

**Cernavoda NPP: Source term control improvement & optimization
of individual and collective doses**

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Individual and collective dose reduction is one important objective of Cernavoda NPP radiological safety policy. Radiological risks associated with operation and maintenance activities performed in a nuclear power plant must be controlled in a such manner that radiation exposure of personnel be kept ALARA.

Identifying, reducing, and controlling radiation sources are important for both optimizing workers exposure and preventing unplanned exposures.

Also accurate and effective communication of radiological risk is important for source term and personnel exposure control.

Controlling source term at Cernavoda NPP is a real challenge for our organization due to the complex aspects of generation and potential spreading ways.

By controlling systems' modifications, the integrity of protection barriers has been maintained in order to maintain radiation fields at levels as low as reasonably achievable.

Significant improvements of main radioactive circuits chemistry control which are in process of implementation will contribute to reducing activation products deposition and, as a result, to gamma radiation fields reduction.

A sophisticated RMS has been successfully used to continuously monitor radiological hazards in accessible areas and in some other zones in order to early detect significant changes or abnormal trends of radiation fields.

Heavy water leaks have been promptly identified by using TAM – tritium in air monitoring system and treated with high priority contributing to significant reduction of personnel internal exposure and environmental emissions.

Outage Activity Transport Monitoring (OATM) surveys permit component radionuclide activities and their radiation field contributions to be trended with reactor operation. These data are required to perform various assessments such as the effects of chemistry changes on radiation fields, evaluation of the source term reduction technologies and decontamination planning.

Defective fuel is identified by continuous monitoring of radioactivity in fuel channels and it is promptly discharged to spent fuel bay.

Good collective dose performances confirmed the efficiency of source term control policy of Cernavoda NPP.