

Fundamental Approach to Ensuring Nuclear Security

September 5, 2011

Advisory Committee on Nuclear Security, Japan Atomic Energy Commission

Protection against unauthorized removal of nuclear material¹ and against the sabotage of nuclear facilities or transports, that is, the physical protection of nuclear material, has been matters of international interest with various international discussions and initiatives taking place. Japan has strictly limited the uses of atomic energy to only peaceful purposes, and considering the importance of physical protection of nuclear material to prevent illegal use of nuclear materials. Japan has worked for physical protection of nuclear material, and has strengthened a regulation system for the physical protection of nuclear material.

Japan began developing its regulations for the physical protection of nuclear material based on a 1980 report of the Advisory Committee on Physical Protection of Nuclear Material of the Japan Atomic Energy Commission. That report resulted from study of international guidelines on physical protection of nuclear materials at the time “INFCIRC/225”² and “INFCIRC/225/ Rev.1.” Four revisions of INFCIRC/225 have been considered in developing the laws and regulations now in effect, and have been suitably reflected in regulations for the physical protection of nuclear material by regulatory bodies.³ Note that INFCIRC/225 has now been revised a total five times (5th

¹ Nuclear material: It refers to uranium, thorium, plutonium and their compounds, which release large amounts of energy in the process of atomic fission.

² INFCIRC/225: It is the recommendation the IAEA created in 1972 on physical protection of nuclear material, as an international standard which should be referred to when establishing systems of physical protection of nuclear material in member countries. It was published in 1975 as “The Physical Protection of Nuclear Material and Nuclear Facilities” (INFCIRC/225). Thereafter, it was revised in response to changed circumstances. The current document is the 5th version which was revised in January 2011 as Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (INFCIRC/225/Revision 5).

³ Regulatory body: This corresponds mainly to (a) for protection of nuclear material and associated facilities, the Nuclear and Industrial Safety Agency, the Ministry of Education, Culture, Sports, Science and Technology, and National Public Safety Commission, (b) for protection of other radioactive material and associated facilities, the Ministry of Education, Culture, Sports, Science and Technology, Ministry of Health, Labour and Welfare, and Ministry of Agriculture, Forestry and Fisheries, (c) for protection of transport of nuclear material and other radioactive material, the Nuclear and Industrial Safety Agency, Ministry of Education, Culture, Sports,

revision: January, 2011).

Since the terrorist attacks in the U. S on September 11, 2001, there have been concerns not only of nuclear explosive devices which use nuclear materials, but also the threat of a device which disperses radioactive materials (so-called dirty bomb, etc.). Thus in addition to nuclear fuel materials, various radioactive materials has become subject to protection. That is, the regulation has broadened its interest from measures to protect against unauthorized removal of nuclear material and against the sabotage of nuclear facilities or transports to measures against the theft of radioactive material and the sabotage of radioactive facilities or transports, and responses to nuclear and other radioactive material⁴ out of regulatory control.⁵ Accordingly, these measures have come to be called “nuclear security.”⁶ “Nuclear security” has broader contents of meaning than that of “physical protection.” Considering these circumstances, the IAEA has also progressed with preparing the IAEA Nuclear Security Series, to support the development and strengthening of nuclear security regime of member countries.

The present report that shows Japan’s fundamental approach to ensuring nuclear security was created, referring to “Fundamentals of a State’s Nuclear Security Regime (draft)” that is the highest ranked paper in the IAEA Nuclear Security Series, written to respond to these large changes in conditions concerning nuclear security.

The Government is expected to consider the improvement of nuclear security measures in Japan and to solidly implement it in accordance with the fundamental approach shown in this report.⁷ As nuclear security measures are a part of comprehensive security measures for Japan as a whole, it is also hoped that this report will contribute to deeper awareness regarding Japan’s security measures at each level of society.

1. Introduction

Science and Technology, Ministry of Land, Infrastructure, Transport and Tourism, and local public safety commissions.

⁴ Other radioactive materials: It refers to isotopes and their compounds and substances containing them, which emit radiation but are not nuclear materials, such as phosphorous 32 and cobalt 60.

⁵ “Out of regulator control” signifies a situation in which materials for which regulations require controls are not under required controls for some reason.

⁶ Prevention, detection and response to criminal acts and intentional violations involving nuclear materials, other radioactive materials, associated facilities, and associated activities including transport.

⁷ Parts of this fundamental approach are already implemented.

