

**MINISTERIAL REGULATION
ON THE PRESCRIBING OF STANDARD FOR ADMINISTRATION
AND MANAGEMENT OF OCCUPATIONAL SAFETY, HEALTH
AND ENVIRONMENT IN RELATION TO IONIZING RADIATION
B.E. 2547 (2004)**

By virtue of Section 6 and Section 103 of the Labor Protection Act B.E. 2541 (1998), which is the law that contains certain provisions in relation to the restriction of rights and liberty of the individual which are permitted under Section 29 coupled with Section 31, Section 35, Section 48 and Section 50 of the Constitution of the Kingdom of Thailand, the Minister of Labor hereby issues the Ministerial Regulation as follows:

**CHAPTER 1
GENERAL**

Clause 1

In this Ministerial Regulation:

"Radiation" means ionizing radiation.

"Ionizing radiation" means energy in the form of electromagnetic wave or any particle of radiation which may cause ionization either directly or indirectly in its passage medium, such as Alpha rays, Beta rays, Gamma rays, X-rays, Neutron particles, electron at high speed, (or) Proton at high speed, etc.

"Source" means any material which emanates radiation by disintegration of nucleus or can cause radiation by other means irrespective of the source, either of the sealed or the unsealed type.

"Unsealed source" means the unsealed, uncontained, or covered permanently in the sealed, strong cover or covering materials in the radioactive source sufficiently durable to prevent leakage, flux, spilling, dropping, or splashing of radioactive substances.

"Radioactive waste" means any material which is composed of contaminates with radioactive substances and that is not useful.

"Amount of accumulated radiation" means the sum total (total sum of) of radiation amount the body obtains.

"Controlled area" means an area defined as the radiation area and an area of high radiation.

"Radiation area" means an area having a rate of amount of radiation exceeding 2.5 micro Sievert per hour, but not exceeding 25 micro Sievert per hour.

"High radiation area" means an area having rate of amount of radiation exceeding 25 micro Sievert per hour.

"Dosimeter" means an instrument which measures the amount of radiation by wearing or attaching to various parts of the employee's body to record the amount of accumulated radiation to which the employee has obtained according to the duration of performing work in relation to radiation. The radiation value can be read immediately or subsequently analyzed, i.e., film badge, film ring, TLD badge, TLD ring, TLD capsule, pocket chamber, pocket dosimeter, etc.

"Produce" means make, mix, prepare, make preparations, convert, change form and inclusively means filling in, storage, removal, and labeling or brand, logo on the packet, container, cover or covering materials for radioactive substance.

“Having in possession” means having in possession, whether or for oneself or others, and whether or not for sale, transportation, for use or for other purposes and also means being left over or appeared in the area of possession.

CHAPTER 2

CONTROL AND PREVENTION OF DANGER

Clause 2

The employer who produces or possesses a radioactive source shall report, within seven days from the date of production and possession, the amount and degree of radiation power of the radioactive source to the Director-General or the person designated by the Director-General.

In the event that the employer produces or occupies the radioactive source before the date this ministerial regulation comes into force, the employer shall report the amount and degree of the radiation power of the radioactive source to the Director-General or the person designated by the Director-General to be effective seven days from the date this Ministerial Regulation comes into force.

In case of change in the amount or degree of radioactivity of the radioactive source pursuant to Paragraph One or Paragraph Two, which is not the change of radioactive substance by natural decay, the employer shall report such change to the Director-General or the person designated by the Director-General within fifteen days from the date of change.

The report on the amount and degree of radioactivity pursuant to Paragraph One and Paragraph Two the report on the change in the amount or degree of radioactivity of the radioactive source pursuant to Paragraph Three shall follow the format prescribed by the Director-General.

Clause 3

The Employer shall define the control area by setting up a fence, enclosure or the line delineating boundary line and manage to build up a signboard bearing the text with a sign “No entry, Dangerous Radiation” at least in Thai language in black letters on a yellow background and have it displayed clearly and visibly in such area.

