

RISK-BASED MINIMUM DETECTABLE CONCENTRATIONS FOR RADIOLOGICAL ANALYSIS OF ENVIRONMENTAL MEDIA AT THE SAVANNAH RIVER SITE

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ABSTRACT

Other than drinking water, there is no definitive guidance in existing federal or state regulations concerning the appropriate minimum detectable concentrations (MDCs) that should be achieved for radiological analysis of environmental media.

At the Savannah River Site (SRS), it has been proposed that MDCs for environmental samples be risk-based. Using

- 1) applicable and reasonable pathways to man,
- 2) maximally exposed individual usage rates appropriate for SRS,
- 3) U.S. Department of Energy (DOE) approved dose factors,
- 4) dose to risk factors from the International Commission on Radiological Protection (ICRP) Publication 60 (7.3 E-07 total risk per mrem),
- 5) and a 30-year exposure time

Calculations were performed to determine radionuclide concentrations in environmental media that equated to a potential lifetime risk of 1E-06.

This technical presentation describes the process used to determine appropriate MDCs for selected environmental media. Also, a comparison of the risk-based MDCs with the SRS Environmental Monitoring Section's existing environmental media MDCs is provided and discussed.

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