[1] Necessity and Goals of Maintaining Nuclear Security

Nuclear material and other radioactive material and facilities that use these materials are utilized in research, development and use of atomic energy, which aim to secure energy resources, work on scientific progress and industrial promotion, and finally contribute to enhance the welfare of human society and the people's living standards. In such uses, one should prevent threats to human lives and bodies, assets, society and the environment, due to criminal or intentional unauthorized acts such as theft or sabotage involving or directed at nuclear material, other radioactive material, associated facilities, or associated activities including their transport (hereinafter referred to as "nuclear materials etc., associated facilities and associated activities").

[2] Government's Responsibility for Ensuring Nuclear Security

Therefore, the Government should develop regulatory mechanisms to solidly implement measures to prevent and detect such criminal or intentional unauthorized acts, and to minimize their harmful effects on human lives and bodies, assets, society and the environment as much as possible.

[3] Matters Covered in Ensuring Nuclear Security

Mechanisms of regulations related to ensuring nuclear security for nuclear materials etc., associated facilities and associated activities should cover the entire period, from their planning until their closure and the final disposal of these materials. They should also cover these materials out of regulatory control, such as those brought in illegally from outside the country.

2. Competent authorities and Businesses Involved in Nuclear Security, and their Responsibilities

[1] Roles of Regulatory Bodies

In Japan, persons or institutions who can use and transport nuclear materials or other radioactive materials which exceed a certain volume are limited to only those organizations or persons that obtained government license⁸, etc. (hereinafter referred to as "licensees"), to make sure that their activities to ensure safety are carried out appropriately.

Consequently, the regulatory bodies that manage these permits etc. should request licensees to determine rules for nuclear security which they comply by themselves,

⁸ Including persons who are entrusted with transport by licensees, etc.

and inspect the content of such rules. In addition, each regulatory body should suitably inspect whether licensees solidly implement and maintain appropriate control of nuclear material and other radioactive material, including confirmation of their locations, in accordance with the content of nuclear security determined in said rules.

[2] Independence of Regulatory Bodies

In taking decisions on the protection, the regulatory bodies should have appropriate independence which includes both functional and financial independence from the entities they regulate and from any other administrative bodies that deal with the promotion of use of atomic energy, etc.⁹

[3] Integration and Coordination of Administrative Bodies

As the regulatory bodies can differ depending on the nuclear security subjects, and there can be multiple related administrative bodies involved in activities to protect the same subjects, the Government should appropriately integrate and coordinate activities of these bodies. It should also suitably evaluate and improve the effectiveness of such integration and coordination.

[4] Responsibilities of Licensees

Licensees have a prime responsibility for implementation of the nuclear security for nuclear materials etc., associated facilities and associated activities. Being strongly aware of this, licensees should suitably evaluate and improve the effectiveness of nuclear security systems.

[5] Cooperation of Related Administrative Bodies with Licensees

Central and local related administrative bodies¹⁰ and licensees should jointly

⁹ See footnote 10

¹⁰ Related administrative body: This mainly corresponds to (a) As security authorities, the National Police Agency, prefectural police, Ministry of Justice, and Japan Coast Guard (with support by the Ministry of Defense as needed), (b) As border control authorities for export/import etc., the Ministry of Land, Infrastructure, Transport and Tourism, and Ministry of Finance, (c) As authorities involved in atomic energy use etc., the Japan Atomic Energy Commission, Agency for Natural Resources and Energy, Ministry of Education, Culture, Sports, Science and Technology, Ministry of Health, Labour and Welfare, and Ministry of Agriculture, Forestry and Fisheries, (d) As atomic energy related diplomatic authorities, the Ministry of Foreign Affairs, (e) As integration and coordination authorities, the Japan Atomic Energy Commission and Cabinet Secretariat. This also corresponds to local governments where atomic energy facilities

strive to achieve objectives of nuclear security, coordinating each other and exchanging information among them as required to maintain the effectiveness of nuclear security. As written in [6] below, sensitive information should also be protected in such activities.

[6] Control of Sensitive Information

The regulatory bodies, related administrative bodies and licensees should develop mechanisms to designate the information that should not be disclosed to achieve objectives of nuclear security as sensitive information. To prevent leaks of such information, they should also determine methods of information control, penalties against leaks, etc.

[7] Criminalization for the Acts Against Nuclear Security

The Government should define as offenses or violations all criminal or intentional unauthorized acts such as thefts or sabotage involving or directed at nuclear materials etc., associated facilities and associated activities. The Government should establish appropriate penalties that are proportionate to the gravity of the impact of such acts. The Government should take required measures to establish its jurisdiction over these offenses or violations. It should also regulate the extradition of such criminal suspects, and if criminal suspects are not extradited, should take procedures to submit the case to investigatory authorities in order to prosecute such criminal suspects.

