

## THE ORGANIZATION OF MONITORING SYSTEM IN THE DISTRICTS AROUND THE NPP TO PROVIDE RADIATION COUNTERMEASURES

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There are created the system of prevention and activities during the emergencies in the Republic of Belarus. This system should provide a detection of the beginning of natural calamities, industrial accidents and disasters, a prognostication of their courses and possible damage and a working up of concrete proposals of protective measures realization and consequences liquidation.

Taking into account how great damage was done to the Republic of Belarus following the accident of only one of the blocks of Chernobyl NPP, in this system the special place is allotted to prevention and activities with accidents on the nuclear units. To detect beginning of the accident on the nuclear unit it is necessary to create the automatized radiological and meteorological monitoring system especially in the regions adjoining the working NPPs. There is not the own NPPs in the territory of Belarus but the NPPs in operation are in the neighbour countries such as Lithuania [Ignalinskaya NPP], Russia [Smolenskaya NPPs] and Ukraine [Chernobylskaya and Rovenskaya NPPs]. All these NPPs are situated near the territory of Belarus.

A creation of that system on all the territory of the Republic takes substantial capital investments and much time. Therefore the works are realized in stages. In the first stage at the expense of means of the EU Commission according to the project worked up by the firm "Consulting Group" [Great Britain] the firm "Hormann Systemtechnik" [Germany] mounted 9 automatic points of gamma-level measuring in the region adjoining the Ignalinskaya NPP. [The siting scheme is added]. Furthermore the automatic points measure availability or absence of liquid precipitation and have possibility to transmit information to the centre of data collection and treatment by radio-line. In addition to the available meteo-stations network [the nearest one is at 60 kilometres distance] is mounted the automatic meteorological station in Drysvyati at the distance of 4 kilometres from NPP. The automatic points work in a continuous rate of measuring, and information is transmitted to the Centre once an hour. In the case of gamma-level raising to the fixed threshold is transmitted an extraordinary report, and the measuring results are transmitted every 10 minutes. By the project GAMMA-1 is envisaged a delivery of the mobile laboratory. This laboratory has a possibility to mount in necessary parts e.g. in the contamination zone 4 additional automatic points with autonomous feeding. It allows to receive the more detailed information from the most polluted regions.

The created network of gamma-level and meteorological parameters measuring allows to detect opportunely a beginning of the territory contamination in the case of the accident on the Ignalinskaya NPP. Furthermore using the data of radiation and meteorological monitoring we can prognosticate what parts of the territory will have different contamination levels and where it necessary to carry out the protective arrangements. The possible protective arrangements include:

- distribution of iodine tablets;
- sheltering of population and animals;
- limitation of polluted food products consumption;
- desactivation;
- evacuation.

It is very important to determine an economic effectiveness of the realized protective arrangements.

#### CONCLUSION.

An effectiveness of this system using will depend on amount and quality of the measured meteorological and radiological data. It is necessary to create in further stages the automatic monitoring network in the other regions adjoining the working NPPs and on all the territory of the Republic.

It is necessary to provide the data exchange between the countries of Eastern and Western Europe. Using the automatized meteorological and radiological monitoring network it is necessary to improve the methods of contamination detecting, monitoring data treatment, contamination levels prognostication and regular studying of operational personnel.

# GAMMA-1 PROJECT

## Radiation monitoring system

### in Braslav's district

