waste management business operator who uses a storage facility of a storage capacity for unsealed radioisotopes not smaller than as provided in Article 14; within one year from the day on which two years shall have elapsed from the day of successful completion of a facility inspection, or a periodical inspection; and
- (ii) Other persons; within one year from the day on which four years shall have elapsed from the day of successful completion of the facility inspection, or the periodical inspection.

2. Facility inspection as specified in the preceding paragraph does not include any facility inspection required of persons provided in each of the subparagraphs of the preceding paragraph when they make alterations on the location and so forth of a use facility, etc. a Refilling facility, etc. or a waste Refilling facility, etc. with such a license as described in Paragraph 2 of Article 10, Paragraph 2 of Article 11, or

Paragraph 2 of Article 11-2 of the Law, respectively.

(Necessity of Verification Concerning Transportation)

Article 17. The cases provided by the Government Ordinance as specified in Paragraph 2 of Article 18-2 of the Law shall be the cases where any of the radioisotopes or the materials contaminated with radioisotopes, which particularly require measures for the prevention of radiation hazards and provided by the Ordinance of MEXT (by the Ordinance of the Minister of Land, Infrastructure and Transport in the case of the verification concerning transportation by rail, by track, by cable, by trackless car, by motor and by light vehicle excluding the verification concerning goods for transportation), is to be transported.

(Necessity for Notification to the Prefectural Public Safety Commission)

Article 17-2. The provisions described in the preceding article shall be applied correspondingly to such cases provided by the Government Ordinance, as defined in Paragraph 5 of Article 18-2 of the Law.

(Communication among the Prefectural Public Safety Commissions)

Article 17-2-2. In the case of transportation travelling over two or more prefectures, the relating Prefectural Public Safety Commissions (hereinafter referred to as "the relating Safety Commissions" in this article) shall take measures provided in the following:

(i) The relating Safety Commissions other than the Prefectural Safety Commission controlling the place of departure (hereinafter referred to as "the Safety Commission of the departure") shall accept notification provided in Paragraph 5 of Article 2 and instruction of Paragraph 6 of the said article;

(ii) When implementing instruction provided in Paragraph 6 of Article 18-2 of the Law, the content of the direction shall be notified in advance to the relating Safety Commissions; and

(iii) Other than those provided in the preceding Paragraph 2, close communication shall be taken with the relating Safety Commissions concerning the said transportation in order to secure the safety of the public by preventing radiation hazards.

(Necessity for Verification Concerning Waste Management)

Article 17-3. The cases provided by the Government Ordinance as specified in Article 19-2 of the Law, shall be the cases other than the cases where the waste of radioisotopes or materials contaminated with radioisotopes are managed at those waste management facilities and the cases other than the ocean dumping that falls as specified in Subparagraph (ii) of Paragraph 1 of Article 30-2 of the Law.

(Certified Radioisotope-equipped Devices that do not Require Monitoring and Measurement)

Article 17-4. Such certified radioisotope-equipped devices provided by the Government Ordinance as defined in Paragraph 2 of Article 20, Article 22 and Paragraph 1 of Article 34 of the Law shall be electron capture detectors for gas chromatography carrying a certified label pursuant to the provisions of Paragraph 2 of Article 12-4 of the Law.

(Classifications of the License for Class II Supervisor of Radiation Protection)

Article 17-5. Divisions for licenses provided by the Government Ordinance as specified in Paragraph 3 of Article 35 of the Law, shall be the Class II Supervisor of Radiation Protection (general) and the Class II Supervisor of Radiation Protection (name of a radioisotope-equipped device) which clearly states the name of a given radioisotope-equipped device.

2. The license for Class II Supervisor of Radiation Protection (general) provided in the preceding paragraph shall be granted to persons who have passed examinations conducted by the Minister of MEXT for Class II Supervisor of Radiation Protection, and who have finished training courses given by the Minister of MEXT.

3. The license for Class II Supervisor of Radiation Protection (name of a radioisotope-equipped device) provided in Paragraph 1 shall be granted to persons who have finished only those training courses which are given by the Minister of MEXT, provided that the name of the radioisotope-equipped device indicated in any such license for Class II Supervisor of Radiation Protection shall be the name of the radioisotope-equipped device covered by said training courses.

Chapter IV. Miscellaneous Provisions

(The Number and Qualification of Radiation Inspectors)

Article 18. The number of radiation inspectors shall be twenty-two.

2. Radiation inspectors shall have adequate knowledge of and experience in the prevention of radiation hazards

(3) The Rules for the Enforcement of the Law Concerning Prevention from Radiation Hazards Due to Radioisotopes, etc. (Excerpt)

(The Ordinance No. 56 of the Prime Minister's Office, September 30, 1960)

(Latest Revision: the Ordinance No. 35 of the Ministry of Education, Culture, Sports, Science, and Technology, July 12, 2002)

Chapter II. License Application, etc.

(License Application for Use)

Article 2. The license application for use described in Paragraph 2 of Article 3 of the Law for Prevention of Radiation Hazards due to Radioisotopes, etc. (Law No. 167, 1957, hereinafter referred to as "the Law") shall be in accordance with Form No. 1 provided separately.

2. The application described in the preceding paragraph shall be attached with the following documents, as provided in Paragraph 2 of Article 3 of the Ordinance for the Enforcement of the Law Concerning Prevention from Radiation Hazards Due to Radioisotopes, etc. (The Government Ordinance No. 259, 1960, hereinafter referred to as "the Ordinance"):

- (i) In the case of a legal person, an excerpt copy of the register;
- (ii) A document containing the expected starting time of use and the expected time period of use;
- (iii) Plane views of the inside and outside of the factory or place of business, which are provided with scales and directions, and centered on the use facilities, storage facilities and radioisotope waste management facilities;
- (iv) Plane views of rooms of the use facilities, storage facilities, and radioisotope waste management facilities, which illustrate room plans and purposes of use, doorways, the controlled area, and locations to post marks, which are provided with scales and directions;
- (v) Detailed sectional views of the main portions of the use facilities, storage facilities, and radioisotope waste management facilities, which are provided with scales;
- (vi) Documents, drawings and documents in which the situation of the area adjacent to the factory or place of business is described to verify the conformity to the standards described in Subparagraph (iii) of Paragraph 1 of Article 14-6, Subparagraph (iii) of Article 14-9, or Subparagraph (iii) of Article 14-11, (limited to the case that such measures described in the parenthesis of Item B of Subparagraph (iii) of Paragraph 1 of Article 14-6 are taken);
- (vi-2) When such automatic displays provided in Subparagraph (vi) of Paragraph 1 of Article 14-6 or such interlocks provided in Subparagraph (vii) of the said paragraph are installed, plane views of rooms where radioisotopes or radiation generating devices are used or installed, that illustrates the doorway and the location where the automatic displays or the interlocks are installed, and documents containing the type and detailed function of the interlocks;
- (vii) Documents and drawings which verify that the ventilation equipment are what have capacity as specified in Item A and Item B of Subparagraph (iv) of Paragraph 1 of Article 14-11, drawings in which the location of the ventilation facility and the ventilation system are illustrated, and when the ventilation monitoring equipment is installed, documents in which the situation of the area adjacent to the factory or place of business (limited to the case that such measures as described in the parenthesis in Item B(2) of the said subparagraph are taken) is described, and the details of the ventilation monitoring equipment, and drawings showing the location of the ventilation monitoring equipment, and when such a ventilation facility as described in Item B(3) of the said subparagraph is applied for, the document in which the reason is described;
- (viii) Documents and drawings which verify that the discharge facility has the capability as specified in Item A of Subparagraph (v) of Paragraph 1 of Article 14-11, drawings in which the location of the discharge facility and the discharge system are illustrated, and when a discharge monitoring equipment is installed, documents in which the situation of the area adjacent to the factory or place of business (only when such measures as described in the parenthesis in Item B(2) of the said subparagraph are taken) is described, and the details of the discharge monitoring equipment, and drawings showing the location of the discharge monitoring equipment, and when such a discharge facility as described in Item A(3) of Subparagraph (v) of the said paragraph is applied, the document in which the reason is described;
- (ix) In such cases as specified in Paragraph 2 and Paragraph 3 of Article 14-6, documents containing details of the method for the use of radioisotopes or radiation generating devices and the measures to be taken for prevention of radiation hazards; and
- (x) The diagnosis of doctor on mental functional disorder concerning persons wishing to obtain the license provided in Paragraph 1 of Article 3 of the Law (in the case of a legal person, its executives executing the business, hereinafter referred to as "applicant").

3. When the applicant is a legal person, and the Minister of MEXT recognizes that there is no problem in performing the business judging from the job specification of the officer, the applicant may submit the document which prove that the concerned officer is not subject to Subparagraph (i) of Paragraph 2 of Article 5 of the Law, instead of such a diagnosis as described in Subparagraph (x) of the preceding paragraph.

(License Application for Selling and Leasing Business)

Article 3. The license application for selling or leasing business described in Paragraph 2 of Article 4 of the Law shall be in accordance with Form No. 2 provided separately.

2. The provisions of Paragraph 2 (excluding Subparagraph (ix) of the said paragraph) and Paragraph 3 of the preceding article shall be applied correspondingly to the documents to be attached to the application as described in the preceding paragraph, as provided in the provisions of Paragraph 2 of Article 3 of the Ordinance applied correspondingly to Article 5 of the Ordinance. In this case, the wordings, "the expected starting time of use and the expected time period of use" in Subparagraph (ii) of Paragraph 2 of the

preceding article shall be construed to mean "the expected starting time of business and the expected time period of business, and the expected annual selling quantity of radioisotope for every division as provided by the Minister of MEXT (when the expected period of business is shorter than one year, the expected selling quantity during the period) or the expected maximum leasing quantity (the maximum quantity of the leasing quantity actually expected at arbitrary time during the expected period of business)", "use facilities" in Subparagraph (iii) of the said paragraph to mean "Refilling facilities" and "factory or place of business" to mean "selling or leasing place", "use facilities" in Subparagraph (iv) and (v) of the said paragraph to mean "Refilling facilities", "Subparagraph (iii) of Paragraph 1 of Article 14-6" in Subparagraph (vi) of the said paragraph to mean "Subparagraph (iii) of Paragraph 1 of Article 14-6 applied correspondingly to Article 14-7" and "factory or place of business" to mean "selling or leasing place", "Subparagraph (vi) of Paragraph 1 of Article 14-6" in Subparagraph (vi-2) of the said paragraph to mean "Subparagraph (vi) of Paragraph 1 of Article 14-6 applied correspondingly to Article 14-7", "Subparagraph (vii) of the said paragraph" to mean "Subparagraph (vii) of Paragraph 1 of Article 14-6 applied correspondingly to Article 14-7" and "room where radioisotopes or radiation generating devices are used" to mean "room where radioisotopes are refilled or repacked", "factory or place of business" in Subparagraph (vii) and (viii) of the said paragraph to mean "selling or leasing place", "Paragraph 1 of Article 3 of the Law" in Subparagraph (x) of the said paragraph to mean "Paragraph 1 of Article 4 of the Law".

(License Application for Radioisotope Waste Management Business)

Article 4. The license application for radioisotope waste management business described in Paragraph 2 of Article 4-2 of the Law shall be in accordance with Form No. 3 provided separately.

2. The provisions of Paragraph 2 (excluding Subparagraph (vi-2) and (ix) of the said paragraph) and Paragraph 3 of Article 2 shall be applied correspondingly to the documents to be attached to the application as described in the preceding paragraph, as provided in the provisions of Paragraph 2 of Article 3 of the Ordinance except for Article 6 of the Ordinance. In this case, the wordings, "the expected starting time of use and the expected time period of use" in Subparagraph (ii) of Paragraph 2 of Article 2 shall be construed to mean "the expected starting time of business and the expected time period of business, and the expected annual collecting quantity of radioisotopes, etc. and the expected annual waste management quantity for every method of waste management ", "use facilities, storage facilities" in Subparagraph (iii) of the said paragraph to mean "waste refilling facility, waste storage facility" and "factory or place of business" to mean " radioisotope waste management business place", "use facilities, storage facilities" in Subparagraph (iv) and (v) of the said paragraph to mean "waste refilling facilities, waste storage facilities", "Subparagraph (iii) of Paragraph 1 of Article 14-6, Subparagraph (iii) of Article 14-9" in Subparagraph (vi) of the said paragraph to mean "Subparagraph (iii) of Paragraph1 of Article 14-6 applied correspondingly to Article 14-8, Subparagraph (iii) of Article 14-9 applied correspondingly to Article 14-10", "factory or place of business" to mean " radioisotope waste management business place" and "the parenthesis of Item B of Subparagraph (iii) of Paragraph1 of Article 14-6" to mean "the parenthesis of Item B of Subparagraph (iii) of Paragraph1 of Article 14-6 applied correspondingly to Article 14-8", "factory or place of business" in Subparagraph (vii) and (viii) of the said paragraph to mean "radioisotopes waste management place", "Paragraph 1 of Article 3 of the Law" in Subparagraph (x) of the said paragraph to mean "Paragraph 1 of Article 4-2 of the Law".

(License Application for Alterations Concerning the License for Use)

Article 5. The license application for alterations concerning the license for use described in Article 7 of the Ordinance shall be in accordance with Form No. 4 provided separately.

2. The following documents shall be attached to the application described in the preceding paragraph:

- (i) The document showing the expected time of alteration;
- (ii) In connection with the alterations, such documents and drawings as specified in Subparagraph (iii) through (ix) of Paragraph 2 of Article 2; and
- (iii) In the case of accompanying constructions, the documents which include the expected construction period and the measures taken for prevention of radiation hazards during the construction period.

(Minor Alterations not Requiring a License of Alternation)

Article 5-2. Minor alterations provided by the Ministerial Ordinance of MEXT in the provisory provision of Paragraph 2 of Article 10 of the Law, shall be those coming under the following subparagraphs:

- (i) The alteration of types or quantity, purpose, method or place of the use of radioisotopes, the location, structure or equipment of use facilities, or the location, structure, equipment or storage capacity of storage facilities (limited to those concerning certified radioisotope-equipped devices);
- (ii) Reduction in storage capacity of storage facilities;
- (iii) Reduction in quantity of radioisotopes;
- (iv) Reduction in number of radiation generating devices;
- (v) Discontinuation of use facilities, storage facilities or waste management facilities;
- (vi) Alteration of method of use, or the location, structure or equipment of use facilities, storage facilities or waste management facilities, that are those provided by the Minister of MEXT; or
- (vii) Alteration of performances of radiation generating devices that are those provided by the Minister of MEXT.

(License Application for Alterations Concerning Selling and Leasing Business)

Article 6. The provisions of Article 5 shall be applied correspondingly to license application for alterations concerning selling and leasing business described in Article 9 of the Ordinance. In this case, the wordings, "the expected time of alteration" in Subparagraph (i) of Paragraph 2 of Article 5 shall be construed to mean "the expected time of alteration and the expected annual selling quantity of radioisotopes concerning the alteration for every division provided by the Minister of MEXT (when the expected period of business after the alteration is shorter than one year, the expected selling quantity during the period) or the expected maximum leasing quantity (the maximum quantity of the leasing quantity actually expected at arbitrary time during the expected period of business after the alteration)", and "Subparagraph (ix)" in Subparagraph (ii) of the said paragraph to mean "Subparagraph (viii)".

(License Application for Alterations Concerning Radioisotope Waste Management Business)

Article 7. The provisions of Article 5 shall be applied correspondingly to license application for alterations concerning radioisotope waste management business described in Article 10 of the Ordinance. In this case, the wordings, "the expected time of alteration" in Subparagraph (i) of Paragraph 2 of Article 5 shall be construed to mean "the expected time of alteration, and the expected annual collecting quantity of radioisotopes, etc. concerning the alteration and the expected annual waste management quantity for every method of waste management", and "through Subparagraph (ix)" in Subparagraph (ii) of the said paragraph to mean "through Subparagraph (vi), and Subparagraph (vii) and Subparagraph (viii)".

(Notification of Use)

Article 9. The particulars provided by the Ministerial Ordinance of MEXT, in the provisions of Paragraph 1 of Article 3-2 of the Law, shall be those coming under the following subparagraphs:

- (i) The name or title and the address, and in the case of a legal person, the name of its representative; and
- (ii) The purpose and method of the use.

2. The notification for alteration concerning the license for use described in Paragraph 1 of Article 3-2 of the Law shall be in accordance with Form No. 5 provided separately.

3. The following documents shall be attached to the notification described in the preceding paragraph in accordance with the provisions of Paragraph 3 of Article 4 of the Ordinance:

- (i) Documents in which the expected starting time of use and the expected period of use are described;
- (ii) Plane views showing the situation of the place of use and the place of waste management, the controlled area and the location where marks are posted, and the storage facilities in the case of intending to use sealed radioisotopes, and the device installed facility in the case of intending to use certified radioisotope-equipped devices, which are provided with scales and directions; and
- (iii) Documents and drawings which verify that the shield walls and other shields of the storage facilities or the device installed facility are those with the capacity as specified in Subparagraph (iii) of Article 14-9 in the case of storage facilities, or in Subparagraph (iii) of Paragraph 1 of Article 14-6 applied correspondingly to Article 14-12 in the case of the device installed facility.

(Notification of Alteration Concerning Notified Use)

Article 10. The notification for alterations described in Paragraph 2 of Article 3-2 of the Law shall be in accordance with Form No. 6 provided separately.

2. The following documents shall be attached to the notification described in the preceding paragraph:

- (i) The document in which the expected time of alteration is described; and
- (ii) Documents and drawings concerning the alteration as specified in Subparagraph (ii) and (iii) of Paragraphs 3 of the preceding article.

3. The notification for alterations provided in Paragraph 3 of Article 3-2 of the Law shall be in accordance with Form No. 7 provided separately.

Article 11. The notification for alterations of place of use described in Paragraph 6 of Article 10 of the Law shall be in accordance with Form No. 8 provided separately.

2. The following documents shall be attached to the notification described in the preceding paragraph:

- (i) The documents in which the place of use is illustrated and the situation of its neighborhood is described;
- (ii) Plane views of the place of use and its neighborhood showing the controlled area and places where marks are posted, which are centered on the place of use and provided with scales and directions; and
- (iii) Documents in which the measures taken to prevent radiation hazards are described.

Chapter II-3. Standards of Use Facilities, etc.

(Standards of Use Facilities)

Article 14-6. The technical standards of the location, structure and equipment of use facilities provided in Subparagraph (i) of Article 6 of the Law shall be as follows:

- (i) The use facility shall be installed in the place with little possibility of ground collapse and flood;
- (ii) When the concerned use facility is a building defined in Subparagraph (i) of Article 2 of the Construction Standard Law (Law No. 201, 1950) or a living space defined in Subparagraph (iv) of the said article, the main structures, etc. (referring to the main structures, and walls and pillars partitioning the concerned facility defined in Subparagraph (v) of the said article, hereinafter the same) shall be fire-resistant (referring to fire-resistant structure defined in Subparagraph (vii) of the said article, hereinafter the same), or are constructed of inflammable materials (which refer to inflammable material as

defined in Subparagraph (ix) of the said article, hereinafter the same);

(iii) The use facility shall be furnished with shield walls and other shields in order to keep each of the following doses not exceeding the dose limits provided by the Minister of MEXT respectively:

- A. Radiation doses possible to be exposed to persons in places inside the use facilities where persons always enter; and
- B. Radiation doses in the boundary (when the measures are taken so that persons do not enter the area adjacent to the boundary of the factory or place of business without permission, the boundary of the areas which are composed of the factory or place of business and the concerned area) of the factory or place of business and in areas inside the factory or place of business where persons reside.

(iv) In the case of using unsealed radioisotopes, the workroom shall be provided with as provided in the following:

- A. The inside wall, floor and other parts of the workroom, which are possible to be contaminated with radioisotopes, shall have few projection, hollow or crevices of joint finishing materials, etc.;
- B. The inside wall, floor and other parts of the workroom which are possible to be contaminated with radioisotopes, shall be flat and smooth, manufactured of materials that gas or liquid does not permeate, and finished with corrosion-resistant materials; and
- C. Devices such as hoods and glove boxes, etc. to prevent spread of gaseous radioisotopes shall be installed with connection to the ventilation equipment of the workroom.

(v) In the case of using unsealed radioisotopes, the contamination inspection room shall be provided with as provided in the following:

- A. The contamination inspection room shall be provided with in the places where persons usually enter and leave through, and are most suitable for inspection of contamination with radioisotopes, such as neighbourhood, etc. of doorway of the use facilities;
- B. The inside wall, floor and other parts of the contamination inspection room which are possible to be, contaminated with radioisotopes, shall have few projection, hollow, or crevices of joint finishing materials, etc., and shall be those which conform to the standards described in Item A and Item B of the preceding subparagraph;
- C. The contamination inspection room shall be provided with cleaning equipment and dressing equipment, and shall be equipped with radiation measuring instruments for inspection of contamination, and with instruments and materials required for removal of contamination; and
- D. The drain piping of the cleaning equipment provided in Item C shall be connected with the discharge facility.

(vi) The doorway of the room, where sealed radioisotopes or radiation generating devices of the quantity provided by the Minister of MEXT are used, and where persons usually enter and leave through, and when radioisotopes or radiation generating devices are used, shall be equipped with an automatic display device to indicate the use;

(vii) The doorway of the room, where sealed radioisotopes or radiation generating devices of quantity provided by the Minister of MEXT are used, where persons usually enter and leave through, and when radioisotopes or radiation generating devices are used, shall be equipped with the interlock which prevents persons from entering the room without permission;

(viii) The boundary of the controlled area shall be provided with the fences and other facilities to prevent persons from entering without permission; and

(ix) The marks shall be posted at the room where radioisotopes or radiation generating devices are used, contamination inspection room, the fences provided with as the boundary of the controlled area, and other facilities to prevent persons from entering the room without permission as provided in the annexed table.

2. The provisions of the preceding paragraph are not applied to the case where radioisotopes are used dispersing broadly and temporarily, such as investigation of leakage of the water, epidemiological investigation of insects, investigation of moving situations of source materials in the production process, etc.

3. The provisions of Subparagraph (i), Subparagraph (ii), Subparagraph (vi) and Subparagraph (vii) of Paragraph 1 are not applied to the case where sealed radioisotopes or radiation generating devices are used in moving as necessary.

4. The provisions of Subparagraph (ii) of Paragraph 1 are not applied to the case where unsealed radioisotopes of the type and quantity provided by the Minister of MEXT, sealed radioisotopes not more than 3.7 GBq (except those equipped on certified radioisotope-equipped devices), or certified radioisotope-equipped devices are used in moving as necessary.

