

## WM2013 Conference Panel Report

### PANEL SESSION 68: Regulatory Challenges and Innovations Related to US DOE Sites

**Co-Chairs:** Karen Guevara, *US DOE*  
Suzanne Dahl, *Washington State Department of Ecology*

**Panel Reporter:** Tom Brouns, *Pacific Northwest National Laboratory*

#### Panelists:

1. **Suzanne Dahl**, *Tank Waste Treatment Manager, Washington State Department of Ecology*
2. **Wesley White**, *Assistant Manager of the Environmental Monitoring and Compliance Program for DOE Oversight Office, Tennessee Department of Environment and Conservation*
3. **Shelly Wilson**, *Federal Facilities Liaison, South Carolina Department of Health and Environmental Control*
4. **F. David Martin**, *Cabinet Secretary, New Mexico Environment Department*

About 30 people attended this panel session which featured key members of US State regulators responsible for regulatory oversight of key US Department of Energy sites. Discussion topics included key challenges and examples of applied innovations in regulatory approaches which have resulted in streamlining regulatory interactions. Panelists discussed how they have influenced the various clean up or disposal missions at the respective DOE sites they regulate.

#### **Summary of Presentations**

**Suzanne Dahl** summarized the general status of clean-up at the DOE's Hanford Site in southeastern Washington State, including significant progress that has been made in soil and groundwater remediation along the Columbia River, as well as facility D&D. The harder, more challenging cleanup in the central plateau will be the last to be cleaned up, including 177 high-level waste tanks containing 56M gallons of waste, facilities, cribs, ponds, and trenches.

She then discussed the greatest challenges including a budget shortfall, needed capital projects, and tank waste storage and treatment. With regard to the budget shortcomings, Suzanne noted that approximately \$3B/year is needed for the Hanford Site to be fully compliant. At the roughly \$2B/yr level, the site is limited in what can get done on the plateau, such as remediation of cribs, trenches, canyon facilities and mixed transuranic waste (TRUM) management and shipment. The site is also limited in its ability to achieve basic compliance with RCRA. Significant additional capital projects are still needed, including a second low-activity waste (LAW) treatment facility, effluent treatment facility (ETF) upgrades, and immobilized HLW storage facility. Tank waste storage is a major challenge, representing a key part of the failing infrastructure at Hanford. There are 28 DSTs, and 149 SSTs (only 7 of which have been retrieved to date), with a number of leakers including a now leaking DST, and 6 SSTs recently announced as leaking by the Washington State Governor. Finally, tank waste treatment is both a policy and technical challenge. The vitrification plant startup has been delayed an additional 8 years after 3 false starts and 2 delays in the current plan, and now construction of the pretreatment facility has stopped. Technical issues contributing to the delays include black cell design, erosion and corrosion, and pulse jet mixer design and operation - particularly the potential for buildup of flammable gas.

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Regulatory innovations have been a driving force for clean up at Hanford, starting with the 1989 Hanford Federal Facility Agreement and Consent Order. This Tri-Party Agreement was innovative at the time, and has helped affect funding for clean up more effectively, and established the partnership between DOE and the regulators. A 2010 consent decree was a necessity for the state, to address issues of work not getting done in both tank waste retrieval and vitrification plant startup and operations. There have also been innovative permit approaches, such as establishing pre-closure conditions for maintenance and storage of tanks until waste is retrieved. The tanks are unfit for use (non-compliant), but will manage waste until 2040. Permitting for the Waste Treatment and Immobilization Plant (WTP) was also expedited, starting permitting activities at 30% design rather than the classic RCRA permit process which starts at 80-90% design. Permitting was phased as each component's design was complete, helping spread out design reviews and resource requirements. With TRU waste retrieved from trenches, the State could have forced each TRU package to be characterized and designated while stored, which would have cost more and increased exposure. DOE agreed to manage all waste as TRUM, and the state provided relief on the timeline for designation. The State also agreed to draft closure plans for small cleanup sites, rather than delay because of DOE budget pressures. DOE will submit closure plans on schedule with significant cost savings. Finally, agency boundaries have been crossed, with the Secretary of Energy and Washington State Governor agreeing to form technical teams last year to resolve vitrification challenges, and most recently agreement reacted to have robust technical discussions between DOE and the State regarding DST space and leaking tank solutions.

