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AMY,  
Gerry Stewart might  
be interested in the groundwater plume article  
Jack

re: The Springville Journal; Thursday, September 6, 2001; "Further studies planned for West Valley D P groundwater plume"

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From the desk of...

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# Further studies planned for West Valley D P groundwater plume

By PAUL CHAPMAN  
Journal Editor

Further testing and study will be conducted later this month on an experimental project constructed to intercept radioactive groundwater at the West Valley Demonstration Project. The project, involving a treatment wall to trap and hold nuclear materials migrating slowly underground, apparently needs some fine tuning for best results.

At the project's quarterly public meeting held at the Ashford Office Complex on Aug. 28, officials of West Valley Nuclear Services presented an overview of past and present work to contain the North Plateau groundwater plume at the West Valley site.

The problem, discovered in the mid 1990s according to John Chamberlain of WVNS, is the result of a leak of approximately 200 gallons of radioactive acid from a recovery cell operated by Nuclear Fuel Services in the early 1970s. At that time, NFS was the private operator of a nuclear fuels reprocessing plant at the site.

NFS eventually went out of business, and the buildings and property are now under the direction of the federal Department of Energy and the New York State Energy Research Development Authority. Westinghouse/West Valley Nuclear Services is the main contractor in the cleanup of the WVDP.

Chamberlain said that the leak is thought to have come from a defect in a connector line that dripped the acid onto the cement floor of the main processing building. Over a time frame of several months, the acid apparently worked its way through expansion joints in the floor and into the soils beneath the building.

Originally, officials for NFS believed the liquid evaporated without leaving a problem. But tests done by WVNS in the mid-1990s showed a problem did exist. Chamberlain said the highest concentrations of radioactivity are found within 30 to 40 yards of the main building. The outer edge of the plume is now approximately 900 feet from the building.

Dan Westcott of WVNS said two lobes of the plume of radioactive groundwater were found migrating in a basically northerly direction from beneath the main reprocess-

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*John Chamberlain  
West Valley Nuclear Services*

ing building. The lobe to the northwest has been treated with a traditional "pump and treat" method of containment. The northeast lobe has been the subject of a pilot experimental project known as a Permeable Treatment Wall.

The PTW was constructed as a field experiment in the fall of 1999. A trench was dug across the lobe of the plume perpendicular to what was thought at the time to be the main direction of flow of the

plume. The front face of the wall consists of pea gravel. Behind that is a mass of Clinopillolite Zeolite, a material that pulls the Strontium-90 from the groundwater as it flows through the PTW.

Westcott emphasized while the groundwater is still migrating outward from the plume, there is no actual health risk associated with the movement. He said a swamp ditch off-site is constantly monitored to test water from the plume, and SR-90 levels have been consistently on the decline since the PTW was installed.

However, "The wall is not working up to optimum," Westcott said last Tuesday. He explained that testing near the wall indicated water was starting to flow into the sides of the wall, which reduces its effectiveness of operation.

To address the issue, Westcott said a drilling company has been contracted to come on site later this month to drill additional groundwater monitoring wells along with additional soil borings to gather

further information concerning the water flow.

With that information in place, a three-dimensional groundwater flow model will be developed to investigate the feasibility of modifying the pilot PTW.

One possible solution may be to place funneling gates constructed of sheet pilings up flow from the wall to direct the water to the front face of the PTW. The 3-D model would assist in optimizing the actual lengths and angles of the funneling gates.

Carol Mongerson of the West Valley Coalition questioned why the wall was constructed in the first place with what appears to be a limited amount of information on the plume's progression. Westcott said this is still a work in progress and it is experimental, and more is being learned as time progresses.

Chamberlain added that at the time the wall was built, those in charge of the project believed they had enough information to do the job right. Mongerson said she hoped the job is done correctly this time.

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## Removal of 'glove box' proved to be a challenge at WVDP

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Stu Giles of WVNS provided an update on decontamination efforts at the project. In addition to the removal of four large condensate and fuel tanks at the site (see *Journal* article in Aug. 16 issue), Giles also reported on the removal and product packaging of a large "glove box" at the WVDP.

"Glove box" is a generic term referring to processing units at West Valley that employed the use glove ports on the units for workers to safely handle nuclear waste. Giles said the glove box recently removed was used by Nuclear Fuels from 1966 to 1972 in the reprocessing of 640 metric tons of used nuclear fuel to recover uranium and plutonium.

The plutonium was purified in the Product Purification Cell and transferred to the glove box, which was used for the packaging of plutonium nitrate. The glove box measured 18 feet by 16 feet by 4 feet, and created a bit of a challenge to Giles and his crew, since the box was housed in a section of the building that provided little extra clearance for the box's removal.

Three options were discussed for the removal — cutting the box into small pieces with a plasma torch, using mechanical tools such as Sawzalls, nibblers and reciprocating saws for size reduction, or removing the box in large sections.

Giles said the decision was to remove in large sections since that plan most closely met the safety management principles established by WVNS. That plan also resulted in the handling of less pieces of the box and therefore provided a greater control of any possible contamination.

After passively fogging the box for 15 hours to secure any internal contaminants, the box was ventilated with filters integrated with the plant's main ventilation system.

The box was then separated along the original construction lines and removed from its space with a rigging plan developed by Higgins Erectors and Haulers.

Bryan Bower of the DOE gave an update on progress in the clean out of high-level waste tanks and also noted that all contracts have been signed with the four railroads involved in the anticipated shipment of the two casks containing 125 spent fuel assemblies from West Valley to Idaho.

Work is progressing on the construction of the remote-handled waste facility, according to Bower, with the focus of the current work being the cell walls, office facilities, concrete placement of the receiving area and preparations for the third floor concrete placement.

Bower noted that the WVDP's new traveling technology exhibit made its debut at this year's Erie County Fair. The exhibit drew more than 50,000 visitors, which exceeds the total number of visitors to WVDP during all the year's the project conducted their open houses at the site. The exhibit was awarded the Fair's Most Interactive Exhibit award.

Mongerson questioned Bower on the cost to construct and display the exhibit, but Bower did not have an answer to that at the time of the meeting.