Moreover, the Government should identify other acts that have an adverse impact on nuclear security and deal with them suitably.

[8] Procedures on Responsibility for Nuclear Security in Cases in the Absence of Licensees¹¹

In order to avoid unsafe conditions for nuclear material and other radioactive material, the Government should develop procedures to quickly entrust or charge the Government or a designated person with the main responsibility for nuclear security for the nuclear material and other radioactive material in the absence of licensees or for the nuclear material and other radioactive material for which the people who are

etc. are located, and to local governments where there are locations with possible criminal or intentional unauthorized acts such as thefts or sabotage involving or directed at nuclear materials etc., associated facilities and associated activities.

¹¹ If the licensees responsible for management cannot be identified

responsible to manage lack management ability, and take quick action when such materials are found.

[9] International Transport

The Government should ensure that nuclear security is solidly implemented in international transport of nuclear material and other radioactive material. This responsibility of the Government's nuclear security in international transport should continue until such materials are clearly transferred to another country.

[10] International Cooperation and Assistance

The Government should participate in activities of international agencies such as the IAEA and related multilateral initiatives, and actively exchange experience and information on the establishment, implementation, maintenance and sustainability of the systems for security of nuclear materials etc., associated facilities and associated activities.

The Government should strive to assist countries which want to establish the systems for security of nuclear materials etc., associated facilities and associated activities through bilateral cooperation and multilateral cooperative frameworks. Moreover, the Government should timely respond to requests for assistance on nuclear security related matters when a nuclear security event arises in other countries, including recovery and protection of nuclear material and other radioactive material, and respond to requests for mutual legal assistance.

To provide such cooperation and support, the Government should develop systems for liaison etc. through bilateral and multilateral relations and international agencies such as the IAEA, to quickly and appropriately provide information as described below in 4.[5] and 5.[5].

Even in such activities, sensitive information should also be protected.

3. Maintenance of Nuclear Security Systems

[1] Systems to Maintain Nuclear Security Systems

As security measures and safety measures are complementary, though reciprocal in some cases, the regulatory bodies, related administrative bodies and licensees should maintain each organization's nuclear security system, developing and implementing integrated management systems including quality control systems that ensure harmony between both, under special attention to the request that security measures do not impair safety, and safety measures do not impair security.

[2] Arrangement of Human Resources, Budget and Technical Abilities

The Government should arrange and maintain the human resources, budgets and technical abilities which regulatory bodies and related administrative bodies need to plan and promote nuclear security related activities.

Licensees should arrange and maintain the human resources, budgets and technical abilities which they need to plan and promote nuclear security.

[3] Nuclear Security Culture

The Government should strive to promote understanding among its citizens regarding the significance and special characteristics of the nuclear security of nuclear materials etc., related facilities and related activities. The organizations that have responsibility for nuclear security¹² and individuals who belong to each organization should foster a nuclear security culture that is an environment at workplace in which, as an overriding priority, nuclear plant security issues receive the attention warranted by their significance and the roles expected of each and their importance in ensuring nuclear security are deeply recognized.

[4] Demonstration of Leadership

The heads and top management of organizations which have responsibility for nuclear security should understand the importance of nuclear security, and wield leadership in thoroughly implementing nuclear security culture in the organization.

[5] Countermeasures to Internal Threat

Information leaks or improper acts by persons who know internal information can negatively impact the effectiveness of nuclear security. Therefore, regulatory bodies, related administrative bodies and licensees should strive for initiatives to minimize the threats posed by insiders who could negatively impact nuclear security, based on law and with consideration for human rights.

[6] Handling of Other Issues

Regulatory bodies, related administrative bodies and licensees should identify and study the possibilities that issues such as domestic and foreign conditions and the organization's internal and external environment could affect the maintenance of nuclear security or the abilities to maintain it, and work to reduce the possibilities identified.

¹² Government, regulatory bodies, related bodies and licensees.

4. Security of Nuclear Materials etc., Associated Facilities and Related Activities

[1] Identification of Threats

Regulatory bodies should identify and assess domestic and foreign threats¹³ to nuclear security, obtaining advice from related government agencies. The content of threats which should be identified differs according to the subject materials and the forms of related activities, and could change due to technology advances and changes in social conditions. Therefore, these should be revised suitably so that the most appropriate matters are constantly identified.

