U.S. Department of Energy
Office of River Protection
P.O. Box 450
Richland, Washington 99352

0060285

AUG 2 2 2003

03-ED-130

Mr. Michael A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
1315 W. Fourth Avenue
Kennewick, Washington 99336

Dear Mr. Wilson:

SUBMITTAL OF PERMIT DESIGN PACKAGE NO. LAW-029 FOR THE WASTE TREATMENT AND IMMOBILIZATION PLANT

This letter transmits Permit Design Package LAW-029, "Tank System Ancillary Equipment (Piping Only) for LAW Facility Elevation -21 ft.," for the State of Washington Department of Ecology (Ecology) approval. The design package provides the information necessary for Ecology to determine whether the structures, equipment, and processes described in the permit design package will comply with the referenced permit. A temporary authorization request for construction activities related to this design package will be submitted under separate cover.

The permit design package included in this submittal is briefly described in Attachment 1 to this letter. Attachment 2 provides the U.S. Department of Energy and Bechtel National, Inc. certification statements, and Permit Design Package LAW-029. Due to the potential sensitivity of the attached engineering information, Ecology is requested to place the data for public review in the standard information repositories, but not provide electronic dissemination of the information.

If you have any questions, please contact me, or your staff may contact Lori A. Huffman, Environmental Division, (509) 376-0104.

Sincerely,

Roy J. Schepens
Manager

ED:LAH

Attachments (2)

cc: See page 2

cc w/attach (half size drawings):
B. G. Erlandson, BNI
J. P. Henschel, BNI
J. Cox, CTUIR
S. L. Dahl, Ecology
T. Z. Gao, Ecology
J. Grantham, Ecology
J. L. Hensley, Ecology
S. J. Skurla, Ecology (21)
S. A. Thompson, FHI
J. L. Hanson, INNOV (w/o attach)
P. Sobotta, NPT
J. B. Hebdon, RL (w/o attach)
A. C. McKarns, RL
R. Jim, YN
Administrative Record
Environmental Portal, LMSI

Attachment 1
03-ED-130

Permit Design Package LAW-029 Description

Permit Design Package LAW-029 Description

LAW-029, Revision 0, "Tank System Ancillary Equipment (Piping Only) for LAW Facility Elevation -21 ft"

Permit design package Low-Activity Waste (LAW) -029 addresses the piping for the radioactive liquid waste disposal system (RLD), the LAW secondary offgas/vessel vent process system (LVP), and the LAW concentrate receipt process system (LCP) that will be installed in the –21 ft elevation of the LAW facility. It does not address underground transfer lines. The routing and secondary containment for RLD, LVP, and LCP pipe systems are discussed below.

RLD Pipe Routing and Secondary Containment

The RLD pipes run from the Plant Wash Vessels (RLD-VSL-00003) and the Submerged Bed Scrubber Condensate Collection Vessel (RLD-VSL-00005) through the bulge (RLD-BULGE-00004) and drop into the effluent cell (room L-0126), run through the effluent cell, through room L-0125 and through the process cells (L-0124 and L-0123) to the northwest corner of the Melter 1 process cell (L-0123). Secondary containment is provided by the bulge or cell that the pipes pass through.

The pipes penetrate the floor of the Melter 1 process cell. Double containment of these pipes starts before the penetration of the cell floor. The double contained pipes run through a pipe chase across the top of the –21 ft elevation corridor and pass through an opening into the C3/C5 Drain Collection Cell (room L-B001B). At the north wall of the C3/C5 Drain Collection Cell, the pipes connect to the underground transfer lines addressed by permit design packages Pretreatment Facility (PTF)-007 and PTF-008 and exit the LAW building.

LVP Pipe Routing and Secondary Containment

The LVP pipes from the Caustic Scrubber Blowdown Vessel (LVP-VSL-00001) at elevation +28 ft exit the cell. Double containment of the pipe starts before the penetration of the cell wall. The double contained pipes are routed to the north corridor at elevation +28 ft (The routing on this elevation is still proposed.)

From the +28 ft corridor, the pipes drop vertically into the top of the C3/C5 Drain Collection Cell (room L-B001B), and exit the LAW facility at the north wall in the same manner as the RLD pipes.

