

# Overview of Ministerial Draft for Partial Revision of Ordinance on Prevention of Ionizing Radiation Hazards at Works to Decontaminate Soil and Wastes Contaminated by Radioactive Materials Resulting from the Great East Japan Earthquake and Related Works

## 1 Purpose of revision

The “Ordinance on Prevention of Ionizing Radiation Hazards at Works to Decontaminate Soil and Wastes Contaminated by Radioactive Materials Resulting from the Great East Japan Earthquake and Related Works” (2011 Ministry of Health, Labour, and Welfare Ordinance No. 152. Hereafter referred to as the “Ionizing Radiation Ordinance for Decontamination”) was promulgated on 22 December 2011 and enforced on 1 January 2012. Its purpose was to prevent radiation hazards to workers engaged in work in decontaminating the soil contaminated with radioactive materials released by the Fukushima Daiichi Nuclear Power Plant Accident of Tokyo Electric Power Co. associated with the Great East Japan Earthquake that occurred on 11 March 2011 and in work for collecting waste and other related work (hereafter referred to as “decontamination and related works”).

As the demarcation of the evacuation area has been changed, restoration of life infrastructure, business operations such as manufacturing, operations of hospitals and welfare facilities, agriculture and forestry operations, intermediate processing of waste, maintenance and repair, and transportation operation are expected to individually commence in the special decontamination areas defined in Paragraph 1, Article 25 of the “Act on Special Measures Concerning the Handling of Environmental Pollution by Radioactive Materials Discharged by the Nuclear Power Station Accident Associated with the Tohoku District Off the Pacific Ocean Earthquake That Occurred on 11 March 2011” (2011 Law No. 110. Hereafter referred to “Act on Special Measures Concerning the Handling of Radioactive Pollution”) or the intensive contamination survey areas defined in Paragraph 1, Article 32 of the Act. Consequently, it will be necessary to prevent radiation hazards to workers engaged in these operations.

Employers to whom the current Ionizing Radiation Ordinance for Decontamination is applied in this regard are defined as “employers who operate businesses carrying out decontamination work” in the special decontamination area and the Ionizing Radiation Ordinance for Decontamination is not applied to employers who carry out other restoration and reconstruction work.

Therefore, the Ionizing Radiation Ordinance for Decontamination will be partially revised to set forth measures to appropriately prevent health hazards due to radiation to workers in accordance with the type of restoration and reconstruction work.

## 2 Overview of the revised ministerial ordinance draft

The scope of decontamination and related works will be expanded by adding work for handling of designated contaminated soil and wastes to the decontamination and other works, defined by the Ionizing Radiation Ordinance for Decontamination; and works under a designated dose rate will be additionally governed by the provisions of the Ionizing Radiation Ordinance for Decontamination; and matters (1) to (8) will be defined for employers of operations involving these two types of work:

### (1) Basic principle and definition

A Efforts shall be made to reduce workers’ exposure to ionizing radiation as low as reasonably

achievable in special decontamination and other areas.

- B “Special decontamination areas and other areas” means the special decontamination areas defined in Paragraph 1, Article 25 of the Act on Special Measures Concerning the Handling of Radioactive Pollution or intensive contamination survey areas defined in Paragraph 1, Article 32 of the Act.
- C “Designated contaminated soil and waste” means contaminated soil and other material containing cesium 134 and cesium 137 with a radioactivity concentration of more than 10,000 Bq/kg, which is calculated by a method designated by the Minister of Health, Labour and Welfare, among the radioactive materials discharged by the accident.
- D “Works for handling of designated contaminated soil and wastes” means work that involves handling the designated contaminated soil and wastes in C (except work for decontaminating soil and work for collecting wastes) in special decontamination areas.
- E “Workers engaged in handling designated contaminated soil and wastes” mean workers engaged in the works in D.
- F “Decontamination and related works” mean work for decontaminating soil, for collecting other waste, and works for handling designated contaminated soil and wastes.
- G “Work under a designated dose rate” mean all work performed at locations in a special decontamination area where the average air dose rate exceeds 2.5  $\mu\text{Sv/h}$  (except for decontamination and related works).  
However, vehicle driving work and accompanying cargo loading work shall fall under work under a designated dose rate only if (1) a loading or unloading place (except when the place accompanies restoration work of life infrastructure) is in a location where the average air dose rate exceeds 2.5  $\mu\text{Sv/h}$  and if the worker is expected to stay in the location for 40 hours or longer a month to perform his/her work, or if (2) the worker is engaged in work transporting cargo accompanying restoration work of life infrastructure at a location where the dose rate exceeds 2.5  $\mu\text{Sv/h}$  (because, due to the nature of the work, the worker is expected to work at locations where the air dose rate is very high).
- H “Workers under a designated dose rate” means workers who are engaged in the work defined in G.

