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RADIATION SAFETY DIRECTORATE

Pursuant to Article 26-e, paragraph 1, point 21 of the Law on Ionizing Radiation Protection and Radiation Safety, (Official Gazette of the Republic of Macedonia No. 48/02 and 135/07), the Director of the Radiation Safety Directorate, hereby adopts a

**RULEBOOK ON RADIATION AND NUCLEAR THREATS
CATEGORISATION**

Article 1

This Rulebook shall prescribe the categorisation of radiation and nuclear threats.

Article 2

Certain terms used in this Rulebook shall have the following meaning:

“Radiation threats” shall be radiological and nuclear threats.

“Site area” shall be a geographical area around the plant or facility where activity with ionizing radiation sources or nuclear material is carried out, or in the area near a source where there is a possibility to occur a radiation emergency within the process of managing the plant or the activity. The site area shall be typically the area within the security perimeter or otherwise designated territory (the controlled zone or cordon designated around the site area).

“Radiation emergency class” shall be a set of conditions requiring similar urgent emergency response, and is used in the communication between the state bodies and institutions involved in the response to an emergency.

“Preparation for a radiation emergency” shall be the ability to undertake actions that effectively mitigate the consequences of an emergency for human health and safety, quality of life, property and the environment.

“Radiation emergency response” shall be the performance of actions to mitigate the consequences of an emergency for human health and safety, quality of life, property and the environment thus providing a basis for the resumption of normal social and economic activity.

“Severe deterministic effects” shall be deterministic effects that are fatal or life-threatening, or result in a permanent injury that reduces the quality of life for the individual.

Article 3

The categorisation of radiation threats provides a basis for the establishment of appropriate systems for preparing for a radiation emergency and for planning the radiation emergency response.

Article 4

In order to optimise actions and measures to mitigate and eliminate the consequences of a radiation emergency, the plants, facilities where activities with ionizing radiation sources or nuclear material are performed, as well as the activities with those sources or that nuclear material, shall be categorised as follows:

1. Threat category I – Plants where the on-site events, including very low probability events, can lead to severe deterministic health effects on individuals off the site;
2. Threat category II - Plants or facilities where activities with ionizing radiation sources or nuclear material are carried out, for which the on-site events can lead to doses to individuals off the site that require undertaking of urgent protective actions in accordance with the regulations on ionizing radiation protection and radiation safety;
3. Threat category III - Plants or facilities where activities with ionizing radiation sources or nuclear material are carried out, for which the on-site events can lead to doses to individuals on the site or to on-site contamination, that require undertaking of urgent protective action on the site in accordance with the regulations on ionizing radiation protection and radiation safety;
4. Threat category IV - Activities with ionizing radiation sources or nuclear material for which there is a possibility for occurrence of a radiation emergency that requires undertaking of urgent protective actions, in accordance with the regulations on ionizing radiation protection and radiation safety, in an unforeseeable location. The threat category IV includes not only the activities authorised in accordance with the regulations on ionizing radiation protection and radiation safety but also non-authorised activities related to dangerous source of ionizing radiation;
5. Threat category V - Activities not normally involving the use of ionizing radiation sources, but for which there is a significant probability their products to be contaminated as a result of events related to plants or activities from threat category 1, 2, 3 or 4 in the Republic of Macedonia or outside its territory, to levels which immediately impose restrictions upon these activities in accordance with the regulations on ionizing radiation protection and radiation safety.

Article 5

The plants and facilities where activity or activities with ionizing radiation sources or nuclear material is/are carried out, which fall into the radiation threat categories referred to in Article 4 of this Rulebook shall be:

- 1) Threat category I:
 - Nuclear reactors with thermal power greater than 100 MW;
 - Spent fuel pools whose total cesium-137 activity is greater than 0.1 EBq (equivalent to the inventory of the reactor core with thermal power of 3000 MW);
 - Nuclear plants and facilities where activities with radioactive sources that fall into Category I are carried out, in accordance with the regulations on ionizing radiation protection and radiation safety, that contain radionuclids of a quantity sufficient to cause severe deterministic effects off the site, if dispersed into the

environment;

2) Threat Category II:

- Nuclear reactor with thermal power greater than 2 MW and less or equal to 100 MW;
- Spent fuel pools containing fuel requiring active cooling;
- Facilities in respect of which there is likelihood of uncontrolled critical mode of operation within a radius of 500m from the on-site boundaries;
- Facilities with radioactive sources of Category II in accordance with the regulations on ionizing radiation protection and radiation safety that contain radionuclids of a quantity sufficient to undertake the necessary protective measures off the site, if dispersed into the environment;

3) Threat category III:

- Nuclear reactor with thermal power less than or equal to 2 MW;
- Facilities where there is likelihood of external exposure to ionizing radiation, when loss of protection, of dose rate greater than 100 mGy/h at a distance of 1 m from the source;
- Facilities in respect of which there is likelihood of uncontrolled critical mode of operation within a radius greater than 500m from the boundaries of the protected zone;
- Facilities with radioactive sources of Category III and IV, in accordance with the regulations on ionizing radiation protection and radiation safety, that contain radionuclids of a quantity sufficient to undertake the necessary protective measures on-site, if dispersed into the environment;

4) Threat category IV:

- mobile sources for which there is likelihood of external exposure when there is loss of protection, of dose rate greater than 10 mGy/h at a distance of 1 m from the source or dangerous sources in accordance with the regulations on ionizing radiation protection and radiation safety;
- Satellites with dangerous sources in accordance with the regulations on ionizing radiation protection and radiation safety;
- Transport of quantities of radioactive material that could be dangerous if not controlled, and
- Facilities/locations where there is a significant probability of occurrence of an uncontrolled dangerous source such as:
 - a) Scrap metal processing facilities,

- b) Border crossings and
- c) Facilities with fixed gauges with dangerous sources in accordance with the regulations on ionizing radiation protection and radiation safety;

Article 6

Radiation emergencies in plants and facilities that perform an activities with sources of ionizing radiation or nuclear material, as well as in activities with sources of ionizing radiation or nuclear material, depending on the possibility for control of processes during a radiation emergency and the damage caused by its consequences, for the purposes of radiation emergency response, are classified into the following classes:

1. “General radiation emergency” regarding an emergency at plants in threat category I or II that involves real or possible risk of release of radioactive substances or radiation exposure which requires taking urgent protective actions off the site;
2. “Radiation emergency localised at the site area” regarding an emergency at plants in threat category I or II, involving a major decrease in the level of protection for individuals on the site and near the plant;
3. “Radiation emergency localised at a plant or facility” regarding an emergency at plants or facilities in threat category I, II or III, involving a major decrease in the level of protection for individuals on the site;
4. “Alert” for a radiation emergency at plants in threat category I, II or III, involving an uncertain or significant decrease in the level of protection for the public or individuals on the site;
5. “Other radiation emergency” regarding an emergency that involves ionizing radiation source that is not under control, due to loss, theft, or lack of control over a dangerous source, including the re-entry of a satellite containing such a source.

Article 7

This Rulebook shall enter into force on the eighth day from the date of its publication in the Official Gazette of the Republic of Macedonia.

No. 01-1668/6 2.12.2009 Skopje	Director PhD. Rumen Stamenov
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