**Wesley White** introduced the Oak Ridge Reservation (ORR), and provided overall regulatory perspectives from the State of Tennessee Department of Environmental Control (TDEC). The ORR includes the Y-12 and K-25 sites, the ORNL, and the ORNL/Spallation Neutron Source as major facilities, with activities from NNSA, Office of Science, Environmental Management, and Nuclear Energy. There are waste challenges at each of the sites. The major challenge is to coordinate environmental management on an NPL site where operations are continuing, even after CERCLA remediation is complete.

TDEC and DOE work concertedly to achieve regulatory compliance through a Federal Facilities Agreement (FFA, or Tri-Party Agreement), Site Treatment Plan (STP), and Tennessee Oversight Agreement (TOA). The FFA facilitates cooperation to achieve compliance, while the STP provides an enforceable framework in which DOE will meet RCRA LDR requirements for all LDR mixed wastes stored or to be generated or received on the ORR, and allows for ORR storage of LDR mixed waste. The TOA allows the state to develop and operate an independent state monitoring (non-regulatory) program, and enables State engagement in radioactive waste management plans where there is no direct State authority. The State reports results of own monitoring and analysis activities to help determine the quality and effectiveness of DOE's own surveillance and monitoring programs.

TDEC's goal is apply a common-sense approach to regulatory responsibilities, through a "project team" mentality where regulators are involved from the beginning of a project, often participating in the DOE contractor meetings. Early interaction helps streamline regulator agreement. Several examples were provided demonstrating both the value of this project team approach and other cases where dispute resolution was required. For contact handled and remote handled debris, DOE made a cost savings decision not to keep a national TRU

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characterization and certification team on site at ORR. The State and DOE Oak Ridge worked together to establish a new set of enforceable milestones supporting continued TRU debris waste repackaging, which will encourage the return of the characterization program to ORR. Shipments to WIPP are currently schedule to resume in FY14. Another example involved remote handled TRU sludge, which remained after earlier campaigns undertaken to treat supernate from tanks at ORR. The original baseline for sludge drying was deemed not viable, so a baseline change, supplemental analysis and ROD amendment for the EIS was necessary, along with a change to the compliance schedule. A number of issues arose, including compliance with the RCRA point-of-generation determination, technical issues with the facility design had to be addressed in supplemental analysis that had already been modified, and the project had to follow new DOE project management requirements for capital assets. All of this led to formal dispute resolution, and an extended process. A final example involved Trench 13, a retrievable storage trench for TRU waste. In 2005, excavation uncovered pyrophoric material, which suspended work. DOE wanted to leave the waste in place, and the State did not. The dispute resolution process was invoked, and elevated to the Senior Executive Committee. Agreement was reached to establish enforceable milestones for submittal of an engineering evaluation related to the disposition of Trench 13 material, and subsequent milestones for detailed plans for the disposition.

Ongoing challenges at the ORR include coordinating CERCLA on an active production site, integrating NPDES permitting with CERCLA cleanup, defining CERCLA vs. non-CERCLA activities, and minimizing the amount of contaminated waste needing disposal onsite.

**Shelly Wilson** described the South Carolina Department of Environmental Control (DHEC) primary roles and mechanisms for Savannah River Site (SRS) environmental oversight, status of clean-up, and regulatory innovations they have used. DHEC has three primary roles with regard to SRS oversight, including 1) ongoing operations, addressing process permits and compliance with thousands of permit decisions involving air, water, and storm water issues; 2) environmental liabilities from legacy operations including soil, groundwater contamination, ponds, and legacy waste stockpiles where the focus is on cleaning up from “past sins”; and 3) independent monitoring of environmental media such air, storm water, sediment, milk, and vegetation, focused on status of contaminants and comparison to DOE-SR environmental monitoring results. DHEC has a variety of mechanisms for oversight, including a hazardous waste permit for contaminated soil and groundwater, the tri-party agreement (TPA), consent order that enforces the State treatment plan for mixed radioactive and hazardous waste, and high level waste which DHEC oversees mainly through the waste water program.

