

Partnership Creates Cleanup Success at West Valley

A tremendous amount of work has been accomplished at the West Valley Demonstration Project (WVDP) in the last four years. That was the consensus of panelists at Session 71 *Featured Site: West Valley Demonstration Project – Accomplishments and Challenges from Past Practices*.

West Valley was home to the nation's only commercial spent nuclear fuel reprocessing facility. It operated from 1966-1972. Leaks and routine operations contributed to contamination of the plant and groundwater. The site is owned by the state of New York, and in 1980, Congress authorized the U.S. Department of Energy to clean up the site in cooperation with New York.

Earlier this year, DOE and the New York State Energy Research and Development Authority, reached a stakeholder-supported agreement, which culminated in completion of the Environmental Impact Statement and

signing of the Record of Decision for cleanup of the site.

"The past four years have seen tremendous success at West Valley," said Laurene Rowell, session co-chair and a member of the West Valley Environmental Services team, which is cleaning up the site.

"West Valley has been a demonstration project from the beginning – first in the vitrification of high-level waste and now as a cleanup project," Rowell said. "That includes everything from D&D, waste management, remote applications, as well as new technology and waste management innovations, many of which were covered in the session.

"One of our biggest successes is in the development of new technologies, many of which we believe are applicable across the DOE complex," said Rowell.

However, there are still a number of challenges to overcome. Funding pro-



Jim Blankenhorn

vided by the American Recovery and Reinvestment Act helped workers at the site address some of those challenges, which included the installation of a tank and vault drying system and a permeable treatment wall to remove strontium 90 from groundwater.

Another common theme of the session was that the partnership between DOE, the state of New York and WVES has been a cornerstone to preparing the site for the first phase of decommissioning.

Women of Waste Management

Over 100 people, men and women alike, attended the WM2011 Women of Waste Management Networking Session sponsored by Fluor.

Megatrends are great forces in societal development that will affect all areas – state, market and society. Megatrends are our knowledge about the probable future. They are a starting point for analyzing our world and giving us a window into the future.

This panel shared perspectives on how the global move to an era where gender roles are less rigid is affecting their respective organizations, corporate strategy, market innovation

and human resources. Yvette Collazo, DOE made the point that DOE EM today is very different than it was 10 years or even 5 years ago. More women are now in leadership roles and an active mentoring program is in place.

Laurence Pernot, pointed out that if AREVA had two candidates with equal qualifications and experience, the female would be selected over the male because they see the value of diversity. As Pernot put it "Diversity means innovation and performance."

