

~For employers who assign workers to work in areas where the ambient dose rate exceeds 2.5 μSv/h~

Actions to prevent radiation hazards of workers engaged in work under a designated dose rate are now mandatory

The Ministry of Health, Labour and Welfare put 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**” into effect (hereinafter referred to as the “Ionizing Radiation Ordinance for Decontamination”) to minimize radiation exposures received by workers engaged in decontamination work (hereinafter referred to as “decontamination workers”). In response to the recent redefinition of the evacuation areas, the Ionizing Radiation Ordinance for Decontamination was revised and became effective on 1 July 2012 to specify measures for preventing radiation hazards for workers engaged in restoration and reconstruction work.

Employers assigning workers to the areas where the radiation exposure dose exceeds a certain level (e.g., work under a designated dose rate) other than decontamination work are requested to take measures to protect workers from radiation hazards according to this revised Ordinance.

For more details on this revision please refer to the Labour Standards Bureau Notification No. 0615: “Guidelines on Prevention of Radioactive Hazards for Workers Engaged in Work Under a Designated Dose Rate” (25 June 2011).
<http://www.mhlw.go.jp/new-info/kobetu/roudou/gyousei/anzen/12062503.html>

Overview of the Ionizing Radiation Ordinance for Decontamination

- **The Ionizing Radiation Ordinance for Decontamination intends to be applied to employers who provide decontamination work, etc.* and their workers or employers of workers engaged in works under a designated dose rate** and their workers.**

*Decontamination work constitutes three types of work: work involving decontamination, etc., collecting waste, etc., and handling designated contaminated soil and wastes.

** A separate brochure is prepared for employers who employ decontamination workers.

- **Works under a designated dose rate refers to the work other than decontamination work, etc., performed in areas where the average ambient dose rate exceeds 2.5μSv/h (microsievert per hour) in special decontamination areas, etc.* due to radioactive materials discharged by the accident.**

* “Special decontamination areas” or “intensive contamination survey areas” are specified in the Act on Special Measures Concerning the Handling of Radioactive Pollution.

○ Driving vehicles at high speed and associated loading work fall under the works under a designated dose rate, only in the cases 1) and 2) as shown below.

1)	When engaged in work for carrying loads in or out (excluding those associated with restoration work of infrastructures) of areas where the average ambient dose rate exceeds 2.5μSv/h and the expected duration of stay in the areas is <u>40 hours or longer per month.</u>
2)	When engaged in transporting loads (construction machines and materials, soil, gravel, etc.) for restoration of infrastructures in areas where the average ambient dose rate exceeds 2.5μSv/h.
Just passing through an area where the average ambient dose rate exceeds 2.5μSv/h is not considered as the work under the designated dose rate because the time spent in the area is limited.	

○ Indoor work such as manufacturing that is conducted at a site with less than 2.5μSv/h is not considered as the works under a designated dose rate even when the ambient dose rate outside is greater than 2.5μSv/h.

○ Areas where the average ambient dose rate may exceed 2.5μSv/h due to controlled radiation sources such as X-ray systems should be considered as a radiation controlled area as specified in the Article 3 of the Ordinance on Prevention of Ionizing Radiation previously.

- The Ionizing Radiation Ordinance stipulates the following:

μSv: micro sievert

- 1) Basic principles of prevention for ionizing radiation hazards
- 2) Exposure dose limit and exposure dose measurement
- 3) Measures for implementing work under a designated dose rate
- 4) Special education, investigations of exposure history, and other related issues

Please see the following pages for more details.

1 Basic principles of Prevention for Ionizing Radiation Hazards

Employers must be aware that the exposure dose limits presented in 2-1) should be used only as a reference, and they should make every effort to minimize the radiation exposure dose received by workers engaged in operations under a designated dose rate. Before implementing works under a designated dose rate, employers should take measures such as decontamination to reduce the radiation exposure dose of the workers.

2 Radiation Exposure dose limit and exposure dose measurement

* The articles in brackets below are relevant to the Ionizing Radiation Ordinance for Decontamination

1) Maximum dose of workers under a designated dose rate (Articles 25-2, 3)

Employers should ensure that the effective doses* received by workers under a designated dose rate would not exceed following values.

Male workers and infertile female workers	100mSv per 5 years** and 50mSv per 1 year**
Female workers (excluding infertile women)	5mSv per 3 months
Pregnant workers	1mSv during the pregnancy

* The effective dose corresponds to the sum of exposure doses during radiation work at nuclear power plants, etc., and decontamination work, etc.

