



Approaches of the State Committee on the Environment Protection to Development of Ecological Requirements for Radioactive Wastes Management Generated in the Decommissioning of Nuclear Submarines

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In parallel with the sharpest problems of ecological safety assurance in the process of nuclear weapons annihilation, during activity of nuclear energy enterprises and industry, one of the most significant ecological problems is safety assurance of the works dealing with disposal of nuclear submarines (NS) taken out of the Russian Navy fighting effectiveness. In the nearest future their number will be increasing steadily. At present the complexity of the situation is caused by lack of the sufficient infrastructure for management of NS spent nuclear fuel, liquid and solid radioactive wastes (LRW and SRW) of different activity levels. SNF was unloaded from the small part of decommissioned NS. The considerable part of decommissioned NS is located in the main base points of the North and Pacific Navies of Russia and at territories of the enterprises dealt with the repairing and building of NS.

For 1998 large amounts of liquid and solid radioactive wastes of total activity more than 5,000 Ci were accumulated at the Navy's entities. The existing stationary and floating LRW and SRW storage facilities are practically filled in full, and there is no any volume reserves of such facilities at the fleets that steadily aggravates the complicated radio ecological situation at the Navy's objects. Recently the acute LRW management problem has been reduced a little bit; additional facilities for reprocessing LRW are created in the North and Pacific fleets, including those that are created with the help of the foreign investors. Thus, Norway and the USA render their assistance in realization of the project on increasing the existing capacity of LRW reprocessing facility at the RTP "Atomflot", Japan - on creation of a floating facility for reprocessing LRW at the plant "Zvezda" in the Far East.

The coastal infrastructures created for RW reprocessing and long-term storage at the Navy's objects in the 60-s, were not commissioned. The existing storages, particularly of trench and open type, are the dangerous sources of radioactive contamination for the environment, because they are not protected from atmospheric precipitation and overflow water. Realization of the full-scaled and complex disposal scheme for reactor compartments (RC) of disposed NS will require resolution of large number of the problems regarding ecological safety assurance at all the stages of "life cycle" of radioactive wastes management: decommissioning, preliminary treatment, treatment, conditioning, storage and final disposal of radioactive wastes. The basic means for ecological safety assurance in radioactive waste management are the following: ecological expertise of materials "Environmental Impact Assessment" with the purpose to ascertain the conformity of intended economical and other activity with the ecological requirements and to define an admissible fact for realization of the object with the purpose of prevention of possible unfavorable ecological consequences and connected with the latter social, economical and other consequences; ecological control of environment state and observance of requirements of environment protection legislation and environment quality regulations as the result of intended activity.

Materials substantiated the designed decisions should contain exhaustive information about object's impact on the environment in the process of construction and operation under the normal mode of work and in the possible accident conditions, as well as argumentation for selection of environmental protective measures.

Materials should include:

- ecosystems' characterization in the zone of object's impact,
- assessment of the environment components state and ecosystems' stability to impact, its ability to recover;
- assessment of changes in ecosystems caused by territory re-planning and construction works fulfillment;
- assessment of technological and technical solutions concerning the most efficient use of *natural resources, reduction of object's impact on the environment at all the stages of radioactive waste management*;
- list of wastes, information about their quantity, ecological hazard;
- forecast about environment changes at all the stages of radioactive waste management;
- substantiation of environmental protective measures concerning environment restoration and recovery, its biological variety preservation;
- complex assessment of ecological risk of intended activity and consequences of possible impact (taking into account the planning environmental protective actions).

For that with help of the objective parameters which are possible to measure it should be shown that the given radioactive waste management process would successfully allow to decrease or to prevent radioactive waste hazardous impact on the environment and not to transfer contamination problems from one surroundings to the others.

In case of an object decommissioning (liquidation, re-planning) it should be additionally included:

substantiation of the necessity for object's liquidation (re-planning);

- assessment of environment degradation as the result of an object operation;
- impact assessment on the public health as the result of ecological situation worsening in the area of object's location;
- substantiation of the actions complex concerning environment recovery and creation of favorable conditions for the public life.

Additionally to the substantiation materials it is necessary to submit a program on ecological monitoring organization and its financing plan. A document "Environmental Impact Assessment" as applied to specific radioactive waste management systems may be developed in future. Analysis of the regulations on ecological safety assurance for radioactive waste management in the foreign countries shows that in international practice the system of laws, legislative acts, programs, regulations that define the whole cycle of problems regarding radioactive waste management, has been grown up. Besides, in many countries the recommendation rules and instructions of international organizations function, as the IAEA's and ICRP's publications and UN NKDAR summarized reports, etc.

It seems expedient to consider ecological safety assurance matters of radioactive waste management in frameworks of the *Program on regulatory support of ecological safety at the level of the Northwest region as the whole*. For solution of the priority task concerning

expansion of ecological regulatory basis for radioactive waste management, as well as for assessment of the country-members' ecological regulations compliance to the international standards it assumes expedient: to issue series of special methodical guidelines in which the international requirements would be compared with those of the country-members, as well as to evaluate the methodical base that was the basis for the corresponding regulations development; in cases when the international documents have not any analogue, particularly in Russia, to conduct their expert assessment in the set order and give them the juridical statutes.