[2] Identification of Nuclear Security Objects

Regulatory bodies should assess potential dangers created by identified threats, and based on the assessments, identify the nuclear materials etc., related facilities and related activities that should be subject to protection or objects subject to protection. The identified objects subject to protection differ according to the content of identified threats and their occurrence frequency, and could change due to technology advances and changes in social conditions. Therefore, these should be revised suitably to avoid overlooking matters, and to identify matters which are necessary and sufficient.[3]

Utilization of Risk Information to Assess the Importance of Nuclear Security Objects

Regulatory bodies should utilize risk information to assess the importance of nuclear security objects. In such assessments, the following risk information should be considered.

- 1) Content and occurrence frequency of identified threats
- 2) Improper use value of protection objects when viewed from the standpoint of persons who plan to commit criminal acts or intentional violations
- 3) Characteristics of nuclear materials etc., related facilities and related activities
- 4) Types and sizes of damages resulting from criminal acts or intentional violations targeting nuclear materials etc., related facilities and related activities and confidential information and IT facilities concerning confidential information, etc.¹⁴
- 5) Types and sizes of damages resulting from other acts which negatively affect nuclear security

¹³ Including the characteristics of persons who try to plan acts which will be threats (including internal people who are threats, as necessary).

¹⁴ Includes IT facilities concerning confidential information, and IT facilities concerning related facilities.

[4] Design of Nuclear Security Measures

(Regulatory Methods of Nuclear Security Measures)

Regulatory methods of nuclear security measures against identified threats are: (i) prescriptive-based method, where the regulatory body specifically shows the content of nuclear securities protections that licensees should implement; (ii) performance-based method, where the regulatory body shows the criteria for performance which nuclear security should achieve, the licensee designs the content of nuclear security, and the regulatory body verifies that this content meets the performance criteria. Regulatory bodies should regulate appropriately by the prescriptive-based method, performance-based method, or methods combining both methods.

(Graded Approach)

When regulatory bodies regulate nuclear security measures, they should base the regulation on the graded approach that requests measures to be taken should make it difficult to achieve criminal acts or intentional violations in accordance with the importance of nuclear security subjects.

(Defense-in-depth Approach)

With a view to making it very difficult to achieve criminal acts and intentional violations on nuclear security, the regulation of nuclear security measures should be based on defense-in-depth approach such that even if the first measure fails, a second or third measure can obstruct achievement of such acts.

(Review of Nuclear Security Measures)

The nuclear security measures implemented should be changed in accordance with the content of identified threats and the nuclear security objects. They should be also changed with the advances in technology and social conditions. Accordingly regulatory bodies and licensees should suitably revise designed nuclear security measures so that they are always rational.

(Design of Nuclear Security Measures for Other Radioactive Materials Using Graded Approach)

Nuclear security measures for other radioactive materials should be chosen using graded approach. In doing so, the following two things should be kept in mind in

general.

- 1) “Other radioactive materials” that are not nuclear materials cannot serve as materials of nuclear explosive devices. Therefore compared to nuclear materials, these have much less improper use value when viewed from the standpoint of people who intends to commit criminal acts and intentional violations, and much smaller damages result from such criminal acts or intentional violations, unless they are strong radiation sources or large volume radiation sources. Thus compared to nuclear materials, other radioactive materials have much less importance as nuclear security objects in general.
- 2) Theft and proliferation after theft should be the focus of prevention against criminal acts or intentional violations involving other radioactive materials.

Considering these matters, regulatory bodies should assess the importance as nuclear security objects of radiation use activities in such fields as medicine, research and industry, which use other radioactive materials, and specify nuclear security measures for these using graded approach, while taking care to minimize their effects on these activities.

[5] Detection of Nuclear Security Incidents

(Detection and Communication)

As one of the protection measures, the regulatory bodies should stipulate that licensees take measures to quickly detect and assess criminal acts and intentional violations against nuclear security objects, and based on these results, obstruct what such acts aim to achieve. In other words, the regulatory bodies should request licensees to develop systems to quickly and accurately detect such acts, and communicate detection results to related administrative bodies without delay.

(Measurement and Control)

The regulatory bodies should also request licensees to appropriately measure, register and effectively control nuclear materials and other radioactive materials in order to detect and assess thefts of nuclear materials and other radioactive materials.

(Provision of Information to the International Community)

If a related administrative body receives information about a detected criminal act or intentional violation involving a nuclear security subject, it should timely provide countries affected by that act, countries which could be affected, and countries involved in that act with information as specified in the relevant international agreements .