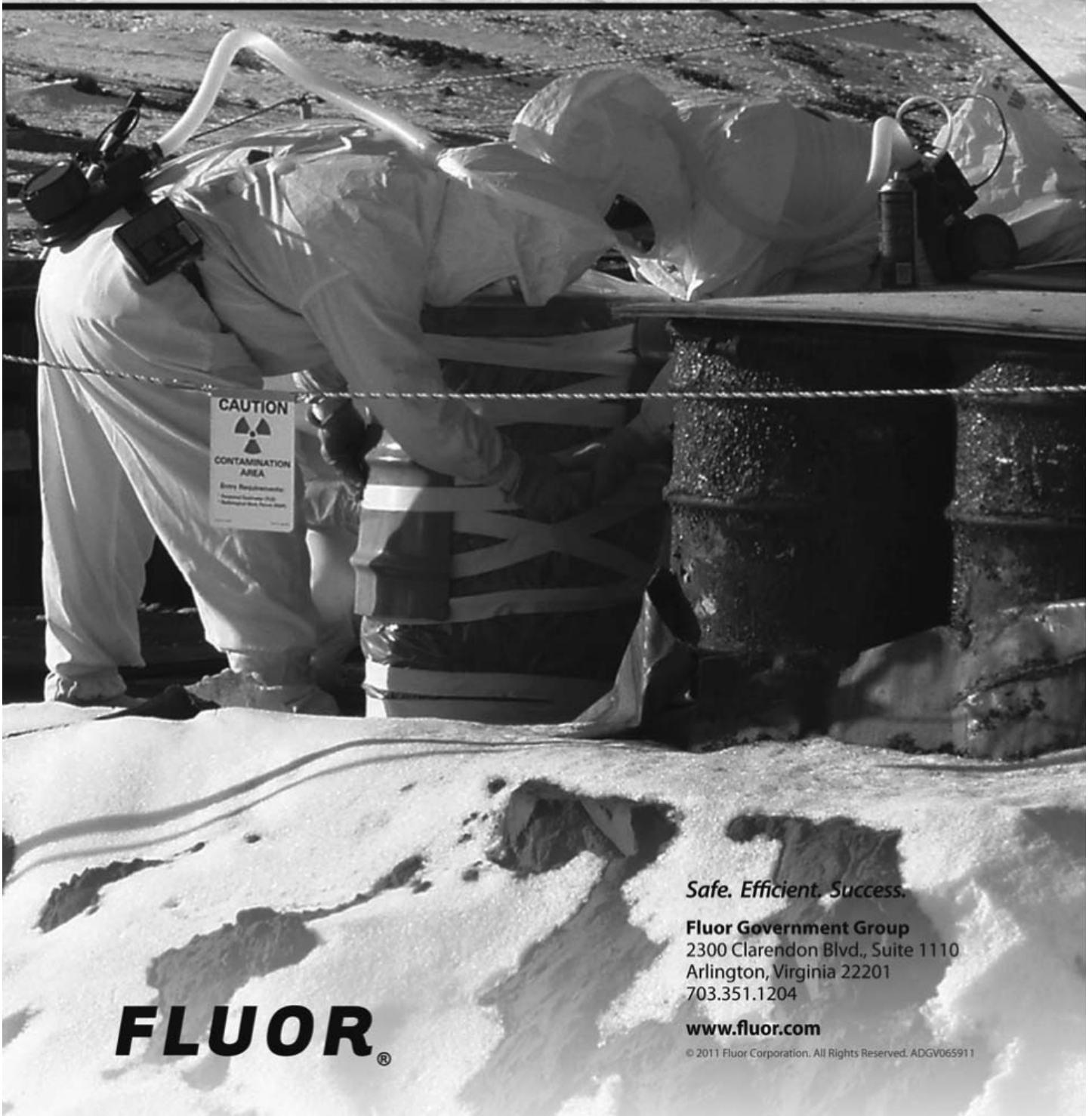


Judy Connell (left), Laurence Pernot, Monica Hammerstrom, Yvette Collazo, Michelle Rehmann

Monica Hammarstrom, SKB, gave the Swedish perspective, noting that in Sweden women already play an important role within the workplace and accommodations are in place to allow the women to succeed in their dual responsibilities of profession and family.

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Cleanup Underway on Hanford's Central Plateau

U-Canyon D&D

At the Hanford Site, CH2M HILL Plateau Remediation Company (CH2M HILL) is working on a first-of-a-kind project to decommission and demolish U Canyon, a World War II-era processing facility. Following the Record of Decision for the final remediation of the canyon, CH2M HILL is using a combination of old and new technologies and techniques to prepare the U Canyon for demolition – learning lessons and methods that will set the stage for the demolition of Hanford's four other canyon-type processing facilities.

Deep Vadose Zone Program Established at Hanford

Contaminants are trapped hundreds of feet beneath the ground on the Hanford Site. There is no proven way to effectively remove them. Since the contaminants threaten the water table beneath the site, scientists and other expert teams have come together and launched the Deep Vadose Zone Project, the ultimate goal of which is to ensure long-term protection of groundwater on the Central Plateau, facilitating the transition of scientific research results to applied cleanup solutions.

The U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency

(EPA), and the Washington State Department of Ecology (Ecology) are addressing this cleanup challenge by researching and testing new technologies that have great potential of solving the deep vadose zone contamination issue.

The Deep Vadose Zone Project leverages DOE's investments in basic science, applied research, and Hanford Site remediation to identify solutions for characterizing, remediating, and monitoring the deep vadose zone sediments overlying the groundwater. The project is a collaborative effort among DOE Environmental Management, Richland Operation's Office and Office of River Protection, the Pacific Northwest Laboratory, CH2M Hill and Washington River Protection Solutions.

Establishing a Cleanup Strategy at Hanford

Cleanup of the Hanford Site is a complex and challenging undertaking and the U.S. Department of Energy (DOE) has developed a comprehensive blueprint for completing that mission. The Central Plateau Cleanup Completion Strategy provides a framework for a geographic approach to Central Plateau cleanup, comprising three principle areas of the

Hanford Site: the approximately 200 square miles of land adjacent to the Columbia River, known as the River Corridor; the 75 square miles of land in the center of the Hanford Site, known as the Central Plateau where the majority of the reprocessing and waste management activities have occurred; and the stored reprocessing wastes in the Central Plateau, the Tank Wastes.