2) Methods of exposure dose measurement (Article 25-4)

Employers are required to measure external exposure doses received by workers under a designated dose rate. The external exposure doses should be measured with electronic dosimeters (PAD, PD), glass badges, and luxel badges worn by each worker under a designated dose rate. These devices shall be put on the chest for male workers and infertile female workers and on the abdomen for fertile female workers.

3) Records, etc. of measured exposure doses (Article 25-5)

Employers are required to record measured exposure doses at the specified intervals and store them for 30 years. However, after keeping the records for five years or workers under a designated dose rate terminate employment, the records may be transferred to an organization designated by the Minister of Health, Labour and Welfare.

When assigning temporary or contract workers to less than three months of decontamination work or work under a designated dose rate, the employers are required to record their radiation exposure doses on a monthly basis.

Male workers and infertile female workers	A total effective doses in every 3 month, 1 year, and 5 year periods (A total effective doses in every 3 month and 1 year periods when a total of effective doses in 1 year did not exceed 20 mSv/y for 5 years.)
Female workers	A total effective doses in every month, every 3 month, and 1 year periods (A total effective doses in every 3 month and 1 year periods when a total of effective doses in 1 month is unlikely to exceed 1.7 mSv.)
Pregnant female workers	A total effective doses from internal exposure and equivalent doses received on the abdomen every month and throughout the period of pregnancy

Employers shall promptly notify the recorded doses to the relevant workers and issue copies of their records when such workers terminate employment.

3 Measures for works under a designated dose rate

1) Preliminary survey and work plan (Article 25-5)

When implementing works under a designated dose rate, employers shall survey the average ambient dose rate of the work site prior to commencing work and every two weeks thereafter and record the results and give summaries of the results to their workers.

2) Medical examinations (Article 25-7)

Employers shall promptly provide their workers under a designated dose rate with consultation and treatments by medical doctors if any of their workers correspond to the following cases and report the cases to the supervising director accordingly:

- Exposure to radiation exceeding the limit
- Accidentally inhaled or ingested radioactive materials (e.g., a large amount of highly radioactive contaminated soil)
- Personal body contamination levels cannot be reduced to less than the limit (40 Bq/cm²), even after washing
- Wounds are contaminated by touching high concentration of cesium, etc.

4 Special education, medical examinations, and other issues

1) Special education regarding the works under a designated dose rate (Article 25-8)

Employers shall provide workers with the special education on the following topics when they assign their workers to works under a designated dose rate (2.5 hours of lectures):

- Knowledge about the effects of ionizing radiation on organisms, and strategies for controlling exposure doses (lecture)
- Knowledge about how to measure radiation with tools
- Relevant laws and regulations (lecture)

Reference textbooks and movies for the special education are available on the MHLW website. Anyone with the risk of exposure to radiation is strongly encouraged to take advantage of the following resources.

- Special textbooks for workers involved in works under a designated dose rate: <http://www.mhlw.go.jp/new-info/kobetu/roudou/gyousei/anzen/120625-4.html>
- Special education movies for decontamination workers, etc.: http://www.mhlw.go.jp/bunya/roudoukijun/josen_gyoumu/120214-1.html

2) Investigations of exposure history (Article 25-9)

Employers shall investigate the exposure history of workers under a designated dose rate at the time of employment and reallocation and record and store the results for 30 years. However, they may transfer the records to the organization designated by the Minister of Health, Labour and Welfare after keeping them for five years or when workers terminate employment.

3) Others (Article 26 – 29)

Employers should issue copies of records of radiation exposure doses when workers under a designated dose rate terminate employment.

In addition, when employers close their businesses, they should issue copies of records of radiation exposure doses to workers under a designated dose rate and transfer any other relevant documents concerning workers to the organization designated by the Minister of Health, Labour and Welfare.

Ordinance on Prevention of Ionizing Radiation Hazards for Works to Decontaminate Soil and Wastes Contaminated by Radioactive Materials Resulting from the Great East Japan Earthquake and Related Works

Chapter 1 General Provisions

(Basic principles for prevention of ionizing radiation hazards pertaining to work to decontaminate soil, etc. contaminated by radioactive materials discharged by the accident)

Article 1 Employers shall endeavor to minimize exposure of ionizing radiation to the workers engaged in decontamination, workers under a designated dose rate, or workers in other special decontamination areas, etc.

(Definition)

Article 2 "Employers" in this Ordinance shall mean employers who provide decontamination works or works under a designated dose rate.