5. The provisions of Subparagraph (v) of Paragraph 1 are not applied to the case where unsealed radioisotopes are used within the sealed device, so that surfaces of human bodies and materials worn on human bodies, such as working clothes, footwear, etc., may not be contaminated with radioisotopes, and where non-sealed radioisotopes of the type and quantity provided by the Minister of MEXT are used.

6. The provisions of Subparagraph (vii) of Paragraph 1 are not applied to the case where walls and other shields are furnished, so that radiation doses which persons are possible to be exposed, in the room where

radioisotopes or radiation generating devices are used, are kept not exceeding the dose limits provided in Item A of Subparagraph (iii) of the said paragraph.

(Standards of Refilling Facilities)

Article 14-7. The provisions of Paragraph 1 and Paragraph 4 through Paragraph 6 of the preceding article shall be applied correspondingly to technical standards of the location, structure and equipment of refilling facilities provided in Subparagraph (i) of Article 7 of the Law. In this case, the wordings, "factory or place of business" in Item B of Subparagraph (iii) of Paragraph 1 of the preceding article shall be construed to mean "selling or leasing place", "using" in Subparagraph (iv) and (v) of the said paragraph to mean "refilling or repacking", "radioisotopes or radiation generating devices are used" in Subparagraph (vi), Subparagraph (vii) and Subparagraph (ix) of the said paragraph to mean "radioisotopes are refilled or repacked", "radioisotopes, sealed radioisotopes not more than 3.7 GBq (except those equipped on such certified radioisotope-equipped devices), or certified radioisotope-equipped devices are used" in Paragraph 4 of the said article to mean "radioisotopes, or sealed radioisotopes not more than 3.7 GBq are refilled or repacked", "used" in Paragraph 5 of the said article to mean "refilled or repacked", and "radioisotopes or radiation generating devices are used" in Paragraph 6 of the said article to mean "radioisotopes are refilled or repacked."

(Standards of Waste Refilling Facilities)

Article 14-8. The provisions of Paragraph 1 (excluding Subparagraph (vi) and Subparagraph (vii)) of Article 14-6 shall be applied correspondingly to technical standards of the location, structure and equipment of waste refilling facilities as provided in Subparagraph (i) of Article 7-2 of the Law. In this case, wordings, "factory or place of business" in Item B of Subparagraph (iii) of Paragraph 1 of Article 14-6 shall be construed to mean "radioisotope waste management business place", "using unsealed radioisotopes" in Subparagraph (iv) and (v) of the said paragraph to mean "refilling or repacking unsealed radioisotopes, etc.", and "rooms where radioisotopes or radiation generating devices are used" in Subparagraph (ix) of the said paragraph to mean "rooms where radioisotopes, etc. are refilled or repacked."

(Standards of Storage Facilities)

Article 14-9. The technical standards of the location, structure and equipment of storage facilities, provided in Subparagraph (ii) of Article 6 of the Law, Subparagraph (ii) of Article 7 of the Law and Subparagraph (ii) of Article 13 of the Law, shall be provided as follows:

(i) The storage facility shall be installed in the place with little possibility of ground collapse and flood;

(ii) The storage facility shall be provided with storage rooms or storage box as provided in the following. But the same shall not be applied to the case where sealed radioisotopes are kept in containers with fire-resistant structure, or where certified radioisotope-equipped devices are kept in containers:

A. The main structures, etc. of a storage room shall be fire-resistant structure and the opening shall be furnished with a fire door applicable to the specific fire protection facilities provided in Paragraph (i) of Article 112 of the Ordinance for the Enforcement of the Law Concerning the Construction Standard Law (Government Ordinance No. 338, 1950); and

B. The storage box shall be a fire-resistant structure.

(iii) The storage facility shall be furnished with shield walls and other shields that conform to the standard as specified in Subparagraph (iii) of Paragraph 1 of Article 14-6;

(iv) The storage facility shall be provided with containers in which radioisotopes are contained as provided in the following:

A. The container, in which radioisotopes possible to contaminate the outside atmosphere are contained, shall have the leak-tight structure;

B. The container, in which liquid radioisotopes are contained, shall have a structure hard to spill the liquid, and shall be manufactured of materials hard to permeate the liquid; and

C. The container, in which liquid or solid radioisotopes are contained and which is possible to cause incidents such as cracks, failures, etc., shall be equipped with receiving trays and absorbers, etc., and other facilities or appliances to prevent contamination with radioisotopes by spreading.

(v) The places, where lead to outside, such as doors, lids of the storage facilities, shall be provided with keys and other facilities or appliances for closing;

(vi) The boundary of the controlled area shall be provided with fences and other facilities to prevent persons from entering without permission; and

(vii) The marks shall be posted at the storage room or storage box, on the container provided in Subparagraph (iv), on the fences provided with as the boundary of the controlled area, and on other facilities to prevent persons from entering without permission, as provided in the annexed table.

(Standards of Waste Storage Facilities)

Article 14-10. The provisions of the preceding article shall be applied correspondingly to technical standards of the location, structure and equipment of waste storage facilities provided in Subparagraph (ii) of Article 7-2 of the Law. In this case, the wordings, "the case where sealed radioisotopes are kept in a container with fire-resistant structure, or where certified radioisotope-equipped devices are kept in container" in Subparagraph (ii) of the preceding article shall be construed to mean "the case where sealed radioisotopes, etc. are kept in a container with fire-resistant structure", and "radioisotopes" in Subparagraph

(iv) of the said article to mean "radioisotopes, etc."

(Standards of Waste Management Facilities)

Article 14-11. The technical standards of the structure and equipment of waste management facilities, provided in Subparagraph (iii) of Article 6 of the Law, Subparagraph (iii) of Article 7 of the Law and Subparagraph (iii) of Article 7-2 of the Law, shall be provided as follows:

(i) The waste management facility shall be installed in the place with little possibility of ground collapse and flood;

(ii) The main structures, etc. of waste management facilities shall be fire-resistant structure, or are constructed of inflammable materials;

(iii) The waste management facility shall be furnished with shield walls and other shields that conform to the standards described in Subparagraph (iii) of Paragraph 1 of Article 14-6;

(iv) In the case of using or refilling or repacking unsealed radioisotopes, etc., ventilation equipment shall be installed as provided in the following. But this shall not be applied where using or refilling or repacking of radioisotopes, etc. of the type and quantity specified by the Minister of MEXT, and of little possibility of generating gaseous radioisotopes or of contaminating atmosphere with radioisotopes:

A. The ventilation equipment shall have capacity for keeping the concentration of radioisotopes in the atmosphere of the places, such as workrooms or waste management workrooms where persons always enters, not exceeding the concentration limits specified by the Minister of MEXT; and

B. The ventilation equipment shall be those provided in either in the following:

(1) The ventilation equipment shall have a capacity keeping the concentration of radioisotopes in ventilation at the ventilation port not exceeding the concentration limits specified by the Minister of MEXT;

(2) By equipping the ventilation monitoring equipment to monitor the concentration of radioisotopes in ventilation, the ventilation equipment shall have capacity for keeping the concentration of radioisotopes in the atmosphere of the outside of boundaries (when the measures are taken so that persons do not enter the area adjacent to the boundary of the place of business, etc. without permission, the boundary of areas which are composed of the place of business, etc. and the concerned area, the same in this subparagraph and the next subparagraph, Subparagraph (ii) and Subparagraph (v) of Paragraph 1 of Article 19) of the place of business, etc., not exceeding the concentration limits specified by the Minister of MEXT; or

(3) When it is very difficult to provide with ventilation equipment which have the capacity as described in Item (1) or Item (2), the approval shall be obtained from the Minister of MEXT concerning that the ventilation equipment have capacity for keeping the radiation dose in the outside of boundaries of the place of business, etc. not exceeding the dose limits specified by the Minister of MEXT.

C. The ventilation equipment shall have structure hard for discharge gas to leak except for the vent port, and shall be made of corrosion-resistant materials; and

D. The ventilation equipment shall be installed with the equipment to prevent spreading of air contaminated with radioisotopes in case of failure.

(v) In the case of cleaning or discharging liquid radioisotopes, etc., discharge equipment shall be as provided in the following:

A. The discharge equipment shall be those provided in either of the following:

(1) The discharge equipment shall have a capacity for keeping the concentration of radioisotopes in the discharge liquid at the discharge port not exceeding the concentration limits specified by the Minister of MEXT;

(2) By equipping the discharge liquid monitoring equipment to monitor the concentration of radioisotopes in discharge liquid, the discharge equipment shall have capacity for keeping the concentration of radioisotopes in discharge liquid at boundaries of the place of business, etc. not exceeding the concentration limits specified by the Minister of MEXT; or

(3) When it is very difficult to provide with discharge equipment which have the capacity as described in Item (1) or Item (2), the approval shall be obtained from the Minister of MEXT, concerning that the discharge equipment have capacity for keeping the radiation dose in the outside of boundaries of the place of business, etc. not exceeding the dose limits specified by the Minister of MEXT.

B. The discharge equipment shall have structure hard for the discharge liquid to leak and penetrate, and shall be made of corrosion-resistant materials; and

C. The discharge liquid cleanup tank shall have structure which allows to take samples from the discharge liquid or to determine the concentration of radioisotopes in the discharge liquid, and the outlet equipped with devices to adjust outflow of the discharge liquid, and shall have structure to cover the upper opening with the lid, or its surroundings shall be provided with the fences and other facilities to prevent persons from entering without permission.

(vi) In the case of incinerating radioisotopes, etc., in addition to the incinerator as provided in the following,

the ventilation equipment shall be provided to conform to the standard specified in Subparagraph (iv), the waste management workroom to conform to the standard specified in Subparagraph (iv) of Paragraph 1 of Article 14-6 and the contamination inspection room to conform to the standard specified in Subparagraph (v) of the said paragraph:

- A. The incinerator shall have structure for the discharge gas hard to leak and for the ash hard to disperse;
- B. The incinerator shall have structure connected with the ventilation equipment; and
- C. The carrying out part of the incineration residue of the incinerator shall be connected with the waste management workroom.

(vii) In the case of solidifying radioisotopes, etc. by using solidification materials of concrete and others, the solidification process facility shall be as provided in the following, and shall be provided with the ventilation facility which conforms to the standard specified in Subparagraph (v), the radioisotope waste management workroom which conforms to the standard specified in Subparagraph (iv) of Paragraph 1 of Article 14-6 and the contamination inspection room which conforms to the standard specified in Subparagraph (v) of the said paragraph:

- A. The solidification process facility shall have structure for radioisotopes, etc. hard to leak and spill out, and for coarse particulates hard to disperse; and
- B. The solidification process facility shall be made of materials hard for the discharge liquid to penetrate, and shall be made of corrosion-resistant materials.

(viii) In the case of storage, the storage facility shall be provided with as provided in the following:

- A. The storage facility shall have structure partitioned from the outside;
- B. The places which lead to outside, such as doors, lids of the storage facility shall be installed with keys and other facilities or appliances for closing; and
- C. The storage facility shall be equipped with a container that has fire-resistant structure and conforms to the standard specified in Subparagraph (iv) of Article 14-9. This shall not be applied where such specified measures to prevent spreading of contamination are taken for the contaminated materials such as large-sized machines, etc. that have some significant difficulties to be sealed in containers.

(ix) The boundary of the controlled area shall be provided with the fences and other facilities to prevent persons from entering without permission; and

(x) The marks shall be posted at the discharge equipment, ventilation equipment, waste management workrooms, contamination inspection rooms, storage equipment, containers provided in Item C of Subparagraph (viii), and fences provided with as the boundary of the controlled area and other facilities to prevent persons from entering without permission, as provided in the annexed table.

2. When a ventilation equipment or a discharge equipment for which an approval has been granted as provided in Item B(3) of Subparagraph (iv) or in Item A(3) of Subparagraph (v) of the preceding paragraph is recognized that the facility have not the capability corresponding to the concerned approval, the Minister of MEXT may revoke the concerned approval.

(Standards of Device Installed Facilities)

Article 14-12. For the technical standards of the location, structure and equipment of the device installed facility as provided in Paragraph 2 of Article 13 of the Law, the provisions of Subparagraph (i), Subparagraph (iii), Subparagraph (viii) and Subparagraph (ix) of Paragraph 1 of Article 14-6, and Subparagraph (v) of Article 14-9 shall be applied correspondingly other than those as provided in the following. In this case, the wording "rooms where radioisotopes or radiation generating devices are used, contamination inspection rooms" in Subparagraph (ix) of Paragraph 1 of Article 14-6 shall be construed to mean "rooms where certified radioisotope-equipped devices are used":

(i) The device installed facility (limited to those installed with electron capture detectors for gas chromatography (limited to those equipped with nickel-63, hereinafter the same)) shall be provided with a storage container; and

(ii) The marks shall be posted on the container provided in the preceding subparagraph, as provided in the annexed table.

Chapter II-4. Facility Inspection, etc.

(Minor Alterations without Requirement of Facility Inspection)

Article 14-13. Minor alterations provided by the Ordinance of MEXT in Paragraph 1 of Article 12-8 of the Law shall be the alterations other than those as described in the followings:

(i) The following alterations made by a licensed user of a storage facility of which the storage capacity for sealed radioisotopes is 37 TBq or more:

- A. Extension of a use facility where sealed radioisotopes in quantity of 37 TBq or more are used;
- B. Extension of a storage facility of which storage capacity for sealed radioisotopes is 37 TBq or more;
- C. Such an alteration of the storage capacity of the storage facility that storage capacity for sealed radioisotopes in the factory or place of business where the said storage facility is used shall be changed from less than 37 TBq to 37 TBq or more, or changed from 37 TBq or more but less than

- 111 TBq to 111 TBq or more; or
- D. Extension of a waste management facility where the waste of sealed radioisotopes are managed.
- (ii) The following alterations made by a licensed user of a storage facility of which storage capacity for unsealed radioisotopes is 740 MBq or more:
- A. Extension of a use facility where quantity for annual use of unsealed radioisotopes exceeds the quantity provided by the Minister of MEXT;
 - B. Extension of a storage facility of which storage capacity for unsealed radioisotopes exceeds the quantity provided by the Minister of MEXT;
 - C. Such an alteration of storage capacity of the storage facility that storage capacity for unsealed radioisotopes of the factory or place of business where the said storage facility is used shall be changed from less than 740 MBq to 740 MBq or more; or
 - D. Extension of a waste management facility where the waste of unsealed radioisotopes are managed.
- (iii) ExtensionIncrease of a use facility where the radiation generating device is used by a licensed user of the radiation generating device, where the radiation generating device is used, or an alteration to use the radiation generating device at the facility, where radiation generating device has not been used.
2. Minor alterations provided by the Ordinance of MEXT in Paragraph 2 of Article 12-8 of the Law are the alterations other than those as described n in the followings:
- (i) The following alterations made by a seller or a lessor who uses the storage facility of which storage capacity for sealed radioisotopes is 37 TBq or more:
- A. Extension of a refilling facility for sealed radioisotopes;
 - B. Extension of a storage facility of which storage capacity for sealed radioisotopes is 37 TBq or more;
 - C. Such an alteration of storage capacity of a storage facility of which storage capacity for sealed radioisotopes of the selling or leasing place where the said storage facility is used is changed from less than 37 TBq to 37 TBq or more, or changed from 37 TBq or more but less than 111 TBq to 111 TBq or more; or
 - D. Extension of a waste management facility where the waste of sealed radioisotopes are managed.
- (ii) The following alterations made by a seller or a lessor who uses the storage facility of which storage capacity for unsealed radioisotopes is 740 MBq or more:
- A. Extension of a refilling facility for unsealed radioisotopes;
 - B. Extension of a storage facility of which storage capacity for unsealed radioisotopes exceeds the quantity provided by the Minister of MEXT;
 - C. Such an alteration of storage capacity of the storage facility of which storage capacity for unsealed radioisotopes of the selling or leasing place where the said storage facility is used is changed from less than 740 MBq to 740 MBq or more; or
 - D. Extension of a waste management facility where the waste of unsealed radioisotopes are managed.
3. Minor alterations provided by the Ordinance of MEXT in Paragraph 3 of Article 12-8 of the Law are the alterations other than the increase of the waste refilling facility, the waste storage facility, or the waste management facility.
4. Storage capacity for unsealed radioisotopes as provided in Paragraph 1 and Paragraph 2 shall be computed as provided in the provisions of Article 15 of the Ordinance.
- (Application for Facility Inspection)

Article 14-14. Any persons who intends to receive the facility inspections (except the inspections performed by the designated inspection agencies) as provided in Paragraph 1 of Article 12-8 of the Law shall submit to the Minister of MEXT an application as provided in annexed Form 10-5 with the following documents attached:

- (i) The clear plane views showing the location of use facilities, etc of the factory or business;
- (ii) Measured plane views of use facilities, etc.; and
- (iii) Detailed measured sectional views of use facilities, etc.

2. Concerning the said application, in the case of the factory or place of business located in Ibaraki Prefecture, the application described in the preceding paragraph shall be submitted through the Director of Mito Nuclear energy Office,

3. Any person, who intends to receive the facility inspection performed by designated inspection agencies described in Paragraph 1 of Article 12-8 of the Law, shall submit an application to the said designated inspection agencies provided by the said designated inspection agencies after obtaining the approval of the Minister of MEXT.

Article 14-15. The provisions of the preceding article shall be applied correspondingly to the application for the facility inspection described in Paragraph 2 of Article 12-8 of the Law. In such a case, the wording “use facilities, etc.”, and “the factory or place of business” in Paragraph 1 of the preceding article shall be construed to mean “refilling facility, etc.”, and “the selling or leasing place”, respectively, and “the factory or place of business” as referred to in Paragraph 2 of the said article to mean “the selling or leasing place”.

Article 14-16. The provisions of Article 14-14 shall be applied correspondingly to the application of the facility inspection described in Paragraph 3 of Article 12-8 of the Law. In such a case, the wording “use

facilities, etc.”, and “the factory or place of business” in Paragraph 1 of Article 14-14 shall be construed to mean “waste refilling facility, etc.”, and “radioisotope waste management business place”, respectively, and “the factory or place of business” in the said article Paragraph 2 shall be construed to mean “radioisotope waste management business place”.

(Issue of a Facility Inspection Certificate)

Article 14-17. The Minister of MEXT or the designated inspection agencies shall perform facility inspections as provided in Paragraph 1 through Paragraph 3 of Article 12-8 of the Law, and when the successful completion is recognized, a facility inspection certificate shall be issued.

(Application for Periodical Inspection)

Article 14-18. Any person who intends to receive periodical inspection (except the inspections performed by the designated inspection agencies) as provided or in Paragraph 1 of Article 12-9 of the Law shall submit to the Minister of MEXT an application described in annexed Form 10-6 with the following documents attached:

(i) The clear plane views showing the location of use facilities, etc. of the factory or business;

(ii) Measured plane views of use facilities, etc.; and

(iii) Detailed measured sectional views of use facilities, etc.

2. Concerning the said application, in the case of the factory or place of business located in Ibaraki Prefecture, the application described in the preceding paragraph shall be submitted through the Director of Mito Nuclear energy Office.,

3. Any persons, who intends to receive the facility inspection performed by designated inspection agencies described in Paragraph 1 of Article 12-98 of the Law, shall submit an application to the said designated inspection agencies as provided by the said designated inspection agencies after obtaining the approval of the Minister of MEXT.

Article 14-19. The provisions of the preceding article shall be applied correspondingly to the application for periodical inspection described in Paragraph 2 of Article 12-9 of the Law. In such a case, the wording “use facilities, etc.”, and “factory or place of business” in Paragraph 1 of the preceding article shall be construed to mean “refilling facility, etc.”, and “selling or leasing place”, respectively, and “factory or place of business” in Paragraph 2 of the said article to mean “selling or leasing place”.

Article 14-20. The provisions of Article 14-18 shall be applied correspondingly to the application of the periodical inspection described in Paragraph 3 of Article 12-9 of the Law. In such a case, the wording “use facilities, etc.”, and “factory or place of business” in Paragraph 1 of Article 14-18 shall be construed to mean “waste refilling facility, etc.”, and “radioisotope waste management business place”, respectively, and “the factory or place of business” in Paragraph 2 of the said article to mean “radioisotope waste management business place”.

(Issue of a Periodical Inspection Certificate)

Article 14-21. The Minister of MEXT or the designated inspection agencies shall perform periodical inspections as provided in Paragraph 1 through Paragraph 3 of Article 12-9 of the Law, and when the satisfaction is recognizes, a periodical inspection certificate shall be issued.

Chapter III. Standards of Use, etc.

(Standards of Use)

Article 15. Technical standards of use as provided in provisions of Paragraph 1 of Article 15 of the Law shall be as follows:

(i) Radioisotopes or radiation generating devices shall be used in use facilities (or at the device installed facility when the notified user uses certified radioisotope-equipped devices). But this shall not be applied for the cases when notified user uses sealed radioisotopes or the cases as defined in Paragraph 2 of Article 14-6 of the Ordinance;

(i-2) Unsealed radioisotopes shall be used in workrooms;

(ii) Sealed radioisotopes shall be used under such conditions that the radioisotopes conform to the followings at all times:

A. Under the normal conditions of the use, there shall not be a possibility of unsealing or destruction; and

B. There shall not be a possibility of contamination with sealed radioisotopes being dispersed by leakage, permeation, etc.