## (2) Limits and measurement of dose

- A The dose of radiation that workers engaged in handling designated contaminated soil and wastes or workers under a designated dose rate are exposed to (including the total dose of radiation they are exposed to during radiation work at nuclear or other facilities, or decontamination and related works) shall be kept within 100 mSv in 5 years and 50 mSv in 1 year. However, the dose of radiation that female workers engaged in handling designated contaminated soil and waste or work under a designated dose rate (except when they are diagnosed as not possibly becoming pregnant) are exposed to must be kept to within 5 mSv in 3 months.

If a female worker has been diagnosed as pregnant and is engaged in works for handling designated contaminated soil and wastes or works under a designated dose rate, the dose of radiation she is exposed to since the diagnosis of pregnancy until she gives birth must be kept to within 1 mSv in terms of effective dose of internal exposure and to 2 mSv in equivalent dose that

she is exposed to on the surface of her abdomen.

- B The radiation dose that workers engaged in handling designated contaminated soil and waste or workers under a designated dose rate are exposed to by engaging in their work for handling designated contaminated soil and wastes or works under a designated dose rate in a special decontamination area shall be measured, recorded, and stored for 30 years. (This does not apply, however, if the record that has been stored for 5 years is handed over to an organization specified by the Minister of Health, Labour and Welfare or if the record of a worker who left the job is handed over to an organization specified by the Minister of Health, Labour and Welfare). The results of the measurement shall be informed without delay to those workers engaged in handling designated contaminated soil and wastes or workers under a designated dose rate.

- C External exposure of workers engaged in handling designated contaminated soil and wastes or workers under a designated dose rate who work at locations where the average air dose rate exceeds 2.5  $\mu\text{Sv/h}$  shall be measured with a radiation-measuring instrument.

In this case, a male worker or a female worker diagnosed as not possibly becoming pregnant shall wear the radiation measuring instrument on his/her chest, and other female workers shall wear the instrument on their abdomen.

For the measurement of external exposure dose resulting from works for handling designated contaminated soil and wastes at locations where the average air dose rate is 2.5  $\mu\text{Sv/h}$  or lower, only workers engaged in handling designated contaminated soil and waste are expected to work at locations where the average air dose rate exceeds 2.5  $\mu\text{Sv/h}$ , due to the nature of life infrastructure restoration works, shall be measured. A method separately designated by the Minister of Health, Labour and Welfare shall be applied for this measurement.

- D Of workers engaged in handling designated contaminated soil and waste at locations where the average air dose rate exceeds 2.5  $\mu\text{Sv/h}$ , those who handle designated contaminated soil and waste contaminated to over 500,000 Bq/kg with radioactive materials discharged by the accident (hereafter referred to as “highly radioactive designated contaminated soil and wastes”) at locations where the dust concentration exceeds 10  $\text{mg/m}^3$  shall be measured for dose of internal exposure once within 3 months (or within 1 month if the worker is a pregnant woman).

Workers engaged in handling designated contaminated soil and waste who engage in work handling highly radioactive designated contaminated soil and waste at locations where the dust concentration is 10  $\text{mg/m}^3$  or lower, or engage in works for handling designated contaminated soil and wastes except for highly radioactive designated contaminated soil and waste at locations where the dust concentration exceeds 10  $\text{mg/m}^3$ , shall be inspected for internal exposure by a method designated by the Minister of Health, Labour and Welfare.

- (3) Measures for performing works for handling designated contaminated soil and wastes or works under a designated dose rate

- A The location where works for handling designated contaminated soil and wastes are performed shall be checked and recorded for (1) to (3) and the location where work under a designated dose rate are performed shall be checked and recorded for (2) before and during the works once in 2 weeks.

(1) Situation at work place

- (2) Average air dose rate
- (3) Radioactivity concentration of cesium 134 and cesium 137 of designated contaminated soil and wastes

- B To perform works for handling designated contaminated soil and wastes at locations where the average air dose rate exceeds 2.5  $\mu\text{Sv/h}$ , a work plan concerning work method, dose measurement method, and radiation exposure reduction measures shall be developed and thoroughly disseminated to the relevant employers prior to the work.
- C To perform works for handling designated contaminated soil and wastes at locations where the average air dose rate exceeds 2.5  $\mu\text{Sv/h}$ , an operation leader shall be appointed who shall direct and supervise the works in accordance with the work plan in B.
- D A primary employer who performs works for handling designated contaminated soil and wastes at location where the average air dose rate exceeds 2.5  $\mu\text{Sv/h}$  shall submit a work notification to the chief of the competent Labor Standards Inspection Office before work commences.
- E If a worker engaged in handling designated contaminated soil and wastes or a worker under a designated dose rate is exposed to radiation of dose exceeding the limit, he/she shall immediately see a medical doctor for treatment, and the incident shall be reported to the Head of the relevant Labor Standards Inspection Office.

