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## **Cesium Chloride: Risks and Alternatives**

Recommendation 3.19 of the IAEA Nuclear Security Series No.14, Nuclear Security Recommendations on Radioactive Material and Associated Facilities states, "The State should assess the potential threats, the potential consequences and the likelihood of malicious acts, and then develop a legislative and regulatory framework that provides for efficient and effective security measures to address the threat."Malevolent use of radiological material and the risk associated with it is represented by the likelihood of an attack and the consequence associated with that attack. The U. S. National Academy of Sciences used a risk-based analysis for its 2008 Radiation Source Use and Replacement Study, one of the early reports that used a risk model to assess the potential malevolent use of radiological materials, specifically a radiological dispersal device (RDD), and recommend solutions to reduce the risk, such as phasing out the use of cesium chloride (CsCl). The United States Department of Energy National Nuclear Security Agency's Office of Radiological Security has a worldwide program to expand and accelerate efforts to reduce the potential malevolent use of CsCl, referred to as the Global Cesium Security Initiative (GCSI). GCSI works either to improve radiological material security at facilities with the goal of achieving material containment in coordination with enhanced delay through in-device delay technologies and law enforcement response integration or to achieve permanent risk reduction through replacement of CsCl with alternative technologies.

This presentation will review the analyses and real-world accidents that illustrate the unique national security risks associated with CsCl. Applications and uses of CsCl devices will be discussed with an assessment showing the global footprint of these devices. Alternative non-radioisotope technologies will be discussed along with the incentives and barriers for using these alternatives. GCSI's approach to and successes of collaborating with international partners that use CsCl-based devices to provide advanced security enhancements, assistance to replace CsCl devices with alternative technologies, and support for removal or consolidation of disused CsCl devices will be highlighted.

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