(iii) Radiation doses of personnel engaged in radiation work shall not exceed effective dose limits and dose equivalent limits by taking any of the following measures:

A. Radiation shall be shielded by using shielding walls or other shields;

B. Appropriate distance shall be kept between radioisotopes or radiation generating devices and human bodies by using remote handling apparatus, forceps, etc.; and

C. Time of radiation exposure to human body shall be shortened.

(iii-2) When radioisotopes or radiation generating devices are used in the room where interlocks, defined in Subparagraph (vii) of Paragraph 1 of Article 14-6, are installed, the measures to prevent the doors from being opened or closed from outside, which doors people usually do not use such as carry-in entrance, emergency exit, etc., and measures shall be taken to enable a person locked inside of the room to escape

swiftly;

(iv) The concentration of radioisotopes in the atmosphere, which people respire in the place of the workroom where persons normally enter, shall not exceed concentration limits in the atmosphere, by purification and ventilation of the atmosphere contaminated with radioisotopes;

(v) Food, drink, or smoking shall be prohibited in the workroom;

(vi) The surface concentration of radioisotopes of materials, which come in contact with persons in the workroom or the contamination inspection office, shall not exceed the surface concentration limits by removal of the contamination with radioisotopes on the surface or by disposal of the material contacted;

(vii) Working cloths, protection tools, etc. shall be worn in the workroom while at work, and person shall not leave the workroom with these materials wearing without reason;

(viii) Contamination with radioisotopes on human body and the surface of materials worn on human bodies such as working cloths, foot wears, and protection tools shall be inspected and removed when the person leaves the workroom;

(ix) Such materials contaminated with radioisotopes that surface concentration of radioisotopes exceeds the surface concentration limits shall not be taken out of the workroom without reason;

(x) Such materials contaminated with radioisotopes that surface concentration of radioisotopes exceeds the concentration provided by the Minister of MEXT shall not be taken out of the controlled area without reason;

(xi) Cautions necessary for prevention of radiation hazards shall be displayed in the easily visible area in use facilities, device installed facilities, or the controlled area. But when the notified user only uses certified radioisotope-equipped devices (limited to electron capture detector for gas-chromatograph only), cautions shall be displayed as provided by the Minister of MEXT in the device installed facility and on the gas-chromatograph on which the said device is installed;

(xii) Measures shall be taken to prevent the people from entering the controlled area for no reason, and when any person other than the occupational personnel enters the area, the person shall be made to obey the instructions given by the occupational personnel;

(xiii) When the notified user uses radioisotopes at the controlled area, the area shall be marked as provided in the annexed table;

(xiv) When sealed radioisotopes are transferred to use, the radioisotopes shall be inspected immediately after the use by radiation measuring instruments, whether there is abnormality such as loss or leakage, etc., and when abnormality exists, necessary measures, such as exploration, etc., to prevent radiation hazards shall be taken; and

(xv) Certified radioisotope-equipped devices shall be used, in addition to those as provided in each of the preceding subparagraphs (except the provisions of Subparagraph (i-2), and Subparagraph (iv) through Subparagraph (x)), as provided in the followings. But those shall not be applied where the certified labels put on the said radioisotope-equipped devices have been removed or erased:

A. Radioisotopes shall not be removed from the radioisotope-equipped devices;

B. They shall be used under the conditions such as temperature provided by the Minister of MEXT; and

C. Reconstruction, which damages radiation hazards prevention mechanisms such as shields of certified radioisotope-equipped devices, shall not be done.

(Criteria for Refilling or Repacking)

Article 16. Technical standards for refilling or repacking as provided in Paragraph 1 of Article 16 of the Law for a user, a seller, and a lessor shall be those as provide in the following, and the provisions of Subparagraph (i-2), Subparagraph (iii) through Subparagraph (x), Subparagraph (xii), and Subparagraph (xiii) of the preceding article shall be applied with necessary modifications correspondingly. In such a case, the wording “radioisotopes or radiation generating devices” in Item B of Subparagraph (iii) of the said article shall be construed to mean “radioisotopes”, “Subparagraph (vii) of Paragraph 1 of Article 14-6”, and “radioisotopes or radiation generating device” in Subparagraph (iii-2) of the said article to mean “Subparagraph (vii) of Paragraph 1 of Article 14-6 which shall be applied with necessary modifications correspondingly to Article 14-7”, and “radioisotopes”, respectively:

(i) Radioisotopes shall be refilled or repacked in use facilities or refilling facilities. But this shall not be applied where the notified user refills or repacks sealed radioisotopes;

(ii) When sealed radioisotopes are refilled or repacked as sealed, the radioisotopes shall be refilled or repacked under the conditions conforming to provisions of Item A and Item B of Subparagraph (ii) of the preceding article, and facility or instruments, such as carpets, receiving trays, or absorbents, etc., to prevent spreading of contamination with radioisotopes shall be used;

(iii) Cautions necessary for prevention of radiation hazards shall be displayed in the easily visible places of the refilling facility; and

(iv) When the radioisotopes installed in certified radioisotope-equipped devices are refilled or repacked, a certified label put on the said radioisotope-equipped devices shall be removed or erased. But this shall not be applied to the cases provided in the followings:

A. In the case of radioisotopes installed in the said device having been exchanged with the same

radioisotopes as the said radioisotopes in the type, quantity, and shape, when the absence of abnormality of radiation hazards prevention mechanisms has been verified after the exchange by measurement of dose equivalent rate on the surface of radioisotope-equipped devices, etc.; or

- B. In the case of radioisotopes being washed in accordance with the method provided by the Minister of MEXT, and the said radioisotopes being reinstalled in the said device, when the absence of abnormality of radiation hazards prevention mechanisms has been verified by measurement of dose equivalent rate on the surface of radioisotope-equipped devices, etc.

2. Provisions of Subparagraph (i-2), Subparagraph (iii), Subparagraph (iv) through Subparagraph (x), and Subparagraph (xii) of the preceding article, and the main text of Subparagraph (i) of the preceding paragraph, Subparagraph (ii), and Subparagraph (iii) of the preceding paragraph shall be applied with necessary modifications to technical standards for refilling or repacking as specified in Paragraph 1 of Article 16 of the Law for the radioisotope waste management business operator. In such a case, the wording “radioisotopes” in Subparagraph (i-2) of the preceding article shall be construed to mean “radioisotopes, etc.”, “radioisotopes or radiation generating devices” in Item B of Subparagraph (iii) of the said article to mean “radioisotopes, etc.”, “radioisotopes” and “use facilities or refilling facilities” in the main text of Subparagraph (i) of the preceding paragraph to mean “radioisotopes, etc.” and “waste refilling facility” respectively, “radioisotopes” in Subparagraph (ii) of the said paragraph to mean “radioisotopes, etc.”, and “refilling facility” in Subparagraph (iii) of the said paragraph to mean “waste refilling facility”.

(Criteria for Storage)

Article 17. Technical standards for storage as specified in Paragraph 1 of Article 17 of the Law for a user, a seller, and a lessor shall be as follows:

(i) Radioisotopes shall be stored in a container provided for in a storage room or a storage box (a storage facility, when sealed radioisotopes are stored in a fire-resistant structured container, or a storage facility or a device installed facility, when certified radioisotope-equipped devices are stored);

(ii) Radioisotopes exceeding the storage capacity of a storage facility shall not be stored;

(iii) The dose of a occupational personnel engaged in radiation work shall not exceed effective dose limits and dose equivalent limits by taking any of measures as defined in Item A through Item C of Subparagraph (iii) of Article 15;

(iii-2) The measures shall be taken to prevent possibilities of a storage box (or a container, when sealed radioisotopes are stored in the fire-resistant structured container or when certified radioisotope-equipped devices are stored in the container) being carried about without reason while radioisotopes are stored;

(iv) When radioisotopes possibly contaminate the atmosphere are stored, the concentration of the radioisotopes in the atmosphere of the storage facility that persons respire shall not exceed the concentration limits in the atmosphere;

(v) Eating, drinking and smoking shall be prohibited at the places of the storage facilities, where there is a possibility of oral ingestion of radioisotopes, etc.;

(vi) The surface concentration of radioisotopes on materials that come in contact with persons in the storage facility shall not exceed the surface concentration limits by taking the following measures:

A. Liquid radioisotopes shall be put in a container whose structure is spill-proof and which uses materials impermeable to liquid; and

B. Spreading of contamination with radioisotopes shall be prevented by using receiving saucer, absorbents, or other facilities, or instruments for such a container, which encloses liquid or solid radioisotopes, when occurrence of accidents is possible, such as cracking, breaking, etc.

(vii) Such materials contaminated with radioisotopes that surface concentration of radioisotopes exceeds the concentration limits as specified by the Minister of MEXT shall not be taken out of the controlled area without reason;

(viii) Necessary cautions for prevention of radiation hazards shall be displayed at the easily visible places of the storage facilities;

(ix) The measures shall be taken to prevent the people from entering the controlled area without reason, and when a person enters the area other than the personnel engaged in radiation works, the person shall be made to obey the instructions given by the personnel engaged in the radiation work; and

(x) Certified radioisotope-equipped devices shall be stored as provided in the followings in addition to those as provided in the preceding subparagraphs (except the provisions of Subparagraph (iv) through Subparagraph (vii)). But this shall not be applied when a certified labels put on the said certified radioisotope-equipped devices have been removed or erased:

A. The devices shall be stored under the conditions such as temperature provided by the Minister of MEXT in accordance with the provision of Item B of Subparagraph (xv) of Article 15; and

B. The devices shall be stored by such a method that the shields and other radiation hazards prevention mechanisms such as the shields of certified radioisotope-equipped devices would not be impaired.

2. Technical standards for storage provided in Paragraph 1 of Article 17 of the Law, for the radioisotope waste management business operator shall be as provided in the followings, and the provisions of Subparagraph (ii), Subparagraph (iii), and Subparagraph (iv) through Subparagraph (x) of the preceding

paragraph shall be applied correspondingly. In such a case, the wording “storage facility” and “radioisotopes” in Subparagraph (ii) of the said paragraph shall be construed to mean “waste storage facility” and “radioisotopes, etc.”, respectively, “radioisotopes, which may possibly contaminate the atmosphere” and “storage facility” in Subparagraph (iv) of the said Paragraph to mean “radioisotopes, etc., which may possibly contaminate the atmosphere” and “waste storage facility”, respectively, “storage facility” and “radioisotope” in Subparagraph (v) of the said paragraph to mean “waste storage facility” and “radioisotopes, etc.”, respectively, “storage facility”, “liquid radioisotopes”, and “solid radioisotopes” in Subparagraph (vi) of the said paragraph to mean “waste storage facility”, “liquid radioisotopes, etc.”, and “solid radioisotopes, etc.”, respectively, “storage facility” in Subparagraph (viii) of the said paragraph to mean “waste storage facility”:

(i) Radioisotopes, etc. shall be stored in a container of a storage room or a storage box (a waste storage facility, when sealed radioisotopes, etc. are stored in a fire-resistant structured container); and

(ii) Measures shall be taken to prevent a storage box (a container, when sealed radioisotopes, etc. are stored in the fire-resistant structured) being carried about without reason while the radioisotopes, etc. are stored.

(Standards of Waste Management)

Article 19. The technical standards of waste management as provided in Paragraph 1 of Article 19 of the Law for a user, a seller, a lessor or a radioisotope waste management business operator shall be as provide in the followings, and the provisions of Subparagraph (iii) of Article 15 and Subparagraph (iv) through Subparagraph (xii) of Article 15 shall be applied correspondingly. In this case, the wordings, “radioisotopes or radiation generating devices” in provisions of Item B of Subparagraph (iii) of the said article shall be construed to mean “radioisotopes, etc.” and “workrooms” in Subparagraph (iv) through Subparagraph (ix) of Article 15 to mean “waste management workroom” and “use facility, device installed facility, or the controlled area” to mean “waste management facility”:

(i) Gaseous radioisotopes, etc. shall be managed as waste after purification or exhaustion through the ventilation equipment;

(ii) In the case of waste management by the method described in the preceding subparagraph, the waste management shall be as provided in the following:

A. In the case of waste management using the ventilation equipment described in Item B(1) of Subparagraph (iv) of Paragraph 1 of Article 14-11, the concentration of radioisotopes in the ventilation at the ventilation port of the equipment shall be below the limits of concentrations specified by the Minister of MEXT;

B. In the case of waste management using the ventilation facility described in Item B(2) of Subparagraph (iv) of Paragraph 1 of Article 14-11, the concentration of radioisotopes in the atmosphere outside the boundary of the place of business, etc. shall be kept below the concentration limits specified by the Minister of MEXT by monitoring the concentrations of radioisotopes in the ventilation air; and

C. In the case of waste management using the ventilation equipment described in Item B(3) of Subparagraph (iv) of Paragraph 1 of Article 14-11, the concentration of radioisotopes in the atmosphere outside the boundary of the place of business, etc. shall be kept below the limits of concentrations specified by the Minister of MEXT by monitoring the quantities and concentrations of radioisotopes in the ventilation air.

(iii) In the case of removal of radioisotopes, etc. stuck to the ventilation equipment described in Subparagraph (i) of this article, facilities or equipments and protection tools such as floor coverings, receiving trays, absorbents and others shall be used to prevent the spread of contamination with radioisotopes;

(iv) Liquid radioisotopes, etc. shall be managed as waste by methods provided in the following:

A. Purification or discharge through the discharge equipment;

B. Storage in the storage equipment after packaging in a container or after solidifying in a container with concrete or other solidification materials at the solidification treatment equipment;

C. Incineration by the incinerator; and

D. Solidification with concrete or other solidification materials at the solidification treatment equipment.

(v) In the case of waste management by methods described in Item A of the preceding subparagraph, it shall be performed as provided in the followings:

A. In the case of waste management through the discharge equipment described in Item A(1) of Subparagraph (v) of Paragraph 1 of Article 14-11, the concentrations of radioisotopes in the discharged liquid at the draining point of the equipment concerned shall be below the limits of concentrations of radioisotopes provided by the Minister of MEXT;

B. In the case of waste management through the discharge equipment described in Item A(2) of Subparagraph (v) of Paragraph 1 of Article 14-11, the concentrations of radioisotopes in the discharged liquid at the boundary of the place of business, etc. shall be made below the limits of concentrations provided by the Minister of MEXT by monitoring the concentration of radioisotopes in the discharged liquid; or

- C. In the case of waste management through the discharge equipment as described in Item A(3) of Subparagraph (v) of Paragraph 1 of Article 14-11, radiation doses outside the boundary of the place of business, etc. shall be made below the dose limits provided by the Minister of MEXT by monitoring the quantities and concentrations of radioisotopes in the discharged liquid.
- (vi) In the case of waste management by the method described in Item A of Subparagraph (iv), when treating the discharge liquid or removing the radioisotopes, etc. stuck or deposited to the discharge equipment described in Item A of the said subparagraph, facilities or equipments and protection tools such as floor coverings, receiving trays or absorbents and others shall be used to prevent spreading of contamination with radioisotopes;
- (vii) In the case of waste management by the method described in Item AB of Subparagraph (iv), when the packaging of liquid radioisotopes in a container is carried out, the container shall conform to the standards as specified in the following:
- A. The structure of the container shall be made to be hard to spill the liquid; and
- B. The material hard to be permeated by the liquid shall be used for the container.
- (viii) In the case of waste management by the method described in Item AB of Subparagraph (iv), when the liquid radioisotopes packaged in the container is storage in the storage equipment, if the possible accident such as a crack or a rupture of the container may be anticipated, the facilities or equipments to prevent the spreading of the contamination with radioisotopes such as receiving trays or absorbents or others shall be used to prevent the spreading of contamination with radioisotopes;
- (ix) In the case of waste management by the method described in Item B of Subparagraph (iv), when the liquid radioisotopes, etc. is solidified in a container, the container which become one unit with the solidified liquid radioisotopes, etc. shall be able to prevent scattering or leakage of liquid radioisotopes, etc.;
- (x) In the case of waste management by the method described in Item B of Subparagraph (iv), the works to solidify the liquid radioisotopes into the container shall be performed in the waste management workroom;
- (xi) In the case of waste management by the method described in Item C of Subparagraph (iv), the works to take out the ash from the incinerator after incineration of liquid radioisotopes, etc. shall be performed in the waste management workroom;
- (xii) In the case of waste management by the method described in Item D of Subparagraph (iv), the works to solidify the liquid radioisotopes with concrete or other solidification materials shall be performed in the waste management workrooms;
- (xiii) Solid radioisotopes, etc. shall be managed as waste by any of methods provided in the followings:
- A. Incineration with the incinerator;
- B. Storage in the storage equipment after packaging in a container or after solidification in a container with concrete or other solidification materials in the solidification processing equipment; or
- C. In the case of the exceptions as described in Item C of Subparagraph (viii) of Paragraph 1 of Article 14-11, it shall be storage in the storage equipment.
- (xiv) The provision of Subparagraph (xi) shall be applied correspondingly to the waste management described in A of the preceding subparagraph; and
- (xv) The provision of Subparagraph (ix) and (x) shall be applied correspondingly to the waste management described in Item AB of Subparagraph (xiii).
2. The provisions of Subparagraph (iii) and Subparagraph (x) through Subparagraph (xii) of Article 15 shall be applied with necessary modification correspondingly to the technical standards of waste management provided in the provisions of Paragraph 1 of Article 19 of the Law for a notified user, other than those as provided in the followings. In this case, wordings, “radioisotopes or radiation generating devices” in Item B of Subparagraph (iii) of the said article shall be construed to mean “radioisotopes, etc.” and “use facilities, device installed facilities, or the controlled area” in Subparagraph(xi) of the said article to mean “the controlled area”:
- (i) Waste management of radioisotopes, etc. shall be performed by taking measures to prevent radiation hazards, such as enclosing those in a container placed in a designated separated area; and
- (ii) The container and the controlled area provided in the preceding subparagraph shall be marked as provided in the annexed table.
3. The technical standards of waste management provided in the provisions of Paragraph 2 of Article 19 of the Law shall be as provided in the following provisions, and the provisions of Subparagraph (iii) of Article 15 shall also be applied correspondingly. In this case, the wording, “radioisotopes or radiation generating devices” in the said subparagraph shall be construed to mean “radioisotopes, etc.”:
- (i) Radioisotopes, etc. shall be stored in waste management facility; and
- (ii) For the personnel who performs waste management (except the personnel engaged in radiation work), the exposure dose shall be controlled not to exceed the dose limits specified by the Minister of MEXT.

Chapter IV. Duties of Measurement, etc.

(Measurement)

Article 20. The measurement provided in the provisions in Paragraph 1 of Article 20 of the Law shall be performed as provided in the followings:

- (i) The measurement of quantity of radiation shall be performed for one centimetre dose equivalent rate or

one centimetre dose equivalent. Regardless of this provision, at the place where seventy micrometer dose equivalent rate is possible to exceed ten times of one centimetre dose equivalent rate or seventy micrometer dose equivalent is possible to exceed ten times of one centimetre dose equivalent, the measurement shall be performed for seventy micrometer dose equivalent rate or seventy micrometer dose equivalent respectively;

(ii) The measurement of amount of radiation or situations of contamination with radioisotopes shall be performed using radiation measurement devices. Regardless of this provision, in such a case that the measurement by radiation measuring devices is considerably difficult, these values may be derived by calculation;

(iii) The measurement provided in the preceding subparagraph shall be performed for the items provided in the upper section of the following table at the most appropriate points to detect the amount of radiation or the situations of contamination with radioisotopes of the places shown in the lower section of the table (except the factories or the places of business in which only certified radioisotope-equipped devices (limited to the electron capture detectors for gas chromatograph, and the same, hereinafter in this subparagraph) and the use facilities, the refilling facilities, the storage facilities and the device installed facility in which only certified radioisotope-equipped devices are used); and

Item	The amount of radiation	The measurement of situations of contamination with radioisotopes
Place	A. Use facilities B. Refilling facilities C. Waste refilling facilities D. Storage facilities E. Device installed facility F. Waste storage facilities G. Waste Management facilities H. Boundaries of the controlled area I. Inhabit area inside of the place of business J. Boundaries of the place of business, etc.	A. Workrooms B. Waste management workrooms C. Contamination inspection rooms D. Ventilation ports of ventilation equipments E. Draining points of discharge equipments F. Places where the ventilation monitoring equipment is installed G. Places where the discharge monitoring equipment is installed H. Boundaries of the controlled area

(iv) The measurement described in Subparagraph (ii) shall be performed once prior to the start of works and shall be performed as provided in the followings after the start of works:

- A. The measurement of the amount of radiation (except the measurement described in Item B and Item C) and the measurement of the situations of contamination at the workrooms, waste management workrooms, contamination inspection rooms and boundaries of the controlled area shall be performed once every period not exceeding one month;
- B. For the place where fixed sealed radioisotopes or fixed radiation generating devices are handled, the measurement of the amount of radiation (except the measurement described in Item C), in case where the method of handling and the location of shielding walls or other shields are not changed, shall be performed once every period not exceeding six months;
- C. When only sealed radioisotopes less than 3.7 GBq or less is handled, and when the situations such as the existence of abnormalities of the radioisotopes, etc. are inspected by radiation measuring devices once every period not exceeding six months, the measurement of amount of radiation shall be performed every time the radioisotopes are replaced; and
- D. The measurement of the situations of contamination with radioisotopes at the ventilation port of ventilation equipment, the draining port of discharge equipment, the place where the ventilation monitoring equipment is installed, and the place where the discharge monitoring equipment is installed, shall be performed every time the ventilation or discharge is carried out (in the case of the continuous ventilation or discharge, the measurement shall be performed continuously).