[6] Licensees' Response Plan to Nuclear Security Incidents

(Creation of Plans and Development of Systems)

Regulatory bodies should request licensees to plan in advance the measures for response to nuclear security incidents including that described in [5] above, and develop systems to appropriately implement the plan. The plan should include measures to minimize negative effects on human lives and bodies, assets, society and environment by such acts.

(Implementation of Exercises and Drills and Review of Plans)

To check that measures specified in the plan are carried out in a timely and accurate manner, the regulatory bodies should ask licensees to periodically conduct exercises and drills based on the plan, in cooperation with related administrative bodies, assess their validity, and improve the plans based on those assessment results. Regulatory bodies should check the effectiveness of exercises and drills, assessments and improvements of the plan done by licensees.

[7] Response Plans of Regulatory Bodies and Related Administrative Bodies to Nuclear Security Incidents

(Creation of Plans and Development of Systems)

The regulatory bodies and related administrative bodies should plan in advance the response measures to nuclear security incidents, including that described in [5] above, and develop systems to implement the plans appropriately. The plans should include measures to find and recover nuclear materials and other radioactive materials and store them in a safe place, measures to minimize negative effects on human lives and bodies, assets, society and environment by such acts, and initiatives to investigate such acts and prosecute the criminals appropriately.

(Shift to Crisis Management Plans)

The plans should include a smooth shift to plans concerning the government's crisis management as needed.

(Mobilization of Facilities and Staff)

The plans should include mechanisms to mobilize staff and abilities of R&D institutes which have facilities and specialists that can safely handle nuclear materials and other radioactive materials, in addition to licensees that have management responsibility for matters subject to regulation.

The plans should also include the provision for utilizing international emergency response and assistance systems.

(Coordination and Information Sharing Among Administrative Bodies)

The plans should include mechanisms of coordination and cooperation among responding organizations; regulatory bodies, related administrative bodies, licensees and related R&D institutes. In doing so, mechanisms should be developed for quick and accurate information sharing among the organizations which respond to the emergency.

(Conduct of Exercises and Drills and Review of Plans)

To confirm that these measures specified in the plans are performed timely and accurately, the regulatory bodies and related administrative bodies should, in cooperation with licensees, perform exercises and drills of measures based on the plans, assess their validity, and improve them based on those assessment results.

5. Security Measures for Nuclear Materials and Other Radioactive Materials Which are Out of Regulatory Control

[1] Roles of the Related Administrative Bodies

It is difficult to deny that nuclear materials and other radioactive materials that are out of regulatory control due to theft etc., or nuclear materials and other radioactive materials secretly brought in across an international border, could be used in acts with negative effects on human lives and bodies, assets, society and the environment, by way of a nuclear explosive device using nuclear materials or a device for dispersal of radioactive materials.

Therefore, the related administrative bodies should create response measures considering the possibilities and effects of these acts. These response measures should include steps to prevent, deter, detect and respond to illicit trafficking of nuclear materials and other radioactive materials.

[2] Detection at Major Public Events or Strategic Locations¹⁵

Considering the possibility and effects by use of a nuclear explosive device using nuclear materials or a device for dispersal of radioactive materials at major public events or strategic locations, the related administrative bodies should identify major public events or strategic locations where detection measures for such devices and stronger security in general should be prepared.

To be able to detect and start appropriate steps in response to a nuclear explosive device using nuclear materials or a device for dispersal of radioactive materials at an identified major public events or strategic locations, the related administrative bodies should request such event holders or facility managers to develop systems to quickly and accurately detect explosive devices using nuclear materials and devices for dispersal of radioactive materials, and to develop systems to contact about detection results with related administrative bodies without delay. The related administrative bodies should also create and suitably revise a list of major public events or strategic locations where detection measures and stronger security should be in place from the viewpoint of assuring nuclear security.

¹⁵ Locations where a nuclear explosive device using nuclear materials or device for dispersal of radioactive materials can have very large harmful consequences to human lives and bodies, assets, society or the environment (i.e. airport or terminal train station).

[3] Detection of Nuclear Materials and Other Radioactive Materials for Investigations

The Government should develop appropriate systems to investigate, locate and recover nuclear materials and other radioactive materials that are out of regulatory control. The Government should also develop systems to contact to related administrative bodies if these materials including nuclear materials and other radioactive materials with unclear responsibility are found. In addition, the Government should proceed to study the view of the burden concerning expense for taking measures about materials with unclear responsibility.