#### (4) Prevention of contamination

- A To collect designated contaminated soil and wastes, the soil and wastes shall be in principle put into a container meeting specific criteria and the container shall be labeled as required.
- B When a worker engaged in handling designated contaminated soil and waste leaves the work place, his/her body and equipment worn shall be checked for contamination. If the worker or his/her equipment worn has been contaminated exceeding specific criteria, the worker or the equipment worn shall be washed. In principle, articles that exceed specific criteria of contamination shall not be brought out of the work place.
- C A worker engaged in handling designated contaminated soil and waste shall wear personal protective equipment when he/she carries out the work defined in D of (2).
- D Contaminated personal protective equipment shall not be used by a worker engaged in handling designated contaminated soil and wastes unless the personal protective equipment is decontaminated and its radiation dose falls below specific criteria.
- E Workers shall be prohibited from smoking, drinking, and eating at a work place where they have a risk of taking in the radioactive materials discharged by the accident by inhalation or through mouth when they are engaged in handling designated contaminated soil and wastes. This prohibition shall be clearly indicated to the workers in advance.

#### (5) Special education

- A The following special education shall be provided to workers engaged in handling designated contaminated soil and waste:
  - (1) Knowledge of effects of ionizing radiation on organisms and radiation exposure dose control methods
  - (2) Knowledge of method of work
  - (3) Knowledge of outline of machines used for works in handling designated contaminated soil

and wastes

- (4) Related laws and regulations
- (5) Method of decontamination and related works

B The following special education shall be provided to workers engaged in work under a designated dose rate:

- (1) Knowledge of effects of ionizing radiation on organisms and radiation exposure dose control methods
- (2) Knowledge of radiation measurement method
- (3) Related laws and regulations

(6) Medical examinations

A Employers shall periodically provide ionizing radiation medical examinations associated with decontamination and related work regarding investigation and evaluation of radiation exposure history, etc. (hereafter referred to as a “medical examinations”) to a worker engaged in handling designated contaminated soil and waste at locations where the average air dose rate exceeds 2.5  $\mu\text{Sv/h}$ , at the time of employment and reallocation, and periodically once every six months thereafter. However, items for periodic medical examinations may be omitted if medical doctors determine that the items are unnecessary.

B A medical examination card shall be created, based on results of the medical examinations, and stored for 30 years. This does not apply, however, when a medical examination card which has been stored for 5 years is handed over to an organization designated by the Minister of Health, Labour and Welfare or when the worker leaves the job and his/her medical examination record is handed over to an organization designated by the Minister of Health, Labour and Welfare.

C Opinions of a medical doctor on the results of medical examinations shall be sought and written on the medical examination card.

D The results of medical examinations shall be informed without delay to the worker and a medical examination result report shall be submitted to the Head of the relevant Labour Standards Inspection Office.

E If it is found that a worker has or may have developed a radiation-related disorder based on results of the ionizing radiation medical examinations, measures necessary for maintaining the health of the worker, such as transferring the worker, shall be taken until complete remission.

(7) Miscellaneous provisions

A In principle, employers shall prepare radiation-measuring instruments necessary for accomplishing the duties defined in (2) to (4) above.

B Employers who create and store the records in B of (2) or who create and store medical examination cards in B of (6) shall hand over the records of dose measurement results and medical examination cards to an organization designated by the Minister of Health, Labour and Welfare when the employers discontinue their business operations.

C Employers who create and store records in B of (2) or who create and store medical examination cards in B of (6) shall issue the copy of the record of radiation dose measurement

results and the medical examination card to a worker engaged in works for handling designated contaminated soil and wastes or works under a designated dose rate when the worker leaves the job or the employer dissolves their business.

- D The dose of radiation that a worker engaged in works for handling designated contaminated soil and wastes or works under a designated dose rate is or was exposed to at nuclear facilities shall be considered as the dose of radiation that the worker has been exposed to during the works for handling designated contaminated soil and wastes or works under a designated dose rate.
- E The dose of radiation that a worker is exposed to during decontamination and related work, work for handling designated contaminated soil and waste, or work under a designated dose rate shall be added up and the result used for controlling the dose of the worker.

(8) Others

- A Works for handling designated contaminated soil and wastes and works under a designated dose rate shall be added to works that require special education.
- B Works for handling designated contaminated soil and wastes and works under a designated dose rate defined in the Ionizing Radiation Ordinance for Decontamination shall be excluded from radiation work to which the Ordinance on Prevention of Ionizing Radiation Hazards is applied.
- C The provisions of the Ionizing Radiation Ordinance for Decontamination shall be applied to works for handling designated contaminated soil and wastes and works under a designated dose rate performed in the site of Fukushima Daiichi Nuclear Power Plant of Tokyo Electric Power Co. except in the nuclear reactor facilities, facilities with a steam turbine, and their vicinity.

3 Schedule

Promulgated: Middle of June 2012 (planned)

Enforced: Beginning of July 2012 (planned)