2. The measurement of the amount of radiation as described in Paragraph 2 of Article 20 of the Law shall be performed as provided in the followings for the dose by external radiation exposure (hereinafter referred to as “external exposure”) and the dose by the radiation from radioisotopes taken into the body (hereinafter referred to as “internal exposure”):

- (i) The measurement of the dose by external exposure shall be performed as provided in the followings: and
 - A. The measurement of one centimetre dose equivalent and seventy micrometer dose equivalent (one centimetre dose equivalent for neutron beam) about chest region (abdomen region for female (except a person who are given a diagnosis of infertility or a person who submit to a user, a seller, a lessor or a radioisotope waste management business operator the report in written form that she has no intention to get pregnant, but this shall not be applied where there is a rational reason));
 - B. When the region possible to received the maximum dose by external exposure among the regions of the head and the cervical parts, of the chest and upper arm parts, and of abdomen and femoral parts is other than the region of chest and upper arm parts (for female who is measured at the abdomen region in Item A, the region of abdomen and femoral region), one centimetre dose

equivalent and seventy micrometer dose equivalent (for neutron beam, one centimetre dose equivalent) shall be measured at the region where the dose equivalent by external exposure may be the maximum in addition to the measurement described in Item A;

- C. When the region possible to receive the maximum dose by external exposure among the regions of the body is other than the head part, the cervical part, the chest part, the upper arm part, the abdomen part and the femoral part, seventy micrometer dose equivalent shall be measured at the region concerned in addition to the measurement described in Item A and Item B. For the neutron beam, the measurement is not limited to this method;
 - D. The measurement shall be performed using the radiation measuring devices. Regardless of this provision, when the measurement by radiation measuring devices is considerably difficult, these values can be derived by calculation; and
 - E. For the person who enters into the controlled area, the measurement shall be continuously carried out during the period of the access. Regardless of this provision, for the person who enters temporarily into the controlled area and is not the occupational personnel engaged in radiation work, this provision is not applicable if the dose by external exposure in the controlled area concerned is not possible to exceed the dose as provided by the Minister of MEXT.
- (ii) The measurement of the dose of internal exposure shall be performed as provided by the Minister of MEXT, when the radioisotopes are taken by inhalation or by oral ingestion by mistake, once every period not exceeding three months for the person who enters into the workrooms or other areas where the radioisotopes are possible to be taken by inhalation or by oral ingestion (once every period not exceeding one month until the childbirth for the female who is recognized to be pregnant by submitting the report, etc. to the user, the seller, the lessor or the radioisotope waste management business operator). Regardless of this provision, for the person who enters temporarily into the workroom or other areas where the radioisotopes are possible to be taken by inhalation or by oral ingestion and is not the personnel engaged in radiation work, this provision is not applicable if the dose by internal exposure is not possible to exceed the dose provided by the Minister of MEXT.
3. The measurement of the situation of contamination with radioisotopes described in Paragraph 2 of Article 20 of the Law shall be performed as provided in the followings using the radiation measurement device:
- (i) The measurement shall be performed for the surface of the human body parts, such as hands, feet or other regions that are possible to be contaminated with radioisotopes, and for the surface of working wears, footwear, protection tools or other wears for the human body that are possible to be contaminated with radioisotopes; and
 - (ii) For the persons who enter into the facilities where the unsealed radioisotopes are handled, the measurement shall be performed when the persons concerned leave the facilities.
4. The measurement provided by the Ministerial Order of MEXT described in Paragraph 3 of Article 20 of the Law shall be as follows:
- (i) Results of the measurement described in Paragraph 1 shall be recorded for the following items every time the measurement is carried out, and shall be stored for five years:
 - A. Date and time of the measurement;
 - B. Regions measured;
 - C. Full name of the person made the measurement;
 - D. Classification and type of the radiation measurement device;
 - E. Methods of the measurement; and
 - F. Results of the measurement.
 - (ii) The results of measurement of dose by external exposure shall be summed up for every three month period starting from the first of April, the first of July, the first of October and the first of January, and also for every one year period starting from the first of April and, and for the female who is recognized to be pregnant by submitting the report, etc. by her to the user, the seller, the lessor or the radioisotope waste management business operator, for one month starting from the first day of the month during the period until the childbirth and shall be recorded for the following items every time the measurement is summed:
 - A. Full name of the person being measured;
 - B. Full name of the person made the measurement;
 - C. Classification and type of the radiation measuring devices;
 - D. Methods of the measurement; and
 - E. Regions measured and results of the measurement
 - (iii) The results of measurement of dose by internal exposure shall be recorded for the following items every time the measurement is carried out:
 - A. Date and time of the measurement;
 - B. Full name of the person being measured;
 - C. Full name of the person made the measurement;
 - D. Classification and type of the radiation measuring devices;
 - E. Methods of the measurement; and

- F. Results of the measurement.
- (iv) When the surface of a region of the human body such as hands, feet, etc. is contaminated with radioisotopes exceeding the limits of surface contamination density and is not easy to remove the contamination, the results of measurement as described in the previous paragraph shall be recorded for the following items:
- A. Date and time of measurement;
 - B. Full name of the person being measured;
 - C. Full name of the person made the measured;
 - D. Classification and type of the radiation measuring devices;
 - E. The situation of the contamination;
 - F. Methods of the measurement; and
 - G. Regions being measured and the results of the measurement.
- (v) The effective dose and equivalent dose shall be calculated, as provided by the Minister of MEXT, based on the results described in Subparagraph (ii) through the preceding subparagraph for every concerned period which is three months starting from the first of April, the first of July, the first of October and the first of January and also one year starting from the first of April and, for the recognized who is known to be pregnant by submitting the report, etc. from her to the user, the seller, the lessor or the radioisotope waste management business operator, one month starting from the first day of every month during the period until the childbirth, and shall record the following items every time the calculation is carried out:
- A. Year, month and date of calculation;
 - B. Full name of the person being calculated;
 - C. Full name of the person made the calculation;
 - D. The calculated periods;
 - E. The effective dosages; and
 - F. The equivalent dosages and the name of the organization.
- (v-2) As a result of the calculation as described in the preceding subparagraph, if the effective dosage for one year starting from the first of April exceed twenty mSv, the accumulated effective dosage (the sum of effective dosage as calculated in the preceding subparagraph for every one year starting from the first of April) of the period provided by the Minister of MEXT including concerned one year period shall be summed up every year for the concerned period, and following items shall be recorded every time summed
- A. Year, month and date of the summation;
 - B. Full name of the person calculated for;
 - C. Full name of the person made the calculation;
 - D. Period of the summation; and
 - E. Accumulated effective dosages.
- (vi) A copy of records described in Subparagraph (ii) though the proceeding Subparagraph shall be delivered to the person being measured every time the record is made; and
- (vii) The record described in Subparagraph (ii) through Subparagraph (v-2) shall be stored. This provision is not applicable when the person for whom the record concerned are made become not the employee of the user, the seller, the lessor or the radioisotope waste management business operator, or when the records concerned are transferred after five years of storage to the organization designated by the Minister of MEXT.

(Storage by Electro-magnetic Medias)

Article 20-2. The record as the result of measurements defined in Paragraph 3 of Article 20 of the Law may be made by electro-magnetic medias (electronic medias, magnetic medias, or other medias which records cannot be recognized by direct human perception, hereinafter the same definition is applied) and stored as provided in Paragraph 4 of the preceding article.

2. In the case of the storage defined in the preceding paragraph is carried out, the record provided in the said paragraph shall be made to be able to be immediately displayed as necessary using the electronic computers or other equipments.

3. In the case of the storage defined in Article 1, efforts shall be made to secure the standards specified by the Minister of MEXT.

(Internal Rules for Prevention of Radiation Hazards)

Article 21. The Internal Rules for Prevention of Radiation Hazards as provided in Paragraph 1 of Article 21 of the Law shall provide the following items:

- (i) Matters concerning duty and organization of persons engaged in the use of radioisotopes or radiation generating devices;
- (i-2) Matters concerning duty and organization of the Supervisor of Radiation Protection and other persons engaged in safety management for the use of radioisotopes or radiation generating devices;
- (i-3) Matters concerning assignment of the proxy of the Supervisor of Radiation Protection;
- (i-4) Matters concerning maintenance and management of the radiation facility;
- (i-5) Matters concerning inspection of the radiation facility (in the case of using or refilling or repacking of sealed radioisotopes or managing the waste of sealed radioisotopes, etc. by the notified user, the controlled

area);

(ii) Matters concerning use of radioisotopes or radiation generating devices;

(iii) Matters concerning refilling or repacking, storage, transportation or waste management of radioisotopes, etc.;

(iv) Matters concerning measurements of the radiation dose and the level of contamination with radioisotopes, and measures concerning results of the measurement, as provided in subparagraphs of Paragraph 4 of the preceding article;

(v) Matters concerning education and training required for prevention of radiation hazards;

(vi) Matters concerning health examination;

(vii) Matters concerning measures essential to the health for persons suffering or who may possibly suffer from radiation hazards;

(viii) Matters concerning record and preservation as defined for in Article 25 of the Law;

(ix) Matters concerning measures when an earthquake, fire or other disasters occur (except measures provided in the following subparagraph);

(x) Matters concerning measures in an emergency;

(xi) Matters concerning reports of the situation of radiation management; and

(xii) Other necessary matters concerning the prevention of radiation hazards.

2. The notification as provided in Paragraph 1 of Article 21 of the Law shall be made in Form No.11 provided separately.

3. The notification as provided in Paragraph 3 of Article 21 of the Law shall be made in Form No.12 provided separately, with the altered Internal Rules for Prevention of Radiation Hazards attached.

4. Concerning the said report, in the case of the place of business, etc. concerning the said report is located in Ibaraki Prefecture, the notification described in the preceding two paragraphs shall be made through the Director of Mito Nuclear energy Office.

(Education and Training)

Article 21-2. The education and training as provided in Article 22 of the Law shall be as provided in the following subparagraphs:

(i) The education and training shall be provided to persons entering the controlled area and the occupational personnel in handling work, etc. as provided in the following subparagraph through Subparagraph (v);

(ii) The education and training to the occupational personnel engaged in radiation work shall be made before entering the controlled area for the first time, and for each period not exceeding one year after entering it;

(iii) The education and training to the occupational personnel in handling work, etc. who will not enter the controlled area shall be made before the person begins the handling work, etc., for each period not exceeding one year after beginning the work;

(iv) The education and training to persons defined in the preceding two subparagraphs shall be performed with regard to items provided in the followings:

A. Influence of radiation to the human body;

B. Safe use of radioisotopes or radiation generating devices;

C. Legislations concerning prevention from radiation hazards due to radioisotopes or radiation generating devices; and

D. Internal Rules for Prevention of Radiation Hazards.

(v) The education and training to persons other than persons defined in the preceding subparagraph shall be performed with regard to matters necessary to prevent radiation hazards occurring in the radiation facility where they enter.

2. Despite of the provisions in the preceding paragraph, for persons considered to have sufficient knowledge and skill concerning all or any of items or matters provided in Subparagraph (iv) or Subparagraph (v) of the said paragraph, the education and training with regard to the said items or matters may be omitted.

3. Necessary matters concerning practice of the education and training such as amount of time for the education and training, etc., as well as matters provided in the preceding two paragraphs, shall be provided by the Minister of MEXT.

(Health examination)

Article 22. Health examination as provided in Paragraph 1 of Article 23 of the Law shall be as provided in the following subparagraphs:

(i) It shall be provided to the occupational personnel engaged in radiation work (except persons entering the controlled area temporarily) before entering the controlled area for the first time;

(ii) After the occupational personnel engaged in radiation work described in the preceding subparagraph enters the controlled area, it shall be given to the personnel for each period not exceeding one year;

(iii) Despite of the provision in the preceding subparagraph, when the occupational personnel engaged in radiation work comes under any of the followings, the health examination shall be given to the personnel without delay:

A. When a person has taken radioisotopes by oral ingestion or inhalation accidentally;

- B. When a person has been contaminated on the skin with radioisotopes in excess of the surface concentration limits, and the said contamination cannot be easily removed;
 - C. When a person has been, or could have been contaminated on a wound portion of the skin with radioisotopes, or
 - D. When a person was exposed, or possibly be exposed radiation in excess of the equivalent dose limits or the effective dose limits.
- (iv) Methods of the health examination shall be physician's interview, and tests or medical checkup;
- (v) The physician's interview shall be made with regard to the following items:
- A. Existence of radiation exposure record (including electron beam or X-ray having energy of less than 1 MeV, the same shall be applied to the following Item B and Subparagraph (i) of the following article); and
 - B. For persons having radiation exposure records, the situation of radiation exposure such as place, details and period of time for the work, radiation dose, existence of radiation hazards, situation of radiation exposure, etc.
- (vi) The tests or medical check shall be made with regard to the following regions and items. But, the regions or Item A through Item C (except the regions or Item A and Item B for the health examination concerning Subparagraph (i)) are made when the physician considers necessary:
- A. Amount of hemoglobin of hematocrit in peripheral blood, red blood cell counts, white blood cell counts and percent white blood cell counts;
 - B. Skin,
 - C. Eyes; and
 - D. Other regions and items provided by the Minister of MEXT.
2. Measures provided by the Ordinance of MEXT described in Paragraph 2 of Article 23 of the Law shall be as provided in the following subparagraphs:
- (i) Results of the health examination shall be recorded on the following items for each health examination:
- A. Date of the examination;
 - B. Full name of person being examined;
 - C. Name of physician who made the health examination;
 - D. Results of the health examination; and
 - E. Measures taken in accordance with the results of the examination.
- (ii) A copy of the record as described in the preceding subparagraph shall be delivered to the person received the health examination after each health examination; and
- (iii) The record described in the Subparagraph (i) shall be kept. But this provision is not applicable when the person received the health examination became not be an employee of the user, the seller, the lessor or the radioisotope waste management business operator, or that such record is transferred to the agency provided by the Minister of MEXT after being kept for five (5) years.

(Keeping in Electromagnetic Medias)

Article 22-2. Records of health examinations defined in Paragraph 2 of Article 23 of the Law may be made by and stored in electromagnetic media as provided in the paragraph 2 and paragraph 3 of the preceding article.

2. In the case of keeping as provided in the preceding paragraph, the records given in the said paragraph shall be shown immediately as needed by an electronic computer or other equipments.

3. In the case of keeping as provided in Paragraph 1, every effort shall be made to ensure to meet the standards as provided by the Minister of MEXT.

(Measures for Persons Suffering or Who May Possibly Suffer from Radiation Hazards)

Article 23. Measures as provided in Article 24 of the Law, which the user, the seller, the lessor and the radioisotope waste management business operator shall take, shall be as provided in the following subparagraphs:

- (i) When a personnel engaged in radiation work has suffered or possible to suffer from radiation hazards, such measures shall be taken as shortening of entering hours or prohibiting entering into the controlled area, or relocating the personnel to works where potential radiation exposure is small, and essential guidance, etc. shall be provided for the health; and
- (ii) When a person other than personnel engaged in radiation work has suffered or possible to suffer from radiation hazards, appropriate measures shall be taken, such as health examination by a physician and essential guidance for the health without delay.

(Record)

Article 24. Details of items which shall be recorded in books, which the user, the seller, the lessor and the radioisotope waste management business operator must keep as provided in Paragraph 1, Paragraph 2 or Paragraph 3 of Article 25 of the Law, shall be as provided in the following subparagraphs:

- (i) For the user as provided in the followings:
 - A. Type and quantity of radioisotopes for use (except those concerning certified radioisotope-equipped devices (limited for electron capture detectors for gas chromatography), the same shall be applied to Item C and Item D, for other certified radioisotope-equipped devices,

- name and number of verification by agencies);
 - B. Type of radiation generating devices for use;
 - C. Date, purpose, method and place of use of radioisotopes or radiation generating devices;
 - D. Full name of an occupational personnel in the use of radioisotopes or radiation generating devices;
 - E. Type and quantity of radioisotopes for storage (for certified radioisotope-equipped devices, name and number of verification by agencies of the said devices, the same shall be applied to Item A of Subparagraph (ii));
 - F. Period of time, method and the place of custody of radioisotopes;
 - G. Full name of an occupational personnel in custody of radioisotopes;
 - H. Date and method of transportation of radioisotopes outside a factory or a place of business, and full names of a consignee or consignor, a person who has been entrusted with transportation and an occupational personnel in the transportation;
 - I. Type and quantity of radioisotopes for waste management (for certified radioisotope-equipped devices, name and number of verification by agencies of the said devices, the same shall be applied to Item A and Item C of Subparagraph (iii));
 - J. Date, method and the place of waste management of radioisotopes, etc.;
 - K. Full name of a person engaged in waste management of radioisotopes, etc.;
 - L. When radioisotopes, etc. are sealed or solidified in a package for sea disposal, quantity and specific weight of the said package and method of sealing or solidification;
 - M. Date of inspection of the radiation facility (when a notified user uses or refills or repacks sealed radioisotopes or waste management of sealed radioisotopes, etc., the controlled area), results of inspection and details of measures taken in accordance with the results, and full name of the inspector; and
 - N. Date when the education and training to persons who enter the radiation facility was performed, items of the said education and training, and full names of persons received the said education and training.
- (ii) For the seller and lessor as provided in the followings
- A. Type and quantity of radioisotopes concerning purchase or sale, or receipt or lease;
 - B. Date concerning purchase or sale, or receipt or lease, and name of supplier or seller, or transferor or lessee of radioisotopes;
 - C. Date and method of transportation of radioisotopes, etc. outside a selling or leasing place, and full names of a consignee or consignor, a person who has been entrusted with transportation and an occupational personnel in the transportation; and
 - D. Matters as described in Item E through Item G and Item I through Item N of the preceding subparagraph
- (iii) For the radioisotope waste management business operator as provided in the followings:
- A. Type and quantity of radioisotopes, etc. received;
 - B. Date of receiving and the name of sender of radioisotopes, etc.;
 - C. Type and quantity of radioisotopes, etc. for storage;
 - D. Period of time, method and place for custody of radioisotopes, etc.;
 - E. Full name of a person engaged in custody of radioisotopes, etc.;
 - F. Date and method of transportation of radioisotopes, etc. outside a radioisotope waste management business place, and full names of a consignee or consignor, a person who has been entrusted with transportation and a person engaged in the transportation; and
 - G. Matters as described in Item I through Item N of Subparagraph (i).
2. The user, the seller, the lessor or the radioisotope waste management business operator shall close the registration defined in the preceding paragraph every year as provided in Paragraph 1, Paragraph 2 or Paragraph 3 of Article 25 of the Law.
3. The period of time to keep the registration as provided in Paragraph 4 of Article 25 of the Law shall be five (5) years after the said registration defined in the preceding paragraph is closed.
- (Keeping in Electromagnetic Medias)
- Article 24-2.** When the matters as provided in the subparagraphs of Paragraph 1 of the preceding article will be recorded by an electromagnetic media, and the said record will be kept so that it may be shown immediately as needed by an electronic computer or other equipments, the said record may be kept in place of the book in which the said matters defined in Paragraph 4 of Article 25 of the Law are recorded.
2. In the case of keeping as provided in the preceding paragraph, every effort shall be made to ensure to meet the standards provided by the Minister of MEXT.
- (Notification of Discontinuation of Use, etc.)
- Article 25.** The notification as provided in Paragraph 1 of Article 27 of the Law shall be made in Form No.13 provided separately within thirty (30) days from the day when business for the use or sale, lease or radioisotope waste management was discontinued.
2. The notification as provided in Paragraph 3 of Article 27 of the Law shall be made in Form No.14 provided separately within thirty (30) days from the death or dissolution.

3. The notification described in the preceding two paragraphs shall be accompanied with the certificate of the license.

4. The number of submission for the notification described in Paragraph 1 or Paragraph 2 shall be one original and two duplicates.

5. Concerning the said notification, in the case of the place of business, etc. located in Ibaraki Prefecture, the notification described in Paragraph 1 or Paragraph 2 shall be made through the Director of Mito Nuclear energy Office.

(Measures Taken in Consequence to the Revocation of a License, Discontinuation of Use, etc.)

Article 26. Measures which have to be taken in accordance with the provisions of Paragraph 1 of Article 28 of the Law by the person defined in the said paragraph shall be as provided in the following subparagraphs:

(i) The possessed radioisotopes shall be transferred to the user, the seller, the lessor or the radioisotope waste management business operator, or shall be disposed;

(ii) The leased radioisotopes shall be returned to the user, the seller, the lessor or the radioisotope waste management business operator;

(iii) The contamination with radioisotopes shall be removed;

(iv) Materials contaminated with radioisotopes shall be transferred to the radioisotope waste management business operator, or shall be disposed; and

(v) Records described in Subparagraph (ii) through Subparagraph (v) of Paragraph 4 of Article 20, and Subparagraph (i) of Paragraph 2 and Subparagraph (i) of Paragraph 3 of Article 22 shall be transferred to the agency designated by the Minister of MEXT.

2. The measures specified in the preceding paragraph shall be taken within thirty days from the day when the license was revoked, or day of discontinuing of using, selling, leasing or discontinuing of the radioisotope waste management business, or from the day of death or dissolution.

3. Documents for reporting concerning Paragraph 2 of Article 28 of the Law shall be in Form No.15 given in the separate paragraph.

4. Concerning the said notification, in the case of the place of business, etc. located in Ibaraki Prefecture, the notification as described in the preceding paragraph shall be made through the director of Mito Nuclear energy Office.

(Restriction on Transfer)

Article 27. The transfer on radioisotopes in accordance with the provisions of Paragraph 6, Paragraph 7 or Paragraph 8 of Article 29 of the Law shall be made within thirty (30) days from the day when the license was revoked, or using, selling or discontinuing of the radioisotope waste management business, or from the day of death or dissolution.

(Restriction on Possession)

Article 28. The period of time in which radioisotopes can be possessed as provided in the provisions in parentheses of Subparagraph (ii) of Article 30 of the Law shall be three (3) months from the day when validity of certification label of the certified radioisotope-equipped device is terminated.

2. The measures specified in the preceding paragraph shall be taken within thirty days from the day when the license was revoked, The period of time in which radioisotopes can be possessed as provided in Subparagraph (iv), Subparagraph (v) or Subparagraph (vi) of Article 30 of the Law shall be thirty (30) days from the day when the license was revoked, or the day of discontinuing of using, selling, leasing or the radioisotope waste management business, or from the day of death or dissolution.

(Measures in an Emergency)

Article 29. Measures in an emergency that the user, the seller, the lessor, the radioisotope waste management business operator, or a person who has been entrusted with transportation by any of them has to take in accordance with the provisions Subparagraph (i) of Article 33 of the Law shall be as provided in the following subparagraphs:

(i) When fire breaks out in the radiation facility or packages of radioactive materials, or when there is a possibility of fire reaching them, every effort shall be made to extinguish the said fire or to prevent its expansion, and at the same time, the situation shall be informed to the firehouse or the house designated by the mayor of the municipality as provided in Article 24 of the Fire Protection Law (Law No.186, 1948);

(ii) Warning for evacuation shall be provided for persons present within the radiation facility, engaged in transportation of packages of radioactive materials, and present in those vicinities, when it is necessary to prevent the occurrence of radiation hazards;

(iii) Where there are persons suffering or who may possibly suffer from radiation hazards, emergency measures shall be taken, such as rescue and evacuation for them;

(iv) Where contamination with radioisotopes has occurred, its expansion shall be prevented and it shall be removed speedily;

(v) Where there is a time allowance to transfer radioisotopes, etc. to other places, it shall be transferred to a safe place as necessary, and the entry of persons other than those related shall be prohibited by demarcating the periphery of the place with a rope, posting signs, etc., and stationing guards; and

(vi) Other necessary measures shall be taken for prevention of radiation hazards.

2. When the emergency activities described in the subparagraphs of the preceding paragraph are performed,

dosages received by the person engaged in the said emergency activities shall be kept as low as possible by means of using radiation shields, forceps or protectors, shortening time of radiation exposure, etc. In this case, radiation exposure of any personnel engaged in radiation works (for female, it is limited to the personnel who is diagnosed as sterility or who has notified the intension for no pregnancy to the user, the seller, the lessor or the radioisotope waste management business operator in writing) is allowable up to the dose limits as specified by the Minister of MEXT, despite of the provisions in Subparagraph (iii) of Article 15 (including the case applied correspondingly to Article 16, and Paragraph 1 and Paragraph 3 of Article 19), Subparagraph (iii) of Paragraph 1 of Article 17 (including the case applied correspondingly to Subparagraph (ii) of the said paragraph), and Subparagraph (viii) of Article 18-13.

3. The person defined in Paragraph 1 of Article 33 of the Law shall notify the following items provided in Paragraph 3 of the said article:

- (i) Date, place and cause of the event described in Paragraph 1 of Article 33 of the Law;
- (ii) Situation of radiation hazards which occurred or possible to occur;
- (iii) Description of emergency measures taken or intended to take; and
- (iv) Concerning the said notification, in the case of the place of business, etc. concerning the said notification is located in Ibaraki Prefecture, the notification described in the preceding paragraph shall be made through the Director of Mito Nuclear energy Office.

Chapter V. Supervisor of Radiation Protection

(Assignment of Supervisor of Radiation Protection)

Article 30. The division of Paragraph 1 of Article 34 of the Law shall be as provided in the following table.