Clause 4

Any Employee without duty to perform the radiation based work or outsider(s) shall not be permitted to access into the control area, unless duly assigned or authorized by the employer; and subject to the control of a person responsible for radiation technique pursuant to Clause 9.

The employer is prohibited from permitting a pregnant woman to access into the control area.

Clause 5

The employer shall provide an instrument or equipment that reduce the amount of radiation at the source or at its passage and shall prescribe the measures and working time to prevent the employees working in the control area from the excessive amount of radiation as follows:

- (1) 20 milli Sievert per year in average of five consecutive years for the head, torso, organs relating to blood creation and reproductive system; however, for each year, the exposure to the accumulated radiation shall not exceed 50 milli Sievert;
- (2) 150 milli Sievert per year for the lens of the eyeball;
- (3) 500 milli Sievert per year for skin or hands and feet.

Clause 6

The employer shall arrange for the employee who is working in relation to radiation to use a personal dosimeter to record the amount of radiation throughout the working time.

Clause 7

The employer shall prepare the monthly data of the amount of accumulated radiation obtained by the employees using the format prescribed by the Director-General. The employer shall inform the amount of accumulated radiation to the employee every time and shall keep the evidence at the employee's workplace to be ready for inspection by the labor inspection during working hours.

Clause 8

The employer shall assign at least one qualified employee pursuant to Clause 9 responsible for technical radiation in the workplace throughout the period of performing work in relation to radiation as to prevent and withhold the radiation danger that may harm to persons or property which this employee shall take the duties as follows:

- (1) Provide advice or consultation to the employer and employees on radiation related working safety, including advice and consultation to the employer in designing practical guidelines, regulations, rules or procedures on radiation related working safety so that the employee can use as a working manual for employees pursuant to Clause 28.
- (2) Inspect and supervise the operation, working conditions, usage and maintenance of materials, equipment and tools including cleaning and removal of radiation pollution or contamination pursuant to Clause 12; (and) then report to the employer for improvement and correction.
- (3) Make a statistical record and investigate the causes of accidents and diseases due to the radiation, and then report to the employer for improvement and correction.
- (4) Assess the dangers of radiation at the employer's workplace according to the radiation methodology and make the evident record at least once a month; and apply such assessment to plan and design the preventative and extinguishing guidelines against dangers.
- (5) Provide advices and information to the employer for incident reporting pursuant to Clause 21.

In the event that the persons who are responsible for radiation technique discharged from the duties, the employer shall assign new persons to assume the responsibility for radiation technique from the date the former left office.

The employer shall report the name and qualifications of the persons responsible for the radiation technique pursuant to the Paragraph One or the Paragraph Two as the case may be to the Director-General or the persons designated by the Director-General using (following) the format prescribed by the Director-General within seven days from the date of assignment of the person responsible for the radiation technique.

Clause 9

The Persons responsible for radiation technique shall have one of the following qualifications.

- (1) Holds not lower than Bachelor Degree or equivalent in science with at least three credits of the subject on radiation-danger prevention and completion of its examination.
- (2) Undergone a training course on radiation danger prevention and completion of its examination provided by the Office of Atoms for Peace, Ministry of Science and Technology, or other institutes recognized by the Department of Labor Protection and Welfare, Ministry of Labor.

Clause 10

The employer is prohibited from permitting or neglectfully allowing employees to stay, rest, or bring into the control area any food or cigarette.

Clause 11

The employer shall provide a washing basin and a bathing place for the employees who perform the radiation related work, after leaving the duty or before leaving the workplace; and shall request the employees to remove the attire used in performing radiation-related work and leave it at a suitable place separately.

Clause 12

The employer shall arrange the cleanup operation for working wear, articles, equipment, appliances including a radiation-contaminated area within reasonable time and by a safety manner.

