



JUL 28 2009

09-ESQ-257

CCN: 198670

Ms. Jane A. Hedges, Program Manager
Nuclear Waste Program
Washington State
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

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Dear Ms. Hedges:

DESIGN MODIFICATION PROPOSAL TO PROVIDE IMPROVED LEAK DETECTION CAPABILITIES FOR SUMPS HFP-SUMP-00001 AND HFP-SUMP-00004 IN THE HIGH-LEVEL WASTE (HLW) VITRIFICATION FACILITY

Reference: Ecology letter from E. Fredenburg to S. J. Olinger, ORP, and W. S. Elkins, BNI, "Design Modification for Leak Detection in HFP-SUMP-00001 and HFP-SUMP-00004 in the High-Level Waste (HLW) Vitrification Facility," dated April 16, 2009.

The purpose of this letter is to describe the proposed design modification for the Waste Treatment and Immobilization Plant (WTP) HLW Facility that will improve leak detection capabilities and address the Washington State Department of Ecology's (Ecology) concern regarding the permitted design. In the Reference it states:

"Ecology requests design modification of HFP-SUMP-00001 and HFP-SUMP-00004 to include in-sump leak detection. In-sump leak detection ensures that leakage of dangerous waste in rooms H-0302 and H-0308 is detected within the time and leak rate required by the permit."

In the permitted design, HFP-SUMP-00001 and HFP-SUMP-00004 are drained to the Plant Wash and Drains vessel, RLD-VSL-00008. The current calculation document 24590-HLW-PER-M-04-002, "Leak Detection Capability in the HLW Facility," demonstrated that the leak rates for HFP-SUMP-00001 and HFP-SUMP-00004 are 1.73 and 1.76 gallons per hour respectively. The leak rate detection capabilities are based on the accuracy of the radar-based level instrumentation installed in RLD-VSL-00008.

Jointly, the U.S. Department of Energy, Office of River Protection and Bechtel National, Inc. re-evaluated the current design to address Ecology's concern. It was determined that the drains from the two sumps could be re-routed to a sump, HCP-SUMP-00001, that is located in the Wet Process Cell (Room B-014 at Elevation -21'). This sump is located in the same room

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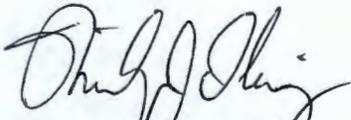
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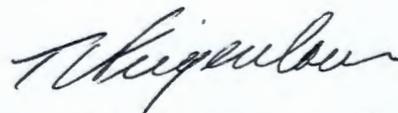
as RLD-VSL-00008 (the vessel to which HFP-SUMP-00001 and HFP-SUMP-00004 are currently drained) and is already equipped with radar level detection instrumentation. Sump HCP-SUMP-00001 has already been incorporated into the Dangerous Waste Permit (DWP). The contents of sump HCP-SUMP-00001 are transferred, via steam ejector, to RLD-VSL-00007 or to vessel RLD-VSL-00008 (via manifold). RLD-VSL-00007 is located next to RLD-VSL-00008 in the Wet Process Cell and the two vessels together serve to collect the facility's liquid process waste.

The calculation document 24590-HLW-PER-M-04-002, "Leak Detection Capability in the HLW Facility," was re-evaluated to determine the impact of this design modification. The proposed design modification to utilize HCP-SUMP-00001 would result in a leak detection rate of approximately 0.06 gallons per hour meeting the specified criteria of 0.1 gallons per hour leak detection requirement in the unit-specific permit conditions for WTP.

The design modifications will be initiated and will include revisions to the Piping and Instrumentation Diagrams, piping isometric drawings, relevant design documentation, and a revision to 24590-HLW-PER-M-04-002 calculation to formally incorporate the design changes. The revised documents will be submitted in a permit modification to Ecology for concurrence and ultimate inclusion in the WTP unit-specific portion of the DWP, WA7890008967.

If you have questions, please contact either of us, or your staff may contact Mr. Jeffrey S. Trent, Waste Treatment and Immobilization Plant, (509) 205-7116, or Mr. Brad Erlandson, BNI, (509) 371-3428.


Shirley J. Olinger, Manager
Office of River Protection


T. C. Feigenbaum, Project Director
Bechtel National, Inc.

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cc: D. M. Busche, BNI
S. F. Cruz, BNI
B. L. Curn, BNI
B. Dubiel, BNI
B. G. Erlandson, BNI
T. C. Feigenbaum, BNI
P. A. Fisher, BNI
N. F. Grover, BNI
S. P. Kretzschmar, BNI
S. K. Murdock, BNI
C. A. Musick, BNI
R. E. Stevens, BNI
T. P. Troutman, BNI
R. Voke, BNI
J. Cox, CTUIR
S. G. Harris, CTUIR
R. K. Biyani, Ecology
S. L. Dahl, Ecology
G. P. Davis, Ecology
K. A. Elsethagan, Ecology
E. A. Fredenburg, Ecology
T. R. Williams, Ecology
S. A. Thompson, FHI
G. P. Bohnee, NPT
K. Niles, Oregon Energy
A. C. McKarns, RL
S. R. Weil, RL
D. J. Sommer, SCS
R. Jim, YN

Administrative Record (WTP H-0-8)

BNI Correspondence

Environmental Portal, LMSI