Ministry of Natural Resources and Environment of the Russian Federation
Russian Federal Subsurface Control Agency

FEDERAL STATE BUDGETARY INSTITUTION
«HYDROSPETZGEOLOGIYA»

GEOECOLOGICAL MONITORING THE ELEMENT OF ENVIRONMENTAL MANAGEMENT

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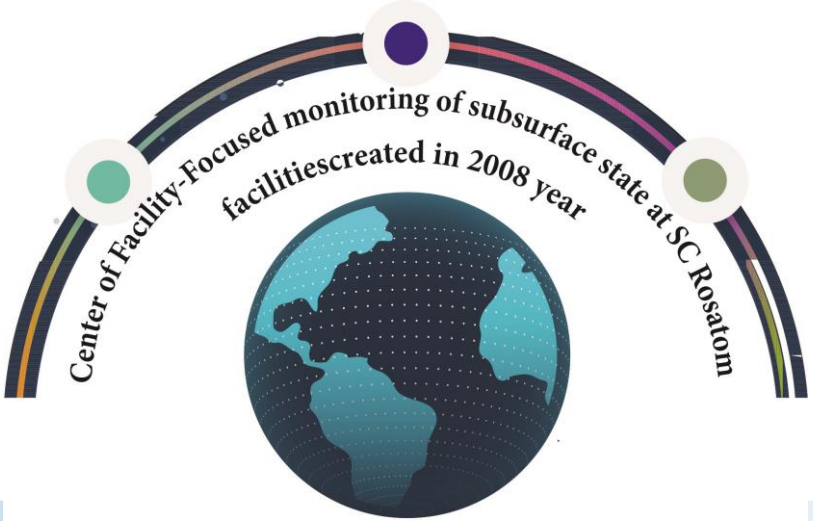
GEOECOLOGICAL PRACTICE IMPLEMENTED AT ROSANOM FASILITIES

Geo-ecological monitoring tools – key elements of SC Rosatom Environmental Policy

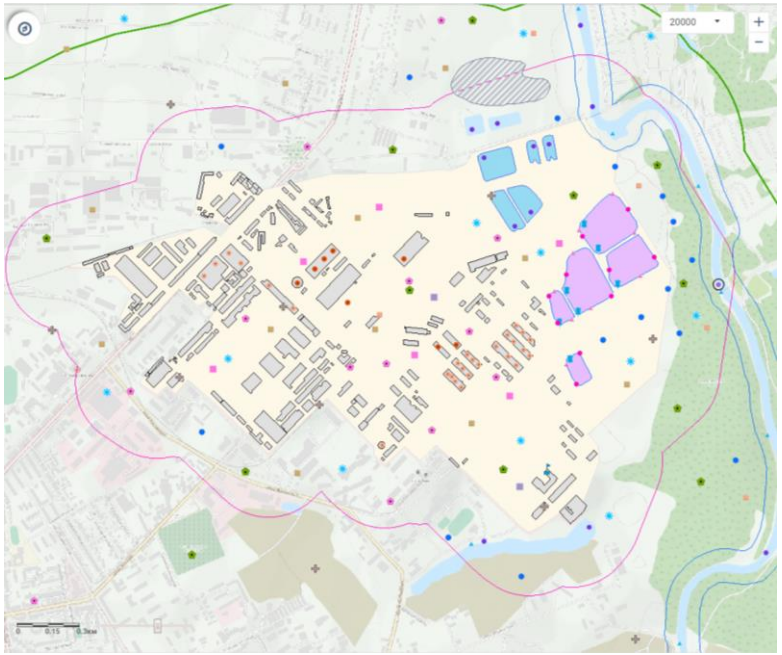
Methodological support of monitoring, numerical modeling of hydrodynamic and solute transport using innovative domestic software products

Automated information and analytical systems (AIS FFMS, IAS REM)



Informational Geo-ecological Report (IGR)

MONITORING SYSTEM DEVELOPMENT AND JUSTIFICATION



- More than 21 thsnd. observation point
- More than 1,5 mln. measures results in database