Division	Persons Assigned as Supervisor of Radiation Protection
(i) The factory or place of business using only certified radioisotope-equipped devices	Persons holding the license for Class I Supervisor of Radiation Protection, the license for Class II Supervisor of Radiation Protection (general) or the license for Class II Supervisor of Radiation Protection (name of radioisotope-equipped device) in which the listed name of radioisotope-equipped device is the certified radioisotope-equipped device being used.
(ii) The factory or place of business using only sealed radioisotopes (except those equipped in certified radioisotope-equipped devices) or certified radioisotope-equipped devices which total quantity is 370 GBq or less for each the factory or place of business (except those as described in Subparagraph (i)).	Persons holding the license for Class I Supervisor of Radiation Protection or the license for Class II Supervisor of Radiation Protection (general).
(iii) Selling or leasing place of business where only sealed radioisotopes are sold or leased.	ditto
(iv) The factory or place of business using unsealed radioisotopes, sealed radioisotopes which total quantity is more than 370 GBq (except those equipped in certified radioisotope-equipped devices) or radiation generating devices	Person holding the license for Class I Supervisor of Radiation Protection
(v) Selling or leasing place of business where unsealed radioisotopes are sold or leased	ditto
(vi) Radioisotope waste management business place	ditto

2. Number of Supervisor of Radiation Protection, who have to be assigned by the user, the seller, the lessor or the radioisotope waste management business operator provided in Paragraph 1 of Article 34 of the Law, shall be at least one (1) person for each of factory, place of business, selling place of business, leasing place of business or radioisotope waste management business place.

3. The assignment provided in Paragraph 1 of Article 34 of the Law shall be made before start of the use of radioisotopes or radiation generating devices, selling or leasing business of radioisotopes, or radioisotope waste management business.

(Notification of Assignment of Supervisor of Radiation Protection, etc.)

Article 31. The notification on assignment or dismissal of the Supervisor of Radiation Protection, defined in Paragraph 2 of Article 34 of the Law, shall be made in Form No.16 provided separately.

2. Concerning the said notification, in the case of the place of business, etc. located in Ibaraki Prefecture, the notification described in the preceding paragraph shall be made through the Director of Mito Nuclear

energy Office.

Chapter VI. Miscellaneous Provisions

(Collection of Reports)

Article 39. When the user, the seller, the lessor, the radioisotope waste management business operator, or a person who has been entrusted with transportation by any of them comes under any of the followings, the person shall report that interest immediately and that situation and measures taken within 10 days to the Minister of MEXT:

- (i) When radioisotopes are stolen or missing;
- (ii) When radioisotopes, etc. are leaked abnormally;
- (iii) When a person engaged in radiation work is exposed or may possibly be exposed to radiation in excess of the effective dose limits or the equivalent dose limits; or
- (iv) Other than the preceding three subparagraphs, when radiation hazards occurred or may possibly occur.

2. When the user, the seller, the lessor or the radioisotope waste management business operator discontinued radiation facilities, the said person shall report measures taken such as removing of contamination with radioisotopes or other in Form No.21 provided separately within thirty (30) days to the Minister of MEXT.

3. The user, the seller, the lessor or the radioisotope waste management business operator shall prepare a report for each place of business for each year starting from April 1 to March 31 of the following year in Form No.21-4 provided separately, and shall submit it within three (3) months after the said period of time.

4. Other than the case as provided in the preceding three paragraphs, when the user, the seller, the lessor, the radioisotope waste management business operator, or a person who has been entrusted with transportation by any of them is required by the Ministry of MEXT to report on the following items within a given period of time, the said person shall report the said items within the said period of time to the Ministry of MEXT:

- (i) Situation of the radiation management;
- (ii) Situation of the inventory and the alteration in quantity of radioisotopes; and
- (iii) Situation of the waste management or transportation of radioisotopes, etc. performed outside a factory or business.

(Receipt of Samples)

Article 40. When the radiation inspector take samples of radioisotopes, etc. as provided in Paragraph 1 of Article 43-2 of the Law, the inspector shall issue a receipt of the samples to the person from whom the samples are withdrawn.

(Identification Cards)

Article 41. The identification card defined in Paragraph 3 of Article 43-2 of the Law to identify the status of radiation inspectors for onsite inspection as provided in the provisions of Paragraph 1 of the said article or to identify the status of officials for onsite inspection as provided in the provisions of Paragraph 2 of the said article shall be made with Form No. 22 and Form No. 23, respectively, which are provided separately.

10 Electricity Utilities Industry Law

Text is the same as Annex 3.8(A3.30 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention.

11 Basic Law on Emergency Preparedness

Text is the same as Annex 3.9(A3.42 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention. (Objectives)

12. Special Law of Emergency Preparedness for Nuclear Disaster

Text is the same as Annex 3.10(A3.46 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by

13. Specified Radioactive Waste Final Waste management Act (Excerpt) **(Law No. 117, June 7, 2000)**

Chapter I General Provisions

(Purpose)

Article 1. The purpose of this Law is to work out measures necessary for systematically and reliably implementing the final waste management of specific radioactive waste generated after the reprocessing of spent fuel arising from the operation of power reactors in order to contribute to the proper use of nuclear energy for power generation and improve the environment of nuclear energy for power generation, and thereby to contribute to the sound development of the national economy and the stabilization of national life.

(Definitions)

Article 2. For the purpose of this Law, “specific radioactive waste” means a vitrified substance remaining after the reprocessing of spent fuel.

2. For the purpose of this Law, “final waste management” means the final disposal of specific radioactive waste in such a way that the specific radioactive waste and articles contaminated thereby are safely and securely emplaced in geological formations at such depths as are prescribed by the Government Ordinance to be over 300 meters under the ground after necessary measures have been carried out to ensure that they are effectively prevented from becoming dispersed, running off, or permeating into the ground.

3. For the purpose of this Law, “power reactor” means any of the nuclear reactors which are specified in Article 3, item (iv) of the Atomic Energy Basic Law and which fall under the following items:

(i) commercial power reactors specified in Article 23, paragraph 1, item (i) of the Reactor regulation law; and

(ii) nuclear reactors specified in Article 23, paragraph 1, item (iv) of the Reactor regulation law and prescribed by the Government Ordinance.

4. For the purpose of this Law, “after the reprocessing of spent fuel” means after the processing by a chemical process of spent fuel [which refers to nuclear fuel material used as fuel in a power reactor] in order to separate nuclear fuel material and other useful materials from the spent fuel.

5. For the purpose of this Law, “preliminary investigation areas” means any of the areas where according to literature, evidence, other data and materials, violent geological movements caused by an earthquake, a volcanic eruption, an upheaval, geological erosion and other natural phenomena (hereinafter referred to as “seismic activity and similar natural phenomena”) are less likely to occur now and in the future and where a geological formation, where the final disposal will be carried out, and its surrounding geological formations, the situation of groundwater, and other matters in these formations are surveyed by boring and other methods prescribed by the Government Ordinance in order to select a detailed investigation area.

6. For the purpose of this Law, “detailed investigation area” means any of the preliminary investigation areas where a survey specified under the preceding paragraph (hereinafter referred to as the “preliminary investigation”) finds that the geological formation where the final disposal will be carried out is believed to be stable now and in the future, and tunnels and pits can be excavated in the said geological formation without encountering hindrance and trouble, and where the physical and chemical properties of the said geological formation and its surrounding geological formations are investigated by installing necessary measuring and testing instruments and facilities prescribed by the Government Ordinance.

7. For the purpose of this Law, “site for construction of final disposal facility” means a site where final disposal facilities is constructed in the detailed investigation area where an investigation specified in the preceding paragraph (hereinafter referred to as the “detailed investigation”) finds that the physical and chemical properties of the said geological formation are suitable for the construction of final disposal facilities.

8. For the purpose of this Law, “final disposal facility” means a cluster of facilities which will be constructed in order to carry out the final disposal of specific radioactive waste and which consist of facilities for the transport of specific radioactive waste, pits and tunnels for the emplacement of specific radioactive waste, and other facilities prescribed by the Government Ordinance.

9. For the purpose of this Law, “licensed operator of reactors” means an operator who will install or has installed a power reactor.

Chapter II

Basic Policy, etc.

(Basic Policy)

Article 3. The Minister of Economy, Trade and Industry shall lay down and officially announce a basic policy for the final disposal of specific radioactive waste (hereinafter referred to as the “basic policy”) in order to systematically and reliably carry out the final disposal of specific radioactive waste.

2. The basic policy shall provide for the matters mentioned in the following items:

(i) a basic orientation toward the final disposal of specific radioactive waste;
(ii) matters concerning the selection of preliminary investigation areas, detailed investigation areas, and sites for

final disposal facility construction (hereinafter referred to as the “preliminary investigation areas and others”);

(iii) matters concerning policy measures designed to promote the understanding of interested local citizens as to

the selection specified under the preceding item;

(iv) matters concerning the implementation of the final disposal of specific radioactive waste;

(v) matters concerning the development of technologies for the final disposal of specific radioactive waste;

(vi) matters concerning policy measures designed to promote the understanding of the general public as to the final disposal of specific radioactive waste; and

(vii) other important matters concerning the final disposal of specific radioactive waste.

3. The Minister of Economy, Trade and Industry shall, when he intends to lay down the basic policy, consult in advance the Atomic Energy Commission (or the Nuclear Safety Commission with respect to regulations of safety in the matters specified in items (iv) and (v) of the preceding paragraph).

4. The Minister of Economy, Trade and Industry shall be subject to the decision of a Cabinet meeting before establishing the basic policy.

(Final Disposal Plan)

Article 4. The Minister of Economy, Trade and Industry shall every five years formulate and officially announce a plan for the final disposal of specific radioactive waste (hereinafter referred to as the “final disposal plan”) covering a time frame of ten years as a single period in accordance with the basic policy.

2. The final disposal plan shall provide for the matters mentioned in the following items:

(i) quantity, and an estimate, of specific radioactive waste generated after the reprocessing of spent fuel arising from the operation of power reactors;

(ii) matters concerning a timetable for the final disposal of specific radioactive waste under the preceding item, the quantity of specific radioactive waste to be disposed of in the final disposal, and the scale and capacity of the final disposal facilities necessary therefor;

(iii) matters concerning the selection of preliminary investigation areas and others and the construction of the final disposal facilities;

(iv) matters concerning a method of implementing the final disposal of specific radioactive waste; and

(v) other matters necessary for implementing the final disposal of specific radioactive waste.

3. The Minister of Economy, Trade and Industry shall, when he intends to formulate the final disposal plan, consult in advance the Atomic Energy Commission (or the Nuclear Safety Commission with respect to regulations of safety in the matters specified in item (iv) of the preceding paragraph).

4. The Minister of Economy, Trade and Industry shall be subject to the decision of a Cabinet meeting before establishing the final disposal plan.

5. The Minister of Economy, Trade and Industry shall, when he intends to establish the location of preliminary investigation areas and others specified in paragraph 2, item (iii), hear and fully respect the comments of prefectural governors and municipality heads having jurisdiction over the said location of preliminary investigation areas and others.

(Implementation Plan)

Article 5. Subject to the provisions of the Ordinance of the Ministry of Economy, Trade and Industry, the Nuclear Waste Management Organizations (hereinafter referred to as the “Organizations”) shall formulate a plan for implementing the final disposal of specific radioactive waste (hereinafter referred to as the “implementation plan”) in accordance with the final disposal plan and obtain approval for the implementation plan from the Minister of Economy, Trade and Industry. The same shall apply when the Organizations intends to revise the implementation plan.

2. The implementation plan specified in the preceding paragraph shall provide for the matters mentioned in the following items:

(i) the quantity, and an estimate, of specific radioactive waste that must be disposed of in the final disposal;

- (ii) matters concerning a timetable for the final disposal of specific radioactive waste under the preceding item, the quantity of specific radioactive waste to be disposed of in the final disposal, and the scale and capacity of the final disposal facilities necessary therefor;
 - (iii) matters concerning the selection of preliminary investigation areas and others and the construction of the final disposal facilities;
 - (iv) matters concerning a method of implementing the final disposal of specific radioactive waste; and
 - (v) other matters specified in the Ordinance of the Ministry of Economy, Trade and Industry.
3. The Minister of Economy, Trade and Industry may, if he deems it necessary to do so, order the Organizations to alter the implementation plan.

Chapter III Selection of Preliminary Investigation Areas

(Selection of Preliminary Investigation Areas)

Article 6. The Organizations shall, when it intends to select preliminary investigation areas, carry out in advance a survey based on literature and other data (to be referred to in the ensuing paragraph as the “literature survey”) in accordance with the final disposal plan and the approved implementation plan of the Organizations (which refers to the implementation plan for which the Organizations has obtained approval in accordance with the provisions of the former part of paragraph 1 of the preceding article, or the revised implementation plan if approval for a revision is granted in accordance with the provisions of the latter part of the same paragraph; hereinafter to be so understood) with respect to the matters mentioned in the following items:

- (i) matters concerning seismic activity and similar natural phenomena that have occurred in the past in an area to be chosen as the preliminary investigation areas and its surrounding areas;
 - (ii) matters concerning an outline of active faults, if any, in the area and its surrounding areas specified in the preceding item; and
 - (iii) other matters specified in the Ordinance of the Ministry of Economy, Trade and Industry.
2. Subject to the provisions of the Ordinance of the Ministry of Economy, Trade and Industry, when the Organizations has carried out the literature survey in accordance with the provisions of the preceding paragraph, it shall, based on the results of the literature survey, select preliminary investigation areas from among those areas with respect to which the said literature survey has been carried out (to be referred to in this paragraph as the “literature survey areas”) and which are deemed to meet all of the following criteria:
- (i) there is no record of violent geological movements caused by seismic activity and similar natural phenomena in the said literature survey areas;
 - (ii) violent geological movements caused by seismic activity and similar natural phenomena are less likely to occur now and in the future in the said literature survey areas; and
 - (iii) other matters specified in the Ordinance of the Ministry of Economy, Trade and Industry.
3. The Organizations shall, when it has selected the preliminary investigation areas in accordance with the provisions of the preceding paragraph, obtain approval from the Minister of Economy, Trade and Industry with respect to change to the matters mentioned in paragraph 2, item (iii) of the preceding article pertaining to the approved implementation plan in accordance with the provisions of the latter part of paragraph 1 of the same article.

(Selection of Detailed Investigation Areas)

Article 7. The Organizations shall, when it intends to select detailed investigation areas, carry out in advance the preliminary investigation in accordance with the final disposal plan and the approved implementation plan of the Organizations with respect to the matters mentioned in the following items in the preliminary investigation areas under Article 5, paragraph 2, item (iii), as stated in the said approved implementation plan:

- (i) matters concerning geological movements caused by seismic activity and similar natural phenomena in a geological formation where the final disposal will be carried out and its surrounding geological formations (to be referred to in this article as the “subject geological formation and others”) in the said preliminary investigation areas;
 - (ii) matters concerning the types and properties of rocks that make up the said subject geological formation and others;
 - (iii) matters concerning the details of active faults, if any, in the said subject geological formation and others;
 - (iv) matters concerning an outline of crush zones or groundwater flows in the said subject geological formation and others; and
 - (v) other matters specified in the Ordinance of the Ministry of Economy, Trade and Industry.
2. Subject to the provisions of the Ordinance of the Ministry of Economy, Trade and Industry, when the Organizations has carried out the preliminary investigation in accordance with the provisions of the

preceding paragraph, it shall, based on the results of the preliminary investigation, select detailed investigation areas from among those areas with respect to which the said preliminary investigation has been carried out and which are deemed to meet all of the following criteria:

- (i) violent geological movements caused by seismic activity and similar natural phenomena have not occurred for a long period of time in the said subject geological formation and others;
 - (ii) tunnels and pits can be excavated in the said subject geological formation and others without encountering hindrance and trouble;
 - (iii) active faults, crush zones, or groundwater flows, if any, in the said geological formation and others are less likely to have adverse effects on tunnels, pits and other underground facilities (to be referred to in the items of paragraph 2 of the ensuing article); and
 - (iv) other matters specified in the Ordinance of the Ministry of Economy, Trade and Industry.
3. The provisions of paragraph 3 of the preceding article shall apply with necessary modifications to the selection of detailed investigation areas.

(Selection of a Site for Construction of Final Disposal Facility)

Article 8. The Organizations shall, when it intends to select a site for construction of final disposal facility, carry out in advance the detailed investigation in accordance with the final disposal plan and the approved implementation plan of the Organizations with respect to the matters mentioned in the following items in the detailed investigation areas under Article 5, paragraph 2, item (iii), as stated in the said approved implementation plan:

- (i) matters concerning the strength of rocks that make up a geological formation where the final disposal will be carried out (to be referred to in this article as the “subject geological formation”) and the physical properties of the said subject geological formation in the said detailed investigation areas;
 - (ii) matters concerning hydrogen ion concentration in the said subject geological formation and other chemical properties of the said subject geological formation;
 - (iii) matters concerning the details of groundwater flows, if any, in the said subject geological formation; and
 - (iv) other matters specified in the Ordinance of the Ministry of Economy, Trade and Industry.
2. Subject to the provisions of the Ordinance of the Ministry of Economy, Trade and Industry, when the Organizations has carried out the detailed investigation in accordance with the provisions of the preceding paragraph, it shall, based on the results of the detailed investigation, select a site for construction of final disposal facilities from among those detailed investigation areas with respect to which the said detailed investigation has been carried out and which are deemed to meet all of the following criteria:
- (i) it is expected that underground engineered facilities in the said subject geological formation are unlikely to be exposed to unusual pressure, and in other respects, the physical properties of the said subject geological formation are expected to be suitable for the construction of final disposal facilities;
 - (ii) it is expected that underground engineered facilities in the said subject geological formation are unlikely to be exposed to unusual corrosive action, and in other respects, the chemical properties of the said subject geological formation are expected to be suitable for the construction of final disposal facilities;
 - (iii) it is expected that groundwater or groundwater flow in the said subject geological formation is unlikely to disturb the functions of underground engineered facilities; and
 - (iv) other matters specified in the Ordinance of the Ministry of Economy, Trade and Industry.
3. The provisions of Article 6, paragraph 3 shall apply with necessary modifications to the selection of a site for construction of final disposal facilities.

(Construction of final disposal facility)

Article 9. The Organizations shall construct final disposal facilities in the site for construction of final disposal facility selected in accordance with the provisions of paragraphs 2 and 3 of the preceding article.

Chapter IV Implementation of Final Disposal Operation, etc.

Section 1 Contribution to the Fund

(Contribution to the Fund)

Article 11. Licensed operators of reactors shall contribute to the fund to an Organization every year in order to meet expenses incurred in operations for the final disposal of specific radioactive waste generated after the reprocessing of spent fuel arising from the operation of their power reactors (these operations refer to those operations of the Organizations specified in Article 56, paragraph 1; hereinafter to be so understood).

Section 2

Implementation of Final Disposal

(Implementation of Final Disposal)

Article 16. When licensed operators of reactors have paid contribution to the fund under Article 11, paragraph 1 (if pressing for payment has been made in accordance with the provisions of paragraph 1 of the preceding article, contribution to the fund under Article 11, paragraph 1 and an arrears charge under paragraph 5 of the preceding article; to be so understood in this article and Article 58, paragraph 1), the Organizations shall carry out the final disposal of specific radioactive waste pertaining to contribution to the fund under Article 11, paragraph 1 in the final disposal facilities under Article 5, paragraph 2, item (iii), in accordance with the final disposal plan and the approved implementation plan of the Organizations.

(Closure of the Final Disposal Facility)

Article 17. When subject to the provisions of the preceding article the final disposal of specific radioactive waste (including disposal identical to the final disposal of committed specific radioactive waste under Article 56, paragraph 2, item (i); to be so understood in Article 19) has been completed in the final disposal facility, the Organizations may close the said final disposal facility only if it has in advance gained the validation of the Minister of Economy, Trade and Industry that the conditions of the said final disposal facility conform to the standards specified in the Ordinance of the Ministry of Economy, Trade and Industry.

Article 18. In the case described in the preceding article, the Organizations shall keep a record of the matters specified in the Ordinance of the Ministry of Economy, Trade and Industry respecting the said final disposal facility, submit it to the Minister of Economy, Trade and Industry, furnish a duplicate copy of the said record at its office, and make it available for public inspection.

2. The Minister of Economy, Trade and Industry shall permanently keep the record submitted in accordance with the provisions of the preceding paragraph.

(Regulations of Safety)

Article 20. When the Organizations performs operations for the final disposal of specific radioactive waste (including the operation specified in Article 56, paragraph 2, item (i)) in accordance with the provisions of this Law, applicable regulations of safety shall be as separately prescribed by laws.

Section 3

Protection of the Final Disposal Facility

(Protection of the Final Disposal Facility)

Article 21. When the Organizations has filed an application and if it is deemed necessary to do so in order to protect the final disposal facility, the Minister of Economy, Trade and Industry may designate a three-dimensional zone covering a certain scope of the final disposal facility site, its surrounding area and underground district as a protected area.

2. The Minister of Economy, Trade and Industry shall, when he intends to designate a protected area under the preceding paragraph (hereinafter referred to briefly as the “protected area”), hear the comments of prefectural governors and municipality heads having jurisdiction over the said area.

3. The Minister of Economy, Trade and Industry shall, when he designates the protected area, make a public announcement of the designation and the designated area in the government gazette.

4. The designation of the protected area shall become effective upon public announcement made in accordance with the provisions of the preceding paragraph.

5. The provisions of the preceding three paragraphs shall apply with necessary modifications to the cancellation of the designation of the protected area and change in the protected area.

6. A site in the protected area shall not be excavated without the permission of the Minister of Economy, Trade and Industry. However, this does not apply where the Organizations excavates a site as its business.

7. Conditions may be attached to the permission under the preceding paragraph to the extent necessary to protect the final disposal facilities.

8. The Minister of Economy, Trade and Industry shall not grant the permission under paragraph 6 if the excavation of a site under the same paragraph does not conform to the standards specified in the Ordinance of the Ministry of Economy, Trade and Industry.

9. When the Organizations has filed an application, and if it is deemed necessary to do so to protect the final disposal facilities, the Director-General of the Regional Bureau of Economy, Trade and Industry may reduce a mining area or an area of mining lease, or revoke a mining concession, mining right or mining lease established within the protected area.

Chapter V

The Nuclear Waste Management Organizations

Section 1
General Provisions

(Purpose)

Article 34. The Organizations has for its purpose to perform operations for the final disposal of specific radioactive waste generated after the reprocessing of spent fuel arising from the operation of power reactors in order to contribute to the proper use of nuclear energy for power generation and thereby to improve the environment of nuclear energy for power generation.

