

RADIOLOGICAL SAFETY ANALYSIS FOR THE MAIN INCIDENTS OF THE ITER SYSTEMS

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Two incidents among those defined for the ITER systems are analysed from the radiological safety point of view due to their major impact on the worker safety:

- "In-vessel FW pipe break"
- "Heat exchanger leakage"

For both incidents no direct personnel exposure is envisaged during the events.

Nevertheless, the maintenance activities needed to restore the systems to their original performance are responsible of an increase of the individual dose and of the Occupational Radiation Exposure (ORE).

Maintenance scenarios are described for both the after-incidents situations and the related timing and person power are estimated and discussed.

Dose rates related to the FW module operations are derived from previous analyses. Original new assessment of the dose rate in the operator position are performed in the current study to evaluate the impact of heat exchanger (HX) tube plugging. The radiological source term for the scenario is the activated corrosion product (ACP) already assessed for previous analysis. The evaluation of the inner surface concentration of ACP is based on the model prepared for the code PACTITER used to assess the source term. Computer models for dose rate assessment are presented.

Collective doses for the repair activities following the two incidents are quantified for the maintenance activities to recover both the "in-vessel FW pipe break" and the "heat exchanger leakage."