

Enclosure #3: “Additional NYSERDA Comments on the *Phase 1 Decommissioning Plan for the West Valley Demonstration Project* to the U.S. Department of Energy”

April 1, 2009

Mr. Bryan C. Bower, Director
U.S. Department of Energy
West Valley Demonstration Project
10282 Rock Springs Road
West Valley, NY 14171-9799

Dear Mr. Bower:

SUBJECT: Additional NYSERDA Comments on the *Phase 1 Decommissioning Plan for the West Valley Demonstration Project*, dated December 3, 2008.

The New York State Energy Research and Development Authority (NYSERDA) is providing the enclosed comments on the U.S. Department of Energy's (DOE) *Phase 1 Decommissioning Plan for the West Valley Demonstration Project*, Rev. 0 (Phase 1 DP), dated December 3, 2008. Appendix D, Rev. 1, dated March 2009, was also reviewed.

NYSERDA engaged an Independent Expert Review Team (IERT) to supplement staff review of the Phase 1 DP. As a result, NYSERDA comments are presented in three separate documents:

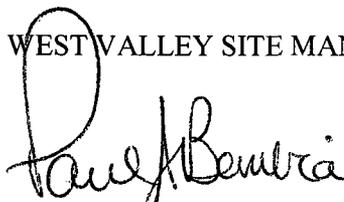
- "NYSERDA Comments on the *Phase 1 Decommissioning Plan for the West Valley Demonstration Project* to the U.S. Nuclear Regulatory Commission and the U.S. Department of Energy" (Enclosure 1)
- *Independent Review of the Phase 1 Decommissioning Plan for the West Valley Demonstration Project*, March 25, 2009 (Enclosure 2)
- "Additional NYSERDA Comments on the *Phase 1 Decommissioning Plan for the West Valley Demonstration Project* to the U.S. Department of Energy" (Enclosure 3)

NYSERDA respectfully requests that DOE provide a written response describing how NYSERDA's individual comments and the concerns raised by the IERT will be addressed in DOE's next revision of the Phase 1 DP.

Any questions regarding the enclosed comment packages should be directed to Paul Piciulo, Ph.D., at (716) 942-9960 extension 4378.

Sincerely,

WEST VALLEY SITE MANAGEMENT PROGRAM



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PLP/amd

Enclosures:

1. "NYSERDA Comments on the *Phase 1 Decommissioning Plan for the West Valley Demonstration Project* to the U.S. Nuclear Regulatory Commission and the U.S. Department of Energy"
2. *Independent Review of the Phase 1 Decommissioning Plan for the West Valley Demonstration Project*, March 25, 2009
3. "Additional NYSERDA Comments on the *Phase 1 Decommissioning Plan for the West Valley Demonstration Project* to the U.S. Department of Energy"

cc: K. I. McConnell, USNRC (w/Enc. 3)
L. W. Camper, USNRC (w/Enc. 3)
C. J. Glen, USNRC (w/Enc. 3)
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M. N. Maloney USDOE-WVDP (w/Enc. 3)
E. E. Dassatti, NYSDEC (w/Enc. 3)
G. A. Baker, NYSDOH (w/Enc. 3)
H. Brodie, NYSERDA-Albany (w/o enc.)
D. A. Munro, NYSERDA-Albany (w/Enc. 3)
J. C. Kelly, NYSERDA-WV (w/Enc. 3)
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P. L. Piciulo, Ph.D., NYSERDA-WV (w/Enc. 3)
B. J. Garrick, IERT (w/Enc. 3)
File #60203 (w/Enc. 3)

NOTE: Enclosures 1&2 were distributed under separate cover (Letter, Paul Bembia to Dr. Keith I. McConnell, USNRC, "NYSERDA Comments on the *Phase 1 Decommissioning Plan for the West Valley Demonstration Project*, dated December 3, 2008," dated April 1, 2009).