Section 4
Operations

(Operations)

Article 56. The Organizations shall perform the following operations in order to accomplish the purpose specified in Article 34:

- (i) the selection of preliminary investigation areas and others;
 - (ii) the construction, improvement, maintenance and management of the final disposal facilities;
 - (iii) the final disposal of specific radioactive waste;
 - (iv) the closure of the said final disposal facility after the completion of final disposal, and the management of an area containing the closed said final disposal facility;
 - (v) the collection of contribution to the fund;
 - (vi) the performance of operations incidental to the operations enumerated in the preceding items.
2. In addition to the operations mentioned in the preceding paragraph, the Organizations may perform the following operations under commission to the extent of not affecting the performance of the operations under the same paragraph:
- (i) carrying out disposal identical to the final disposal as to committed specific radioactive waste [which refers to a vitrified substance remaining after the processing by a chemical process of spent fuel (which refers to nuclear fuel material used as fuel in nuclear reactors, excepting power reactors, specified in Article 3, item (iv) of the Atomic Energy Basic Law; hereinafter to be so understood in this item) in order to separate nuclear fuel material and other useful materials from spent fuel arising from the operation of such reactors]; and
 - (ii) carrying out surveys necessary for the operations mentioned in items (i) to (iv) of the preceding paragraph and in the preceding item.
3. The Organizations shall, when it intends to perform the operation specified in item (i) of the preceding paragraph, obtain the authorization of the Minister of Economy, Trade and Industry.

(Reserve Fund for Final Disposal)

Article 58. The Organizations shall set aside contribution to the fund under Article 11, paragraph 1, as a reserve fund for final disposal in order to meet expenses necessary for performing final disposal operations.

2. A reserve fund for final disposal shall be deposited in such a corporation as is designated by the Minister of Economy, Trade and Industry in accordance with the provisions of the Ordinance of the Ministry of Economy, Trade and Industry (such corporation to be referred to hereinafter as the “designated corporation”).
3. A reserve fund for final disposal shall be managed by the designated corporation.
4. The designated corporation shall allow interest on a reserve fund for final disposal in accordance with the provisions of the Ordinance of the Ministry of Economy, Trade and Industry.

Article 59. The Organizations may recover a reserve fund for final disposal in order to meet expenses necessary for performing final disposal operations subject to the approval of the Minister of Economy, Trade and Industry in accordance with the provisions of the Ordinance of the Ministry of Economy, Trade and Industry.

(Management of Operations)

Article 60. The Organizations shall make it a principle to secure safety in performing the operations specified in Article 56, paragraphs 1 and 2, secure transparency in the management of its operations through appropriate information disclosure, and strive to gain the understanding and cooperation of local citizens and others in and around preliminary investigation areas and others, and in areas around the final disposal facility

14. Guides, Etc.

(1) Examination Guide for Safety Design of Light Water Nuclear Power Reactor Facilities (Excerpt)

(Decision of the Nuclear Safety Commission August 30, 1990)

Text is the same as Annex 3.12(A3.54 page) of National Report of Japan for Second Review Meeting of Convention on Nuclear Safety. October, 2001, which is also applicable to this convention (Search by Internet for IAEA →Nuclear Safety →Safety Convention→National Report→Japan). Please see our National Report on Nuclear Safety Convention.

(2) Basic Guide for Safety Review of Nuclear Fuel Facilities (Excerpt)

(Decision of the Nuclear Safety Commission, February 7, 1980)

(Last revision: Decision by the Nuclear Safety Commission, March 29, 2001)

Preface

As nuclear fuel facilities, there are various types of facilities, such as uranium fuel fabrication facilities, plutonium handling facilities, hot laboratories, and reprocessing facilities of spent fuels. In such nuclear fuel facilities, it is common that nuclear fuel materials move through processes, changing their characteristics and forms, and measures for nuclear fuel materials not to cause criticality, measures to confine radioactive materials, etc. at each process are required.

This basic guide summarizes the fundamental aspect of the safety examination common to the nuclear fuel facilities so that the assessment from a common viewpoint may be achieved at the safety examination of such nuclear fuel facilities.

I. Application

This basic guide shall be applied to the fabrication facility defined in Article 13 of the Law for Regulations of Nuclear Source Material, Nuclear Fuel Material and Nuclear Reactors (referred to hereinafter, as "the Reactor Regulation Law"), the reprocessing facility defined in Article 44 of the said law, and the use facility defined in Article 53 of the said law, etc. (provided that the facility is relating to the nuclear fuel materials specified in Article 16-2 of the Ordinance of the Reactor Regulations Law) of nuclear fuel facilities.

II. Definition of Terms

In this basic guide, the meaning of the term defined in each following paragraph is as provided in each paragraph concerned.

1. Personnel Engaged in Radiation Work

Personnel engaged in radiation work defined in regulations relating to the Reactor Regulation Law.

2. Important Safety Related Facilities

Structures, systems and components of which functional loss could exert excessive radiation exposure on the general public and personnel engaged in radiation work, and structures, systems and components installed in order to mitigate excessive radiation exposure at the accident on the general public and personnel engaged in radiation work.

3. Maximum Postulated Accident

The accident initiated by technically postulated events, which, in consideration of important engineered safety features, causes maximum radiation exposure to the public.

4. Single Unit

One handling unit for nuclear fuel materials in view of the criticality control

III. Site Conditions

1. Basic Conditions

At the site of the nuclear fuel facility and its vicinity, no event liable to induce large accident shall be considered to occur. And if accident should occur, very few events shall be expected to occur to escalate the emergency situation.

2. Normal Conditions

The dose of the general public by nuclear fuel facility at normal conditions shall be as low as reasonably achievable.

3. Accident Conditions

The general public shall not be exposed to an excessive radiation even in case of an assumed maximum credible accident in the nuclear fuel facility.

IV. Radiation Control

4. Confinement Function

Nuclear fuel facilities shall have sufficient function to confine the radioactive materials in the restricted area.

5. Radiation Shielding

In the nuclear fuel facilities, sufficient radiation shielding shall be provided in consideration of working conditions for personnel engaged in radiation work.

6. Radiation Exposure Control

In the nuclear fuel facilities, measures shall be taken to monitor and to control sufficiently the radiation exposure of personnel engaged in radiation work.

V. Environmental Safety

7. Discharge Control of Radioactive Waste

For the nuclear fuel facilities, the concentration, etc. of radioactive materials released into the environment shall be controlled as low as reasonably achievable by processing the radioactive wastes generated appropriately.

8. Consideration in Storage, etc.

In the nuclear fuel facilities, the dose in site vicinity due to the storage of radioactive materials, etc. shall be controlled as low as reasonably achievable.

9. Radiation Monitoring

In the nuclear fuel facilities, measures shall be taken to monitor appropriately the concentration, etc. of radioactive materials at the release routes of the radioactive wastes.

Moreover, according to the possibility of the release of radioactive materials, measures shall be taken to monitor appropriately the radiation dose, the concentration of radioactive materials, etc. in the surrounding environment.

VI. Criticality Safety

10. Criticality Control of Single Unit

The single unit of nuclear fuel facilities shall be provided measures to prevent criticality in any case assumed from technical point of view.

11. Criticality Control of Plural Units

When two or more single units exist in a nuclear fuel facility, measures shall be taken to prevent criticality in any case assumed from technical point of view considering the mutual interference of neutrons between units.

12. Consideration to Criticality Accident

In the nuclear fuel facilities possible to cause a criticality accident by operation error, etc., appropriate measures shall be taken for the unexpected criticality accident.

VII. Other Measures for Safety

13. Consideration to Earthquake

Important safety related facilities in the nuclear fuel facilities shall be classified corresponding to the importance in seismic design so that each facility shall be designed to endure against the force of design basis earthquake that is defined as most appropriate with reference to the past record, and to-the-data based on the field survey, etc. in the site and its vicinity.

14. Consideration to the Natural Phenomena other than Earthquakes

Important safety related facilities in the nuclear fuel facilities shall be designed taking into account the forces of the nature considered to be the most severe phenomena among anticipated natural phenomena other than earthquakes, with reference to the past record, at-the-spot observation, etc. in the site and its vicinity.

15. Consideration to Fire and Explosion

In the nuclear fuel facilities with possibility of a fire and explosion, suitable measures shall be taken to prevent their occurrence, and at the time of the unexpected fire or explosion, to prevent their expansion and release of excessive radioactive materials into the outside of the facilities.

16. Consideration to Loss of Power Supply

In the nuclear fuel facilities, suitable measures shall be taken for the loss of function of the external power system.

17. Consideration to Transfer of Radioactive Materials

In the nuclear fuel facilities, when radioactive materials are transferred in the nuclear fuel facilities, appropriate measures shall be taken for the confinement function, the radiation shielding, etc.

18. Consideration to Accidents

In the nuclear fuel facilities, appropriate measures shall be taken for alarm, communication, evacuation of workers, etc.

19. Consideration to Share Use

Important safety related facilities of a nuclear fuel facility shall be designed not to share if there is a possibility of loss of the safety function by share use.

20. Conformity to Standards and Criteria

Design, construction and inspection of the important safety related facilities in the nuclear fuel facilities shall be based on the standards and criteria recognized as appropriate.

21. Consideration to Inspection, Repair, etc.

Important safety related facilities in the nuclear fuel facilities shall be possible to be made inspection, test, maintenance and repair by the suitable method according to the importance.

(3) Radioactive Waste Processing and Disposal Policy

(Atomic Energy Commission, Special Committee on Processing and Disposal of Radioactive Waste, October 8, 1985)

Chapter 1. Implementation Organization and Allocation of Responsibilities for Processing and Disposal of Radioactive Wastes

2. Fundamental Concept

(1) Responsibilities of waste generators and the government

Since the radioactive wastes are generated with the business activities of the nuclear business operator, it is considered that the responsibility to process and dispose of the wastes appropriately and surely shall be born by the nuclear business operator as a generator of wastes (referred to hereinafter, as "generator").

On the other hand, the government bears the responsibility to performs the research and development, and safety regulation of processing and disposal of radioactive wastes, and also is required to play appropriate roles in the implementation of the disposal from the viewpoint that the long term assurance of safety for disposal of radioactive wastes and the promotion of nuclear energy development and utilization smoothly as planned. Especially, the government is required to take responsibility to perform appropriately and surely for disposal of high level radioactive wastes.

(2) Relationship between generators and radioactive disposal business operators

When the generator carries out the processing and disposal of the radioactive waste by himself, the generator concerned shall take the legal responsibility for ensuring safety of the processing and disposal.

On the other hand, it may be a possible for the independent business operator having sufficient economical and technical capability (referred to hereinafter, as "radioactive disposal business operator") are entrusted to monopolize the processing and disposal of radioactive waste for efficiency and rationality reasons, and in such case, it is more appropriate for the radioactive disposal business operator to take the legal responsibility for ensuring safety of the processing and disposal, from viewpoints of concentrating the responsibility for ensuring safety and performing the efficient processing and disposal. In that case, it is important for the generators to bear expense required for the processing and disposal, and also to give suitable support to the radioactive disposal business operator so that the processing and disposal may be carried out smoothly.

(4) Basic Concept concerning Safety Regulations for Land Disposal of Low Level Solid Radioactive Wastes

(The Special Committee on Safety Regulations of the Radioactive Waste, Nuclear Safety Commission, October 11, 1985)

Chapter 2. Concept of Ensuring Safety of Land Disposal

Section 1. Fundamental Concept of Disposal of Radioactive Wastes

(1) Radioactive wastes are classified generally by the place of generation and variety, as well as the concentration of radioactive materials, into the low level radioactive waste generated at nuclear power plants, etc., the high level radioactive wastes generated at reprocessing plants, or the TRU (Trans Uranium) waste generated at reprocessing plants or the plutonium uranium mixed oxide (MOX) fuel fabrication plants, etc., and the following measures for disposal of those wastes are basically taken according to the respective characteristics.

(2) In principle, the radioactive wastes shall be disposed with the policy of preventing the any hazardous impact of radioactivity to the human environment, therefore, it is essential to isolate it safely from the human environment until the radioactivity decays low enough level at which it does not cause any safety problem, by processing it in the form suitable for the disposal type chosen.

(3) The methods and time periods for isolation from the human environment differ depending on characteristics of radioactive wastes, especially the kinds and concentrations of radionuclides in the wastes, the methods and the time periods shall be chosen presuming that safety of disposal at the final stage shall not rely on the integrity of engineered barriers or the human management activities.

(4) As the current disposal methods of radioactive wastes, there are mainly four types; the method by which to prevent hazardous impact of radioactivity by diffusing the radioactive waste (referred to hereinafter, as "diffusion type"); the method by which to prevent hazardous impact of radioactivity by disposing at land of the solid radioactive waste whose radioactivity is expected to be significantly decayed in the course of control period, under step-wise control until it is fully decayed (referred to hereinafter, as "control type"); the method by which to isolate the radioactive waste needed to be isolated for a long period of time safely at the stable place physically apart enough from the human environment (referred to hereinafter, as "isolation type"); and the method by which to reuse or recycle the very low level radioactive waste to the resources, materials, etc. under certain conditions (referred to hereinafter, as "reuse type").

(5) To ensure the safety on the disposal of radioactive wastes, it is required to assess the safety of the disposal method chosen, and to implement safety management based on assessment results. In the safety assessment, it is essential to confirm that the disposal does not cause any hazards, evaluating the dose that the general public might be exposed through the food chain of radionuclides, originated from the disposal of the waste.

(5) Guides for Safety Examination for the Radioactive Waste Disposal Facility (Excerpt)

(Decision of the Nuclear Safety Commission, March 17, 1998)

(Latest Revision: Nuclear Safety Commission, March 29, 2001)

I. Application

This basic concept shall be applied for the step wise control of final disposal as a waste repository business for the low level radioactive solid waste generated from operation etc. of reactor facilities. In this type of disposal, the control is released step wisely until no institutional control become necessary at the final stage. There are two types of disposal in this category. One type: near surface disposal of the solidified waste in containers carried out in disposal facility which is installed with engineered barriers (referred to hereinafter, as "disposal in engineered barriers type disposal facility") and the other: near surface disposal of the non-solidified radioactive concrete waste in containers (referred to hereinafter, as non-solidified concrete wastes, etc.) carried out in the disposal facility which is not installed with engineered barriers (referred to hereinafter, as "disposal in non-engineered barriers type disposal facility").

II. Definition of Terms

The meaning of the terms used in this fundamental concept is as follows:

(1) Waste disposal facilities

The place that is excavated the land for disposal of wastes or for installation of engineered barriers, and the place that is filled back after wastes are emplaced. When engineered barriers are installed the place includes the engineered barriers.

(2) Waste disposal facilities

Waste disposal facilities and its associated facilities, and the associated facilities includes waste receiving facilities, radiation control facilities etc.

(3) Step-wise control

Step-wise control means controlling the waste disposal facility until the level of the radioactivity of the near surface disposed wastes decays to the level of which no concerns for the safety is necessary. The control will released step wisely in accordance with the waste type and the level of radioactivity decay etc. in consideration with the prevention of radiation dose of the general public as low as reasonably achievable. Methods of the control depend on the waste form and concentration of radioactivity in the waste, and existence of installed engineered barriers, etc., and those are as shown below fundamentally:

(a) The case of disposal in engineered barriers type disposal facility

The first step
It is the step necessary to prevent leakage of radioactive materials by engineered barriers and to monitor radioactive materials not to leak out of the barriers.

The second step

It is the step necessary to prevent the migration of radioactive materials to the human environment by engineered barriers and the natural barrier, and to monitor the leakage of radioactive materials out of engineered barriers and the migration to the human environment.

3) The third step

It is the step necessary to prevent the migration of radioactive materials to the human environment by the natural barrier mainly and to take countermeasures to prohibit or restrict specific activities.

(b) The case of disposal in non-engineered barriers type disposal facility

1) Disposal step

It is a step necessary to prevent the migration of radioactive materials to the human environment, and to monitor the migration of radioactive materials to the human environment from the waste disposal facility.

2) Preservation stage

It is the step necessary to prevent the migration of radioactive materials to the human environment by the natural barrier and to take countermeasures to prohibit or restrict specific activities.

III. Fundamental Site Conditions

It shall be considered that the initiating event to the big accident does not occur in or around the site of the waste disposal facility. Moreover, if the accident occurs, events shall be seldom to escalate the effect.

IV. Dose Evaluation

4-1 Evaluation under Normal Conditions

The radiation dose of the general public in normal times shall be as low as reasonably achievable in the planning of a step-wise control, in the design of the waste disposal facility, and in relation with the situation of the site and its vicinity.

4-2 Safety Evaluation

When it is presupposed that the technically assumed abnormal event occurs, excessive radiation exposure shall not be imposed to the general public.

V. Radiation Control

5-1 The Function of Enclosure

In the case of disposal at the waste disposal facility installed with engineered barriers, the design shall be

provided with function to enclose radioactive materials in the restricted area of the waste disposal facility in the first step.

5-2 Inhibition of Radioactive Nuclides Migration

In the case of disposal at the waste disposal facility not installed with engineered barriers, appropriate measures shall be taken with due consideration of migration inhibition of radioactive nuclides from the waste disposal facility to the human environment in the disposal step.

5-3 Radiation Protection

(1) The waste disposal facility shall be installed with radiation shields to reduce the radiation dose of the general public as low as reasonably achievable by direct gamma ray and the sky shine gamma ray.

(2) In the case of disposal in non-engineered barriers type disposal facility, and when there is the possibility of scattering of radioactive materials, measures shall be taken to reduce the radiation dose of the general public by the scattering as low as reasonably achievable.

(3) The waste disposal facility shall be installed with appropriate radiation shields and the ventilation etc. with due consideration of the working conditions of the personnel engaged in radiation work.

5-4 Radiation Exposure Control

Measures for monitoring and controlling of the radiation doses of the personnel engaged in radiation work shall be taken at the waste disposal facility.

VI. Environmental Safety

6-1 Discharge Control of Radioactive Gaseous and Liquid Wastes

Concentrations of radioactive materials discharged to the environment shall be controlled as low as reasonably achievable at the waste disposal facility by appropriate processing of radioactive gaseous waste and the radioactive liquid waste generated at the associated facilities in the waste disposal facility.

6-2 Radiation Monitoring

(1) Measures shall be taken at the waste disposal facility to appropriately monitor the concentration of radioactive materials etc. on the discharge route of radioactive gaseous and liquid wastes that is discharged from the associated facilities of the waste disposal facility.

Measures shall be taken to appropriately monitor the radiation dose, the concentration etc. of radioactive materials in the environment in accordance with the amount of released radioactive materials.

(2) Measures shall be taken at the waste disposal facility to appropriately monitor the concentration of radioactive materials etc. leaking out from the waste disposal facility to the underground water etc. and migrating to the human environment in the 1st step and the 2nd step, or in the disposal step.

VII. Other Safety Measures

7-1 Design Considerations to Earthquakes

The waste disposal facility shall be designed for the design base earthquake force to preserve safety functions required for the appropriate time period.

This design base earthquake force shall be defined corresponding to the C class facility in the classification of importance for seismic design specified in the "Examination Guide for Seismic Design of Nuclear Power Reactor facilities".

7-2 Design Considerations to Natural Phenomena other than Earthquake

The waste disposal facility shall be designed taking into considerations of the expected natural phenomena other than the earthquake to preserve required safety functions required for the appropriate time period referring to the past record, at-the-spot observation, etc. in the site and its vicinity.

7-3 Considerations to Fire and Explosion

Measures shall be taken at the waste disposal facility to prevent occurrence of the fire and explosion, and to prevent excessive release of radioactive materials to the outside of the facility even at the emergency of fire and explosion.

7-4 Considerations to the Loss of Power Supply

Measures shall be taken at the associated facilities of the waste disposal facility responding to the loss of function of the external power supply system.

7-5 Conformity to Standards and Criteria

The waste disposal facility shall be designed and constructed based on the standards and the criteria accepted as appropriate.

VIII. Termination of Control Time Period

Management and control of the waste disposal facility carried out from a viewpoint of the exposure control may be terminated by the end of the limited time span, and the radiation dose of the general public assumed to be imposed from the waste disposed shall be low enough so as the control is no more necessary after the termination of the control.

COMMENTARY

This basic concept was developed based on the features for the safety assurance of the waste repository business as described below:

(1) The concept of the safety assurance of the methods for the final disposal carried out as a waste repository business is as provided in "the basic Concept of the Safety Regulation for Land Disposal of the Low Level Radioactive Solid Waste" as mentioned above, i.e., the waste generated at nuclear facilities will

be disposed safely and necessary control shall be imposed of taking into consideration of the degree of possible radiation exposures etc. to the general public until the reduction of the radioactivity is achieved so that no further control is necessary.

(2) The control provided at the waste disposal facility is different from what has been provided in the ordinary nuclear facilities, and it is possible to consider the change of control methods step wise in accordance with reduction of the radioactivity etc.

Methods of the control in each step depend on the form and concentration of radioactivity of the waste, existence of installed engineered barriers, etc., and those are as shown below:

(a) The case of disposal in engineered barriers type disposal facility

1) The first step

The peripheral monitoring area shall be established to limit entry to the area, and the repository preservation area shall be established to implement patrol and inspection in the area.

In addition, no leakage of radioactive materials from the engineered barriers installed in the waste disposal facility shall be confirmed by monitoring leakage of radioactive materials etc., and necessary measures, such as the repair, shall be taken when leakage is confirmed.

2) The second step

The peripheral monitoring area shall be established to limit entry to the area, and the repository preservation area shall be established to implement patrol and inspection in the area.

In addition, the underground water etc. shall be sampled and measured to monitor the concentration of radioactive materials leaking from the engineered barriers and migrating to the human environment.

3) The third step

The repository preservation area shall be established to implement patrol and inspection in the area, and the specific acts such as farming works etc. in the area shall be restricted or prohibited.

(b) The case of disposal in non-engineered barriers type disposal facility

1) Disposal step

The peripheral monitoring area shall be established to limit entry to the area, and the repository preservation area shall be established to implement patrol and inspection in the area.

In addition, the underground water etc. shall be sampled and measured to monitor the concentration of radioactive materials migrating from the waste disposal facility to the human environment.

2) Preservation stage

The repository preservation area shall be established to implement patrol and inspection in the area, and the specific acts such as farming works etc. in the area shall be restricted or prohibited.

Therefore, the safety evaluation of the waste disposal facility during the control time period shall be implemented with due considerations of the above described methods of step-wise control and functional degradation of the equipment installed in the waste disposal facility according to the progress of time.

(3) In addition, as the waste repository business is planned to move to the step which does not need management or control finally after the step wise control described above, it is necessary to examine at the time of business application, and to obtain the prospect on the possibility to move to the situation which does not need management or control after the stepwise control with in the limited time span.

II. Concerning to this basic concept, there will be some subject to be considered for the application and to be clarified as guide value for decision-making. The followings are description for such subjects:

1 On Application

"The low level radioactivity solid waste generated with operation of reactor facilities etc." means the radioactivity solid waste of low level generated in connection with operation and maintenance of nuclear reactors, processing of the waste at the disposal facilities, which are the associated facilities of nuclear reactors, etc. including the waste generated in connection with dismantling of reactor facilities.

