EFCOG Waste Management Working Group

September 21, 2011

Ms. Christine Gelles, Director
Office of Disposal Operations-EM
US Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

RE: Identification and Disposition Options for Problematic Wastes

Dear Christine,

Attached is the EFCOG Waste Management Working Group's (WMWG) report of the results from our investigation of wastes with no path to disposal across the DOE Complex as one of the WMWG's main focus areas. As you know, your office (DOE EM HQ Office of Disposal Operations (Christine Gelles, Director)) requested the EFCOG WM Working Group (WMWG) to provide advice or assistance to sites that manage "problematic wastes". Problematic wastes, also referred to as "wastes with no path to disposal" or "orphan wastes", are generally Low-Level, Mixed Low-Level or Transuranic Wastes that present a problem to DOE and their contractors for disposition. On our investigation led by Renee Echols, we found that issues range from no treatment technology available to render the wastes acceptable for disposal to a lack of adequate funding for disposition. The WMWG is actively pursuing potential resolutions to the issues associated with problematic waste disposition and we will keep you and your staff involved and informed of our progress.

Sincerely,

W. T. Goldston, Chair
EFCOG Waste Management Working Group

CC: L. Ty Blackford, CH2MHILL
Renee Echols, Perma-Fix
Mark Frei, EFCOG Working Group Coordinator
William Levitan, DOE
Frank Marcinowski, DOE
Billy Morrison, EFCOG Director
Doug Tonkay, DOE
Mike Waters, Cavanagh
Joe Yanek, Chair, EFCOG Board of Directors

Identification and Disposition Options for Problematic Wastes

Background

DOE EM HQ Office of Disposal Operations (Christine Gelles, Director) requested the EFCOG WM Working Group (WMWG) to provide advice or assistance to sites that manage "problematic wastes". Problematic wastes, also referred to as "wastes with no path to disposal" or "orphan wastes", are generally Low-Level, Mixed Low-Level or Transuranic Wastes that present a problem to DOE and their contractors for disposition. Issues range from no treatment technology available to render the wastes acceptable for disposal to a lack of adequate funding for disposition. The WMWG is actively pursuing potential resolutions to the issues associated with problematic waste disposition.

Approach

In 2010, the WMWG initiated an investigation of the best approach to assist DOE with identification and disposition options for problematic wastes. The intent was to provide disposition options for various problematic waste streams, identify challenges associated with those new options, and explore the possibility of combining wastes with similar characteristics across the Complex to improve the cost effectiveness of disposition.

Renee Echols, Vice-Chair of the WMWG, was assigned the lead for this effort. The first step in the process was to determine the characteristics of each problematic waste stream within the DOE complex by evaluating the WIMS database (including the most recent updated information made available in April 2011). From the evaluation, Echols was able to gain valuable information by focusing on the yellow and red flagged waste streams that are indicators of issues associated with waste disposition. The flagged waste streams were then grouped based on common characteristics such as high radionuclide concentration or chemical composition. This proved that there are groups of similar problematic wastes at a number of sites that the WMWG could evaluate further. The second step was to contact DOE EM Disposal Operations personnel to request support in notifying the complex of the WMWG's efforts through Corporate Boards and other communication avenues.

The last step of this process was to provide this information to Christine Gelles during the WMWG meeting held in December 2010. Ms. Gelles suggested the WMWG focus on one type of problematic waste common to more than one site.

Study

The WMWG selected wastes containing high concentrations of Tritium (H-3) for the first evaluation. "High concentrations of H-3" is a subjective term and was used here to indicate waste streams with more than approximately 1,000 curies in a component, package, or container. Wastes containing significant concentrations of H-3 are an issue for several sites around the Complex, and are problematic due to the difficulty associated with characterization (e.g., physical constraints of contaminated items or containers); mobility of this isotope and the risk of contamination; laboratory capability to receive samples of these wastes at higher activities; transport mechanism availability for shipment to treatment and/or disposal (e.g., Type B shipping cask); and, the cost associated with treatment and/or disposal.

The sites participating in the high H-3 activity evaluation are Los Alamos National Laboratory (LANL), Savannah River Site (SRS) and Lawrence Berkeley National Lab (LBNL).

- LANL has 4 components containing 185,000 curies of H-3 that do have regulatory drivers to remove from the site. These components may present issues for characterization, transportation, and disposition that the WMWG can assist with. LANL also has other high H-3 waste streams that may encounter similar issues. However, funding is currently not adequate. The WMWG has informed LANL that it is available to provide support as needed.

- SRS has equipment (debris), liquids and solids with H-3 levels meeting the established curie content. However, the responsible prime contractor Savannah River Nuclear Solutions (SRNS) does not have funding or regulatory drivers at this point that will require disposition of these wastes. Due to the lack of funding and regulatory drivers for this population of waste the WMWG cannot support using like wastes across the Complex to improve the cost effectiveness of disposition. If funding can be made available for the debris portion of this waste there is a possibility the LANL and SRS waste streams can be combined for a significant cost savings to the Government. The WMWG will continue to track the SRNS wastes and provide assistance as needed.

- LBNL has a small scrubber system used for H-3 recovery that is a challenge to characterize and disposition. The component does not fit the H-3 concentration established for the initial study, however, the WMWG decided to assist LBNL in identifying a disposition path. LBNL is interested in transferring this piece of equipment that is still in usable condition, to another site to avoid disposition. The WMWG provided LBNL with a forum to discuss this component with other sites, and provided contact information for other national laboratories that may have an interest in the unit.

The WMWG will provide updates to DOE on progress that is made for these problematic wastes.

Future Work

The WMWG members have requested that Reactive Wastes (e.g., Sodium, Lithium, etc.) be the next problematic waste type to be evaluated. These wastes pose specific health and safety risks for sites during storage and management as well as treatment facilities for receipt and treatment.

Summary

The WMWG will continue to monitor issues related to problematic wastes and provide any support or advice to DOE or site personnel as needed. It should be noted that problematic wastes can often be a lower priority for disposition unless there is a regulatory driver or other pressing need. These wastes are typically small volume and can be costly to disposition, which impacts its prioritization.