

## Springville Journal

Treatment wall nearing completion at West Valley Demonstration Project

By: Matt Sargeant

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**BUILDING A WALL** — West Valley Demonstration workers watch as a 850-foot long permeable treatment wall is put in the ground to contain the spread of radioactive water to the site. The system is hoped to last many years. Photo courtesy of WVDP.

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**WONDER WALL** — The wall, pictured above, is being built at West Valley Demonstration Project to contain radioactive water to the site. Photo courtesy of WVDP.

In 1993, radioactively-contaminated groundwater was discovered on the surface of the West Valley Demonstration Project. Studies were performed the following year to find out what the contaminant was, how it got there and how far it had spread. The pollutant was found to be Strontium-90, a by-product of the nuclear fuel reprocessing work done in the Main Plant Process Building during the 1960s and 1970s when the plant was in commercial use. The cause of this contamination was a leak in a process line in the main building in the 70s, referred to as the groundwater plume, which began at the backside of the building and has moved downhill toward the border of the project. The area of the plume is roughly 1,500 feet by 500 feet.

Beginning in 1995, WVDP executed a “pump and treat” method to slow down the spread of Sr-90. This system cleared more than 54.7 million gallons of radioactive water, but a better solution was still being sought. In 2007, West Valley Environmental Services, LLC began designs of a passive wall, a concept developed by AMEC Geomatrix, to eliminate the Sr-90 from the groundwater. With help from the American Recovery and Reinvestment Act in 2009, setting up the wall was made possible this year.

On Tuesday, Nov. 9, WVDP held its quarterly public meeting in order to address several issues, including the treatment wall. Solving the problem of polluted groundwater is one of the focuses of the work at the WVDP, which also includes “deactivation and decontamination of site facilities, radioactive waste processing [and] drying the underground waste tanks,” all of which were addressed at the meeting.

Concerning the groundwater plume, John Chamberlain, technical advisor for WVES, said, “There’s this area on one portion of the site where water is carrying pollution to a plateau, so water that moves horizontally downhill over clay will become surface water.” Beneath the surface dirt and sand is clay, which does not allow water to pass through, preventing the groundwater from going deeper into the earth. If the groundwater were to hit the plateau, the clay would force the water onto the surface and beyond the border of the project. “The goal is to cut that off and contain it on the site.”

The proposed solution is the 850-foot long permeable treatment wall. The wall will extend along the border of the plateau to cut off the spread of Sr-90. The work began on October 17 and continued for two days until there were problems with the equipment being used and with soil containment. The construction of the wall resumed on November 2 and was uninterrupted until November 7 when materials ran out. The labor restarted on November 10 and is planned to continue until the wall is finished before the end of the calendar year. The wall is three feet wide, and the depth ranges from 19-30 feet, extending about two feet into the clay in order to cut off the spread of the groundwater.

What makes the wall effective is a group of naturally-occurring minerals called zeolite, which is being placed into the wall and allows water to pass through but absorbs the Sr-90. More than 1,900 bags of zeolite were used through November 7 when the supply ran out. Since then, 400 additional bags, weighing one metric ton each, have arrived in order to complete the treatment wall. This zeolite comes from the Bear River Mine near Preston, Idaho.

“Zeolite is perfectly safe,” said Chamberlain. “It’s used for animal feed and stuff.” The State University of New York at Buffalo’s department of civil, structural and environmental engineering was instrumental in performing various tests of zeolite, both on campus at UB and on site at West Valley.

To build the wall, WVDP is using what is called a “one-pass trencher,” which digs up dirt at one end while dropping the zeolite behind it in one motion. “Its arm goes out like a chainsaw, hinges and goes down until it’s vertical and digs dirt up on the surface,” explained Chamberlain. “You can load the back end with whatever you want to put in the ground. It goes through conveyers and is dropped down.” While the zeolite is placed in the trench, the trencher places the excavated soil into a container that is beside the trench. WVES has worked with Dewind One-Pass Trenching of Holland, Mich., to make sure the zeolite would go in properly and the polluted soil that is dug up would be suitably controlled.