"Wastes of the non-solidified concrete, etc." means wastes of the concrete including the reinforcing steel rods and other similar materials.

2 On Definition of Terms

(1) "Engineered barriers" used in this basic concept means engineered structures, such as the concrete vault (including fillers, such as the soil for filling the void at the disposal of wastes), and the so-called MONOLITH which dispose the waste solidified as a unit built, expecting for prevention and reduction of leakage of radioactive materials of the disposed waste to the human environment.

In addition, it includes materials and the containers used for solidification of the waste in a container.

(2) "Natural barriers" used in this basic concept means the soil etc. around engineered barriers or disposed wastes that may inhibit the migration of radioactive materials leaked from the disposed wastes to the human environment.

3 On Basic Site Conditions

From a viewpoint to avoid a big accident and to mitigate the effect of the accident, it is necessary to confirm that the safety is assured taking into considerations of the following events at the site of the waste disposal facility and the surroundings:

(1) Natural environment

- a) Natural phenomena, such as the earthquake, tidal waves, landslide, cave-in, typhoon, high tide, flood, abnormal cold wave, and heavy snowfall,
- b) Geology, geographical features, etc., such as the subsoil, bearing capacity of soil, geology of faults and topographic features,
- c) Meteorological conditions, such as the wind direction, wind speed, and amount of precipitation, and
- d) Hydraulics and hydraulic phenomena such as the river, underground water, etc.

(2) Social environment

- a) The fire, explosion, etc. in the neighbor factories etc., and
- b) Usage of the river water, underground water, etc., land usage situations, etc. for foods, such as agriculture, livestock raising, fishing, etc. and the population distribution, etc.
- c) Natural resources, such as the coal and ore

4 On Dose Evaluation

(1) Evaluation for Normal Conditions

The radiation dose of the general public due to leakage or migration of radioactive materials from the waste disposal facility, release of the radioactive gaseous and the liquid waste, etc. from the associated facilities of the waste disposal facility, etc. at normal conditions shall be evaluated and confirmed not to exceed the dose limit specified in regulations, and be evaluated and confirmed to be as low as reasonably achievable at the planning and design of the step-wise control, in relation with the conditions of the site and its vicinity.

(2) Safety Evaluation

- a) Since the business continues over a long period of time, the radiation dose of a general public shall be evaluated technically assuming unusual leakage or migration of radioactive materials from the waste disposal facility. This evaluation is for the purpose to confirm the safety assurance to the general public, even in such an event as exceeding the event considered for normal conditions.
- b) The possibility of occurrence of the following accidents shall be examined at the associated facilities of the waste disposal facility, and the radiation dose of the general public shall be evaluated on the selected accidents considered to be important from a viewpoint of the exposure of the general public:
 - i Scattering of radioactive materials accompanied by dropping of wastes by operational error etc.;
 - ii Leakage of radioactive materials caused by damage of piping etc., failure of various equipment, etc.;
 and
 - iii Fire etc.
- c) When measures for mitigating the effect is taken against the accident, the radiation dose of the general public due to the radioactivity leaked, migrated and release during the accident shall be evaluated taking in to account of time delay till the detection of abnormality, time necessary to mitigation work completion as appropriate.
- d) "No excess radiation exposure to the general public" means in consideration of the balance of frequency and the magnitude of accident consequences, and the decision criteria shall be "no excess risk of radiation exposure to the general public", the application to specific situations shall be based on the followings:

According to the 1990 recommendation of the revised ICRP, the annual effective dose limit to the public

exposure is recommended to be 1mSv, but in a special situation, the effective dosage of one single year higher than this limit may be permitted if the average over five years does not exceed 1mSv per year. Although it is a concept of the radiation exposure in normal times, this concept may be applied to "accident" if the frequency of occurrence is small, and the "risk" can be judged to be small provided that the evaluated value of the effective dosage of the general public does not exceed 5mSv per specific accident.

5 On Radiation Control

"Disposal step" means the time period from the start of disposal activities until the covering soil is stabilized.

6 On Design Considerations for Earthquakes and Natural Phenomena other than Earthquake

"Appropriate time period" means the time period of the first step for the waste disposal facility, and it is the required time period for proceeding the waste repository business appropriately for the associated facilities of the waste disposal facility.

In addition, "preserve required safety functions" means to preserve confinement function etc. for the waste disposal facility.

7 On Termination of Control Time Period

- (1) In the case of disposal in engineered barriers type disposal facility, from 300 to 400 years shall be used as the guide value of "the limited time span", as the amount of Cobalt-60, Cesium-137, etc. which are major part of radioactivity and important from radiation protection views, in the waste generated at reactor facilities decays less to 1/1000 or 1/10,000 of initial during this time period, and similar time periods for the waste disposal facility are referred in foreign countries. In addition, in the case of disposal in non-engineered barriers type disposal facility, about 50 years of the disposal step and the subsequent preservation step shall be used as the guide value of "the limited time span", as non-solidified concrete, etc. are disposed wastes which radioactivity level is low by nature.

(2) "Radiation dose so low as the control is not required from a viewpoint of the exposure control" means that the evaluated value of the radiation dose not exceed the regulation exclusion dose, 10micro-Sv per year, as the guide value, which is specified in the report by the Basic Committee of the Radiation Review Council, "On the Regulation Exclusion Dose in the Near Surface Disposal of Radioactive Solid Wastes", December, 1987.

In addition to, the evaluated value of the radiation dose not exceeding 10micro-Sv per year extremely shall be the guide value for the event possible to be considered that the frequency of occurrence is small.

(6) Clearance levels in Main Nuclear Facilities (Excerpt)

(The Special Committee on the Safety Standards of the Radioactive Waste, Nuclear Safety Commission, March 17, 1999)

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3. Calculation of Clearance Levels

3.1 Basic Concepts for Calculation of Clearance Levels

Basic concepts for calculation of clearance levels is shown with respect to each subject in sections 3.1.1 through 3.1.5, and the arranged procedure for calculation based on the concepts is shown in Fig. 3-5 of the final section.

3.1.1 Basic Concepts for Calculation Methods

Clearance levels for solid wasted materials in the main reactor facilities (i.e. light water reactors and gas cooled reactors) was determined to be obtained by calculation according to the following methods as provided in the IAEA technical document, "TECDOC-855":

- (1) The guide values of radiation dose shall be established with consideration of superposition of practices, evaluation routes, etc. with a target as "doses which is sufficiently small compared with the radiation level of the nature, and the risk to human health can be disregarded"; and
- (2) Concentrations of radionuclides corresponding to the guide values of dose shall be calculated according to the following prerequisites.
 - a) Clearance levels shall be unconditional where the use or destination of the material are not limited after removed from the system of regulations concerning radiation protection (referred to hereafter, as "cleared").
 - b) All the evaluation routes shall be considered (for disposal or reuse) assumed to be occurred actually due to the evaluation item. The probability of occurrence shall not be taken account as a conservative approach, because it is not appropriate to assume the probability of occurrence since the use or destination of the cleared evaluation item is not limited.
 - c) The minimum concentration shall be determined for each radionuclide by calculating the

concentration according to the evaluation route using realistic parameters for the evaluation item. And the evaluation route that gives the minimum concentration is specified as the “Critical Route”.

The IAEA technical document, “TECDOC-855”, provide clearance levels obtained by comparing and examining information of published references. In Japan, on the other hand, it is decided that clearance levels shall be calculated on the basis of circumstances of the daily life, social environment, etc. in Japan, and that the dose evaluation of existing nuclear facilities (e.g., dose evaluations for the general public in the vicinity of low-level radioactive waste disposal facilities, commercial power reactor facilities etc.) shall be also referred.

3.1.2 Application Criteria of Radiation Doses

The application criteria of radiation doses from which clearance levels is calculated shall be as sufficiently low so that anyone of the neighboring public surrounding a nuclear facility does not receive radiation exceeding the individual dose limit (i.e. 1 mSv/year, excluding the radiation dose received from the nature) specified by regulations. Moreover, the application criteria shall be sufficiently low as not needed to take consideration of protection from the radiation, as the radiation dose caused by the cleared material is “sufficiently small as compared with the radiation level by the nature, and negligibly small in risk to the human health”.

In order to satisfy the above mentioned concept, the guide value of radiation doses from which clearance levels is calculated has been established as follows with references, “Regulation Exclusion Dose for the Near Surface Disposal of Radioactive Solid Wastes” prescribed by the Radiation Review Council in 1987, and “Fundamental Concepts for the Safety Review of Radioactive Waste Disposal Facilities” prescribed by the Nuclear Safety Commission in 1988, and references by ICRP, IAEA, etc.

(1) The application criteria for individual radiation dose based on realistic scenario (referred to as “scenario” that is combinations of evaluation routes and evaluation parameters) is determined as 10 μ Sv/year (0.01 mSv/year: less than one-hundredth of the averaged radiation level of the natural background of 2.4 mSv/year) with consideration of superposition of human behavior, evaluation routes, etc., that is one-tenth of 100 μ Sv/year (0.1 mSv/year) which is equivalent to the risk level that any individual might consider as negligible (10^{-6} /year).

(2) Although the probability of occurrence of evaluation routes shall not be taken account as a conservative approach in the estimation of clearance level for unconditional usage and destination of cleared material, but the lower limit value of the 97.5% tail of one side confidence interval (Refer to chapter 4) by combination of parameters considering the fluctuation of evaluation parameters (probabilistic analysis) shall be treated as one of “ low probability scenario”, and the individual radiation dose for this scenario shall be confirmed not exceeding 100 μ Sv/year, which is the same as specified in the IAEA technical document “TECDOC-855”.

3.1.3 Evaluation Candidates

The concept of critical group shown by ICRP etc. is important as a fundamental concept to select evaluation candidates and evaluation parameters in calculating clearance levels. The concept of critical group is as follows, which is also adopted as a reference in the IAEA technical document “TECDOC-855”;

- Select a group of members who receives the highest radiation dose caused by the evaluation items.
- Select a homogeneous group. (One representative of the group is modeled in evaluation.)
- Select typical values as for the behavior of daily life, etc., and select representative values as for metabolic parameters.

The clearance levels were determined based on the calculations selecting a homogeneous group, which represents those individuals who receive the highest radiation dose in realistic scenarios, as evaluation candidates, referring to the pre-described concept for critical group shown by ICRP etc., reports of this Special Committee, “Reference Values for the Safety Regulation of the Land Disposal of Low Level Radioactive Wastes (Interim Report and Second Interim Report)” (December, 1986, and February, 1992) (referred to hereafter, as “the Report on the Government Ordinance Concentration Limit Value”) in which the upper limits on radioactive material concentration in radioactive wastes (referred to hereafter, as “the Government Ordinance Concentration Upper Limits”) were derived, by which the license of waste disposal business can be applied under Article 13-9 of “the Ordinance for the Enforcement for the Regulations of Nuclear Source Material, Nuclear Fuel Material and Reactors”, and the License Application for the Radioactive Waste Disposal Business of the Rokkasyo Low-Level Radioactive Waste Disposal Center by Japan Nuclear Fuel Limited (hereafter called “low level radioactive waste disposal facility application”), etc.

3.1.4 Evaluation Items

(1) Type and Amount of Evaluation Items

The type and amount of evaluation items in this report are based on the type and estimated amount of wastes etc. generated by the decommissioning and operation (referred to hereafter, as “decommissioning etc.”) of major nuclear facilities (light water reactors and gas cooled reactors).

The estimated amount of wastes etc. to be generated by decommissioning one unit of 1,100 MW class boiling water reactor (BWR) or pressure water reactor (PWR), or a 160 MW gas cooled reactor

(GCR) is shown in Table 3-3.

Major parts of wastes etc. considered to be below the clearance level are those of metals and concretes (including thermal insulators etc.) among wastes etc. generated by decommissioning, and the amount is, for example, assumed as 530,000 tons for BWR (including wastes etc. according to the report, “Fundamental Concept of Wastes of Non-Radioactive Wastes” by this Special Committee in February, 1992).

As to these wastes etc., it is assumed for evaluation that metals and concrete will be reused and disposed of in the same manner as industrial wastes, respectively, as shown in Fig. 3-1. Combustible wastes shall not be included in the items for this evaluation.

Since the IAEA technical documents, “TECDOC-855” etc. describe that the clearance level shall be calculated for each practice, it has been decided that the clearance level shall be calculated based on the estimated amount of wastes generated by decommissioning of one unit of commercial power reactor facility, specified as one practice in this case. Accumulation of practice like decommissioning two or more units of commercial power reactor facilities is already taken into consideration since the application criteria of radiation dose is established as one-tenth of 100 $\mu\text{Sv/year}$.

Since the amount of wastes etc. to be generated by decommissioning of research reactor facilities (excluding heavy water reactors and fast neutron reactors) and by operation of main nuclear facilities (i.e. light water reactors and gas cooled reactors) is very small compared with that of wastes etc. generated by decommissioning of commercial power reactor facilities, it can be regarded as included for evaluation in the amount of wastes etc. generated by decommissioning of commercial power reactor facilities. (Refer to Attachment 4-1 and Attachment 4-2)

(2) Selection of Typical Radioactive Nuclides

In calculation of the clearance level, twenty (20) radioactive nuclides considered to be representative for radiation dose evaluation were selected of the radionuclides important for the following purposes;

- Since the wastes etc. generated by decommissioning of reactor facilities etc. may contain radionuclides from secondary contamination due to adhesion, penetration, etc. of reactor coolant etc. and from activation by neutron beams of reactor, these radionuclides shall be evaluated.
- In decommissioning of a nuclear facility, safe storage period after the reactor shutdown is provided for about five to ten years before dismantling and removal starts, and short half-lived radioactive nuclides shall be decayed sufficiently before the waste repository disposal or reuse starts. Therefore, short half-lived radioactive nuclides are neglected from the scope of evaluation items.
- Those radioactive nuclides, whose concentration is provided in the Government Ordinance Concentration Limit Value and those specified in the application for the low level radioactive waste disposal facility, shall be taken into consideration.
- The radioactive nuclides described in the IAEA technical document, “TECDOC-855” shall be taken into consideration for reference. However, as some of those radioactive nuclides described in TECDOC-855 are supposed to exist in facilities other than nuclear reactors, such nuclides having short half-lives and small yields in nuclear facilities shall be excluded from consideration.

When the application criteria in order to institutionalize “wastes that do not need to be treated as radioactive materials” for major nuclear facilities (i.e. light water reactors and gas cooled reactors), is determined radioactive nuclides which are relatively important in dose evaluations of solid materials (important radionuclides) will be extracted based on the calculation results of clearance levels and the composition of radionuclides in evaluation items, etc. This respect shall be discussed in Chapter 4.

3.1.5 Evaluation Routes

(1) Evaluation Routes for Waste Repository Disposal

Evaluation routes for waste repository disposal are selected referring the Report on Government Ordinance Concentration Limit Values and Application for the Low Level Radioactive Waste Disposal facility, etc.

The evaluation routes which are taken into consideration in the calculation of clearance levels must be selected so that all the evaluation routes assumed to occur realistically after wastes were cleared should be included comprehensively, based on the actual conditions and the regulations on handling and transportation of wastes to disposal facility, the regulations on industrial waste repositories, actual conditions of the repository, natural conditions in the vicinity, social environments, and daily life of general public, etc. But, it is not necessary to cover all the routes in the calculation of clearance levels, clearance levels can be evaluated by selecting representative routes which are considered to be comprehensive. That is, the routes to be evaluated will be selected by removing such routes that radiation doses can be judged to be negligibly small compared with those of other routes even if without performing dose evaluation, and evaluation results are included in those of other routes, under the prerequisites described below.

Although the probability of occurrence is considered to be different for each evaluation route, it was decided not to take the probabilities into account as a conservative approach, because it is not appropriate to assume probabilities by identifying natural conditions and social environments in the calculation of unconditional clearance levels of the materials of which uses or destinations are not limited.

[Prerequisites]

a. Evaluation starting time of the cleared wastes shall be when the wastes are shipped from a nuclear facility, after certification of the waste is completed, and confirmed to be below the clearance level.

b. The wastes generated by decommissioning of a nuclear facility are concrete and metal materials, and assumed to be disposed of to the disposal facility of similar structures to “stable type disposal facility” for industrial wastes, as such assumption is considered to be a conservative approach for the evaluation purpose since the migration of radioactive nuclides to the groundwater is large in case of such type disposal facility.

c. Reclamation disposal (including water surface reclamation disposal) and sea disposal are carried out in Japan as methods of waste disposal. Among these methods, the sea disposal is forbidden for metal rubbish, construction debris, etc. according to the provision of Article 6, Section 1 of “the Ordinance for Enforcement of Law on Processing and Cleaning of Wastes”. Eighteen (18) of total 2,636 facilities for the reclamation disposal are sea surface reclamation disposal facilities, and the rest are inland reclamation facilities as of April, 1993. (Handbook of Industrial Waste Processing, 1996) In view of these circumstances, the inland reclamation disposal and the sea surface reclamation disposal shall be subject to the evaluation as disposal methods, since the inland water surface reclamation will not be carried out as a stable type disposal.

d. Since other site conditions of repository cannot be specified, natural environments and social environments of other disposal sites shall be comprehensively assumed.

e. The evaluation routes shall be selected assuming that the site will be used after the completion of disposal and closure of the disposal facility.

The selected evaluation routes by approaches as mentioned above for calculation of the clearance levels (for waste repository disposal) are shown in Fig. 3-2. The evaluation routes subject to the calculation are 41 routes selected comprehensively out of 125 routes. (Refer to Attachment-2.)

The evaluation routes selected at this time include all of the evaluation routes for waste repository disposal specified in the IAEA technical document “TECDOC-855” excluding the routes for combustible wastes.

The report, TECDOC-855 includes the selected evaluation routes of fire at disposal facility and incineration disposal considering the disposal of combustible wastes, but combustible wastes are not included in the present evaluation items for evaluation as indicated in Section 3.1.4 of this report.

(2) Evaluation Routes for Reuse

It is important for the evaluation for reuse to confirm widely the safety of reuse assuming various possibilities with reference to the IAEA technical document, “TECDOC-855”. Consequently, the evaluation routes for reuse have been selected using the same method as used for waste repository disposal to confirm widely the safety of reuse actually assumable.

The evaluation routes which are taken into consideration to calculate the clearance levels must be selected so that all the evaluation routes assumed to occur actually are included comprehensively after the materials are cleared, based on regulations and current status on handling and transportation of wastes to reuse as final products, current status on recycle, production process and utilization form of the products, and circumstances of daily life of general public, etc. But, it is not necessary to cover all the routes in calculation of the clearance level. Some representative routes that are comprehensive are selected and evaluated for the clearance level. That is, the routes which shall be evaluated has been selected under the following prerequisites after removing the routes of which radiation doses can be judged to be negligibly small compared with those of other routes without performing dose evaluation, and the routes of which evaluation results are included in those of other routes.

Although the probability of occurrence is considered to be different for each evaluation route, it was decided that the probabilities are not accounted for as a conservative approach, because it is not appropriate to assume the probabilities by identifying the use specifically for calculation of the unconditional clearance level of materials of which uses or destinations are not limited.

[Prerequisites]

a. The evaluation starting time of the objects by which clearance was carried out shall be the point of time when the wastes are shipped from a nuclear facility after the certification of being below the clearance level is completed.

b. The evaluation routes for reuse shall be investigated separating conditions for the daily life and for the working, hours and further, separating situations for processing the materials into reuse products and for reusing the products. Furthermore, reuse products shall be investigated by identifying each item after classifying the products into consumer goods and construction materials.

c. The reuse products shall be selected referring to the Survey Items of Main Consumer Durable Goods

(Trends in Housekeeping Consumption, 1995, Research Bureau, Economic Planning Agency of Japan) as items generally assumed, provided that the use conditions and the recycle conditions are considered to have comprehensibility in consideration of purposes of use.

d. The reuse routes whose possibilities are extremely low, e.g., reuse of special materials, shall not be assumed. For example, the route to get on an airplane made of reused metals, or the route of medical equipments made of reused materials shall not be assumed.

e. The case of local radiation exposure caused by reuse of the material for a wrist watch or a belt buckle shall not be selected as the evaluation route, since the effect to the whole body is small as size of the source is small.

(7) On Methods of Certification of clearance levels for Reactor facilities (Excerpt)

(The Special Committee for Nuclear Safety Standards, the Nuclear Safety Commission, March 14, 2001)

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IV. Judgment for Wastes to be below clearance levels

1. Basis of Judgment for Wastes to be less or equal to clearance levels

2. Judgment by Sum of D/Cs of Evaluation Items to be less or equal to one

2.1 Radionuclides for Evaluation

2.2 Determination of Composition Ratios of Radionuclides

2.3 Evaluation Units of Concentrations of Radionuclides

2.4 Judgment

2.4.1 The Judgment Combination of Activation Calculation and Measurement for Verification

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3. Judgment for Evaluation Items not Contaminated Evidently

3.1 Judgment Criteria for Evaluation Items not Activation Contaminated Evidently

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V. Storage and Control of Evaluation Items Judged to be below clearance levels

VI. Methods of Recording

VII. Miscellaneous

1. Education And Training

2. Keeping Reliability of Measurements, Etc.

Explanation of Terms

III. Evaluation Items for Certification and Classification

1. Evaluation Items for Certification

Evaluation items for certification are solid materials mainly generated by decommissioning of major reactor facilities (light water reactors and gas cooled reactors). And the materials are metals and concrete (including heat insulation materials).

2. Categories of Classification of Evaluation Items

For the judgment that the evaluation items are below clearance levels, the evaluation items are classified as follows with consideration of the possibility of contamination by both activation and secondary contamination:

(1) The evaluation items that have the possibility of contamination by either activation or secondary contamination

(2) The evaluation items that evidently have no possibility of contamination by activation or secondary contamination

IV. Judgment for Materials to be below Clearance Levels

After classification of evaluation item, the judgment that the evaluation items are below clearance levels shall be made by methods as shown in the followings.

1. Basis of Judgment for Materials to be Below Clearance Levels

The decision that the evaluation item is below clearance levels shall be made by confirming that either one of the following two criteria (1) and (2) is met.

(1) The sum of concentrations of the radioactive nuclide 'i' of each evaluation items contained in the wastes to be evaluated (D) divided by clearance levels (C) (referred to hereinafter, as "D/C") is below one (1), i.e. the following inequality is satisfied:

"Sum of {(the concentration of radioactive nuclide 'i') / (clearance levels of radioactive nuclide 'i')} < 1

(2) Activation contamination or secondary contamination does not exist evidently on the evaluation items.

2. Judgment by Sum of D/Cs of Evaluation Items to be Below One

The decision method by sum of D/Cs to be below one (1) is shown as follows as one of the basis for decision that the evaluation item is below clearance levels.

