

## ABSTRACT

Explanatory note has 101 p., 16 fig., 20 tables, 3 appendixes, 34 sources.

Object of study - VHR of the first circuit of NPP with VVER-1000.

The subject of research is the subsystem of search for corrosion hazardous sites in the first circuit of the NPP based on the simulation of the radiolysis process.

The purpose of the work is to develop mathematical models of the water-chemical mode of the coolant of the first circuit VVER-1000 and their software implementation.

A key aspect of the work is the search for corrosion hazardous sections of the first circuit based on the developed models. The work investigates the water-chemical mode of the coolant of the first circuit of the VVER-1000 reactor. Mathematical modeling of the processes of radiolysis of the coolant is carried out taking into account the change of the temperature along the circuit. A software module has been created that implements the developed algorithm.

A startup project has been developed based on the technical and economic indicators of this process.

HEAT-CARRIER CONDITION CONTROL, FIRST CIRCUIT OF ATOMIC REACTOR, WATER RADIOYSIS, MATHEMATICAL MODEL, SIMULATION.