Clause 13

An employer who produces or possesses the radiation source shall provide a preventive and extinguishing plan against the radiation dangers in a normal working condition and in a radiation incident; or a serious accident, and submit the mentioned plan, within thirty days from the date of production or occupancy of the radiation source, to the Director-General or the persons designated by the Director-General for approval.

In the event that the employer produces or possess the radiation source before the date this Ministerial Regulation comes into force; the employer shall manage to have a preventive and extinguishing plan against the radiation dangers in a normal working condition and in a radiation incident; or a serious accident, and submit the mentioned plan to the Director-General or the persons designated by the Director-General for approval within thirty days from the date this Ministerial Regulation comes into force.

In the event that the employer has a preventive and extinguishing plan against the radiation dangers in a normal working condition and in a radiation incident; or a serious accident under the law governing the atomic energy for peace, or under other legislations, the employer shall submitted the mentioned plan to the Director-General or the persons designated by the Director-General within the time prescribed in Paragraph One or Paragraph Two as the case may be.

The employer shall arrange a drill, at least once a year, regarding a preventive and extinguishing plan against the radiation dangers in a normal working condition and in a radiation incident; or a serious accident.

Clause 14

In case of leakage, flux, spilling, dropping or splashing of radioactive substance; an outbreak of fire, radiation emergency or serious accident which may harm to or cause illness or death to employees, the employer shall order every employee to stop working and evacuate to a safe place immediately and the employer shall manage to have a plan for prevention from and suspension of danger from radiation emergency without delay.

Clause 15

An employer shall store, remove and transport the radioactive source including handling of the radiation waste for safety of the employee subject to the conditions and method prescribed by the Director-General.

CHAPTER 3**SIGN, LABELS AND DANGER WARNING SIGNALS****Clause 16**

The employer shall manage to have danger warning sign clearly and visibly posted in the area of radiation, in the area of high radiation, in the area of splashes of radioactive

substance or the area or any rooms in which radioactive substances are stored; in this respect, according to the format prescribed by the Director-General.

Clause 17

The employer shall arrange for labels containing sign and texts of danger warning posted on containers used for or as covering material for radioactive substance according to the format defined by the Director-General.

Clause 18

The employer shall manage to have a sign prohibiting the carrying out of the container or materials which are polluted or contaminated with the radioactive substance from the facility.

Clause 19

The employer shall install red blinking light signals to give clear and visible warning of danger in an area of high radiation.

Clause 20

The employer shall manage to have an emergency signal system in case of eruption of radiation emergency incident to ensure that employees evacuate to the safe area. The emergency signal shall have the characteristics as follows:

- (1) The emergency signal system shall produce sound that can be thoroughly heard by employees working within the building at the decibel level of not less than 100 decibel (A) measured about one meter perimeter from the source point of the sound ;
- (2) Equipment that sets off the working of the emergency signal shall be in a clearly visible place and accessible;
- (3) The emergency signal shall have the sound different from the sound generally used in the workplace; and the use of such sound in other irrelevant cases shall be prohibited;
- (4) Manage to have a working efficiency test of the emergency signal system be carried out at least once a month.

For hospitals or places which do not require the use of sound shall be provided with equipment or any other measures such as fire signal that can give a warning effectively.

CHAPTER 4

NOTIFICATION AND REPORT OF INCIDENT

Clause 21

In case of damage, defect, cracks or loss of the radioactive sources which may cause leakage, spillage or splashes, loss, fire outbreak, eruption of emergency radiation incident or serious accident which may cause hazards, illness or death of an employee, the employer shall notify the mentioned incident to the Director-General or the persons designated by the Director-General as soon as possible.

Notification of incident pursuant to Paragraph One by the employer shall be made either by facsimile transmission of text or by telephone. In case of inconvenience to do so, the notification may be made by other means to pass the message as soon as possible.

