December 7, 1999

Mr. Robert R. Campbell
[ ]
West Valley Nuclear Services
10282 Rock Springs Road
West Valley, NY 14171-9799

EA 1999-09

Subject: Preliminary Notice of Violation (NTS-OH-WV-WVNS-VFS-1999-0001)

Dear Mr. Campbell:

This letter refers to the Department of Energy's (DOE) investigation of the facts and circumstances concerning the contamination of a level/density line at the West Valley Demonstration Project's Vitrification Facility, with high-level radioactive waste (HLW). Specifically, on August 10, 1999, while conducting a steam purge of level/density probes to resolve erratic readings from the probes, HLW was instead aspirated into the level/density line. This aspiration resulted in the unanticipated creation of a radiation field within the Lower West Operating Aisle (LWOA) and the subsequent evacuation of facility personnel to the Control Room. Post-event dosimetry determined that no measurable dose was received by personnel as a result of this exposure.

The DOE's Office of Enforcement and Investigation (EH-Enforcement) initiated an investigation of this event in September 1999. A review of relevant facility documentation, in addition to discussions with involved DOE and DOE contractor personnel at the West Valley Demonstration Project, took place on October 5-6, 1999. Based on this review, DOE has concluded that violations of 10 CFR 830, "Nuclear Safety Management," occurred; these violations are described in the enclosed Preliminary Notice of Violation (PNOV). A copy of EH-Enforcement's Investigation Summary Report is also enclosed.

The enclosed PNOV describes deficiencies in shift turnover procedures, adherence to procedures, radiological operations, and emergency response. Specifically, (1) shift turnover logs and checklists failed to communicate proper valve configuration; (2) existing procedures did not accurately reflect current valve configuration and in one case, was ambiguous as to the required step to be performed; (3) operators did not follow your established procedures while performing the steam blow down, (4) the Radiological Work Permit governing the steam blow down was not fully completed; and (5) the Radiological Control Technician and operator re-entered the LWOA in contradiction to your emergency response procedures.

Although the consequences of this event in terms of radiological exposure to workers in the vitrification facility were negligible, DOE remains concerned regarding the multiple failures in formality of operations which led to the event and the fact that many of these deficiencies were known to exist prior to the event. DOE is also concerned that the regulatory implications of this event were not recognized or reported prior to the initiation of EH-Enforcement's investigation into the circumstances surrounding the event. Therefore, in accordance with 10 CFR 820, "Procedural Rules for DOE Nuclear Activities," Appendix A, the violations associated with the August 10, 1999, level/density line contamination event have been classified as Severity Level III violations.

You are required to respond to this letter and you should follow the instructions specified in the enclosed PNOV when preparing your response. Your response should document any additional specific actions taken to date and planned to prevent recurrence. After reviewing your response to this Notice, DOE will determine whether further action is necessary to ensure compliance with the applicable nuclear safety requirements.

Sincerely,

David Michaels, PhD, MPH
Assistant Secretary
Environment, Safety and Health

CERTIFIED MAIL
RECEIPT REQUESTED

Enclosures:
Preliminary Notice of Violation
Investigation Summary Report

cc: M. Zacchero, EH-1
K. Christopher, EH-10
R. Day, EH-10
S. Zobel, EH-10
D. Stadler, EH-2
O. Pearson, EH-3
J. Fitzgerald, EH-5
C. Huntoon, EM-1
L. Vaughan, EM-10
S. Brechbill, DOE-OH
T. Brown, DOE-OH
B. Mazurowski, DOE-WV

B. Bower, DOE-WV
L. Chilson, WVNS PAAA Coordinator
Docket Clerk, EH-10

PRELIMINARY NOTICE OF VIOLATION
NTS-OH-WV-WVNS-VFS-1999-0001

West Valley Nuclear Services
West Valley Demonstration Project
Vitrification Facility

EA 1999-09

As a result of a Department of Energy's (DOE) evaluation of activities associated with the contamination of the level/density line in the Vitrification Facility with high level radioactive waste that occurred on August 10, 1999, violations of nuclear safety requirements were identified. In accordance with 10 CFR 820, Appendix A, "General Statement of Enforcement Policy," DOE proposes to issue a Preliminary Notice a Violation, without civil penalty, pursuant to Section 234a of the Atomic Energy Act of 1954, as amended, 42 U.S.C 2282a. The particular violations are set forth below.