Without obstacles, “the last 250 feet could go pretty fast,” said Chamberlain. Once the wall is completed, there is nothing left to do but let the zeolite do its work. WVES will monitor the effects of the wall to ensure that it is successfully purifying the groundwater. The wall should last for at least 20 years.

well beyond 10 years from now when WVDP plans to have made its decisions regarding what to do with the waste on the site.

“Ten years may seem like a long time,” said Thomas Attridge, program manager for New York State Energy Research and Development Authority, which owns the site, “but it will go by quickly.” Attridge said much testing and many safety precautions are necessary in order to clean up the project, so it takes a longer time than many people would expect.

The cleanup began in 1980 when Congress passed the West Valley Demonstration Project Act, which directed the United States Department of Energy to begin the project for solidifying liquid high level waste. This solidification was completed in 2002, resulting in 275 canisters of glass waste that are being stored in the main building for now. According to a fact sheet provided by WVDP, “the cleanup is led by DOE, the site is owned by NYSERDA and WVES is the prime contractor.”

The meeting also provided several updates concerning the project:

- Bryan Bower, DOE-WVDP project director, said that “safety statistics have improved since last quarter.” The site has processed most of the waste and is preparing it for disposal away from West Valley.
- Bower explained that Nitrocision® technology will be used to decontaminate the cell walls and floors of the main building, which consists of about 55 cells. This technology conveys -250 degrees Fahrenheit liquefied nitrogen in order to remove the pollutants from the cell surfaces. A vacuum system will be employed to collect what has been removed and package it safely.
- A drying system is currently being installed to rid the underground storage tanks of moisture. The system is a “combination of new ventilation ductwork and [a] large dehumidifier,” according to Bower.

The existing ductwork had been taken out and stainless steel ventilation lines were put in their place. In addition, one of the two tanks has been removed to permit this installation. “The system will be operational in December,” said Bower.

- The current contract for the work at WVDP expires on June 30, 2011. Bower said, “A new contract will be ready for execution by June 30, when the contract expires.”
- After 30 years, the cost agreement between the DOE and NYSERDA was resolved, settling who is paying for what at the WVDP. “The right solution should be the right solution, regardless of who’s paying for it,” said Bower. “Waste has to move or stay regardless of who’s paying for it. This agreement separates ‘who’s going to pay for it?’ from ‘what’s the right thing to do?’” He pointed out that, while the amount of money will not affect what gets done, it will in fact affect how quickly the work is completed. “If you have a \$1 billion project, getting \$100 million a year, it’ll take 10 years to get done. Amount is important.”
- Attridge gave an update on NYSERDA, which included the status of the West Valley Central School Seismic Station to monitor activity in the ground and “provide real-time seismic data . . . including ground-shaking forces.” Lamont-Doherty Earth Observatory installed the station behind WVCS in August and connected the station to a computer monitoring station in WVCS in September. At present, “real-time data collection is underway.”
- NYSERDA has set up a meteorological station to collect weather data at WVDP. “It’s not online in a public forum, but I don’t know why it couldn’t be,” Attridge said. “There’s nothing sensitive about weather data.”
- The status of the LiDAR and Orthoimagry of Buttermilk Creek Watershed was addressed. This project produces pictures of the ground surface and allows the detection of changes over time every five years. NYSERDA already requires a report of these maps every 10 years.
- Tests have indicated that the very-low density polyethylene geomembrane that keeps water out of buried waste at WVDP should be replaced. NYSERDA is currently working on replacing the VLDPE with a “new XR-5 geomembrane cover,” a more durable material that has shown immediate stabilization.
- The West Valley Citizen Task Force, which meets to discuss topics regarding the work at WVDP, “is preparing a letter to the U.S. Department of Energy encouraging them to request full funding for the decommissioning actions planned during Phase 1” of the cleanup at WVDP. Their next meeting will be held on Wednesday, Nov. 17 at 6:30 p.m. at the Ashford Office Complex in West Valley.

WVDP’s next quarterly meeting is scheduled for Tuesday, Feb. 1 at 6:30 p.m. at the Ashford Office Complex.