
THE MANAGEMENT OF KNOWLEDGE, ACQUIRED IN THE MANAGEMENT OF RADIOACTIVE WASTE – THE RESULT OF PREVIOUS ACTIVITIES

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1. Introduction

The main purpose of radwaste management is reliable isolation of waste that ensures radiation safety of the human beings and of the environment for the whole period of radwaste being of potential hazard.

All radwaste on the territory of the Russian Federation could be subdivided into:

- RW which is being generated nowadays as a result of operation of nuclear facilities, radiation sources and storage facilities;
- RW accumulated as the result of previous activities in the process of implementation of defence programmes on development of nuclear weapons at nuclear fuel cycle facilities and other types of activities. This RW is kept in water-basins, tailing ponds and other RW storage facilities.

In the process of implementation of defence programmes a lot of radioactive waste was accumulated in the mentioned facilities and a lot of storage facilities are not equipped by the system of barriers on the path of expansion of ionizing radiation and radioactive substances, which is required according to up-to-date safety conception, or the available system of barriers is not ultimate.

As these storage facilities were constructed in the forties-fifties years of the previous century. The special documentation for their exploitation was not developed and the information on some characteristics of the storage facilities is partly or completely absent.

In this connection, the plants have to make the complex investigations of storage facilities to receive the detailed information on their radiation state (the quantity of RW, the radionuclide composition, the accumulate activity) and also on their negative influence on the environment.

The results of these investigations are used to make the sanitary passport of these storage facilities and also to develop the rehabilitation actions.

2. Results

Nowadays, the significant experience of management is accumulated in the Russian Federation and it has got a lot of requirements which were established by the system of normative regulation.

The regulatory system based on the experience accumulated in the process of management of radioactive waste has established a number of safety regulatory requirements in the management of RW, accumulated in surface water-basins and tailing ponds, including the following:

1. there shall be provided technical facilities and administrative measures, aimed at the prevention of:

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- exposure of the workers (personnel) and population above the limits, established by radiation safety standards;
 - contamination of the environment, including contamination of surface water-basins and underground waters with radionuclides;
 - wind-induced carry-over of radioactive aerosoles, dust generation and radionuclide carry-over with dust.
 - radiation monitoring shall be provided, including radionuclide and chemical composition of the water phase and bottom sediment, radionuclide and chemical composition of environmental contamination (atmosphere, ground).

2. there shall be provided monitoring of the state of the surface LRW water basins and tailing ponds, including monitoring of:

- incoming waste (nomenclature, amount, radionuclide and chemical composition);
- state of the barriers (amount of water filtration-loss, radionuclide migration to the environment, radionuclide and chemical composition of the underground water).

3. the operator shall develop and implement technical and administrative measures, aimed at:

- limitation of radionuclide ingress into the surface LRW water-basins and tailing ponds;
- prevention of non-permissible discharge (leakage) from the surface LRW water basins and tailing ponds to the surface and underground water bodies and to the ground surface;
- decommissioning of the surface LRW water basins and tailing ponds.

4. for each surface LRW water basin and tailing pit the following will be defined and justified:

- RW storage period;
- amount (mass, volume) of stored RW;
- radionuclide composition, specific and total activity of stored RW;
- standards of RW ingress;
- amount of water filtration-loss;
- maximum values of radionuclide migration into the environment.

5. to define the necessity of implementation of technical solutions and administrative measures, aimed at improvement of the safety level of RW storage facilities under operation, there shall be performed an analysis of their current safety level and prediction calculation for safety assessment of the RW disposal system. By results of the analysis and prediction calculation all reasonable practically realizable measures shall be implemented.

3. Conclusion

The normative regulation for radioactive waste accumulated in the process of previous activities demands the development of a specific approach.

The regulatory body develops the special documentation directed at the decrease of the harmful effect on the population, staff and the environment by the realization of complex action for radiation protection as:

- step by step decrease of the radioactive waste into the storage facilities;
- the provision of reliable exploitation of hydrotechnical structure;
- the organization of constant supervisory control system and monitoring for environmental pollution;
- realization of hydrological and hydrometeorological supervision for the state of the facilities;
- development of a special project for conservation and rehabilitation of storage facilities.

REFERENCES

- [1] RADWASTE MANAGEMENT SAFETY. General Provisions. NP-058-04, Rostechnadzor, 2004