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T2.4-P03. Capabilities of INVAP in Dose Calculation at Medical Isotope Production Facilities

Medical and industrial isotopes are commonly used in science, medicine and industry, and the principal use is for medical diagnostics. One of the most used radionuclides is Technetium-99m (daughter of Molybdenum (99Mo)). The process for its production includes fission of 235U and during this process fission gases with Xenon (Xe) and Krypton (Kr) are released to the atmosphere. For many years INVAP has been acquiring experience in the design and start-up of Medical Isotope Production Facilities (MIPF), including the safety and security protection radiological analysis and gaseous effluent release monitoring. The safety analysis is based on conservative Gaussian Plume models which include the evaluation of atmospheric dispersion and transport of radionuclides, meteorological conditions, emission parameters and site characteristics. Normal operation and accidental scenarios (Design Base Accident and Beyond Design Base Accident) are modeled. Soil and groundwater dispersion calculus for the safety analysis are actually in progress. In this work capabilities of INVAP in dose calculation for emissions in MIPF are presented.

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