Technical Regulation

Rules for Handling with Radioactive Waste

Article 1. Scope

1. The Present Technical regulation is elaborated in accordance with the Law of Georgia on "Nuclear and Radiation Safety", the Law of Georgia on "On Radioactive Waste" and international norms regulation nuclear and radiation safety. Technical Regulation sets the requirements at every stage of handling with radioactive waste to ensure radiation safety of personnel, public and environment.
2. Technical Regulation sets the requirements for ensuring radiation safety of personnel, population and environment at every stage of handling radioactive waste.
3. Technical Regulation applies to handling every type of radioactive waste on the territory of Georgia, except exempted or cleared and orphan radioactive sources, the usage of which is foreseen.
4. The norms and requirements provided for by this Technical regulation is obligatory to be fulfilled for every natural or legal person irrespective of the legal organizational structure, who carries out nuclear and radiation activity concerning radioactive waste and to the persons, who do not carry out nuclear and radiation activity, but radioactive waste is generated as a result of its activity.
5. Technical Regulation does not apply to spent nuclear fuel and industrial waste with exceeded radiation background, where concentration of radionuclides does not exceed the clearance level.

Article 2. Objectives

The objectives of this Technical regulation are the following:

a) To achieve high safety level on every stage of handling radioactive waste;
b) To protect personnel, public and environment from harmful effect of radioactive waste either in present or in future;
c) To avoid any incident and accident during all stages of handling radioactive waste and in case of their occurrence to take all measures for elimination and mitigation.

Article 3. Use of Terms

1. **Facility for handling the radioactive waste** – radioactive waste processing facility, storage of radioactive waste and/or radioactive waste disposal.

2. **Radioactive waste processing facility** – Facility, where radioactive waste treatment and/or conditioning is conducted.
3. **Treatment of radioactive waste** – Changing form, volume or content of radioactive waste to ensure nuclear and radiation safety.
4. All other terms used in Technical regulation have the same meaning as under the Law of Georgia on "Nuclear and Radiation Safety", the Law of Georgia on "Radioactive Waste" and the Ordinance of the Government of Georgia №450 on adoption Technical Regulation - "Basic requirements and norms for handling sources of ionizing radiation", August 27, 2015.

Article 4. Generation of radioactive waste and its classification

1. Radioactive waste is generated in medicine, industry, science and other areas as a result of usage of radioactive sources, rehabilitation of radiologically contaminated sites and radiological incidents and accidents.
2. For the purpose of ensuring effective performance of handling radioactive waste at every stage and radiation safety, the classification of radioactive waste is determined under the Ordinance of the Government of Georgia № 689 on the Adoption of Technical Regulation - Rule for Authorization and Creating and Maintaining of the Departmental Register of Sources of Ionizing Radiation and Radioactive Waste and for Ionizing Radiation Sources Categorization, December 19, 2014.
3. While handling with radioactive waste the following factors shall be considered:
   a) Generation of waste (type of generation);
   b) Criticality, in case of nuclear material;
   c) Aggregate condition and radiological, physical, chemical, biological characteristics such as: combustibility, explosive, flammability, self-flammability, corrosive, organic and nonorganic compound and toxicity;
   d) Class of radioactive waste.

Article 5. Principles for radioactive waste management and basic requirements for safe handling with radioactive waste

1. All stages for handling radioactive waste shall be conducted in accordance with the principles for radioactive waste management determined by the Law of Georgia "On Radioactive Waste".
2. Harmful impact of radioactive waste on human and environment is caused by ionizing radiation irradiated by waste, spreading radionuclides from waste into environment and possible intake in human body. For the purpose of protection human and environment from harmful impact of radioactive waste, all means and methods,

generally accepted for the protection of human and environment from ionizing radiation, shall be applied.

3. Physical barriers are used for prevention radionuclides from spreading into environment. Barriers can be natural or artificial. Combination of two or more barriers sets the barrier system.

Article 6. Unified integrated system for handling radioactive waste and main stages

1. The effective handling of radioactive waste implies the unity of different stages, which are the constitutive parts of the unified integrated system for handling radioactive waste.
2. For the purpose of this Technical Regulation, the main stages for handling radioactive waste are the following:

   a) Handling radioactive waste on the site of the generation – collection, segregation according to their characteristics, pretreatment, temporary storage and decontamination;

   b) Transportation of radioactive waste – safe transportation of radioactive waste according to the requirements under the Ordinance of the Government of Georgia on the adoption of Technical Regulation - Transportation of Nuclear and Radioactive Substances;

   c) Conditioning of radioactive waste;

   d) Storage of radioactive waste in Centralized Storage Facility;

   e) Disposing radioactive waste.
3. While planning unified integrated system, the inter-compatibility between different stages of handling shall be taken into consideration.