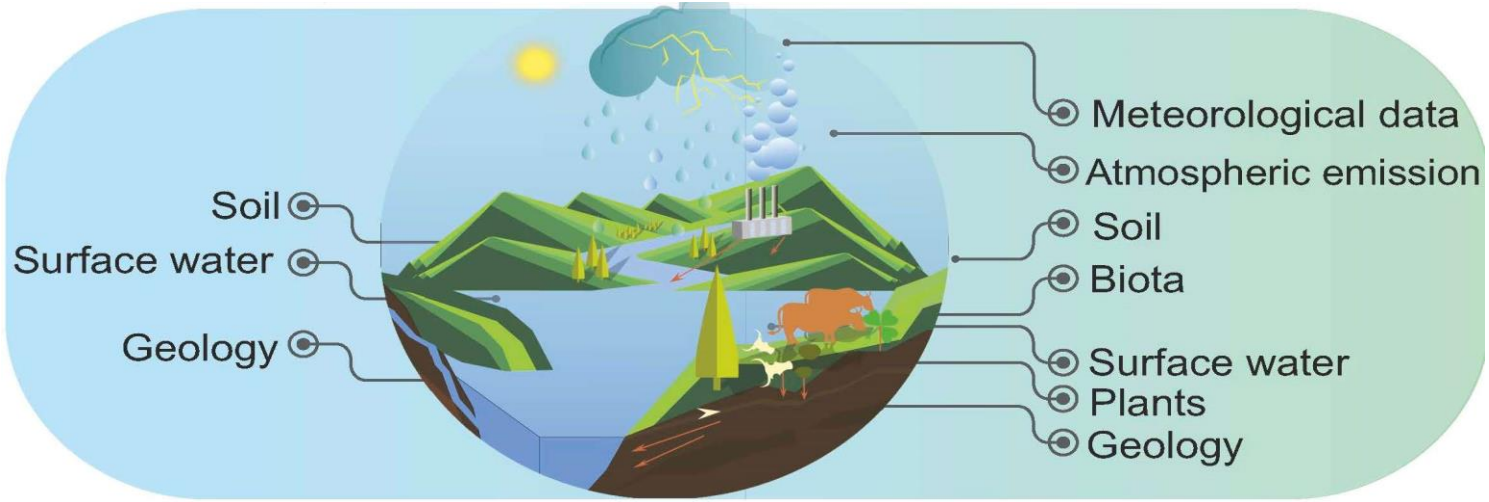
INDUSTRY INFORMATION-ANALYTICAL SYSTEM AIS FFMS and IAS REM

IAS FFMS

The main task is to provide a geo-ecological justification for safe radioactive waste management and decommissioning nuclear facilities

IAS REM

The main task is to build an integral system of environmental management for SC Rosatom



Implemented on 55 enterprises

Implemented on FSUE MAYAK and JSC «SCC»
Planed to install on 20 enterprises toward 2023 year

NUMERICAL MODELING WITHIN THE FRAMEWORK OF THE AIS FFMS

35 Forecasts of the impact of the nuclear facilities on the subsoil were completed. The facility-focused monitoring systems were optimized

13 Rehabilitation measures were substantiated

19 Permanent operating models (PDM) were developed

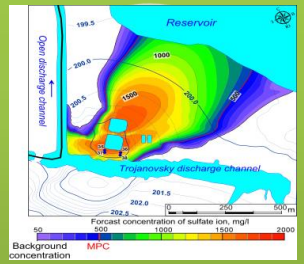
5 Simulation results were taken into account

4 Simulation results were used in public hearings

Enterprises of SC Rosatom for which hydrodynamic and solute transport models were developed

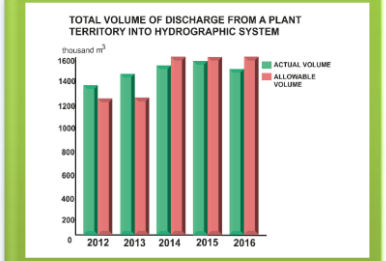
INFORMATIONAL GEOECOLOGICAL REPORT (IGR)

The main purpose of the IGR development is to provide, in a generalized form, integrated data on environment state in an area where nuclear facilities are located, to evaluate their impact on environment, to assess risk for the population from SC Rosatom enterprises and to compare it with risks caused by other enterprises operating within the same area.

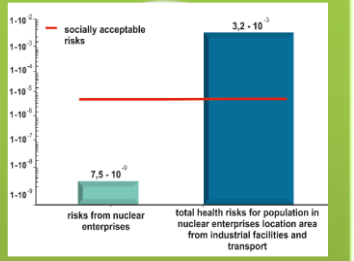


Monitoring of subsurface state

(AIS FFMS)



Monitoring of most relevant environmental components (IAS REM)



RISK ASSESSMENT

At present, the IGR has been developed for JSC Angarsk Electrolytic Chemical Combine and JSC Institute of Physics, Power Engineering and the Ural Electrochemical Combine and ELEMASH Until 2030 the IGR is planned to be prepared for 28 enterprises in the nuclear industry.

