2.1 Additional Tests of an Advanced Vitrification System

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Abstract

The Radioactive Isolation Consortium, LLC (RIC) is performing a 10.5 month, $2.85 million research contract with the Department of Energy (DOE) on its Advanced Vitrification System for vitrifying high-level radioactive waste.

The AVS is a patented approach to vitrification-in-the-final-storage-canister that holds the potential for significantly greater safety, reliability, and economy than current high-level radioactive waste vitrification systems.

The objective of the work is to conduct bench-scale vitrification tests, using DOE provided waste simulant, in order to demonstrate the ability of the existing design Advanced Vitrification System (AVS) test equipment to produce a simulated waste glass containing 5% boron oxide, which meets the technical criteria for immobilized high-level waste (HLW) at the DOE Hanford site. Waste content of the glass will be 35% for one deliverable and the highest percentage attainable in a second deliverable.

The Envelope D waste simulant will include cesium, several RCRA-listed constituents and other chemicals that might be expected to be recycled to the HLW melter.

Chemical analyses will be conducted on the vitrified product and leach testing will determine its performance in comparison to DOE s Environmental Assessment standard glass.