PANEL SESSION 56 - Disposition of DOE High Activity Mixed Waste: Post 2010--Problematic or No Problem

Co-Chairs: Dick Blauvelt, *Navarro Research and Engineering Inc. (USA)*
Christine Gelles, *US DOE (USA)*
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This panel was assembled to focus on the latest issues surrounding the disposition of DOE high activity mixed waste. The US DOE sites have the bulk of the inventory of 10-100nCi/g alpha mixed waste that was formerly managed as suspect TRU waste but is not eligible for WIPP disposal. In addition, its activity exceeds the limits for the Energy Solutions mixed waste disposal site. Furthermore, it must be treated to meet LDR requirements. Perma-fix and Energy Solutions are currently authorized to treat B, C-like mixed waste. The treated waste can only be disposed of at the DOE Nevada Test Site and the NTS has a window of opportunity for the disposition of these mixed waste streams that will close on December 1st of this year. DOE is currently planning to develop a fully permitted mixed waste disposal cell on the NTS that could be available in early 2011. It was noted that with the Hanford Reservation now closed to out of state shipments for an extended period, that is, until the tank waste treatment plant opens, the proposed WCS mixed A,B,C disposal site will be all the more critical. With respect to generator shipments, ARRA stimulus funding has definitely assisted with this shortfall but will be ending next year.

All panel members along with the attendees and facilitated by co-chairs Dick Blauvelt and Christine Gelles, DOE/EM HQ, reviewed and discussed the issues and the challenges represented by this disposition activity.

The panel members included;

1. Christine Gelles, *US DOE EM HQ;*
2. Frank Di Sanza, *US DOE NSO;*
3. Mike Lauer, *Waste Control Specialists;*
4. James "Bruno" Zovi, *Bechtel BWXT Idaho, LLC;*
5. James Blankenhorn, *LANL;*
6. Renee Echols, *Perma-fix;*
7. Paul Larsen, *EnergySolutions.*

Christine Gelles, the Director of the Office of Disposal Operations for DOE EM in Washington led off this session. She indicated that there continues to be a high priority in DOE EM to move forward with the disposition of this waste at all DOE sites aided significantly by the administration's stimulus (ARRA) funding. With the current mixed waste disposal site closing as scheduled in December, DOE is planning a fully permitted mixed waste disposal cell at NTS that could be open early in calendar year 2011. In addition, the construction and operation of a second mixed waste disposal site by WCS for DOE higher activity mixed waste is supported and post closure responsibilities for the federal government have been agreed upon. An additional challenge will be to strive to maintain momentum when stimulus finds are no longer available.

Frank Di Sanza provided input from the NTS low level mixed waste disposal site perspective. Compliance issues that impacted shipments in previous years have not been an issue in FY2010. The ARRA funding has been helpful to increase the volumes shipped and FY2010 should provide the largest amount of mixed waste shipped yet during the five year mixed waste cell operation. The design and approval process for a fully permitted cell to replace the existing operation that will cease on December 1 of this year has been moving forward satisfactorily. The new cell will have a capacity of 25K M3. Current planning would allow for an opening in March 2011. NTS may be able to provide onsite storage for the three months when disposal would be off line.

Mike Lauer of Waste Control Specialists (WCS) discussed the existing capabilities they have for treatment, storage and disposal of radioactive, mixed radioactive and hazardous waste. WCS has a total of 14.7K acres in TX and NM for rad waste storage and disposal. The panel-significant capability deals with the disposal of Federal Class A, B and C mixed waste. The license was granted and signed in 2009 and construction will begin this year. The capacity will be 8.1M ft3 for ABC mixed waste. The capability to receive this waste by rail could be a benefit. The anticipated opening date is August 2011. It is recognized that even with NTS opening up in March, a second disposal site is desirable for DOE class B,C like mixed waste. Federal involvement in long term remediation and post closure activities has been settled.

James Zovi noted that the INL has about 65000M3 of waste managed as TRU and of that amount approximately 13000 M3 is actually low level mixed waste that must be treated prior to disposal, with more than 4000M3 between 10-100 nCi/g and thus requiring disposal at NTS or the proposed WCS facility. Problem wastes include those difficult to assay, oversize or degrading waste packages and high fissile content waste. ARRA funding has helped to accelerate characterization and shipment and has funded waste repackaging that has minimized the volume of high activity mixed waste requiring treatment and disposal.

James Blankenhorn reported that LANL has approximately 2200M3 of 10-100n/Ci mixed waste, most below grade. In addition, another estimated 1000M3 of this higher activity mixed waste will be generated during the retrieval, characterization and certification of TRU waste in storage. LANL has also benefited firm ARRA funds and disposition of the mixed waste inventory actually slightly exceeded goals for FY2009. Other problematic mixed waste includes high tritium content mixed waste and large gloveboxes contaminated with Pu and lithium.

Renee Echols discussed the multiple treatment capabilities of Perma-fix, a commercial treatment vendor with NTS certification for disposition of mixed waste including DOE's high activity mixed waste. She identified former orphan wastes that have found a treatment path in addition to those that are still problematic. Including some higher activity mixed waste, reactives and Na bearing waste and high SCO gloveboxes. The presentation included the identification of capabilities and limitations of both treatment and disposal facilities in addition to identifying issues of funding.

Paul Larsen from Energy Solutions provided an update on all of the company's locations and highlighted their treatment and disposal capabilities. Of interest to the higher activity mixed waste disposition is their Bear Creek TN facility that provides a second commercial option for

treatment of high activity mixed waste. The RCRA permit currently allows macro encapsulation along with a sort and segregate operation. Future treatment processes to be permitted at Bear Creek will include but is not limited to stabilization, amalgamation, chemical reduction and deactivation. Energy Solutions has NTS certification.

The session was well attended. It is anticipated that another session on this topic will be proposed for WM2011 to determine progress on the remaining issues. Dick Blauvelt will take this recommendation to the PAC.