[4] Detection in the government's Jurisdiction and at its International Borders

To find nuclear materials and other radioactive materials in the Government's jurisdiction, including its ships and aircraft under its juridical authority and its international borders, the Government should facilitate the development of appropriate systems, including the development of detection capabilities and technical support to the related organizations. The Government should also develop systems for contact to related administrative bodies without delay at the occasion of detection, so that appropriate and timely response measures can be taken.

[5] Provision of Information to the International Community

If a nuclear security incident that may have harmful consequence to human lives and bodies, assets, society and the environment, from a nuclear explosive device using nuclear materials or a device for dispersal of radioactive materials as described in [2], [3] and [4] above is detected and reported to the Government, the Government should timely provide other countries affected, other countries which could be affected, and other countries involved in an act with the information thereof.

[6] Response Plans to Nuclear Security Incidents

(Developing Response Plans and System)

The Government should plan in advance measures to enable timely and accurate responses when it receives information on detection of a nuclear security incident as described in [2], [3] and [4] above. The plan should include work to locate, recover and secure to safe storage the nuclear materials or other radioactive materials, work to minimize harmful consequences to human lives and bodies, assets, society and the environment from nuclear explosive device using nuclear materials or a device for dispersal of radioactive materials, and work to appropriately investigate those acts and

certainly prosecute offenders. The Government should also work to develop systems to appropriately implement these plans.

(Shift to Crisis Management Plan)

These plans should include a smooth shift to the Government's crisis management plan.

(Mobilization of Facilities and Staff)

These plans should include the Government's action to instruct persons/institutions responsible for control of such nuclear materials and other radioactive materials if those persons/institutions are identified, and depending on the situation, mobilize the staff and abilities of bodies and R&D institutes which have facilities and specialists that can safely handle nuclear materials and other radioactive materials. The plans should also consider use of international emergency support response systems.

(Coordination and Information Sharing among Administrative Bodies)

These plans should also include mechanisms for coordination and cooperation among administrative organizations which carry out these responses such as regulatory bodies, related administrative bodies and related R&D institutes.

(Conduct of Exercises and Drills and Review of Plans)

To check that these initiatives are performed timely and accurately, the Government should encourage the related administrative bodies to cooperate and perform exercising of initiatives based on these plans, assess their validity, and improve them based on these assessment results.

6. Conclusion

[1] Lessons Learned from the Accident at the Fukushima Dai-ichi Nuclear Power Plant

The accident at Fukushima Dai-ichi Nuclear Power Plant of The Tokyo Electric Power Company, Inc. has still not finished as of the time of putting together this report. Causes of the accident are still being investigated, but lessons learned on nuclear security are written in the report which the Japanese government submitted in June 2011 to the IAEA Ministerial Conference. For the time being, the fundamental

approach to these lessons is as follows.

1) Strengthen Nuclear Security Measures

Considering that accident, it becomes clear that it is necessary to strengthen nuclear security measures for facilities and equipment of nuclear power plants. The licensees should strengthen nuclear security measures for facilities and equipment, in cooperation with the regulatory bodies and related administrative bodies. Also, the related administrative bodies should arrange the systems and assure the equipment and materials necessary to strengthen nuclear security measures for facilities and equipment, in cooperation with regulatory bodies and licensees.

2) Strengthen Measures Against Internal Threats

As it becomes clear that the control of entry and exit is insufficient from the events during the accident's initial period, licensees should strengthen measures against internal threats, including thorough measures to prevent trespassing.

3) Strengthen Education and Training

It becomes clear that it is important to provide emergency response training under the hypothesis of very severe situations. The regulatory bodies, related administrative bodies and licensees should hypothesize more practical situations in their education and training programs to respond intentional violations of criminal acts such as thefts and acts to disrupt or destroy nuclear materials etc., related facilities and related activities.

4) Strengthen Nuclear Security System

It becomes clear that it is important to establish systems that can quickly respond to emergency situation under a clear chain of command. The Government should clarify the allocation of roles and the chain of command for ensuring nuclear security and radiation safety during emergencies.

[2] Study Concerning Response to the IAEA Recommendation Papers

Among the IAEA nuclear security series documents, its recommendation papers (INFCIRC/225/Rev.5, etc.), which positioned after its fundamental paper, will also be studied for reflection in Japan's nuclear security policy. More specific measures will be also studied quickly in response to the lessons learned from the accident at the Fukushima Dai-ichi Nuclear Power Plant of The Tokyo Electric Power Company mentioned above.