2 "Special decontamination areas, etc." in this Ordinance shall mean special decontamination areas stipulated in Paragraph 1 of Article 25 of the Act on Special Measures Concerning the Handling of Environmental Pollution Contaminated 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 (Act No. 110 of 2011), or intensive contamination survey areas stipulated in Paragraph 1 of Article 32 of the Act.

3 "Workers engaged in decontamination work" in this Ordinance shall mean workers who provide decontamination work.

4 "Workers under a designated dose rate" in this Ordinance shall mean workers engaged in works under a designated dose rate.

5 "Ionizing radiation" in this Ordinance shall mean the ionizing radiation in Paragraph 1 of Article 2 of the Ordinance on Prevention of Ionizing Radiation Hazards (Ordinance of the Ministry of Labour No. 41 of 1972, hereinafter referred to as "Ordinance on Ionizing Radiation").

6 "Radioactive materials discharged by the accident" in this Ordinance shall mean radioactive materials discharged by the nuclear power plant due to the accident caused by the Tohoku District Off the Pacific Ocean Earthquake on 11 March 2011 (Limited to the radioactive materials described in Paragraph 2 of Article 2 of the Ordinance on Ionizing Radiation).

7 "Decontamination work" in this Ordinance shall refer to the operations described in the following items:

(i) Removal of soil, fallen leaves, branches, and sludge accumulated in the channels, etc., (hereinafter referred to as "contaminated soil, etc.") the soil, vegetation and structures in the special decontamination areas, etc. contaminated by radioactive materials discharged by the accident, and work concerning prevention of the propagation of contamination or efforts to minimize the harmful impact of the contamination (hereinafter referred to as "Decontamination work, etc.").

(ii) Collection, transportation, or storage of those contaminated by radioactive materials discharged by the accident listed in (a) or (b) in the special decontamination areas, etc. (hereinafter referred to as "work for collecting wastes, etc."):

(a) Soil generated by the work described in the preceding item or the following item (Limited to the soil that contains the accident discharged radioactive materials, exceeding 10,000 (Bq/Kg) of cesium 134 and cesium 137, measured with the methods specified by the Minister of Health, Labour and Welfare, hereinafter referred to as "removed soil").

(b) Wastes contaminated by the radioactive materials discharged by the accident (Limited to the accident discharged radioactive materials contained in wastes that exceeds 10,000 (Bq/Kg) of cesium 134 and cesium 137 measured with the methods specified by the Minister of Health, Labour and Welfare, hereinafter referred to as "contaminated waste").

(iii) Work other than those listed in the preceding two items and work involving handling of designated contaminated soil and wastes. (Contaminated soil and wastes are limited to those contaminated with the accident discharged radioactive materials, exceeding 10,000 (Bq/Kg) of cesium 134 and cesium 137, measured with the methods specified by the Minister of Health, Labour and Welfare. The same shall apply hereinafter) (Hereinafter referred to as "work involving handling designated contaminated soil and wastes.")

8 "Work under a designated dose rate" shall mean work other than decontamination work provided by employers at the locations where average ambient dose rate obtained by the Minister of Health, Labour and Welfare (hereinafter simply referred to as "average ambient dose rate") exceeds 2.5 μ Sv/h with the accident discharged radioactive materials in the special decontamination areas, etc.

9 "Decontamination related work" in this Ordinance shall mean work pertaining to decontamination work in the special decontamination areas, etc.

10 "Works under a designated dose rate" in this Ordinance shall mean work pertaining to works under a designated dose rate in the special decontamination areas, etc.

Chapter 2 Prevention of Ionizing Radiation Hazards During Decontamination Work, etc. (omitted)

Chapter 3 Prevention of Ionizing Radiation Hazards During Works Under a Designated Dose Rate

Section 1 Radiation exposure dose limit and measurement

(Radiation exposure dose limit for workers under a designated dose rate)

Article 25-2 Employers shall ensure that the effective doses received by workers who work under a designated dose rate do not exceed 100 mSv per five years and 50 mSv per year.

2 Regardless of the provisions in the preceding paragraph, employers shall ensure that the effective doses received by female workers (excluding infertile female workers and those described in the next article) engaged in works under a designated dose rate do not exceed 5 mSv per three month.

Article 25-3 Employers shall ensure that the doses received by female workers who are diagnosed as pregnant do not exceed 2 mSv on her abdomen surface during her pregnancy while engaged in works under a designated dose rate.

