

WM Symposia WM2010 Conference Panel Report

PANEL SESSION 55: Blending US Commercial Low-Level Waste to Modify its Class to Disposal: Risk Informed or Deregulation?

Co-Chairs: Larry Camper, *US NRC and* Christine Gelles, *US DOE (USA)*

Panel Report – Maurice Heath, *US NRC*

Panelists include:

1. Christianne Ridge – *US NRC*;
2. Tom Magette – *EnergySolutions*;
3. William Dornsife – *Waste Control Specialists*;
4. James Clarke – *Professor, Vanderbilt University*;
5. Mike Mobley – *Southeast Compact Commission*;
6. Diane D'Arigio – *Nuclear Research Information Services*.

Some 90 to 100 people were present to hear this session on the Blending of Low-Level Waste. Following introductions by the Co-chair, **Larry Camper** opened the proceedings. He gave the reason for the panel. The closure of Barnwell disposal site to all out of state compacts, left 36 states without an option to dispose of Class B/C waste. Large scale offsite blending has surfaced as a means provide a disposal pathway for Class B/C waste. The panel is to discuss all aspects of the issue from the regulator, public interest and industry.

Christianne Ridge's presentation focused on the NRC's regulatory position on the blending of low-level radioactive waste. She expressed that blending is not prohibited or explicitly addressed in the NRC's regulations. The NRC has guidance that discourages blending for the sole purpose of reducing the waste class but acknowledges that in some instances blending is appropriate. The definition of blending is the mixing of low-level radioactive waste mixed with other low-level radioactive waste. Christianne reiterated that the Part 61 waste classification is for disposal. The tables in 61.55 contain radionuclides and concentrations and 61.55 tables have values that are based on protecting an inadvertent intruder.

The Branch Technical Position discourages blending unless there can be a gain in operational efficiencies and/ or worker dose. In 1997 NRC Commission, in direction setting initiatives, steered the agency to be more risk-informed performance based. It's recognized by the Commission that disposal is the preferred method of disposal however storage can be done safely and effectively.

Tom Magette gave a talk on evaluating blending through NRC Part 61 Subpart C can be done safely under NRC Regulations. One reminder about Part 61 is that waste disposal is based on the concentrations of the waste. Why blend is a question being asked to industry. He explained that blending offers dose reduction at power plants and can improve operational efficiency. Tom Magette explained that EnergySolutions volume capacity at their low-level waste disposal site in Clive, UT will not be adversely affected by the increase volume of Class A blended waste. EnergySolutions believes that blending of low-level waste will reduce storage, provide a volume reduction, save exposure and have a predictable cost. The last point to remember is that blending is consistent with NRC guidance, provides solution and disposal options and will protect human health, safety and the environment.

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William Dornsife gave a talk on the low-level waste unresolved technical issues. He explained that the original Environmental Impact Statement (EIS) for 10 CFR Part 61 did not analyze waste at the limits of any waste class contained in Part 61. Waste Control Specialists did a generic intruder dose assessment (for disposal of blended waste) and one conclusion is that a site specific Performance Assessment needs to be done similar to the Depleted Uranium rulemaking. Blending (or Dilution as referred to in Texas Legislation) is counter to several longstanding waste management principals and still strands a large portion of Class B/C waste. The blending of low-level waste would discourage the development of new low-level waste disposal sites. The Texas Regulations (30 TAC 336.229) states that radioactive material that has been diluted as a result of stabilization or mixing treatment shall be subject to the disposal regulations it would have been subject to prior to dilution. Different states have different rules on blending or dilution. The main message to NRC, have a consistent definition and method of regulating blending of low-level waste.

Dr. James Clark described that concentration is not risk and its not dose. 10 CFR Part 61 waste classification tables are built on radionuclide concentrations. Decommissioning (of waste in particular) has the goal of meeting the unrestricted release criteria. NRC regulations have deterred the intentional mixing of contaminated soils to meet disposal criteria. The question is how to make risk-informed decisions? Dr. Clark wants to know what can go wrong and how likely are the consequences?