Shelly then summarized where they are today in terms of overall legacy waste cleanup. There has been major progress in soil and groundwater at SRS, with clean-up decisions in place for 77% of the contaminated areas since the tri-party agreement was established in 1993. 3229 milestones have been met since then, without missing one, which she attributed to good management, and partnering of teams between SRS and the State. Twenty years ago, the thought was that this clean-up would be forever. Today, they are nearing the end of the TRU program, with 86% of TRU shipped and disposed at WIPP, and very small volumes left at SRS. For the HLW program, the Defense Waste Processing Facility (DWPF) is in place, and has been working for 16-17 years producing glass. Interim facilities for the salt-portion of the waste tanks are established, and four tanks have been closed.

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Regulatory innovations in the key areas of soil and groundwater, HLW, and TRU were provided as examples. In soil and groundwater cleanup, combined clean-up teams were established to invite a partnering approach. While there was skepticism at first, it has been incredibly successful. The team at DHEC is dedicated to working with DOE, contractors, and EPA, and together they have produced a “Cadillac clean-up operation.” The team has scoped out documents in advance, which have been very close to approval ready. Standardized formats have also been used, so needed information is in the same place. The organizations work closely to have resources aligned, and communications are frequent and regular, helping decisions get reached efficiently.

Another example is in the HLW tank closure, where frequent communications and early planning lessons learned from soil and groundwater served as a model. Tanks 18 and 19 were closed last year. While it took a lot of work, the roadmap is now in place, and tank 5 and 6 closure can be worked on more quickly. As a result, SRS requested a 2-month schedule reduction for the next tanks. DHEC agreed, and suggested a 4-month schedule reduction, not wanting anyone to say that permitting and regulatory processes were holding up the work of closure. Rather than focus on where there is disagreement, the approach is to focus on areas of agreement. In the 2005 time frame, when the legality of tank closure was questioned. Starting from a standstill, efforts had to be restarted with focus on common goals and values for HLW – maximizing treatment, and minimizing residuals left in the tanks long term. Together a technical strategy for HLW retrieval and closure was built that is still in place, and still working. With widely supported goals and values, and strong partnering, waste has been treated and tanks closed.

Legacy stockpiles of mixed-TRU waste provided a final example. Standards for the TRUM storage areas are not great, and a decision point on expensive upgrades was approaching. Together, DOE and DHEC chose to focus funding and priorities on getting TRUM offsite rather than spending dollars on a temporary storage issue. Using a collection of existing buildings to repackage and treat TRUM instead of new storage facilities. DHEC applied regulatory flexibility to use existing facilities in a much quicker way.

In summary, the biggest challenge in the future is HLW – getting the waste treated.

**F. David Martin** summarized the key goals and challenges faced by the New Mexico Environment Department in successfully implementing environmental programs at the state level, as well as successes and innovations that help demonstrate commitment to protecting public health and the environment, and provide the effective oversight, cleanup and management of hazardous waste at federal facilities.

The greatest regulatory challenges faced by NMED include a 22.5% State budget cut in 2011, inadequate federal funding, and an NMED culture that was largely antagonistic toward the regulated community. Martin instituted a NMED reorganization to address both the budget and culture challenges. He converted divisions into bureaus, combined into a single division, reduced the number of exempt staff and lawyers, and reduced salaries of many positions including top leadership. New approaches were implemented to address the culture, including reinforcing values and behavior with new goals and objectives, and a professional code of ethics. They organized a “Tiger Team” inter-bureau approach to tackle complex problems, and changed the

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way the department interacted with the regulated community, as well as funding agencies. For example, concerns had been raised that the department responded with moving targets when approached. Career agency staff members do not always recognize that their response costs money on the receiving end. Therefore, the agency was encouraged to act as facilitator rather than antagonist, with a focus on early dialogue and expectation setting, and decisions based on scientific data and facts, not opinion. A new “Lending a Hand” initiative was also implemented to help make the agency more user friendly, especially for smaller organizations, with a near-term focus on an improved website and one stop shop, and a longer term goal for online permitting, payment, and filing.