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#	Section, (Table, Figure) Page # (Paragraph, Line)	Comment	Proposed Resolution
40.	General	The tank and vault drying system is important to help maintain the integrity of the high-level waste (HLW) tanks. Throughout the DP, statements are made about the tank and vault drying system being operational in the interim end state, and the tanks being empty. Such statements are inaccurate. The tank and vault drying system may be operational before 2011, but significant heels consisting of liquids and solids (sludge) will remain in the tanks well beyond the interim end state.	Revise statements in the Executive Summary, and Chapters 1 and 3 to more accurately describe the tanks' contents both during and after the interim end state. Remove all language from the DP that states the tanks will be empty (i.e., not contain liquids) in year 2011.
41.	General	<p>While NYSERDA is identified as the owner on the Provisional Operating License Number CSF-1, NYSERDA has never had responsibility for the day-to-day operations of the reprocessing facilities. The text on Page ES-10 states: <i>"In 1976, without restarting, Nuclear Fuel Services withdrew from the reprocessing business and returned control of the facilities to NYSERDA, the successor to the New York State Atomic and Space Development Authority."</i></p> <p>Similar text appears on Pages 1-4 and 2-4. The text on Page 2-4 explains that NFS remained the site operator until 1982, since no license amendments were made from 1976 to 1981. License Amendments 31 and 32 transferred the project premises to DOE, and terminated the authority and responsibility for NFS (under the license) effective upon DOE's assumption of exclusive use and possession of the Project premises. While NYSERDA is identified on the CSF-1 as the owner of the property, NYSERDA has never had direct control of site facilities.</p>	Revise the text on Pages ES-10, 1-4 and 2-4 to clarify the transition of responsibility for operations at the site to be consistent with the following: <i>In 1976, Nuclear Fuel Services informed New York State that it intended to leave the reprocessing business and not renew the lease when the initial term expired at the end of 1980. The West Valley Demonstration Project Act was enacted in 1980 providing for solidification of the high-level liquid radioactive waste from reprocessing, then decontamination and decommissioning of the facilities used in the solidification effort. In February 1982, Nuclear Fuel Services transferred possession of the reprocessing facilities to the U. S. Department of Energy (DOE) for that purpose.</i>
Executive Summary			
42.	Page ES-8, Waste Management Area 6	In order for the decommissioning of the MPPB to be successful, the HLW canisters must be relocated to	Add a brief discussion to the Executive Summary regarding the transfer of the 275 HLW canisters to a new location on

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		Waste Management Area 6 (WMA 6). Since the new canister storage area is proposed for WMA-6, insert dialog on the new interim storage facility (on Page ES-8) in the discussion on the WMA-6.	the Project Premises.
Section 1			
43.	Page 1-5, second paragraph	The information related to the leak (which is the source of the North Plateau Groundwater Plume [NPGP]) is inconsistent with Table 2-17 (Page 2-39) of this DP as well as Chapter 3, Section 3.11.5.1 of the 2008 Draft Environmental Impact Statement (DEIS). Documentation exists to support that multiple leaks occurred during the acid recovery process, thereby contributing to the NPGP.	Revise this section to state, " <i>This contamination likely resulted from multiple leaks of nitric acid solution. . .</i> "
44.	Page 1-6, first paragraph	The information related to the ventilation system accident is inconsistent with Table 2-17 (Page 2-40) of this DP and Chapter 3, Section 3.11.5.1 of the 2008 DEIS. Specifically, there were at least two ventilation system accidents that contributed to what is known today as the "cesium prong."	Revise this section to state, " <i>The cesium prong is an impacted area that extends northwest of the Process Building as a result at least two ventilation system accidents that occurred in 1968.</i> "
45.	Page 1-9, Section 1.6, <i>Project Management and Organization</i>	In the discussion on implementing plans, the list should include a "Waste Management Plan." Per DOE Order 435.1(4), a Waste Management Plan is needed to ensure that " <i>DOE radioactive waste management activities shall be systematically planned, documented, executed, and evaluated.</i> "	Add "Waste Management Plan" to the list of implementing plans in Section 1.6.
46.	Page 1-11, Section 1.7, <i>Health and Safety Program</i>	The DOE Policy 450.4, <i>Safety Management System Policy</i> , should be included in the list of applicable requirements. This policy requires incorporation of an integrated safety management system (ISMS) into management and work practices at all levels.	Incorporate ISMS requirements into the overall Health and Safety Program.
Section 2			
47.	Page 2-8, third paragraph	This section states that " <i>Neutralizing the acid high-level waste prior to transfer caused most of the fission</i>	Revise this section to include actinide concentrations in the acidic HLW stream.