LCP Pipe Routing and Secondary Containment

The LCP feed concentrate line coming from the PTF enters the LAW facility through the C3/C5 Drain Collection Cell (room LB-001B) at elevation –21 ft. The double contained pipe is routed through the –21 ft elevation corridor in the pipe chase. The pipe enters the Pour Cave Cooling Room (elevation –21 ft) from the corridor and bends 90 degrees upward to enter the process cell (room L-0123) at elevation +3 ft. The pipe double containment ends in the process cell.

Underground Transfer Lines

Permit design package LAW-029 does not address underground transfer lines. Permit design packages PTF-007 and PTF-008 address the entire Hanford Tank Waste Treatment and Immobilization Plant (WTP) underground transfer line system including those portions within the battery limits of the LAW, the high-level waste vitrification, and laboratory buildings. All of the underground transfer lines slope to the PTF, and the drains for all WTP underground transfer line casings are located at the PTF.

Permit Design Package LAW-029 includes:

- An assessment report signed by an Independent Qualified Registered Professional Engineer certifying certain portions of the permit design package;
- Piping and instrument diagrams for the RLD system (2), the LCP system, and the LVP system; and
- A description of how hydrogen gas accumulation will be controlled.

The following components of this package have been provided with other permit design packages as listed in the Table of Contents:

- A piping and instrument diagram for the RLD system; and
- A description of materials for ancillary equipment.

The following components of this package are included in Attachment 51 as listed on the Table of Contents:

- A specification for positive material identification, Appendix 8.7;
- A description of ancillary equipment pipe support design, Appendix 8.5;
- A piping material class description, Appendix 4; and
- A description of the installation of tank systems, Appendix 8.12.

The following components of this package are included in the Administrative Record as listed on the Table of Contents:

- A material and energy balance.

Attachment 2
03-ED-130

Permit Design Package LAW-029, "Tank System Ancillary Equipment (Piping Only) for LAW Facility Elevation -21 ft."

Permit Design Package No. LAW-029, Rev. 0
Tank System Ancillary Equipment (Piping Only)
for LAW Facility El. -21 ft
(RLD/LVP/LCP Systems)
Table of Contents

CCN 058058

For Incorporation into the Permit

Engineering Document Title	Document Number	Revision	Permit Condition	Included	Remarks
IQRPE Independent Assessment Report	24590-CM-HC4-HXYG-00138-01-14	A	III.10.E.9.d.i	Y	
Permit Design Drawings			III.10.E.9.d.ii		
Process Flow Diagrams	N/A	-		N	Not applicable. This package addresses piping only.
Piping & Instrumentation Diagrams	24590-LAW-M6-LCP-P0001	0		Y	
	24590-LAW-M6-RLD-P0001	0		Y	
	24590-LAW-M6-RLD-P0002	2		N	Included in LAW-002, Rev. 1
	24590-LAW-M6-RLD-P0003	0		Y	
	24590-LAW-M6-LVP-P0002	0		Y	
Specifications	24590-WTP-3PS-G000-TP002	1		N	Attachment 51, Appendix 8.7
Ancillary Equipment Pipe Support Design	24590-WTP-PER-PS-02-001	2	III.10.E.9.d.ii III.10.E.9.d.iii	N	Attachment 51, Appendix 8.5
Underground Pipe Protection	N/A	-	III.10.E.9.d.iv	N	Not applicable. This package does not address underground pipe.
Piping Material Class Description	24590-WTP-PER-PL-02-001	2	III.10.E.9.d.v III.10.E.9.d.vi	N	Attachment 51, Appendix 4
Materials for Ancillary Equipment	24590-WTP-PER-M-02-002	0	III.10.E.9.d.v	N	Included in LAW-003, Rev. 0
System Logic Description	N/A	-	III.10.E.9.d.vii	N	Not applicable. This package addresses piping only.
Installation of Tank Systems	24590-WTP-PER-CON-02-001	1	III.10.E.9.d.ix III.10.E.9.d.x	N	Attachment 51, Appendix 8.12

For Incorporation into the Administrative Record

Engineering Document Title	Document Number	Revision	Permit Condition	Included	Remarks
System Description	N/A	-	III.10.E.9.d.viii	N	Not applicable. This package addresses piping only.
Material and Energy Balance	24590-WTP-RPT-PT-02-005	1	III.10.E.9.d.xi	N	Included in the Administrative Record
	24590-WTP-MDD-PR-01-003	4			
	24590-WTP-MRR-PO-03-020	0			
Prevention of Hydrogen Accumulation in Tank Systems and Miscellaneous Treatment Unit Systems	24590-WTP-PER-PR-03-001	1	III.10.E.9.d.xii	Y	