The priority EM sites under NMED oversight responsibility include the Los Alamos National Laboratory (LANL) and the Waste Isolation Pilot Plant (WIPP) where NMED regulates some aspects of operations. At LANL, where the focus is on R&D and testing related to nuclear arms, there was a large amount of TRU waste stored on the surface at Area G. A large wildfire in 2000 came within ½ mile of Area G, and a major wildfire in 2011 increased the sense of urgency for movement of the waste. While TRU was not explicitly included in the 2005 consent order driving cleanup, the NM Governor, NMED officials, and senior DOE officials met to discuss high priorities for cleanup. Both a core team and technical tiger team were established to address the issue. The result was a reprioritization of activities to address greatest risks, including 1) above-ground TRU, 2) groundwater protection including chromium, and 3) surface water runoff and drinking water protection. A non-binding framework agreement was established in early 2012 that rescheduled activities based on risk, established the 3706 campaign for TRU shipments to WIPP by mid-2014, required development of a plan for below-ground TRU by the end of 2012, and established milestones and regular reviews and evaluations of progress.

With regard to the consent order, DOE has acknowledged that they will not be able to complete activities by the end of 2015 due to both technical challenges and inadequate funding, and a request was made to renegotiate. NMED will consider the request based on the commitment for adequate funding and demonstration to remove TRU waste.

Martin also summarized the status of WIPP and quantity of TRU shipments safely emplaced. As of February 18, 2013, 85,498 cubic meters of defense related TRU waste, and 11,112 shipments from more than seven facilities have been received and disposed at WIPP. A number of WIPP permit improvements have been proposed to help simplify, reduce redundancy, and eliminate costly and unnecessary requirements.

With regard to common problems facing States with EM site oversight responsibilities, common funding problems were highlighted. For the foreseeable future, cleanup funding is not likely to be sufficient to meet all state-DOE compliance agreement milestones, and maximum utilization of available funds will be required. State regulators and DOE will need to work together. Last year, the National Governors Association Federal Facilities Task Force (FFTF), in consultation with DOE, released a set of principles regarding a joint approach to planning and prioritizing cleanup work. In the future, NMED plans to visit with state regulators at other DOE-EM cleanup sites to increase collaboration and incorporate best practices in future agreements. In addition, they will focus on increasing efficiency while maintaining their regulatory role, and work with DOE to expedite safe and effective cleanup based on the FFTF principles outlined.

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### Questions and Answers

Panel Members were asked to provide their reaction to comments made by DOE-EM's David Huizenga in his plenary talk where he noted that EM has been receiving \$5.5B annually despite requests of \$6B. The challenge facing DOE, EPA, and the states is the need to set expectations and renegotiate milestones commensurate with the appropriated budget. **Suzanne Dahl** responded that Hanford is facing the perfect storm, with failing infrastructure (e.g., tank leaks), challenges with WTP, and the federal budget including sequestration. It's like "deciding what kid not to save." Given this situation, she was "dumbstruck" on what to do, to be compliant. **Wesley White** responded that at ORR they have been "kicking the groundwater can down the road" for some time, and when budgets are limited, some things will take priority. **F. David Martin** noted that they need to emphasize that environmental cleanup is critical to the state. In New Mexico, some people are concerned that LANL and the State are in disagreement. But now, there is a clear plan, and all are in agreement. That message needs to be taken forward to congress. **Shelly Wilson** noted that they expect DOE to aggressively fight for funding. Congress may not appropriate funds, and when that happens there is an out for penalties. They will look for efficiencies, and discuss what will not be able to happen. **Suzanne Dahl** seconded that she expects DOE to ask for the funding, and let Congress decide. **F. David Martin** added that when DOE announced they could not meet the 2015 consent order milestones, it became a hot topic with stakeholders.

An audience member noted that for some things DOE regulates, there is a push-pull in terms of community acceptance. He asked Shelly Wilson how the Georgia community interaction was with South Carolina. **Shelly Wilson** responded that a lot more could be done with the citizens of Georgia. She keeps her ears open to all entities, including the citizen's advisory board (CAB), environmental activists, and on the lookout for what elected individuals are saying. EPA and DHEC talk frequently, and are usually on the same page, but she is always looking for ways to get input. The Blue Ribbon Commission (BRC) spoke about "consent." What does that mean? They did get a set of general values from state and elected officials.

An audience member commented on the formal dispute resolution process described by Wesley White, and was concerned with the potential for significant delays. **Wesley White** acknowledged that, unfortunately, when you enter into the formal dispute resolution process, there are timetables established that can take a long time.