Article 7. Handling radioactive waste on the site of the generation

1. Natural and/or legal persons carrying out nuclear and radiation activity are obliged:

   a) To keep radioactive waste safely in radioactive waste storage for the period determined under the license conditions, for the purpose of its possible usage in future;

   b) To provide safe transportation of radioactive waste to radioactive waste management facility after expiration of the period determined under the license condition as indicated in paragraph “a” of this article;

   c) To ensure collection, segregation, processing of radioactive waste and decontamination activity in accordance with waste classification, its physical chemical and biological characteristics;

d) To ensure prevention of possible radiological incident and accident; and in case of their occurrence - liquidation of the consequences and full compensation of damage;
e) To ensure nuclear and radiation safety while carrying out the activities given in this article, according to the requirements provided for by the Georgian legislation and license conditions.

2. Every Natural and/or Legal person, who does not carry out nuclear and radiation activity, but radioactive waste is generated due the activity, is obliged:

a) To notify LEPL Agency of Nuclear and Radiation Safety (hereinafter "Agency") shortly after the generation of radioactive waste and on the basis of the recommendations from Agency, plan the activity for safe handling of radioactive waste;
b) To ensure safe handling of radioactive waste through persons having the proper license determined by the Law of Georgia "On Licenses and Permits" or having the authorization.

Article 8. Transportation of radioactive waste

1. Transportation of radioactive waste shall be conducted in accordance of the requirements set by Georgian legislation with the fulfillment of radiation safety and security requirements.

2. For conducting the transportation of radioactive waste the especially arranged transported mean shall be used, which is equipped with transport container and/or the proper packaging and emergency kit.

3. Transport container shall meet the characteristics of transported radioactive waste.

4. Radioactive waste shall be emplaced on the transport mean in a way that the exposition dose rate at the driver's workplace is not excessive to 0.01mSv/h, at the surface of transport mean – 2mSv/h and in 1 meter distance from the surface of transport mean – 0.1mSv/h.

5. Natural or Legal person holding the license for carrying out nuclear and radiation activity, the Agency and Ministry of Internal Affairs of Georgia are authorized to conduct the transportation of radioactive waste in accordance with the Law of Georgia on "Radioactive Waste" and the Technical Regulation - Transport of Goods by Road Transport" adopted by Ordinance N32 of the Government of Georgia, January 3, 2014.

Article 9. Treatment and conditioning of radioactive waste

1. The goals of treatment and conditioning of radioactive waste are the followings:

a) Reducing the total volume of radioactive waste and the possibility of its dissemination into environment;
b) Transforming radioactive waste into stabile form, which is acceptable for its transportation, long-term storage and disposal.

2. For the selection of methods for treatment and conditioning either technical, financial, economic and socio-political factors or the characteristics of radioactive waste, expected waste flow and qualification of the personnel shall be taken into consideration.

3. Radioactive waste treatment methods may be divided as following:

a) Treatment of solid radioactive waste;
b) Treatment of liquid radioactive waste;
c) Treatment of gas radioactive waste;
d) Treatment of biological radioactive waste;

4. While packing treated and conditioned radioactive waste the following factors shall be considered:

a) Physical and chemical characteristics of the package container material;
b) Form and size of the package;
c) Compliance of inner surface of the container with the content of waste (matrix material);
d) Existence of special equipment on the container needed for transportation;
e) Corrosion resistance of inner surface of the container;
f) Mechanical resistance and the stacking of the container;
g) Characteristics of outer surface of the container;
h) Hermetic lid of the container.

5. In order the treated and conditioned radioactive waste and the exhausted radioactive sources to be identified, the packages shall be marked. The following information shall be identifiable by mark:

a) Radiation Label;
b) Volume and mass of the package;
c) Individual number of the package or the container;
d) The date of loading;
e) Characteristics of radioactive waste emplaced into the package, with the indication of contained radionuclides;
f) Dose rate on the surface of the package and 1 m distance from the surface of the package;

g) The level of Radiation contamination of the package surface;
h) Possible air and heat generation.

6. Emplacement of the treated radioactive waste into the special package with its encapsulation is the final stage of conditioning process.

Article 10. Emplacement of radioactive waste into radioactive waste storage, centralized storage and disposal facilities

1. Emplacement of radioactive waste into radioactive waste storage facility is regulated by Article 6 of this technical regulation and the proper license conditions.

2. The emplacement of radioactive waste into radioactive waste centralized storage facility aims to achieve its temporary safe storing.

3. The radioactive waste receiving criteria for radioactive waste centralized storage facility are determined by the Agency. The radioactive waste is received in compliance with the mentioned criteria. The criteria does not apply to radioactive waste and radioactive sources found as a result of incident or accident, emergency situations at check-points and elimination of illegal turnover.

4. Receiving radioactive waste into radioactive waste centralized facility should be conducted in accordance the document accompanied with waste, where physical, chemical and radiological characteristics of the waste are indicated.

5. The act of delivery shall be drawn up shortly after receiving the radioactive waste into radioactive waste centralized storage facility, which is confirmed by the signature of authorized person from radioactive waste centralized storage facility and the possessor or radioactive waste.

6. Registration of radioactive waste and developing the inventory shall be conducted according to the Ordinance № 689 of the Government of Georgia on the Adoption of "Technical Regulation – Rule for Authorization and Creating and Maintaining of the Departmental Register of Sources of Ionizing Radiation and Radioactive Waste and for Ionizing Radiation Sources Categorization", December 19, 2014.