Previously, cleanup of the Hanford Site proceeded under a framework defined in the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). In early 2009, the DOE, the State of Washington Department of Ecology, and the U.S. Environmental Protection Agency signed an Agreement in Principle in which the parties recognized the need to develop a more comprehensive strategy for cleanup of the Central Plateau. DOE established the Central Plateau Cleanup Completion Strategy as a starting point for discussions and the basis for negotiations between the Parties and discussions with key stakeholders, and consultation with the Tribal Nations. The resulting change packages to implement the Central Plateau Cleanup Completion Strategy were signed by the Parties on October 26, 2010.

Major Recovery Act Project Completed at Hanford

Two new super cells are going into service to expand disposal capacity for contaminated soil and debris at the Environmental Restoration Disposal Facility (ERDF), at the Department of Energy's (DOE) Hanford Site in southeastern Washington State.

The super cell expansion, initially set to be completed on September 30, 2011, was finished seven months ahead of schedule and nearly \$16.4 million under budget. The super cell expansion is part of a \$100 million upgrade to facilities at ERDF supported by the American Recovery and Reinvestment Act.

The DOE's River Corridor contractor, Washington Closure Hanford and subcontractor TradeWind Services and DelHur Industries, used lessons learned from previous cell construction so Weaver Booz Consultants could design super cells 9 and 10. A super cell is equivalent to an existing pair of cells – 1,000 feet long, 500 feet wide and 70 feet

deep – and is more cost-efficient because it simplifies the leachate collection system. The super cell design eliminates 12 inches of drainage gravel and requires fewer pumps, motors, crest pads, valves, and other pieces of equipment. The result was a cost reduction of \$1.5 million per super cell.

"The addition of super cells 9 and 10 expands ERDF's capacity by 5.6 million tons to a total of 16.4 million tons," said Matt McCormick, Manager of the DOE Richland Operations Office. "Last year our contractors set a number of disposal records at ERDF – with an average of more than 500 containers disposed of per day and more than twice the amount of soil and debris disposed of in 2010 than in 2009. This expansion paves the way for future cleanup."

The ERDF is a low-level radioactive and mixed waste disposal facility located in the center of the 586-square-mile Hanford Site and is regulated by the U.S.

Environmental Protection Agency. The facility was built in 1996 to accept contaminated soil and debris generated during Hanford cleanup operations.

The facility, which covers about the same area as 52 football fields, already contains nearly 11 million tons of waste. Super cell 9 began accepting waste in mid-February, and super cell 10 is scheduled for service in March.

This is the fourth and largest expansion of ERDF since the facility came online. Designed to be expanded as needed, the facility previously was expanded in 1999, 2003 and 2007.

ERDF's first eight cells, or disposal areas, were built two at a time. The super cells are similar in that they were constructed with bottom and side liners consisting of multiple layers of natural and man-made materials that form an impermeable barrier, along with a system to catch liquids as they drain through the waste materials.

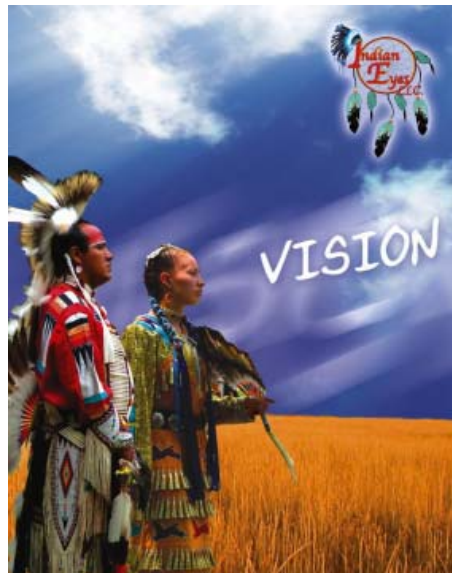


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Depleted Uranium – A Waste or a Resource?

The main question debated by the Wednesday panel on depleted uranium (DU) was whether DU is a resource or a waste. There were different answers to this question if you were looking at the long term or the short term. In the long term DU can be utilized as fuel for fast reactors over the next 200 to 300 years. From this

perspective it is a resource that should be managed as a strategic inventory. However, to more effectively utilize this inventory in the fast reactors, re-enrichment is required, and that's more easily accomplished if the inventory is stored as uranium hexafluoride. Unfortunately for some, it is often stored as an oxide, which is very stable, but much more difficult to re-enrich. The US, Russia and France possess very large inventories of DU, about a third of the total world inventory. France will utilize some of this inventory for shielding and for their MOX program, but has long range plans to utilize significant quantities of DU in a fast reactor program.