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		<i>product elements (the major exception was cesium) to precipitate out and form sludge at the bottom of Tank 8D-2.</i> This statement is inaccurate as this acidic HLW contained more than the fission product elements, specifically actinides. When the acidic waste was neutralized during reprocessing activities, concentrations of actinides precipitated out into the sludge and were found at the bottom of Tank 8D-2, where residual amounts remain today.	
48.	Page 2-10, Table 2-5	Table 2-5, " <i>Estimated Radionuclide Content (in Curies) of Tanks 8D-2 and 8D-4 at the Completion of Reprocessing,</i> " cites a reference by Eisenstatt, 1986. Historically speaking, the characterization report written by L. E. Rykken in 1986 has been the more widely used reference for inventory data. The Rykken report is based on physical sampling conducted for the HLW tanks, while Eisenstatt's work does not appear to be based upon any physical sampling.	Use the report Rykken, L. E., "High-Level Waste Characterization at West Valley," June 2, 1986 for the inventory in Tanks 8D-2 and 8D-4.
49.	Section 2.3.2, Page 2-37, third paragraph	The text describes the placement of " <i>at least three feet of soil</i> " over the contaminated sediments in the drainage channel. While the soil layer may exceed the one-meter thickness used for development of surface soil DCGLs, the remediation of areas like the drainage channel can achieve the surface soil DCGLs.	Clarify the cleanup goals (for such areas as the drainage channels), when conditions vary from the conceptual site model used to develop DCGLs.
50.	Page 2-39, Table 2-17	In Table 2-17, " <i>Principal Radionuclides in Major Spills Occurring During NFS Operations,</i> " the second row of the last column states that " <i>Line 7P-240-1-C failed inside the OGA in January 1968, and leakage drained from the OGA through the ARPR to the underlying soils.</i> " This statement is inaccurate. The OGA would have drained through the Off-Gas Cell.	Amend the table as indicated.
Section 3			
51.	Page 3-11, fourth paragraph	The Groundwater Pump and Treat System description states that there were two recovery wells in the western	Correct the text.

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		lobe of the plume. A third well was installed shortly after the start of the pump and treatment system began operation to improve the groundwater recovery from the plume.	
52.	Section 3.1.3, Page 3-12, fifth full paragraph	In the discussion on treatment of contaminated groundwater in the swamp ditch, the text states " <i>The permeable reactive barrier, which will be composed of zeolite and aggregate and approximately 175 feet in length, will be installed along the seepage face to reduce by ion-exchange the amount of Sr-90. . .</i> " The results from recent sampling activities (completed November 2008) along the leading edge of the plume have shown that the lateral extent of the contamination in the ditch is much less than previously thought, and the lateral extent of the mitigation is likely to be far less than what is currently published in this DP.	Integrate updated information on the design of the swamp ditch mitigation measure into the document as suggested by footnote found on Page 3-12.
53.	Section 3.1.3, Page 3-21, third paragraph	The last paragraph describing <i>NFS Special Holes</i> states that contaminated soil, tanks, and other materials were generated during the n-dodecane and tributyl phosphate leak investigation in 1983; however, no mention of how or where the waste materials were disposed of is included.	Incorporate a discussion of how and where the investigation waste was disposed in this section.
54.	Section 3.5.5, Page 3-58, Table 3-15	Additional historical earthquake data can be found in the database for the National Center of Earthquake Engineering Research. Several earthquakes with magnitudes greater than three are missing from the years 1954 and 1958.	Add additional earthquake data from the data compiled by the National Center for Earthquake Engineering Research.
55.	Section 3.6.1, Page 3-63, second last paragraph	The text states that the Bulk Storage Warehouse (BSW) was used for general equipment and furniture storage without mentioning its original use as the plutonium storage facility (PSF).	The paragraph should mention that the BSW was used as a PSF as well as a storage facility.
Section 4			
56.	Page 4-3, last paragraph	This section states " <i>Available radiological data on facilities, systems, and equipment are generally</i>	Correct this information to indicate that additional sampling and analyses will be conducted for the underground waste

