

DECOMMISSION OF 'NUCLEAR LEGACY SITE AT VNIINM

Wednesday, 25 May 2016 10:00 (25 minutes)

Extensive work on the decommissioning of own research facilities are conducted in A.A.Bochvar Research Institute of Inorganic Materials (VNIINM). Since 1946 these facilities used for Plutonium, Uranium and other radionuclide chemistry, nuclear fuel research and reprocessing, radioactive waste and other technologies. Amount of contaminated structures and unused old equipment, including unsorted radioactive waste onsite within Moscow area required immediate decommission project to solve 'Nuclear legacy site' problem.

The main challenges the Institute facing are the decommissioning of a number of research buildings and auxiliary buildings to the rehabilitation of the sites they host, removal from the territory of the Institute of all nuclear and toxic materials which are not subject to further use, minimization of the quantities of radioactive waste from the output of operation stages of their arising (use of low-waste technologies) and treatment (including collection, sorting, processing and conditioning)

The distinctive features of the work of decommissioning radiation hazardous objects of VNIINM are a wide variety of bench equipment in research buildings, radioactive contamination of part of the rooms and equipment mainly with alpha-emitting radionuclides, significant depreciation of engineering systems located in buildings (ventilation, special drainage system and others), the presence in the research buildings of accumulated different water and organic radioactive solutions and chemical reagents requiring conversion in RW category and conditioning before transport to specialized organizations, location of VNIINM inside residential area in Moscow.

The primary challenges facing the institute are decommissioning of building B and the semi industrial plant U-5.

Building B was used as experimental basis for USSR radiochemical industry since 1946. Work on the decommissioning building B was started in 2008. Work is scheduled for completion in 2015, eliminating the building B. Main stage of the project covering removal of chemical reagents, decontamination, dismantling and removal of equipment, engineering systems, waste management and decontamination units is finished. Now works are on Final stage: building is dismantled, site rehabilitation activities are in progress to be finished at the end of 2015. Measures for reducing the environmental impact during the decommissioning works included dust suppression by creation of aerosol screens during dismantling, use of polymeric coatings for fixing radionuclides on radioactive contaminated surfaces, creation of "cocoon" made from a special coating on the line of scaffolds on the stage of dismantling of the building, zoning of "dirty" and "clean" areas for the prevention of secondary radioactive contamination, maintenance of supporting engineering systems for the whole period of works prior to the dismantling of the building, creation of a centralized automatized radiation control system of the institute, minimization of secondary radioactive waste. Report covers all stages of decommission project of Building B, including characterization, planning, implementing, waste management and overall performance with lessons learned.

Work on the decommissioning of the plant U-5 was started in 2010. Work is scheduled for completion in 2018, eliminating the plant. Currently, performing preparatory stage works involving sanitary unit construction, radioactive and clean waste units construction, loading area construction as well as licensing decommission activities.

Report covers practical feedback from performed events, including R&D and use of special technologies - decontamination polymer coatings during dismantling. Performing at VNIINM decommissioning work is associated with the solution of complex engineering and technological problems, due to specific objects and their location in dense urban area in Moscow. The experience gained here can be used in similar works on other objects.

Country or International Organization

Russian Federation

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