In the short term, there are numerous disposal questions. Should the waste be classified as Class A or a Greater-than-Class-C waste? If GTCC it would require more stringent disposal

restrictions? This is the question that the NRC is considering in its LW Disposal Rulemaking. Does the NRC need to modify or revise their waste classification tables for DU? Several options have been presented to the Commission according to David Esh of the NRC. A preferred option is the use of site-specific performance assessments to determine if greater confinement disposal is required. The performance assessment would be accompanied by an intruder assessment and a stability evaluation.

The public is concerned with the period of compliance. What is the appropriate time period over which to carry out these assessments? The problem with uranium is that the in-growth of daughter products increases overtime out to about 2 million years, so several audience participants and one panelist felt that the 10,000 year period of compliance was not long enough and that there were no guarantees that an inadvertent intruder would be protected in the long term.

David Esh noted that you can't predict things out over time frames of this length with any degree of accuracy. The period of compliance is a very complex issue and involves inter-generational issues, equity issues and land use issues to name a few. Ultimately, it will be a science-influenced policy call.

Insight Newsletter

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WM2011 - Sellafield Ltd Making Progress

Sellafield Ltd is using global excellence to help tackle some of the UK's most important decommissioning challenges. In November 2008, management of the Sellafield and Capenhurst nuclear sites transferred to Nuclear Management Partners (NMP), a consortium of URS, AMEC, and AREVA.

Since 2008, NMP has made significant progress in reducing risk to Sellafield workers, the public, and the environment and setting the stage for accelerated high-hazard risk reduction.

The removal of 1,300 cubic meters of highly radioactive sludge from two aging (50 year old) waste tanks into high integrity tanks for safe storage was completed as was production of the 5,000th container of vitrified high level waste, a stable form for long term storage.

The Sellafield MOX facility produced its highest throughput ever in 2009/10, with the most MOX fuel pellets and fuel rods produced per shift, per month and per year, as well as the most MOX fuel assemblies produced per year.

Two shipments each containing 28 canisters of Highly Active Waste have been safely exported to Japan and the Netherlands. This marks the start of a 10 year program of shipping 1,850



The 5,000th container of vitrified high level waste, a stable form for long term storage was completed.

canisters of Highly Active Waste overseas

In the First Generation Magnox Storage Pond, 16 fuel skips have been safely exported to reduce the pond inventory and provide additional pond space for decommissioning. The radioactive sludge which has accumulated on the pond floor over 50 years has been cleared from 6 out of the 12 fuel decanning bays. A Local Effluent Treatment Plant has been installed in the pond to control the activity levels using an ion exchange process which reduces the radioactive doses to the workforce.

The Peer-to-Peer safety observation program was launched, providing

employees with feedback on how they work. More than 10,600 observations have been conducted by almost 4,000 observers in the first 4 months of its launch. There have been more 1-to-1 discussions on safety and standards in 4 months since the launch of Peer-to-Peer than in any 12 months over the previous 5 years.

The observations carried out have included positive reinforcement, highlighted at-risk behaviors and have shown that the workforce is looking out for one another.

Nuclear Management Partners is making Sellafield safer, cleaner, more productive, more cost effective, and a better neighbor each and every day.

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Waste Managers Updated on Disposal Sites

U.S. commercial low-level waste disposal facility operators updated radioactive waste managers at nuclear power plants on accessing the site and disposal services at the Tuesday afternoon panel discussion *Nuclear Power Plant Waste Management – LLW Disposal Issues*.

Facilities represented on the panel were:

- Clive Disposal Site – Clive, Utah
- Waste Control Specialist site – Andrews County, West Texas
- Barnwell site – Barnwell, South Carolina

In addition, Lisa Edwards, Radwaste Program Manager for the Electric Power Research Institute, discussed work EPRI is doing looking at waste consolidation and disposal issues related to sealed sources.

Fun and Games at WM 2011



193 Exhibitors, Texas Hold'em, and Magic Acts attracted record attendees at the Opening Reception of WM 2011.



The Phoenix by Night Walking Tour listens to Phoenix Downtown Ambassador Mark King tell ghost stories at the haunted San Carlos Hotel.

Over 50 students and young professionals presented papers, posters, and otherwise helped out with the logistics of conference operations.

