

March 30, 1998

Robert R. Campbell  
[ ]  
West Valley Nuclear Services  
10282 Rock Springs Road  
P.O. Box 191  
West Valley, NY 14171

Subject: Noncompliance Report: NTS-OH-WV-WVNS-HLLW-1998-0001

Dear Mr. Campbell:

This letter refers to the Department of Energy's (DOE) evaluation of West Valley Nuclear Services Company's (WVNS) report of a potential noncompliance with the requirements of 10 CFR 830.120 (Quality Assurance) and 10 CFR 835 (Occupational Radiation Protection). This potential noncompliance, which involved inadequate hazards analysis, design review, and implementation of work controls during decontamination activities for a high-level waste tank mobilization pump, was identified by WVNS on February 4, 1998, and reported to DOE on February 19, 1998. The waste tank farm contamination event occurred on December 15, 1997, and resulted in the radiological contamination of two WVNS personnel and contamination spread within a Radiological Buffer Area.

On December 15, 1997, workers were decontaminating a pump located in [a waste tank] in preparation for the pump's removal and replacement. A combination of water and utility air sparge was used to flush the pump's internals in order to reduce both contamination and dose rate levels. Once the sparge was completed, two workers, an engineer and supervisor, decided to blowdown the supply water line with utility air to remove any remaining liquid in the line. As air pressure was applied to the water line, highly contaminated liquid from the pump was forced back through the air sparge line and began to drip from an air pressure regulator. Some of the liquid fell onto the supervisor's hand, and neither worker recognized at the time that the leaking liquid was potentially radiologically contaminated. A radiological control technician (RCT) responded to the spill, wiped up the liquid with a towel and carried the towel to a nearby building for counting. As the RCT placed the towel on the counting instrument, the personnel contamination monitor and contamination survey meter in the area alarmed. The RCT determined that the towel had [a specified amount of] contamination. Concurrently, the supervisor surveyed the air pressure regulator with a dose rate meter and detected [a specified level]. At that point, the RCT and supervisor individually took action to notify the RCT shift supervisor and stood fast until additional radiation protection personnel had responded and recovery operations had been

initiated.

Approximately 100 milliliters of contaminated liquid had leaked from the air pressure regulator onto the ground with the highest level of contamination identified as [a specified amount]. Both the RCT and the supervisor had skin contamination on their hands with the highest level of skin contamination identified as [a specified amount] on the supervisor's right hand. Negative nasal swipes and bioassay indicated no internal uptakes of radioactive material for either worker.

WVNS's root cause analysis of the event identified a series of deficiencies in the planning, preparation and execution of the work. The initial hazards analysis and work planning failed to recognize the possibility that radiologically contaminated liquid could exit the pump. As a result, adequate engineered barriers, such as check valves to prevent backflow, and/or appropriate administrative work controls were not implemented. Since the extent of the radiological hazards were not recognized for this work evolution, the work order (WO) to sparge the pump's internals provided only minimal radiological controls and was incomplete in that it did not describe the mechanism to provide utility air and water for sparging, i.e., the manifold. Additionally, work was performed outside of the WO in that the blowdown sequence for the supply water line was not described in the package. Since the RCT responding to the initial leak from the air pressure regulator assumed that the leaking liquid was nonradioactive utility water, adequate radiological controls were not implemented in collecting a sample of the liquid.

Based upon our evaluation, we have concluded that noncompliances with 10 CFR 830.120 and 10 CFR 835 occurred. Specifically, noncompliances with the Radioactive Contamination Control and Monitoring, Design and Control (As Low As Reasonably Achievable), Work Processes, Design, and Quality Improvement requirements have been identified. This occurrence is of particular concern since some aspects of this current event are similar to two previous events: an unintended radioactive liquid backup to piping outside of a shielded Vitrification Facility cell during a sample line flush (November 1996) and a personnel contamination in the Vitrification Facility (February 1997). The WVNS's root cause analysis of the December 1997 event identified similarities in the contributing causes between the three events including inadequate hazards recognition, inadequate control of nonroutine work involving WO's and inadequate peer review. The root cause analysis further acknowledges that although the corrective actions for the previous two events had been adequate for the involved facility, the corrective actions had not been applied site-wide.

DOE recognizes that WVNS's root cause analysis of the December 1997 event was a thorough review of the causes for the current event including analysis of the continued deficiencies from the previous events. The Office of Enforcement and Investigation, in conjunction with DOE-West Valley Area Office (WV), has determined that the corrective actions as outlined in the West Tank Farm Contamination Event Corrective Action Plan will provide a reasonable approach to correct the identified noncompliances. These corrective actions, coupled with a continuing effort to ensure

that the actions are implemented site-wide, meet the discretionary criteria in DOE's nuclear safety enforcement policy. Therefore, the exercise of discretion not to undertake enforcement action at this time is warranted. However, the final decision to refrain from taking an enforcement action is contingent upon the adequacy of implementation and effectiveness of the current corrective actions. A member of my staff will continue to coordinate the review of the status of your corrective actions with the DOE-WV Price-Anderson Coordinator.

If you would like to discuss these matters further, please contact Susan Adamovitz of my staff at 301-903-0125.

Sincerely,

R. Keith Christopher  
Director  
Office of Enforcement and Investigation