I. 10 CFR 830.120(c)(2)(i) requires that work shall be performed to established technical standards and administrative controls using approved instructions, procedures, or other appropriate means.

Contrary to the above, work was not performed to established technical standards and administrative controls using approved instructions, procedures, or other appropriate means in that–

A. Procedure SOP 63-24, "Concentrator Feed Make-Up and Feed Hold Tank Bubbler System Operation," Revision 2, dated December 18, 1998:

1. Section 5.1.[2] stated "Determine if steam is present upstream of trap 6-SH-T-169. Use thermocouples or hand held pyrometer if necessary." However, the operator performing this aspect of the job evolution attempted to determine the presence of steam by using the back of his hand; the thermocouples or pyrometers recommended in the procedure were not available in the vitrification facility and were known not to be present in the facility for several months; and the use of the term "if necessary" in this section of SOP 63-24 allowed alternate, unapproved methods of determining the presence of stream.

2. Section 5.1.[4] stated "**OPEN** 6-SC-GT-234 (valve is part of trap 6-SH-T-169) to blow-down trap, then **CLOSE**." However, the operator performing this step of the job

evolution did not fully open the valve. Hence, the steam line was not fully blown down and the vacuum formed by the steam collapse was not relieved.

B. Procedure WVDP-106, "Westinghouse Conduct of Operations Manual," Chapter 8, paragraph 5.2, dated September 1, 1993, stated "Records of equipment and system alignment shall be maintained for reference by operating shifts per facility specific administrative procedures. Administrative controls that analyze and document deviations from the reference alignment should be established." Chapter 11, paragraph 5.1, stated "Information regarding activities of events for key positions shall be recorded promptly throughout the shift to ensure the accuracy of the entry." However, the closing of valves 6-SH-H-002 and 007, which isolated the steam header, was not recorded in the Vitrification Process Control Room logbook or the Vitrification Operations Shift Supervisor turnover checklist.

C. Procedure SOP 63-100, "Vitrification Systems Normal Valve Lineup," Section 4.1.[2], dated July 29, 1999, stated "Complete or partial valve lineups will be performed after maintenance outage where the system configuration was not restored by the use of the lockout/tagout (LOTO) control sheet or Work Order." However, the positions of valves 6-SH-H-002 and- 007 were not properly annotated in SOP 63-100 since SOP 63-100 did not require that changes in valve alignment, other than those resulting from a LOTO control sheet or work order, be recorded. This procedural requirement resulted in SOP 63-100 incorrectly indicating the steam system valve lineup. Furthermore, SOP 63-100 did not indicate that valve 6-SH-GT-803 was closed. This was an air release isolation valve and, if in the open position as was indicated in SOP 63-100, would have relieved the vacuum created by the steam collapse.

D. Procedure SOP 63-81, "Vitrification Alarm Responses", Revision 6, dated March 3, 1999, Appendix E, Category 1 Alarms Gamma stated that operators were to "LEAVE AND KEEP MOVING FROM AFFECTED AREA(S) UNTIL NON-ALARMING AREA IS REACHED." However, the operator performing the job evolution and the accompanying radiological control technician (RCT)
re-entered the Lower West Operating Aisle (LWOA) to obtain an area radiation exposure rate and to purge the contaminated level/density line with air.

These violations constitute a Severity Level III problem.

II. 10 CFR 830.120(c)(2)(i) requires that work shall be performed to established technical standards and administrative controls using approved instructions, procedures, or other appropriate means.

