

**A CST Waste Tank Accident Analysis for a Post-Seismic Explosion Event**

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**Abstract**

An analysis has been conducted to define a bounding tank to represent the 51 waste storage tanks at the Concentrate Storage and Transfer (CST) Facility of the Savannah River Site (SRS) for the seismic follow-on explosion event. This bounding tank is used to perform the accident analysis to investigate the consequence of the explosion for two scenarios. Analytical models have been developed to determine the hydrogen concentration in the tank vapor space as a result of radiolysis generation and sudden release of the hydrogen trapped in the sludge and saltcake. This analysis also investigates the consequences caused by hydrogen deflagration and detonation. The results of the analysis indicate that the offsite dose of such an event is limited to approximately 2.1 rem.