

WM2017 Conference Panel Report

PANEL SESSION 95: US DOE Featured Site: West Valley New York

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Panelists:

1. **Bryan Bower**, DOE Director, US DOE
2. **Jeff Bradford**, President, CH2M HILL BWXT West Valley, LLC
3. **Tony Memmo**, Seneca Nation
4. **Dave Brown**, Waste Operations, BXWT
5. **Peggy Loop**, Waste Operations, CHBWV
6. **Daniel Sullivan**, Federal Project Director, West Valley Demonstration Project, US DOE
7. **Rick Zink**, MHF, an EnergySolutions Company
8. **Matt Labarge**, Waste Control Specialists
9. **Craig Rieman**, Deputy Director DOE-WV
10. **Scott Anderson**, Deputy General Manager, CH2M HILL BWXT West Valley, LLC

This panel focused on the West Valley, New York site of the US DOE. Recent progress was highlighted by team members (Specifically the Relocation of the High-Level Waste Canisters, Deactivation of the Vitrification Facility, and Shipment of the Vitrification Components), challenges, innovations, and planned efforts in risk-based radioactive waste management, waste disposition, and environmental remediation.

Summary of Presentations

Bryan Bower, DOE WVDP Director, started the session with a brief history of the West Valley Demonstration Project.

The West Valley facility was the only commercial spent nuclear fuel reprocessing plant to operate in the US. It operated from 1966 to 1972, processing 640 metric tons of spent fuel. It shut down in 1972 for modifications to expand the facility, but it never resumed operations.

NYSERDA holds the title to the entire Western New York Nuclear Service Center. Nuclear Fuel Services determined that they could not profitably operate the facility. And that they would not renew their license. DOE took over operations. The Center is presently divided into three operational areas. The project was set up to demonstrate the full scale solidification of the liquid HLW at the center. The WVDP mission was defined by an act of Congress in 1980 Public Law 96-368. The site has successfully completed the liquid HLW solidification, and developed containers suitable for permanent disposal of HLW. Transport of the solidified waste to a federal repository for permanent disposal is pending an approved repository. The contractor is currently decontaminating and decommissioning the facilities and materials and hardware used in connection with the project.

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In 2010, DOE and NYSERDA issued a joint decommissioning and/or long-term stewardship Environmental Impact Statement. The EIS analyzed four alternatives. The published report listed Phase 1 decommissioning (to be completed by 2020, based on funding at \$75M/yr).

Jeff Bradford, president and CEO of CH2M HILL BWXT West Valley provided a synopsis of the Phase 1 contract scope. Milestone 1 includes the relocation of the high-level waste to an Interim Storage Pad. Milestone 2 includes the processing, shipping and disposal of all Legacy Waste, not including TRU waste, which is 50% complete. Milestone 3 is the demolition of the Mina Plant Process Building. Milestone 4 includes all the other work as described in the PWS.

In FY 2017, the project will complete relocation of legacy waste from the main Plant Process Building and will begin demolition of the Vitrification Facility, contingent on funding.

Tony Memmo provided a brief introduction of the Seneca Nation. The Seneca Nation is a federally recognized sovereign nation and is self-governing. The Nation has its own constitution established in 1848. The aboriginal lands are guaranteed by the US government. The Nation has been a stakeholder of the site since inception of the site because it is down river. There were impacts to the national environment which is important to the Seneca Nation.

Dave Brown, project director for the operations phase of the High-Level Waste relocation and storage project provided the overview. The project involved the relocation of 278 HLW canisters from the high-level waste interim storage in the Main Plant Process Building to a stand-alone dry cask storage system. From a project management perspective, the project was able to maximize the use of firm-fixed price contracting on approximately 60% of the project. The project did extensive testing and dry runs of the equipment and processes to ensure the campaign proceeded efficiently and safely. The casks were placed and cured on site. The handling of the empty spent fuel storage casks were remotely loaded, seal welded and the casks were then moved to the storage pad. Each cask can hold 5 canisters. The canisters were high dose at approximately 5,000 R/hour.

The storage pad had 3-foot thick structurally engineered reinforced concrete and is 144 by 110 feet. The pad has a 50 year design life. Facility modifications were necessary to maneuver casks inside the building, including raising the door height, installing steel plate for proper weight distribution, modified the floor. The floor needed reinforcing, grout was used to fill void space and the soil underneath the floor also needed grouting.

NAC International constructed Vertical Storage Casks in three construction campaigns with 8 casks constructed each year in the first two years with 40 casks constructed in 2016. To accomplish this, the project had to utilize a cure pad.