Contrary to the above, work was not performed to established technical standards and administrative controls using approved instructions, procedures, or other appropriate means in that–

A. WVDP Radiological Control Manual (WVDP-010) Chapter 3, "Conduct of Radiological Work," Revision 14, Article 322, Step 10, required that "Limiting radiological conditions

that may void [a Radiological Work Permit (RWP)] will be designated in the special instructions section of the RWP." Furthermore, Radiological Control Procedure RC-ADM-6, "Radiation Work Permits," Revision 12, dated March 6, 1999, stated in Step 6.3.2.G. that the RCT shall complete the section for "special instructions including limiting conditions and those requirements not covered in other areas of the RWP." However, RWP 11182 provided no stop work requirement, limiting condition, or any other instruction in the special instructions section.

B. Radiological Control Procedure RC-ADM-6, "Radiation Work Permits," Revision 12, dated March 6, 1999, provided in Step 7.[1] several examples of special instructions for an RWP. However, there were no other references to an explanation of what constitutes a limiting condition. Furthermore, interviews with WVDP Radiation Protection management indicated that an RCT should be familiar with the aspects of an RWP's special instructions through RCT training.

C. WVDP Radiological Control Manual (WVDP-010) Chapter 3, "Conduct of Radiological Work," Revision 14, Article 322, Step 1.A. stated that "RWPs shall be used to control…entry into High Radiation Areas" and Step 3 stated that "Job-specific RWPs shall be used to control nonroutine operations." However, after evacuating the LWOA, the RCT and operator then returned, without authorization, to purge the level/density line with compressed air. Upon return to the LWOA, the RCT measured an exposure rate of 500 millirem per hour at the steam valve yet allowed the steam valve to be purged.

These violations constitute a Severity Level III problem.

III. 10 CFR 830.120(c)(1)(iii) requires that items, services, and processes that do not meet established requirements shall be identified, controlled, and corrected according to the importance of the problem and the work affected.

Contrary to the above, items, services, and processes that did not meet established requirements were identified, controlled, and corrected according to the importance of the problem and the work affected in that–

A. Problems with the accuracy and reliability of the valve alignments stated in SOP-100 were known to exist but were not corrected.

B. Deviations from the requirements stated in SOP 63-24 were known to occur and were allowed to continue.

C. Reliable methods to verify steam presence were known to exist but were never formally incorporated into SOP 63-24.

D. Variances in the quality of shift turnover documentation between the Vitrification Operations Shift Supervisors were known to exist but were not corrected.

E. A leak at valve 6-SH-AR-850 was known to exist for several years and the leak was allowed to persist.

These violations constitute a Severity Level III problem.

Pursuant to the provisions of 10 CFR 820, West Valley Nuclear Services is hereby required within 30 days of the date of this Preliminary Notice of Violation, to submit a written statement or explanation to the Director, Office of Enforcement and Investigation, Attention: Office of the Docketing Clerk, P.O. Box 2225, Germantown, MD 20875-2225. Copies should also be sent to the Director, DOE, West Valley Demonstration Project, Manager, DOE-Ohio Field Office, and to the Cognizant DOE Secretarial Office for the facility that is the subject of this Notice. This reply should be clearly marked as a "Reply to a Preliminary Notice of Violation" and should include the following for each violation: (1) admission or denial of the alleged violations; (2) any facts set forth which are not correct and (3) the reasons for the violations if admitted, or if denied, the basis for the denial. Corrective actions that have been or will be taken to avoid further violations will be delineated with target and completion dates in DOE's Noncompliance Tracking System. In the event the violations set forth in this Preliminary Notice of Violation are admitted, this Notice will constitute a Final Notice of Violation in compliance with the requirements of 10 CFR 820.25.

David Michaels, PhD, MPH
Assistant Secretary
Environment, Safety and Health

Dated at Washington, DC
this 7th day of December 1999