



## 3D simulation as a tool for improving the safety culture during remediation work at Andreeva Bay.

<https://arctichealth.org/en/permalink/ahliterature265458>

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Source: J Radiol Prot. 2014 Dec;34(4):755-73

Date: Dec-2014

Language: English

Publication Type: Article

Keywords: Decontamination - methods  
Hazardous Waste Sites  
Imaging, Three-Dimensional - methods  
Models, organizational  
Norway  
Organizational Culture  
Radiation Monitoring - methods  
Radiation Protection - methods  
Radioactive Waste - prevention & control  
Russia  
Safety Management - organization & administration

Abstract:

Andreeva Bay in northwest Russia hosts one of the former coastal technical bases of the Northern Fleet. Currently, this base is designated as the Andreeva Bay branch of Northwest Center for Radioactive Waste Management (SevRAO) and is a site of temporary storage (STS) for spent nuclear fuel (SNF) and other radiological waste generated during the operation and decommissioning of nuclear submarines and ships. According to an integrated expert evaluation, this site is the most dangerous nuclear facility in northwest Russia. Environmental rehabilitation of the site is currently in progress and is supported by strong international collaboration. This paper describes how the optimization principle (ALARA) has been adopted during the planning of remediation work at the Andreeva Bay STS and how Russian-Norwegian collaboration greatly contributed to ensuring the development and maintenance of a high level safety culture during this process. More specifically, this paper describes how integration of a system, specifically designed for improving the radiological safety of workers during the remediation work at Andreeva Bay, was developed in Russia. It also outlines the 3D radiological simulation and virtual reality based systems developed in Norway that have greatly facilitated effective implementation of the ALARA principle, through supporting radiological characterisation, work planning and optimization, decision making, communication between teams and with the authorities and training of field operators.

PubMed ID:

25254659 [View in PubMed](#) 