Each cask weighs approximately 85,000 pounds. To move them around the facility, the project used air pallets. For air pallets to work, the floor needs to be extremely level. There is only 6 inches of clearance going into the cell. Each cask was wrapped (with a single use herculite wrap) prior to going into the contamination areas. Because of the clearances, a lot of extra work was necessary to prep the cask (the trunions had to be removed and then put back on). Cameras were installed in the storage cells and in the contamination room so the process could be monitored remotely. The process also involved the pre-positioning of 15 canisters during off

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times to facilitate loading. The first cask was loaded and relocated in November of 2015. The project was able to complete 3 more casks in December before shutting down for the winter. The goal was to start up again on an accelerated plan in April 2016. By handling two casks at the same time facilitated the accelerated plan. The project used an automated welding system. Instead of going with a tract vertical cask transporter, the project used a tugging system.

High-Level Waste crews complete the relocation and long term interim storage of all 278 canisters of the vitrified HLW one year ahead of schedule. All work was completed safely and compliantly.

Question: what safety basis did the project use? Mr. Bower stated that we had 3009-DSA, but the cask on the pad is less than Hazcat 3 category facility.

Question: how will the canisters get shipped, when an approved disposal facility is approved and ready? Answer: The steel overpack inside the concrete cask will be removed and then shipped. The concrete casks will then be scrapped.

Peggy Loop, Vice President of Waste Operations at the WVDP project, discussed the process to ship the site's vitrification components for permanent disposal in late 2016.

The melter was grouted and when packaged it was 195 tons. CHBWV received a special package authorization from the NRC to ship the melter. The haul road had to be upgraded before the melter could be shipped. Impact limiters also had to be installed on the melter package. The low-level waste packages were transported by a specially modified truck to the rail yard in Blasdell, NY, transferred to an 8-axle rail car, separated by idlers and locomotives, then shipped to the WCS facility in Andrews Texas. The use of the specialized rail cars required extensive planning to ensure timing was orchestrated. The routing of the movement required a dozen different permits. The melter could only be moved in the evening hours. The rail route was accomplished in just seven days.

Once the three LLW packages arrived at the WCS facility, site prep included the construction of a reinforced pad at the base of the landfill. Each component was transferred to the disposal cell at an average speed of 7.4 miles per hour. The last step required the waste to be encapsulated in place with grout.

Craig Rieman, Deputy Director DOE-WV, provided an overview of the 11,000 square foot vitrification facility demolition preparations and approach. The vitrification facility is a single-purpose facility constructed to vitrify the WVDP's liquid high-level waste. There are eight regulatory documents that will control the demolition process. The demolition preparation has included radiological sampling and surveys during the characterization process. There are two air modeling processes that will be employed. The demolition process will be by a dismantlement approach. The project will control demolition with engineering controls such as misting to control dust. The entire facility has been de-energized and all piping penetrations into the hot cells have been foamed. All waste materials have been removed from the cell, using remote equipment. Grouting activities enabled reduced dose levels allowing a manned entry for the first time in 20 years.

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Lessons learned from the 01-14 open air demolition in 2013 will be applied to the Main Plant Process building demolition in 2017. The Hanford PFP is also providing lessons learned to West Valley.

Work controls on site will include a 3-meter area boundary, which includes air monitors and surface water will be closely monitored. The project anticipates that approx. 6,700 tons of debris will be generated. The debris will be loaded into 25-cubic yard Intermodels. The campaign is expected to take 7 months for demolition and an addition month for continued waste shipments.

Scott Anderson, CHBWV Deputy General Manager, provided an overview of the Main Plant Process Building. The facility has 6,100 curies of total activity. There are multiple cells with concrete walls ranging from 3 to 6 foot thick. The General Purpose Cell has the highest dose rates of 200,000 millirem/hour.

There are seven ancillary support buildings as part of the Main Plant Process building. The project is still working on decontamination efforts. The project built a 3D model to help work planning and demolition sequence.

Bryan Bower, DOE WVDP Director, provided an update to the future of the demonstration project. The current contract will take the facilities down to grade. Phase 1 soil remediation will remove the source of a plume and will align with the completion of the Facility Disposition work. Phase 2 will remove the below grade portions of the facilities, and soil removal.

DOE is beginning the process for the follow on contract for Phase II. A number of facilities will be left for phase II including HLW Tanks, the NRC-Licensed Disposal Area, and the State-licensed disposal Area. DOE and NYSERDA have agreed to proceed with Phase 2 decommissioning decision using a common framework for decision making using the NRC's License Termination Rule.

The probabilistic performance assessment (PPA) becomes the basis of the long-term PPA. Phase 2 will prepare two decommissioning Plans based on requirements of the License Termination Rule.

Tony Memmo provided Final Comments about the Seneca Nation territories and working closely with DOE and NYSERDA.