7. Physical inventory of radioactive waste kept at radioactive waste centralized storage facility shall be conducted at least in every 5 years.

8. The main objective of emplacement of radioactive waste into radioactive waste disposal facility is its lifetime safe storage.

9. Radioactive waste must be received into radioactive waste disposal facility according to the criteria developed by the Agency for radioactive waste disposal facility and accompanied documents.

10. Operations of radioactive waste disposal is divided into three phases: pre-operation, operation and post-closure periods.

11. The evaluation and selection of the location of future disposal facility is conducted during pre-operation period according to the requirements under the Law of Georgia 'On Radioactive Waste". Special research is conducted in order that the safety of radioactive waste disposal facility to be ensured.

12. The radioactive waste disposal facility operation period is commenced shortly after receiving radioactive waste and lasts before the closure of radioactive waste disposal facility.

13. The issue concerning receiving radioactive waste into radioactive waste disposal facility is decided by the decision of the Government of Georgia on the closure of radioactive waste disposal facility and the post-closure period is commenced that implies institutional control the maximum expiration term of which is 300 years. Institutional control comprises of active and passive phases, the duration of which is determined individually for each disposal.

14. During the active phase of institutional control, the condition monitoring of disposal facility is conducted by the operator.

15. The passive phase of institutional control implies only land-tenure control, which aims to ensure that the territory of disposal facility is not used for other activities.

16. Individual monitoring of the workplace and personnel shall be conducted regularly in radioactive waste centralized storage facility and radioactive waste disposal facility in accordance with the Ordinance №359 of the Government of Georgia on the adoption of Technical regulation - On Procedure for Conducting Individual Monitoring and Its Control, 20 July 2015.

17. The radiation safety assessment of radioactive waste centralized storage facility and radioactive waste disposal facility shall be carried out once in 10 years period in accordance with the rules established under the legislation.

18. Protective zones are determined around the territory of radioactive waste centralized storage facility and radioactive waste disposal facility, where the emplacement of any facilities and carrying out the activity not connected to the operation of radioactive waste centralized storage facility and radioactive waste disposal facility or to the measures taken for ensuring their nuclear and radiation safety or security is prohibited.

19. The protective zones shall be determined for each specific facility individually taking into consideration the radiation irradiated from the facility, quantity and area of release of radioactive substances.

20. It is of paramount importance to ensure the physical protection of radioactive waste centralized storage facility and radioactive waste disposal facility. Physical protection is performed through physical protection systems. In order the physical protection systems to be planned effectively, threat assessment, simulation and special planning - threat-based planning shall be conducted.

Article 11. Radiation accident/incident preparedness and response

1. At every stage of handling radioactive waste for the purpose of radiation accident incident preparedness and response, the response plan shall be drawn up at the facilities, where all the possible incidents/accidents and the responsive measures will be described.

2. The accident/incident may be caused by erroneous act of personnel, unauthorized interference, malfunctioning of safety system, leakage of radionuclides into environment extending permissible norm, natural disaster or other unforeseen circumstance.

3. In the response plan existing at radioactive waste handling facility, the functions-duties of every organization and body involved in response and the measures for accident/incident liquidation shall be laid down specifically.

4. After the liquidation of radiation accident or incident, it is necessary the detailed investigation to be conducted for the purpose of establishing the causing reasons. The appropriate measures shall be taken in order the repetition of accident and incident to be avoided.

Article 12. Decommissioning of nuclear and radiation facilities

1. Decommissioning, conducted as the combination of administrative and technical measures, aims full or partial dismantle of nuclear and radiation facility.

2. Radioactive waste handling facilities, except radioactive waste disposal facility, are subject of decommissioning.

3. Decommissioning of nuclear and radiation facilities enshrines 3 main stages:

a) Preparing decommissioning plan;

b) Conducting decommissioning;

c) Handling radioactive waste generated as the consequence of decommissioning.

4. Before planning decommissioning, the strategic approach towards decommissioning shall be determined, which is based on 3 main means:

a) Immediate decommissioning – is conducted immediately, shortly after suspension of facility functioning and implies full dismantling of apparatus and building and handling generated radioactive waste in accordance with the legislation.

b) Deferred decommissioning – due to the absence of possessing certain technologies, knowledge or the means for handling radioactive waste that is to be generated, after suspension of facility functioning the temporary conservation of its certain parts is carried out for the performance nuclear and radiation safety and security requirements. Decommissioning process will be commenced after all the appropriate means are on place. As a general rule, radiation monitoring is to be conducted during conservation process for this kind of decommissioning.

c) Entombment – the certain part of the facility may be encapsulated, covered or emplaced in any protective case in order the possible leakage of radionuclides into environment to be avoided and the physical protection to be ensured. Such kind of action is regarded as the mean for achieving temporary goal and the additional actions are needed to be taken for full decommissioning.

5. After the completion of each decommissioning, the radiological assessment of the territory shall be conducted. The report is drafted on the basis of assessment results. Full release of the facility from regulatory control or its restrictive usage in accordance with the conditions determined by the regulatory body (conditional release from regulatory control) are decided on the basis of the mentioned report.