(Dose measurement)

Article 25-4 Employers shall measure the exposure doses due to work under a designated dose rate received by the workers during the following periods:

2 The measurement of the exposure doses in accordance with the provisions of the preceding paragraph shall be conducted by the 1 cm dose equivalent rate.

3 The measurement of the external exposure dose pursuant to the provision of Paragraph 1 shall be conducted with radiation monitors at the chest for male workers and infertile female workers and on the abdomen for fertile female workers.

4 Workers under a designated dose rate shall wear radiation monitors where work under a designated dose rate is conducted in the special decontamination areas, etc.

(Measuring and recording, etc. of dose monitoring results)

Article 25-5 When workers under a designated dose rate may receive the external exposure dose exceeding 1 mSv by the 1 cm dose equivalent rate per day, the measurement results of the external exposure dose pursuant to the provisions of Paragraph 1 in the preceding article shall be generated every day.

2 Based on the results of the measurement under the provisions of Paragraph 3 in the preceding article, employers shall calculate the exposure doses received by workers who work under a designated dose rate listed in the following items by the methods specified by the Minister of Health, Labour and Welfare and store the records for 30 years. However, this shall not apply when such records are transferred to the organization designated by the Minister of Health, Labour and Welfare, after being stored for five years or after the workers under a designated dose rate terminated employment.

(i) A total effective dose for three month, one year, and five year periods for each male worker and infertile female worker. A total effective dose for three month and one year periods should be measured for workers whose effective dose have never exceeded 20 mSv per year for five years.

(ii) A total effective dose for one month, three month, and one year periods for each female worker except for infertile female workers. A total effective dose for three month and one year periods should be measured for workers whose effective dose is not likely to exceed 1.7 mSv per month.

(iii) A total equivalent dose received by pregnant workers on the abdomen surface should be measured every month and during the period of pregnancy.

3 Based on the records under the provisions of the preceding paragraph, employers shall notify the exposure dose listed in each item of the paragraph to the workers under a designated dose rate without delay.

Section 2 Measures to Implement Works Under a Designated Dose Rate

(Preliminary survey, etc.)

Article 25-6 When conducting works under a designated dose rate, employers shall conduct a survey on the average ambient dose rates of the sites where the work under a designated dose rate will be implemented prior to commencing work and every two weeks thereafter and store the records.

2 When assigning workers to work under a designated dose rate, employers shall specify the completion date of the survey described in the preceding paragraph, and the summary of the methods and results to the workers prior to commencing work and every two weeks thereafter.

(Medical examinations)

Article 25-7 Employers shall ensure that their workers under a designated dose rate who correspond to any of the following conditions promptly receive medical examinations or treatments by medical doctors:

(i) When the worker has received effective dose exceeding the limit specified in Paragraph 1 of Article 25-2.

(ii) When the worker has mistakenly inhaled or ingested radioactive materials discharged by the accident.

(iii) When the worker is not able to reduce their levels of contamination to 40 Bq/cm² or less by washing themselves.

(iv) When the wound has been contaminated.

2 Employers shall immediately report to the Director of the Labor Standards Office if any of workers under a designated dose rate correspond to the conditions in the previous paragraph.

Section 3 Special Education

(Special education regarding works under a designated dose rate)

Article 25-8 When assigning workers to works under a designated dose rate, employers shall provide special education to the workers regarding the following topics:

- (i) Effects of ionizing radiation on organisms
- (ii) Methods and procedures of radiation measurement
- (iii) Related laws and regulations

2 Necessary matters for implementing the special education program shall be provided by the Minister of Health, Labour and Welfare, in addition to the matters specified in Article 37, Article 38, and the preceding paragraph.

Section 4 Investigation of Exposure History

Article 25-9 Employers shall investigate exposure history (If the worker has exposure history, information about the location, nature of work, duration, and other details concerning radiation exposures should be collected) of workers under a designated dose rate at the time of employment or reassignment to work under a designated dose rate and store the records for thirty years. However, this shall not apply when such records are transferred to the organization designated by the Minister of Health, Labour and Welfare, after being kept for five years or workers under a designated dose rate terminated employment.

Chapter 4 Miscellaneous Provisions

(Providing radiation measurement instruments)

Article 26 Employers shall provide radiation measurement instruments to the workers necessary to fulfill the duties specified herein. However, this provision shall not apply if arrangements have already been made to make radiation measurement instruments available anytime.