Clause 22

The employer shall prepare a report on incident occurred pursuant to Clause 21 which at least shall contain details about the causes, extent of exposure with radiation or radioactive substance, the degree of intensity of radiation, reason of exposure to the

radiation by employee; solution to the problems occurred and preventative steps to repeated incident for submission to the Director-General or persons designated by the Director-General within thirty days from the occurrence of the radiation incident.

Clause 23

In case of death, illness, hazards or eruption of disease due to radiation-related work irrespective of cases occurred from causes pursuant to Clause 21 or other cases, the employer shall make a report to the Director-General or the persons designated by the Director-General within fifteen days from the death of or harms occurred to the employee thanks to radiation-related work.

Clause 24

The employer shall report the performance of work of persons responsible for technical aspects in relation to radiation to the Director-General or persons designated by the Director-General according to timetable as follows:

- (1) For the work performance during January to June, the report shall be made within July of the same year;
- (2) For the work performance during July to December, the report shall be made within January of the following year.

The report pursuant to Paragraph One shall follow the format defined by the Director-General.

CHAPTER 5 PERSONAL SAFETY PROTECTION

Clause 25

The employer shall provide personal protective equipment such as plastic helmet, fabric glove or rubber glove, a pair of shoes, cloak made of cotton or rubber, goggle, air filter, breathing apparatus; or other necessary equipment with properties capable of protecting against the radiation to enter the body to be used or worn by the employee throughout working hours in relation to the source of unsealed radiation according to the condition and characteristics of work.

In the event that the employee does not use or wear personal protective equipment, the employer shall order the employee to stop working immediately until the employee uses or wears the mentioned equipment.

The personal protective equipment provided to the employee by the employer for using or wearing in the course of working with the unsealed radioactive source shall follow the standard prescribed by the Director-General.

Clause 26

The employer shall do the followings:

- (1) Produce a manual or documents in relation to the use, method of usage and method of maintenance of personal protective equipment; and distribute them to every employee working with unsealed radiation. This manual and document at least shall contain the text in Thai language;
- (2) Demonstrate how to use and maintain the personal protective equipment to the relevant persons for information;
- (3) Define the measure or regulations in writing in relation to the usage and maintenance of personal protective equipment together with notification to employees for information.

CHAPTER 6
MISCELLANEOUS

Clause 27

The employer shall provide training to employees working in relation to radiation to enhance their understanding and awareness of danger and method to prevent danger from radiation before resuming the duty according to the criteria and method prescribed by the Director-General.

Clause 28

The employer shall formulate practical guidelines, regulations, rules or procedures in relation working safety in respect of radiation, which at least, shall contain the text in Thai language for use by the employees as operating manual together with posting them openly at the employees work place for information of and viewing conveniently by the employees.

Clause 29

The employer shall arrange for the employees who are working in relation to the radiation to receive a health checkup at least once a year; and the results of health checkup shall be kept at the employee's workplace for inspection by the labor inspector during working hours.

Clause 30

In the case abnormality in the body or illness is detected due to working in relation to radiation; or there is a medical certificate available issued by a First-class Medical Practitioner to show that the employer may not further continue working in the same duty, the employer shall arrange for employee to receive a medical treatment immediately; and temporarily change suitable duty for such employee according to the recommendations of the medical practitioner; or as may be deemed appropriate until there is a confirmation by the medical practitioner to resume the same duty.

Clause 31

The employer shall keep evidence pursuant to Clause 7 and Clause 29 at the Employer's workplace or office for not less than two years from the date of termination of employment of each employee; unless there is a petition from the Employee made to the labor inspector; or legal proceedings instituted with court in relation to any disease or any hazards to health of employee, the employer shall keep the said evidence until there is an order from competent labor inspector or final court judgment as the case maybe.

Clause 32

This Ministerial Regulation shall come into force upon the expiration of One Hundred and Eighty days of its publication in the Government Gazette.

Given on the 24th day of June 2004

(Mrs. Uraiwan Thienthong)

Minister of Labor

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