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		<p><i>considered to be scoping data, with the exception of data on the underground waste tanks, which have been appropriately characterized.</i> This statement is incorrect for at least two of the underground waste tanks (HLW Tanks 8D-1 and 8D-4), as these tanks have received/processed additional waste since the sampling activities were performed. Further, these tanks have not been physically sampled or analyzed, even though it is likely that there is residual solid waste affixed to the walls or physical structures in the tanks. All of the HLW tanks and equipment must be adequately characterized.</p>	tanks.
57.	Page 4-15, second full paragraph	<p>Table 4-3, "<i>Relative Fraction of Process Building Dominant Radionuclides</i>" lists values that were calculated based on geometric means of radionuclide distributions in the various Process Building areas. The first sentence of the second paragraph on Page 4-15 states "<i>There are substantial variations among distributions in different areas.</i>" Why are geometric means being calculated for the radionuclide distributions in the MPPB, and why are these distributions conservative? In addition, will these aboveground MPPB ratios be used to determine the radionuclide ratios below-grade of the MPPB?</p>	Provide the technical rationale that supports the assertion that the geometric mean for the aboveground portions of the MPPB is representative and conservative of below-grade of the MPPB.
58.	Page 4-19, sixth paragraph	<p>This section states that "<i>The Old Interceptor is expected to contain a significant amount of radioactivity based on available data, which include a gamma radiation level of 408 mR/hr measured near the tank bottom in 2003 (WVNSCO 2003). As noted in Section 2, 12 inches of concrete was poured on the tank floor by NFS as radiation shielding. The New Interceptors and the Neutralization Pit are both expected to contain low levels of radioactive contamination.</i>" This statement relates to a release that occurred on February 14, 1967, and should be included</p>	Include information regarding the release of radioactive contamination to the Old Interceptor in Chapter 2, Section 2.3.

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		in Chapter 2, Section 2.3 "Spills and Uncontrolled Release of Radioactivity."	
59.	Page 4-20, Table 4-9	Values for Am-241, Cs-137 and Pu-241 differ in Table 4-9, "Estimated Radioactivity in the Underground Waste Tanks" as compared to the 2008 DEIS. Even with rounding to two significant figures, these values do not agree.	Compare the values in Table 4-9 against the data in the 2008 DEIS (Appendix C, Table C-8), and update the table as appropriate.
60.	Page 4-22, Table 4-10	Values in Table 4-10, "Estimated Radioactivity in the NDA," and Table 2-2, "Estimated Radioactivity in the NDA," (Page 2-45), are identified as containing the same information, yet do not agree.	Compare Tables 4-10 and Table 2-21, and revise as appropriate.
61.	Page 4-34, Figure 4-8	<p>All of the data from the 1998 Geoprobe sampling activity was not included in the evaluation. Specifically, Geoprobe Points 29 and 80 appear to increase in Sr-90 concentrations as the depth increases, up to approximately 30-40 feet below-grade. The potential increase in Sr-90 concentrations in these areas should be considered when designing the extent of the excavation depth and area.</p> <p>Also, an evaluation of the 1994 Geoprobe data may help verify that the 1998 Geoprobe data has adequately bounded the soil and groundwater conditions for the extent of the excavation depth and area.</p>	<p>Utilize all of the 1998 Geoprobe data to establish that the excavation area has been designed to capture all potential below-grade concentrations exceeding the DCGLs.</p> <p>Include an evaluation of the 1994 Geoprobe data to support planning the excavation area.</p>
Section 6			
62.	Section 6.1, Page 6-2	Under the section on Applicable Requirements and Guidance, the author cites NUREG/BR-0058 as the applicable source for the value in dollars for a person-rem avoided. However, the DOE Standard (DOE-STD-ALARA 1) titled "Applying the ALARA Process for Radiation Protection of the Public and Environmental Compliance with 10 CFR 834 and DOE 5400.5 ALARA Program Requirements, Volume 1, recommends applying a range from \$1,000 to \$6,000	Evaluate whether the 1997 DOE Standard is applicable to this DP. The Standard does not appear to have been issued as a final document – yet its use at other DOE sites is widespread and well documented.

