

Atmospheric Dispersion of Radionuclides Originating from Hypothetical Accidents and Normal Operation in Research Reactors and Medical Production Facilities

Analytical and Commercial Gaussian Plume Dispersions Models are used at INVAP as an efficient tool for the design and optimization of Research Reactors, Medical Production Facilities (MIPFs) and Fuel Elements Manufacturing Plants, already operations in different countries. INVAP has relevant experience related to the atmosphere radionuclide emission, monitoring and mitigation, at each stage of the design of nuclear facilities. In this work, results of emission from Normal Operation and different examples of hypothetical accidents, considered in Preliminary and Detailed Design Stages, for Research Reactors and MIPFs, are presented. The different contributions of the radionuclides released to the atmosphere are analyzed, in the frame of International and National Regulatory requirements. The contribution from Noble gases, Iodine/Bromine and Aerosols are presented and evaluated also from a radioprotection point of view.

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