WM2016 Conference Panel Report

PANEL SESSION 75: **Dealing with Problematic US DOE Mixed Waste Streams and Policy Changes**

Co-Chairs: **Renee Echols**, *PermaFix Environmental Services*
Theresa Kliczewski, *US DOE EM-32*

Panel Reporter: **Dick Blauvelt**, *Portage Inc.*

Panelists:

1. **Scott Anderson**, *Deputy General Manager, CH2M Hill BWXT West Valley LLC.*
2. **Randy Erickson**, *Associate Director of Environmental Programs, Los Alamos National Security LLC*
3. **Lee Fox**, *Manager, Solid Waste, Savannah River Nuclear Solutions*
4. **Kenneth Grumski**, *Vice President of Federal Services, Waste Control Specialists LLC*
5. **Connie Simiele**, *Vice President, Waste and Fuels Management, CH2M Plateau Remediation Company*
6. **John Wrapp**, *Waste Disposition Manager, URS|CH2M Oak Ridge LLC*

This panel convened again in a well-attended session at WM2016 to discuss progress made resolving issues surrounding the disposition of DOE mixed low-level waste (MLLW) and to examine remaining challenges in this once problematic waste category. In past years, the mixed waste community struggled with availability of appropriate treatment technologies to meet the LDR requirements and of permitted disposal facilities able to accept higher activity mixed waste. Treatment vendors have tackled treatment technology issues; the NNSA site in Nevada developed a fully permitted disposal facility. A mixed waste disposal facility has opened in west Texas along with treatment and storage capabilities. With these major issues addressed, some challenges remain with waste stream inventories with "no path to disposal" and potential impacts from regulatory and policy issue changes in addition to the impact of the WIPP shutdown. This panel of generators and a treatment, storage and disposal representative addressed those remaining challenges while reporting on progress made since WM2015.

Summary of Presentations

Scott Anderson discussed the most recent high priority project associated with the next phase of the West Valley Demonstration Project, the site of a commercial reprocessing facility that operated from 1966 until 1972. The Department of Energy has vitrified the high level radioactive waste collected by the operations and put it in stainless steel canisters that could be emplaced in a repository when one is available. The project discussed is the loading of these canisters to an overpack then placing five canisters into an 87.5 Ton cask and transporting the cask 2600 ft. to a high level waste dry cask storage pad to allow D&D of the vitrification plant. Challenges along the way were discussed.

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Randy Erickson provided insight on some of Los Alamos National Laboratory mixed waste issues. These included activities surrounding nitrate salt waste, including a detailed examination of the LANL potential nitrate salt waste inventory and the numerous corrective actions taken following the WIPP incident to assure future safe storage and treatment. A second problem waste, large flanged tritium waste containers, some with up to 80000 Ci of tritiated waste and a mixed waste component. This waste stream now has a disposition path. LANL is working closely with the generators to sort and segregate potential mixed waste components and reduce waste residence time to avoid legacy waste issues.

Lee Fox discussed two unusual mixed waste streams that seemed problematic. The first is a cadmium rod cask contaminated from reactor operations. Current activity levels would require a Type B shipping cask that does not exist. Calculations were run to indicate that by 2018 IP2 packaging levels would be achieved. With the addition of impact limiters, the cask could be disposed after storage until 2019. A second waste stream consisted of a high activity waste transfer container that contained lead. This unit will be removed from the trailer and shipped by rail to a disposal vendor that will recycle the lead and dispose of the container. A third more conventional mixed waste stream issue dealt with tritium and mercury contaminated oil and/or equipment involving tritium capture, Hg removal, deactivation of reactive metals and solidification.

Ken Grumski provided a slide presentation supplemented with a video that highlighted the storage, treatment and disposal capabilities of WCS, offering one stop treatment and disposal. He discussed three examples of service including mixed waste high gram loading treatment, large component disposal and use of the "macro bag" all involving approved treatment methods to meet LDR requirements.

Connie Simiele provided a brief history regarding the disposition of MLLW at Hanford with 9200 M^3 in storage by 1999. With multiple contracts for commercial treatment and transportation in the 2000s and an onsite disposal facility, the volumes were significantly reduced. More recent successes include sodium metal contaminated waste disposal through a commercial vendor that converted the metal to sodium hydroxide which was used in a vendor process. The remaining legacy MLLW includes RH hot cell debris and containers that are too large or have a high dose, or high H3 content.

John Wrapp provided an update on the Oak Ridge "no path to disposal" (NPTD) mixed low level waste. Compliance agreements provided regulatory relief until a pathway could be established but required continuous progress. The site utilized historical process knowledge, characterization data, regulatory strategies, treatment technologies and the competitive marketplace to address four of six problematic streams. Issues remain with dioxin and furan waste and sodium and lithium shields, some large. There is a concern that commercial treatment options for some problematic wastes could die away for lack of business.