(Transferring records and other information)

Article 27 Employers, who make and store the records described in Paragraph 2 of Article 6, Paragraph 2 of Article 25-5 or Article 25-9, shall transfer such records to the organization designated by the Minister of Health, Labour and Welfare when closing their businesses.

2 Employers, who created and kept the records described in Paragraph 2 of Article 6, Paragraph 2 of Article 25-5 or Article 25-9, shall transfer copies of records to workers engaged in decontamination work or workers under a designated dose rate when closing their businesses or when the workers terminated their employment.

Article 28 Employers, who issue ionizing radiation medical examination cards for individuals and store them, shall transfer ionizing radiation medical examination cards to the organization designated by the Minister of Health, Labour and Welfare, when closing their businesses.

2 Employers, who issue ionizing radiation medical examination cards for individual workers and store, shall issue copies of the ionizing radiation medical examination cards to workers engaged in decontamination work when workers terminated their employment or when the employers close their businesses.

(Adjustment)

Article 29 The exposure doses received or will be received by the following workers engaged in radiation work (as specified in Paragraph 3, Article 2 of the Ionizing Radiation Ordinance) and emergency work (as specified in Paragraph 1, Article 7 of the Ordinance), or the exposure doses received while entering the radiation control areas (as specified in Paragraph 1, Article 3 of the Ordinance) temporarily as radiation workers, emergency workers, or temporary workers will be considered as the exposure doses received during decontamination work or work under a designated dose rate in the special decontamination areas, etc.

- Decontamination workers
- Workers under a designated dose rate who used to be radiation workers as specified in Paragraph 1, Article 4 of the Ordinance
- Radiation workers as specified in Paragraph 1, Article 4 of the Ordinance
- Emergency radiation workers as specified in Paragraph 1 and Paragraph 3, Article 62 of the Ordinance (including the case in which Article 62 of the Ordinance is applied) (hereinafter referred to as "emergency radiation workers" in this article)
- Temporary workers who temporarily enter the radiation control area as specified in Paragraph 1, Article 8 of the Ordinance (including the case in which Article 62 of the Ordinance is applied) (hereinafter referred to as "temporary workers" in this article)
- Temporary workers

When following workers among workers engaged in decontamination or workers under a designated dose rate engage in radiation work described in Paragraph 3 of Article 2 of the Ordinance on Ionizing Radiation, in emergency work described in Paragraph 1 of Article 7 of the Ordinance on Ionizing Radiation or entering controlled areas temporarily described in Paragraph 1 of Article 3 of the Ordinance on Ionizing Radiation as radiation service workers, emergency service workers, or workers who temporarily enter, the dose received or will be received is regarded as dose received due to decontamination work or work under a designated dose rate in the special decontamination areas.

Radiation service workers described in Paragraph 1 of Article 4 of the Ordinance on Ionizing Radiation, radiation service workers engaged in emergency work described in Paragraph 1 of Article 7 of the Ordinance on Ionizing Radiation, workers engaged in emergency work described in Paragraph 3, (including the cases with applied mutatis mutandis pursuant to the provisions of Article 62 of the Ordinance on Ionizing Radiation) (hereafter in this paragraph, these workers are referred to as "emergency workers") those who were emergency workers, workers who temporarily enter the controlled zone described in Paragraph 1 of Article 8 of the Ordinance on Ionizing Radiation, (including the cases with applied mutatis mutandis pursuant to the provisions of Article 62 of the Ordinance on Ionizing Radiation) (herein this paragraph, these workers are referred to as "workers who temporarily enter") or those who used to be workers who temporarily enter.

2 The exposure doses received or will be received by the following workers engaged in work under a designated dose rate are considered as the exposure doses received during contamination work in the special decontamination areas, etc.

- Decontamination workers who used to be workers under a designated dose rate
- Workers engaged in works under a designated dose rate

When workers who work or used to work under a designated dose rate become engaged in decontamination work, the doses received or will be received will be considered as the doses received during decontamination work under a designated dose rate in the special decontamination areas.

3 The exposure doses received or will be received by the following workers engaged in decontamination work are considered as the exposure doses received during work under a designated dose rate in the special decontamination areas, etc.

- Workers under a designated dose rate who used to be decontamination workers
- Workers engaged in decontamination work

Doses received or will be received by workers engaged in decontamination work or workers who used to be engaged in decontamination work under a designated dose rate are considered as doses received under a designated dose rate in the special decontamination areas.

Supplementary Provisions

(Effective Date)

Article 1 This Ordinance shall take effect on 1 July 2012.

Form 1-3 (omitted)