Mike Mobley discussed historical perspectives when dealing with blending. He encouraged the NRC to define "blending." Once blending is defined all regulators and industry counterparts will operate with a clear understand and expectations. Mike also stated that blending is allowed by federal agencies. EPA allows and promotes blending of drinking water contaminants below drinking water standard. DOE allows blending of TRU waste with water for transportation requirements. The message is mixing occurs and industry needs to be aware of a potential for problems. Mike explained that the radiation control is an issue however blending is not a significant radiation issue. Major radiation issues are medical doses to children and exposures to society from radiation patients allowed to leave hospitals and return to the general public. The radiation industry needs to consider exposures from every source.

Diane D'Arigio expressed concerns with radiation exposures and blending. The public interest has not been sufficiently heard in her opinion. Radiation exposure to workers and the public are increasing. The Department of Energy or NRC has institutional control for waste disposal sites however there is doubt by the public on how these hazards will be managed. There have been proven leaks at Class B/C disposal sites. Some of the major issues that NRC needs to resolve or clarify are: transportation of radioactive materials, attribution or title transfer, Part 20 revisions for project risks for families, Part 61 radionuclide tables, preventing involuntary exposure, defining risk and understanding risk to public. There needs to be more openness to the public with a renewed effort in communication.

Public Comment and/or Questions

Comment - EPA does not allow blending of hazardous waste, the regulations distinguish between material and waste.

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Comment – The Tennessee bulk survey for release program has regulations that govern but don't prescribe downblending. DOE does not allow extraction from U-233 or Thorium for medical use. Lack of disposal options makes it difficult and expensive. Industry has to find a rational disposal option.

Comment – The problem is not about guidance or policy, it's about the rule! Leadership needed to revise part 61 and organize it with 435.1. Use the example of NDAA 3116, Waste Determination where DOE and NRC worked together.

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.*
Christine Gelles, *US DOE (USA)*

Panel Reporter: Dick Blauvelt, *Navarro Research and Engineering Inc.*

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*.

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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 funds 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 10-100nCi 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 from 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.

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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.

PANEL SESSION 69 - Developments in the American Recovery and Reinvestment Act (ARRA)

NO REPORT PROVIDED

PANEL SESSION 70 - Partnerships with the IAEA Network of Centers of Excellence in ER – ENVIRONET

NO REPORT PROVIDED

PANEL SESSION 82 - New Power Plant Designs - the Nuclear Renaissance

NO REPORT PROVIDED

PANEL SESSION 83 - US Federal Government Contract "Capture" Workshop

NO REPORT PROVIDED

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PANEL SESSION 88 – Energy Facilities Contractor Operating Group (EFCOG) Waste Management Working Group – Quarterly Meeting

Co-Chairs: William Morrison, *EnergySolutions (USA)*;
W.T. (Sonny) Goldston, *Savannah River Nuclear Solutions, (USA)*
Panel Reporter – Nancy Rothermich, *LBNL*

Approximately 50 people attended this meeting included working group members and observers. The session began with an overview of the WM Working Group accomplishments in FY09. One of these accomplishments included a forecast of waste from ARRA projects.

An update of Headquarters activities was provided by **Christine Gelles**. Ms. Gelles informed the group that the Hanford restrictions on shipping waste from outside the state continues. NTS will continue to remain as a regional disposal site, and sites need to continue to evaluate commercial disposal sites. It was also reported that DOE has committed to take ownership of the federal cell at Waste Control Specialists if the cell is constructed and used. DOE and the State of Texas are in discussions to establish an MOA to accommodate changes to the WCS permit.

Additional DOE HQ updates were given by **Marty Letourneau** on the revision activities for DOE Order 435.1.

Several focus areas were identified for FY10. These areas include:

- Waste Characterization
- Revision to DOE Order 435.1
- Orphan waste
- Waste Characterization
- DOE Scrap Metal Recycling Moratorium
- Integration and Participation
- Policy & Integration
- DOT determination (LSA vs SCO) issues

In addition, two subgroups were identified to address particular issues of interest. These subgroups are High Level Waste (HLW) and Science Labs.

A variety of lessons learned were discussed including depleted uranium issues and ARRA wastes.

PANEL SESSION 89 - The IAEA Network on Environmental Management and Remediation – ENVIRONET - Bringing Regulatory Language and Operational Challenges Together

NO REPORT PROVIDED

End of Panel Reports