PACKAGE PROPOSAL
WITH FLEXIBLE SET OF INSTRUMENTS

THE FFMS AND THE AUTOMATIC INFORMATION-ANALITICAL SYSTEM → **Data accumulation and analysis of natural and industrial conditions of nuclear energy facilities**

NUMERICAL MODELING BASED ON DOMESTIC RUSSIAN INNOVATION SOFTWARE PACKAGE ПРОДУКТОВ → **Development of dynamic and solute transport model of nuclear energy facilities for any level of complexity based on survey and project documentation data**

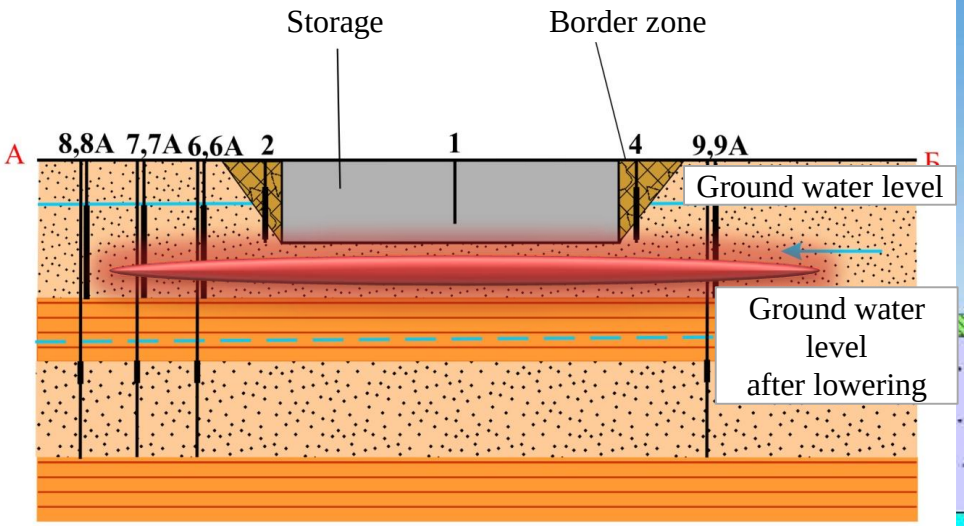
NFORMATIONAL GEOECOLOGICAL REPORT (IGR) → **Performance of generalized comparative analysis of nuclear energy facilities impact on environment based on public available information**

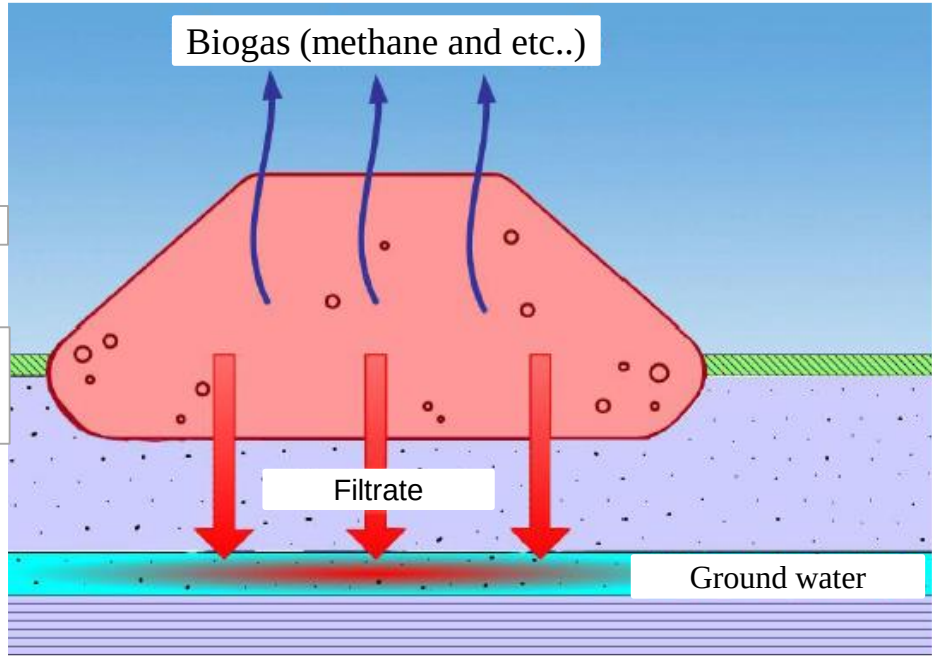
INTERNATIONAL MARKET

PRACTICES OF GEOECOLOGICAL MONITORING COULD BE USE FOR:

- NUCLEAR POWER PLANTS CONSTRUCTION;
- DECOMMISSIONING OF NUCLEAR AND RADIATION FACILITIES ABROAD.

REPLICATION GEOECOLOGICAL MONITORING PRACTICE EXAMPLE: MUNICIPAL SOLID WASTE





CONCLUSION

Developed and implemented for SC Rosatom facilities for the first time in national practice Geo-ecological monitoring tools could be customized and replicated within Russian and international projects of SC Rosatom.

Projects like NPP construction and decommissioning of nuclear legacy facilities and also for related industries (for example on Municipal Solid Waste landfill and etc.)

THANK YOU FOR ATTENTION!