

Problems of the hydrogeological monitoring of objects of the Prydneprovsk Chemical Plant (Dneprodzerzhynsk, Ukraine).

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One of the first chemical plant of former Soviet Union, which processed the uranium ore in Dneprodzerzhynsk, stopped the activity in 1991. With the purpose of radioactive muddy materials management, radiation control and monitoring (including groundwater) of environment the Enterprise «Barrier» was established by Ministry of fuel and energy of Ukraine in 2000.

From 2000 leaders of the Enterprise «Barrier» tried to organize monitoring by efforts of other organizations. Absence of the grounded observation network and regulation of observations, insufficient sponsorship of enterprise by Ministry, absence of needed equipment for organization of observations and sampling, lack of the trained personnel - it is only part of problems which were insuperable for an enterprise up to now.

To development of the systematic monitoring began in 2004. By efforts of scientists of «Center of monitoring researches and nature protection technologies», State institution «Institute of hygiene and medical ecology of Medical Academy of Sciences», National Academy of Sciences of Ukraine and at the permanent inspection of the State Nuclear Regulatory Committee of Ukraine «Conception and suggestions to the program of radiation control and monitoring of environment in the region of influencing by objects of the former Prydneprovsk chemical plant was developed. In 2005 researches for grounding of the monitoring system of environment and preliminary regulation of observations were carried out.

Efforts of the Ukrainian part are supported by IAEA within the framework of regional project RER/9/094: “*Upgrading National Capabilities in Controlling Public Exposure*”. In the present the Enterprise has only minimal part of equipment for carrying out of observations and sampling, groundwater in particular. Now the Geology-hydrogeological Informative System is being developed, which includes cartographic information, information about geological layers, wells, and contamination of groundwater. Also the mathematical models of groundwater moving and migration of contaminating matters are developed. The mathematical models base on the Visual ModFlow 3 PRO software package with using of the MapInfo and Surfer computer programs. For the simplified simulation of radionuclide transport with groundwater the EcoLego and other computer software is used.

In the presentation the information about radioactivity contamination of groundwater near the objects of the former Prydneprovsk Chemical Plant and results of simulation of radionuclides migration with groundwater will be represented.