



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SEP 24 1990

Project M-32

MEMORANDUM FOR: Charles J. Haughney, Chief  
Fuel Cycle Safety Branch  
Division of Industrial and  
Medical Nuclear Safety

FROM: R. Davis Hurt  
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Facilities Section  
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Division of Industrial and  
Medical Nuclear Safety

SUBJECT: VISIT TO THE WEST VALLEY DEMONSTRATION PROJECT

I visited the West Valley Demonstration Project from August 13-15, 1990, accompanied for part of the time by Jack F. Croft of the Division of Low-Level Waste Management and Decommissioning, Tom Nicholson of the Office of Research, and Jan Kool of Hydrogeologic, Incorporated, a contractor of Mr. Nicholson's. The main purpose of the visit was to view the Facility Disposal Area and the adjacent solvent interception trench.

1. Facility Disposal Area (FDA)

A second 100-foot segment of the solvent interception trench has been constructed since my last visit, in February 1990. The Department of Energy (DOE) plans to have the entire 900-foot trench installed by late October or early November. The installation is taking longer than expected because the workers encountered a leached hull while digging in June, and now have to take more radiological safety precautions as they dig.

So far no solvent has appeared in the completed portion of the trench. As of August 10, there had been a cumulative inflow of about 14,000 gallons of water, none of it with above-background levels of radioactivity. DOE does not yet have a New York State discharge permit for the interception trench, so they are holding the water in large storage tanks on top of the burial ground for the time being. Once they have the permit, DOE will discharge clean water through the existing lagoon network into the Buttermilk Creek drainage basin. If any solvent is collected, it will be decanted off (it floats on water) and placed in storage tanks. If any radioactivity above releasable levels is found in the trench water, it will be removed in the existing liquid waste treatment system (the O2 Plant) or, if iodine is present, treated in the newly installed charcoal beds on top of the FDA.

Since our visit in February, DOE has made some minor improvements in the FDA. They have contoured and partly filled the gully closest to the interception trench

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sump in an attempt to slow erosion in that area. They have also regraded some parts of the burial ground cover that were depressed and holding water in February, so that drainage is generally improved around the FDA.

In connection with the erosion issue, we visited one of the large landslides on Buttermilk Creek, about a kilometer from the plant. This topic and the burial grounds are discussed in more detail in the enclosure, prepared by Messrs. Parrott and Nicholson.

## 2. Contaminated Soil

In digging the interception trench, and in connection with other construction projects on the site, DOE is encountering quite a lot of radioactively contaminated soil. From digging already underway or scheduled there will be at least 200,000 cubic feet of contaminated soil. DOE did not have any detailed radiological data at the time of our meeting, but in view of the types of materials handled at West Valley, it can be predicted that most of the contamination (in activity terms) will be Cs-137 and Sr-90.

DOE considers that the disposition of this soil may be affected by the lawsuit settlement reached with the Coalition on West Valley Nuclear Wastes in 1987. The settlement stated, in essence, that no Class A low-level waste can be buried on the West Valley site until DOE prepares an Environmental Impact Statement (EIS). The lawsuit settlement does not explicitly mention contaminated soil, but DOE seems to be assuming that it would be covered by the same moratorium. DOE has been placing the soil in containers of various types, with an eye to storing it until after the EIS is finished. This practice is getting to be expensive because of the large number of containers required. They asked me to determine what practices NRC would approve of for storage of fission-product-contaminated soil.

## 3. Sludge Washing

With completion of supernatant processing scheduled for May 1991, DOE is getting a Safety Analysis Report (SAR) ready for sludge washing, the next major step in solidifying the high-level waste. The sludge in Tank 8D-2 contains sulfates in concentrations too high for the glass recipe that DOE has chosen. It will be necessary to wash the sludge with clean water to dissolve the sulfates. A side benefit is that other soluble materials trapped in the sludge can also be removed, keeping to a minimum the volume of material to be vitrified.

DOE expects to send us an SAR on this subject in January 1991. The SAR will only cover washing of the sludge and treatment of the wash solution in the Supernatant Treatment System (STS). It will not cover mixing the sludge with the Thorex waste and cesium-loaded zeolite, or pumping the sludge to the Vitrification Facility.

DOE took new, much more extensive, sludge samples in August and September 1989. Analysis is still going on, but some interesting information has already been obtained in washing experiments with the new samples. One important finding



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of the plutonium and almost all of the uranium in the sludge dissolved in the wash solution. DOE is making a big effort to find a way to prevent so much plutonium and uranium from getting into the wash solution, or to remove it in the STS if it does get in. Their most promising ideas are to adjust the pH of the wash solution, which would seem to make the plutonium stay in the sludge to a greater extent, and to coat the STS zeolite with a titanium compound, which may give the STS a plutonium decontamination factor of around 500. DOE's objective is to avoid making any cement drums that would contain more than 100 pCi/g of long-lived transuranic

DOE wants the NRC staff to provide a certification of the acceptability of the cement waste made from the sludge wash solution, as was done for the cement waste from the Supernatant Treatment System. I suggested an orientation meeting at White Flint as the first step. The current schedule is for startup of the sludge wash system in July 1991.

4. Phase II

DOE is accelerating their work on the Environmental Impact Statement (EIS) for the so-called Phase II of the West Valley Demonstration Project, which means the activities related to final site decommissioning and closure. According to the new schedule, DOE expects to award the contract for the EIS in January 1991. A draft EIS should be available by February 1992, with a review period ending in August 1992.

We had agreed previously that DOE would keep the NRC staff closely informed about the Phase II EIS, and that NRC would review preliminary documents as they become available so that we will be as prepared as possible to review the EIS itself. In May 1990, we sent DOE our comments (prepared by the Division of Low-Level Waste Management and Decommissioning) on three documents related to Phase II: the Site Characterization Plan, the Performance Assessment, and the Implementation Plan, and offered to meet to discuss these comments.

In our meeting on August 15, DOE suggested that before we meet to discuss the individual comments a more general meeting on the subject of Phase II would be desirable. DOE would like an opportunity to present to NRC management their overall strategy for Phase II planning, and to discuss in broad terms how NRC will participate in reviewing documents and setting standards. I agreed to arrange such a meeting here at White Flint as soon as possible.

Original Signed by

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Enclosure: Memorandum from T. Nicholson  
and J. Parrott, dated 9/10/90

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[RH/WEST VALLEY REPORT]

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