2.1 Radionuclides for Evaluation

Nuclides for evaluation (referred to hereinafter, as “radionuclides for evaluation”) using the judgment by summing D/Cs to be less than one (1) shall be the important radionuclides, i.e. H-3, Mn-54, Co-60, Sr-90, Cs-134, Cs-137, Eu-152, Eu-154, and all alpha nuclides.

2.2 Determination of Composition Ratios of Radionuclides

Composition ratios of radionuclides shall be determined by the analyzed value of representative samples for secondary contamination, and shall be determined mainly by calculation for activation contamination. The representative samples shall be those in the range of evaluation items where the compositions of radionuclides are the same, and shall be selected as appropriate representatives of the composition of the radionuclides in the range.

2.3 Evaluation Units of Concentrations of Radioactive Nuclides

Evaluation of concentrations of the radionuclides of the evaluation items for judgment to be made by dividing the evaluation items into appropriate units depending on their shapes and dimensions. Less than several tons of the weight are generally appropriate as a unit size for concentration evaluation of radionuclides, but larger unit size may be adopted if the concentration of the radionuclides of the evaluation items is homogeneous.

2.4 Judgment

Concentrations of radionuclides of the evaluation items shall be determined by the following methods for judgment that the evaluation items is below clearance levels by confirmation that the sum of D/Cs of radionuclides of the evaluation items is below one (1).

Concentrations of radionuclides in the materials of activation contamination and secondary contamination may be determined by measurement. And in the case of activation contamination, concentrations of radionuclides may be determined by a combination method of activation calculation and verification measurement of representative samples.

2.4.1 Judgment by Combination of Activation Calculation and Measurement for Verification

For the method by combination of activation calculation and measurement for verification, concentrations of radionuclides by activation shall be obtained by activation calculation and the concentration of important radionuclides shall be measured for respective sample to verify the calculated values. For activation calculation, general computer codes such as ORIGEN may be used. Parameters for the calculation shall be determined as follows:

Density distribution of neutron fluxes

The density distribution of neutron fluxes shall be determined by calculation (neutron transportation calculation), by combination of calculation and measurement, or by measurement. When the distribution is determined by calculation, appropriate distribution shall be used with considerations of the past experiences.

(2) Element composition

Element compositions are determined by using analytical values, standards, or referenced documents.

(3) Irradiation histories

Irradiation histories shall be obtained from the past irradiation histories of each plant. When the evaluation items are dismantled parts of a plant, the elapsed time of dismantling after reactor shutdown may be considered.

The measurements of radionuclides concentrations for the verification of the calculation results shall be performed in accordance with “Section 2.4.2, Method to Determine the Radionuclides Concentration by Measurement”.

2.4.2 Methods to Determine Radionuclides Concentrations by Measurement

Appropriate measurement methods and measuring devices shall be selected corresponding to the types of radioactivity and the type/states of contamination in the measurement to determine the concentration of radionuclides of each evaluation item for judgment that the evaluation item is below clearance levels. Methods of measurement to determine the concentration of radioactive nuclides for the evaluation item are shown in (1), the selection of measuring device for radioactivity and the determination of measuring conditions is shown in (2), and the selection of the measuring points are shown in (3).

(followings are omitted)

3. Judgment for Evaluation Items not Contaminated Evidently

Any of those materials may be judged to be below clearance levels by confirming the classification is appropriate, if the evaluation items are classified as “materials not activation contaminated and not secondary contaminated evidently”. For confirming the classification, it is necessary to evaluate with viewpoints of both activation contamination and secondary contamination do not exist, and the principle of Paragraph 3.1 and Paragraph 3.2 are applicable as described in “the Second Interim Report”.

3.1 Judgment Criteria for Evaluation Items are not Activation Contaminated Evidently

(1) Concrete wastes (including contained steel reinforcements etc.)

The evaluation items corresponding to any of the following 1) to 3) may be classified as “materials not activation contaminated evidently” as a whole:

- 1) The materials evidently unnecessary to consider the activation effect by neutron beams from structural viewpoint of the facility such that it was shielded with enough radiation shielding materials;
- 2) The materials evaluated by calculation etc. that there are no meaningful differences of the effect of neutron activation from the general concrete materials; or
- 3) The materials evaluated by calculation etc. that some parts of the material are meaningfully different in the effect of neutron activation from the general concrete materials and are removed the activated parts.

(2) Metal wastes

The same principles as mentioned in (1) above may be applied.

3.2 Judgment Criteria for Evaluation Items is not Secondary Contaminated Evidently

The evaluation items corresponding to any of the following 1) to 2) may be classified as “materials not secondary contaminated evidently” as a whole;

- 1) The materials that are evidently not secondary contaminated by adhesion or permeation of radioactive materials judging from the histories of usage or conditions of installation; or
- 2) The materials that evidently the spreads of secondary contamination by adhesion or permeation of radioactive materials are restricted judging from the histories of usage or conditions of installation and are removed the contaminated parts.

(followings are omitted)

(8) On Clearance Levels for Heavy Water Reactors and Fast Neutron Reactors (Excerpt)

(The Special Committee for Nuclear Safety Standards, the Nuclear Safety Commission, March 14, 2001)

Contents

1. Preface
2. Principles of Calculation of Clearance Levels for Heavy water reactors, Fast neutron reactors, etc.
3. Calculation of clearance levels
- 3.1 Types and Quantities of Evaluation Items
- 3.2 Representative Radioactive Nuclides
- 3.3 Evaluation Routes, Calculation Models and Evaluation Parameters
- 3.4 Calculation Results of clearance levels
4. Derivation of Standards Based on Calculation Results of clearance levels
- 4.1 Selection of Important Radioactive Nuclides

5. Conclusion

Appendix 1: On Radionuclides to be Added for Evaluation

Explanation of Important Terms

2. The Principles of Calculation of Clearance Levels for heavy water reactors, Fast neutron reactors, etc.

Solid materials generated at the major reactor facilities (light water reactors and gas cooled reactors) were selected as evaluation items for clearance levels investigation in the “Clearance Levels Report”, based on the following reasons: 1. For reactor facilities, there are experiences of rule making on safety criteria etc. concerned to disposal of low level radioactive waste and their applications, 2. For reactor facilities, contents and compositions of radionuclides are relatively homogeneous as the radioactive materials are originated by neutron activation, 3. For light water reactors and gas cooled reactors, various kinds of data are accumulated.

On solid materials generated at heavy water reactors, fast neutron reactors, etc out as the evaluation items, the investigation was carried on since March of 1999.

This investigation was carried on using the evaluation methods used in the “Clearance Levels Report” with due consideration of the difference between heavy water reactors, fast neutron reactor etc. and the major reactor facilities (light water reactors and gas cooled reactors), because the evaluation items of heavy water reactors, fast neutron reactor etc. are solid materials and the composition of the nuclides etc. is relatively homogeneous, that is similar to the evaluation items of the main reactor facilities (light water reactors and gas cooled reactor). In this investigation, clearance levels to be applied for heavy water reactors, fast neutron reactors, etc. were calculated after surveying of classification of evaluation items and their quantities from those reactor facilities, and the standard values based on the calculation results were derived.

3. Calculation of Clearance Levels

For calculation of clearance levels to be applied for heavy water reactors, fast neutron reactors, etc., Paragraph 3.1 of Chapter 3, "Calculation of clearance levels" of "clearance levels Report" was followed, and "application criteria of radiation dose" and "evaluation candidates" are regarded as equivalent to the report, and types and quantities of wastes generated by decommissioning and by operation of the reactor facilities were evaluated after surveying on heavy water reactors, fast neutron reactors, etc. Based on the results, differences from clearance levels of light water reactor and gas cooled reactors were investigated as the followings.

3.1 Types and Quantities of Evaluation Items

(1) Wastes etc. generated by decommissioning etc. of heavy water reactors

The estimated quantities of the wastes etc. generated by decommissioning of the heavy water reactor, "Fugen", are as shown in table 1-1. Wastes etc. estimated to be below clearance levels are mostly metals and concrete. The estimated quantity is about 360,000 tons (including wastes etc. according to the report, "Fundamental Concept for Wastes of Non-radioactive Wastes" by the old Special Committee in February, 1992), and there are no big differences in the quantity and the types of wastes from those generated by decommissioning of commercial nuclear power reactor facilities.

Wastes considered below clearance levels among the wastes generated by decommissioning of the heavy water reactor, "JRR-2", are mostly metals and concrete, and the quantity is estimated to be about 300 tons (including wastes etc. reported in "Fundamental Concept for Wastes of Non-radioactive Wastes" by the old Special Committee in February, 1992). As "JRR-2" is a reactor facility of 10MW thermal output, the quantity of wastes generated is very small as compared with that by decommissioning of commercial power reactor facilities. Therefore, the quantity of wastes for evaluation is regarded as included in that generated by decommissioning of commercial power reactor facilities. The difference is that the heavy concrete containing barite (the main component is BaSO_4) of coarse aggregate is used for the biological shield that is not used for light water reactors or gas cooled reactors.

(2) Wastes generated by decommissioning of fast neutron reactors

The estimated quantities of the wastes etc. generated by decommissioning of fast neutron reactor, "Joyo", are shown in Table 1-1. Wastes etc. estimated to be below clearance levels of the wastes generated by decommissioning are mostly metals and concrete, and the quantity is estimated to be about 280,000 tons (including wastes etc. reported in "Fundamental Concept for Wastes of Non-radioactive Wastes" by the old Special Committee in February, 1992), and there are no big differences in quantities and types from the estimated quantities of wastes generated by decommissioning of commercial power reactor facilities. The difference is that the graphite shield material is used around the reactor vessel.

And, as enough shields are provided around the core and as the core size of "Joyo" is small, the weight of "wastes of Non-radioactive wastes is estimated larger and the weight of clearance evaluation wastes (the wastes whose activity level is below clearance levels and excluded the Non-radioactive wastes, the same terminology is used, hereinafter) is smaller as compared with that of light water reactors or gas cooled reactors.

For the fast neutron reactor, "Monju" which is under construction, the total quantity of wastes etc. is estimated to be about three times of the wastes etc. from "Joyo", as a result of approximate evaluation of the quantity of generated wastes etc. based on the evaluation for "Joyo", which is because the facilities are larger and the steam generation system and the power generation system are added as compared with "Joyo". However, the weight of "Non-radioactive wastes" is estimated large and the weight of clearance evaluation wastes is small accordingly, that is similar to "Joyo" as described above, and it is included for evaluation.

As the quantity of wastes etc. generated during operation of heavy water reactors and fast neutron reactors are very small as compared with the amount of wastes etc. generated by decommissioning, the quantity of the wastes etc. is regarded as included in the wastes generated by decommissioning for evaluation.

(3) The wastes etc. generated by decommissioning of other reactor facilities

For reactor facilities such as criticality facilities etc. other than the heavy water reactors and fast neutron facilities, same evaluation process can be applied as the materials of main components are similar to those used for heavy water reactors or fast neutron reactors, and as the radioactive materials are originated mainly by neutron activation, and the radioactive nuclides and their composition are relatively homogeneous.

For criticality facilities, the quantity of wastes is regarded as included in the quantity of wastes generated by decommissioning of above mentioned reactor facilities for evaluation as the amount of wastes etc. are estimated to be very small as compared with the wastes generated by decommissioning of the above mentioned reactor facilities

3.2 Representative Radionuclides

Twenty (20) radionuclides and Ba-133 are selected which are considered to be representative in the evaluation of radiation doses for the calculation of clearance levels of heavy water reactors and fast neutron reactors, as calculated in the "Clearance Levels Report" based on the following reasons.

- The same materials as used for light water reactors are used for heavy water reactor, "Fugen" basically, though the core structure is different. And the types of radioactive nuclides of the wastes etc.

generated at the heavy water reactor, “Fugen” is basically the same as those generated at light water reactors because the materials used for the heavy water system are similar to those used for light water reactors.

- For heavy water reactor, “JRR-2”, the same materials as used for light water reactors are used basically as used for the heavy water reactor, “Fugen”. However, as the heavy concrete containing barite (the main component is BaSO_4) of coarse aggregate is used as the main body of biological shield, the build-up of Ba-133 by activation shall be considered.
- For the fast neutron reactor, “Joyo” and “Monju”, the same core materials are used as used for light water reactors basically except the coolant (sodium). And, the effect of thermal neutron is dominant at structures, materials and clearance items outside of the reactor vessel as light water reactor, though the neutron spectrum is harder and the density of the neutron flux is higher in the reactor core of fast neutron reactors than those of light water reactors. Generation of C-14 by activation of the graphite shielding installed outside of the reactor vessel of “Joyo” shall be considered, but C-14 is included in the twenty (20) radioactive nuclides considered to be representative for evaluation of radioactive dose calculated in the “clearance levels Report”.

3.3 Evaluation Routes, Calculation Models and Evaluation Parameters

As described in Paragraph 3.1 and Paragraph 3.2, the types of wastes etc. and their quantity generated by decommissioning of heavy water reactors and fast neutron reactors is not largely different from those of the main reactor facilities (light water reactors and gas cooled reactors) except that additional consideration to be taken on the effect of Ba-133 for heavy concrete used for the biological shield of heavy water reactor, “JRR-2” which contain barite (main component is BaSO_4) of coarse aggregate and the effect of C-14 for the graphite shielding installed outside of reactor vessel of fast neutron reactor “Joyo”. Therefore, the same evaluation routes, calculation models and evaluation parameters as shown in “clearance levels Report” can be selected basically. Comparison of the evaluation parameters and results of investigation about the types and quantities of wastes generated at the light water reactors and gas cooled reactors versus heavy water reactors and fast neutron reactors are shown in the Table 1-2. For Ba-133 that was added as a new item for investigation, evaluation parameters are selected about nuclide-element dependent parameters.

(referred to the separate paper 1).

(followings are omitted)

(9) Basic Concepts for Safety Assurance and Regulations for the Safety for Decommissioning of Commercial Power Reactor Facilities (Excerpt)

(Decommissioning Safety Subcommittee, the Nuclear and Industrial Safety Subcommittee, the Advisory Committee for Natural Resources and Energy, August 2, 2001)

Contents

1. Introduction
2. Basic Concepts of Measures for Safety Assurance
3. Main Discussion Subjects
 - (1) Dividing Decommissioning Plans
 - (2) Prior Partial Dismantling of the Facility
 - (3) Completion Time Limit for Decommissioning
4. Basic Concepts for Safety Regulation

Separate Sheet: Items Considered for Safety Assurance of Decommissioning of Commercial Power Reactor Facilities

2. Basic Concepts of Measures for Safety Assurance

For decommissioning of a reactor facility, it is important to provide measures to prevent the effect of radioactive materials to the peripheral environment, since radioactive materials remained in the reactor facility are dealt with. For this reason, it is important to adopt construction methods to prevent appropriately the radioactive material to diffuse out of the facility and also it is important to make efforts to maintain and to utilize the existing barriers, filter equipment, etc.

There are sufficient experiences of radiation protection for the occupational personnel who works in the nuclear reactor facility through replacement of core shrouds which is a construction work of the equipment of highly activated core internals, and through replacement of steam generators which is a large-scale construction work of the equipment of high radioactive material concentration. Therefore, it is important that measures for radiation protection are selected and implemented appropriately depending upon the characteristics of decommissioning works fully based on the knowledge acquired from such experiences as described.

Moreover, it is indispensable that detailed processing and disposal methods, disposal facility and storage places are established in advance of the dismantling and removal works, as radioactive wastes are

generated by dismantling and removal works of reactor facilities. Furthermore, at the actual dismantling and removal works, the wastes shall be classified according to the concentration and characteristics of radioactive materials contained and the processing and disposal of the wastes shall be carried out in appropriate manners. And also, it is important to grasp exactly the flow of wastes from the generating places to the disposal facility.

Prior to these decommissioning, it is inevitable to confirm the prospect for assured implementation of decommissioning by planning the whole decommissioning program, since the operation of the whole decommissioning continues over a long period of time. After that, a more detailed plan for each step should be drawn up prior to the execution of individual decommissioning work, so that assured implementation of whole program and safe execution of decommissioning works could be confirmed. Furthermore, for planning of the concerned dismantling and removal works in the site where other reactor facilities are in operation, it is required to consider its effect on these facilities.

The separate sheet provides considerations comprehensively arranged on the safety assurance based on the basic concept of the above-mentioned safety assurance.

3. Main Discussion Subjects

The main subjects selected from the above discussions were as follows.

(1) Dividing Decommissioning Plans

Since decommissioning is construction activity extending to a long period of time and technical progresses in the meantime are expected, it is not necessarily rational to make the detailed planning about the whole processes of decommissioning works at the beginning. For this reason, the details of decommissioning processes should be admitted to be divided and to be decided later step by step. Though decommissioning converts a facility into safer conditions by dismantling and removal works, unstable conditions, such as loss of shielding function or release of radioactive dust, etc., might occur occasionally in the processes. For this reason, it is important to secure the prospect of decommissioning to be carried out steadily and continuously prior to decommissioning.

Therefore, it is considered to be acceptable to make a decommissioning plan specifying the outline of the project to secure the prospect covering the whole processes in the overall projects at the beginning, and to decide detailed plans one by one prior to the start of each process taking in the newest knowledge. In this case, it is divided into three processes of system decontamination, safe storage, dismantling and removal in consideration of the highly activated or contaminated equipments as a standard (refer to Figure 1). When there is a process not included in these three processes (for example, a prior dismantling process during the system decontamination process or the safe storage process), it can be expected to secure the prospect of steady implementation of decommissioning by additional sufficient explanation about the concerned process in the overall plan (refer to Figure 2).

(2) Prior Dismantling of a Part of the Facility

The standard process provided in the report of the Nuclear Advisory Committee in 1985 is based on the concept that the whole facility is at first decontaminated and successively kept in stable storage conditions, and then the dismantling and removal is carried out. However, the part of the facility that has no activation or no contamination, or has the low activation or contamination can be disassembled without system decontamination or without safe storage period to attenuate radioactive material. Therefore, it is possible to accept to carry out the prior dismantling of the facility when highly activated and/or contaminated parts of the facilities are under system decontamination or under safe storage.

However, it is necessary to satisfy the following requirements in this case.

a. Prevention of bad effects on the facilities under system decontamination and safe storage

Bad effects on the facilities under system decontamination and safe storage shall be prevented and management of the concerned facilities shall not be interrupted limiting the scope and methods of prior dismantling.

b. Management during the prior dismantling

In order to carry out the prior dismantling safely, radiation control, maintenance and control of the facilities, preventing propagation of contamination, etc. shall be carried out.

c. The safety assurance after the prior dismantling

The facilities shall not be in the un-safe condition after the prior dismantling by limiting the scope and methods of the prior dismantling.

d. Radioactive disposal

Radioactive wastes generated by the prior dismantling shall be possible to be stored and disposed of appropriately.

e. Release of radioactive materials

The total amount of discharged radioactive materials shall not be significantly increased by the prior dismantling.

f. Reservation of funds

Sufficient funds shall be remained for the subsequent processes after the prior dismantling.

(3) Completion Time Limit for Decommissioning

Unlike new constructions, the expense for decommissioning work cannot be recovered later. Moreover,

if the nuclear reactor facility were left indefinitely, degradation of the retarding the radioactive material migrating to environment and of the shielding function would occur, and the hazard caused by the facility would be expected

From such a viewpoint, it is supposed to be important that decommissioning should be appropriately completed within a certain time period.

The time period for decommissioning works by the above-mentioned three processes of system decontamination, safe storage, and dismantling and removal takes about fifteen (15) to sixteen (16) years as provided in the report of the Nuclear Advisory Committee in 1985. Therefore, it is considered as the first prospect, that the time period until completion of decommissioning works is about 30 years referring to the new knowledge. In this case, even if taking consideration to include terms for operation and fuel removal, etc. prior to decommissioning works after shut-down, it is considered that the preventing function of radioactive materials migrating to outside of the facility and the shielding function of the concrete walls remain in sound until completion of decommissioning.

When it is expected that decommissioning works cannot be completed in about 30 years due to relating restraints with other reactor facilities in the site, individual measures are necessary to be verified for the safety assurance in such conditions.

4. Basic Concepts for Safety Regulation

The government agencies need to appropriately apply the regulations (Notification of the Dismantling Plan, the Safety Preservation Rules) specified by the present legislations and regulations so that nuclear business operators can implement the safety assurance measures for their decommissioning assuredly. The government agencies need to assure exactly the methods and the processes relating to decommissioning according to the Notification of Dismantling Plan, and the safety preservation management and organization such as the maintenance management of facilities, radiation control and disposal according to the Safety Preservation Rules.

On the other hand, in view of continuation of decommissioning works for a long period of time, it is necessary to accept the nuclear business operator, as above-mentioned, to make the whole plan of decommissioning and the detailed plan required for the time being at the beginning, and to make detailed plans one by one according to the progress of decommissioning. It is considered to be appropriate for the purpose to realize implementation of the rational and effective regulations that the government agencies to execute such a practical application as to implement regulatory procedures corresponding to one by one planning (partial acceptance of the detailed plan of the Notification of Dismantling Plans) (refer to Figure 2).

Moreover, it is necessary to change the Safety Preservation Rules when the management rules such as the area management, the facility management, etc. are changed according to the progress of decommissioning, and also the government agencies should correspond appropriately to such changes.

Annex 2 :
Glossary

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Glossary		
AEC	Atomic Energy Commission	
ALARA	As Low As Reasonably Achievable	
ANRE	Agency for Natural Resources and Energy	
CRIEPI	Central Research Institute of Electric Power Industry	
HLW	High-Level Waste	
HPB	Health Policy Bureau	
IAEA	International Atomic Energy Agency	
ICAO	International Civil Aviation Organization	
ICRP	International Commission on Radiation Protection	
INPO	Institute of Nuclear Power Operations	
JAERI	Japan Atomic Energy Research Institute	
JANES	Japan Nuclear Energy Safety Organization	
JAPEIC	Japan Power Engineering and Inspection Corporation	
JNC	Japan Nuclear Cycle Development Institute	
JNFL	Japan Nuclear Fuel Ltd	
JPDR	Japan Power Demonstration Reactor	
LLW	Low-Level Waste	
METI	Ministry of Economy, Trade and Industry	
MEXT	Ministry of Education Culture, Sports, Science and Technology	
MHLW	Ministry of Health, Labor and Welfare	
NISA	Nuclear and Industrial Safety Agency	
NSC	Nuclear Safety Commission	
NUPEC	Nuclear Power Engineering Corporation	
OECD/NEA	Organization for Economic Cooperation and Development/Nuclear Energy Agency	
PFSB	Pharmaceutical and Food Safety Bureau	
QA	Quality Assurance	
SOLAS	International Convention for the Safety of Life at Sea	
STPB	Science and Technology Policy Bureau	
TRU	Tansuranic	
WANO	World Association of Nuclear Operators	