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		per person-rem for ALARA evaluations.	
Section 7			
63.	Section 7.3.2 Page 7-10	What is the process for identifying a location for the new Canister Interim Storage Facility? What soils characterization will be performed to support the process?	Describe the process and characterization activities that will be performed to identify the location for the new Canister Interim Storage Facility.
64.	Section 7.3.3, Pages 7-14 through 7-19	Throughout the overall discussion of hazardous material removal (e.g., lead shielding) and equipment removal from the Process Building, there is no mention of recycling. The DOE National Center of Excellence for Metals Recycle, based in Oak Ridge, has been instrumental in recycling lead and other metals within the DOE complex. Even items that cannot be free released have been reused within the complex at a significant savings to the Department. In one year, the Center found a use for over 54,000 metric tons of metal and equipment including suspect-contaminated lead, copper, hard drives, fume hoods, etc. At least two commercial facilities are licensed to receive contaminated lead and reprocess it into lead-lined shielded containers (beneficial reuse). At a minimum, this DP needs to make mention that recycling and reuse opportunities for metals and surplus equipment will be explored during decommissioning.	Incorporate language into the DP acknowledging that potential recycling/reuse opportunities may be pursued for metal items and surplus equipment.
65.	Section 7.3.3, Page 7-15, <i>Removing Hazardous and Toxic Materials</i>	Removal of additional items (e.g., mercury switches, fluorescent lamps, circuit boards, and lead-based paint, etc.) that may be found in the Process Building should be addressed in this section.	Address removal of additional hazardous materials that are likely to be present in the Process Building.
66.	Section 7.3.8, Page 7-24	When the underground waste lines are located and removed to make room for the installation of the barrier wall, what happens if the characterization measurements show radiological or chemical constituents in the remaining sections in the ground? Will the Project continue to remove sections of the	Provide more information on the steps to be taken if contamination, either radiological or chemical, is found in the liquid transfer lines. It may be prudent to remove the lines if you already have the excavation open, crews mobilized and waste boxes staged.

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		piping, or simply cap the lines and leave the contamination underground? It is unclear as to what would be done with the information gathered from the characterization measurements.	
67.	Section 7.3.8, Page 7-25	The third bullet states that " <i>Disposing of the uncontaminated soil at an appropriate offsite disposal facility</i> " will take place during construction of the slurry wall. It seems illogical to haul clean material off-site, then turnaround and haul material from off-site back on-site to fill excavations. Since clean backfill material (similar to native geologic material) is needed throughout Phase 1 activities, why not stage the clean soil from the slurry wall construction for later use as backfill material? What criteria would be used to screen soil for use as backfill?	Consider using the clean soil from the Slurry Wall construction as backfill for the soil and sediment excavation projects.
68.	Sections 7.11.3 and 7.11.4, Pages 7-43 through 7-46	The discussion of cutting and decontamination methods does not mention liquid nitrogen-based cutting and decontamination systems. As the Nitrocision™ systems were essentially developed under a DOE-sponsored program at Idaho National Environmental Laboratory in the early nineties and considered a cutting edge technology, it may be prudent to mention them in this section of the DP. Further, the WVDP is in the process of procuring a Nitrocision™ tool.	Add a brief description on the liquid nitrogen-based cutting and decontamination systems.
69.	Section 7.12, Figure 7-15, Page 7-49	The proposed schedule does not capture the installation of a hydraulic barrier on the northwest side of the WMA 2 excavation.	Incorporate the installation of the hydraulic barrier on WMA 2 into the schedule in a manner similar to that for the barrier installation on WMA 1.
Section 8			
70.	Page 8-9, Section " <i>Quality Control</i> "	This section states, " <i>Acceptance criteria would be established to ensure repeatability of the data.</i> " Acceptance criteria do not ensure data repeatability, rather they assure that data are within certain bounding conditions. Repeatability in samples is determined by	Revise this statement.

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		some form of duplicate analyses.	
Section 9			
71.	Page 9-20, last paragraph	The first sentence of the last paragraph states, " <i>The amounts of I-129 and Np-237 that might be found in surface soil contamination, if any would be small.</i> " Although this statement is accurate given the relative amount of other radionuclides present; the Np-237 values cited in the reference document for this Phase 1 DP are significantly less (~ 50%) than the concentrations present in other characterization documents for the site (Rykken, L. E., "High-Level Waste Characterization at West Valley," June 2, 1986)	Provide justification for usage of the reference cited in the Phase 1 DP, instead of the historical reference. The rationale should confirm that the report represents a conservative approach to the Np-237 concentrations on this site.
72.	Page 9-28, fifth full paragraph; Page 9-30, last paragraph	The approach used to characterize subsurface piping in WMAs 2 and 5 differs from the approach used in WMA 1 (Page 9-26) in that a pipe probe is used to determine total beta activity (along with smears samples for alpha and beta activity and exposure rates) in WMA 1, but is not employed for WMAs 2 and 5.	Explain the rationale for not including pipe probe measurements to determine the total beta activity in WMAs 2 and 5. Are the beta contamination measurements conservative without this type of measurement?