Department of Energy
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Mr. Michael A. Wilson, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
1315 W. Fourth Avenue, MSIN B5-18
Kennewick, Washington 99336-6018

Dear Mr. Wilson:

MODIFICATION OF HANFORD FACILITY RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT TO ADDRESS PROCEDURAL CLOSURE OF THE RADIOACTIVE LIQUID WASTE TANK (RLWT)

Attached is a request to modify the Hanford Facility RCRA Permit to remove the RLWT, located in the Radiochemical Processing Laboratory, from the 325 Hazardous Waste Treatment Units. This removal is proposed using the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) procedural closure process as provided in Section 6.3.3 of the Action Plan. Procedural closure is utilized for treatment, storage, and/or disposal (TSD) units "...which were classified as being TSD units, but were never actually used to treat, store, or dispose of hazardous waste, including mixed waste, except as provided by 173-303-200 WAC or 173-303-802 WAC." These WAC sections contain provisions for generator accumulation and permit by rule, respectively.

We have included a Technical Data Synopsis containing supporting information for the procedural closure. The synopsis includes a certification statement as required by Tri-Party Agreement Action Plan Section 6.3.3.

Upon completion of the procedural closure process, a package of modification forms will be submitted to remove the actual language from the Hanford RCRA Permit relating to the RLWT. We anticipate that once the procedural closure process is completed, the State of Washington Department of Ecology will approve the modification forms as a Class 1 (minor) modification.

If you have any questions or require further information, please contact Theresa Aldridge, Laboratory Operations Division, at (509) 375-4508.

Sincerely,

Joel Hebdon

Joel Hebdon, Director
Regulatory Compliance and Analysis Division

LOD:TLA

Attachment

cc w/attach:
Administrative Record:
325 Hazardous Waste Treatment Units (T-3-4)
M. Y. Anderson-Moore, Ecology
R. D. Enge, PNNL
Environmental Portal, FH
R. Gay, CTUIR
F. C. Jamison, Ecology
R. Jim, YN
P. Sobotta, NPT

Radioactive Liquid Waste Tank
Procedural Closure
Technical Data Synopsis

1.0 Introduction

1.1 Purpose

The purpose of this synopsis is to support the Department of Energy, Richland Operations Office (RL) and Pacific Northwest National Laboratory (PNNL) request for procedural closure of the Radioactive Liquid Waste Tank (RLWT) and its ancillary equipment in the 325 Building, now known as the Radiochemical Processing Laboratory (RPL). The RLWT was added to the 325 Hazardous Waste Treatment Units (HWTUs) Part A, Form 3 on June 30, 1997. This request is being submitted in accordance with Section 6.3.3 of the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Action Plan. The information summarized below demonstrates that the RLWT has never treated, stored, or disposed of dangerous waste, including mixed waste, except as provided by Washington Administrative Code (WAC) 173-303-200 and WAC 173-303-802. No plans exist to manage dangerous or mixed waste in the RLWT. The procedural closure of the RLWT will modify the Hanford Facility Resource Conservation and Recovery Act of 1976 (RCRA) Permit by removing the RLWT process and equipment descriptions from Attachment 36 and deleting related permit conditions. These modifications will be made once the procedural closure process is completed.

1.2 Previous Application Submittal

On June 30, 1997 (see Section 1.1), Revision 4 of the 325 HWTUs Part A, Form 3 was submitted to the State of Washington Department of Ecology (Ecology). This submittal was the culmination of the Notice of Intent process utilized by RL and PNNL for notifying Ecology of the installation of the RLWT. The Notice of Intent was submitted to Ecology on November 27, 1995 and supplemented on April 24, 1996. During 1997 and 1998, the 3000-gallon RLWT was installed in the basement of RPL to replace the use of the retired 300 Area Radioactive Liquid Waste System to transport liquid wastes to the Hanford Double-Shell tank farms. The tank was sealed off from the lines to prevent use pending necessary modifications to the 204-AR Unloading Facility, assuring availability of the shielded cask system for transferring waste from the RLWT to 204-AR, and completion of an integrity assessment as required by WAC 173-303-640(3)(a) and Hanford RCRA Permit condition III.6.B.e.

Several studies have indicated that the cost of operation of the RLWT exceeds the potential benefit considering life cycle operational and disposal costs. The necessary modifications to the 204-AR facility have never been completed. Further, the Department of Energy Office of River Protection, owner of the shielded cask system, recently transferred the cask to the Savannah River Site. As a result, the intended equipment is no longer available to make transfers. RL and PNNL have determined that

the RLWT is no longer needed to support RPL operations and should be procedurally closed.

2.0 Facility Description

The Part A, Form 3 for the 325 HWTUs (Chapter 1 of Attachment 36 to the Hanford RCRA Permit) includes the RLWT, and a process description is included in Section 4.2.2 of Attachment 36. This procedural closure request is intended to cover the RLWT system as described there and below:

- The 11,355-liter waste tank in the basement of RPL. This tank has often been referred to as the Radioactive Liquid Waste Tank.
- All ancillary equipment to the RLWT, including newly installed and previously existing pipelines within the RPL that are connected to the tank itself.

The ancillary equipment to the RLWT includes three inlet lines. Portions of these lines were formerly connected to the 300 Area Radioactive Liquid Waste System used to transfer waste to the 340 Building. That system was operated as a 90-day tank system. Many portions of the lines were replaced as part of the RLWT installation, but those that were not are contaminated with mixed waste due to pre-connection transfers to the since-retired 300 Area Radioactive Liquid Waste System. WAC 173-303-200 allows this operation of the contaminated lines as part of a 90-day tank system without a permit. Closure of these lines will be integrated with RPL decontamination and decommissioning efforts, and must meet the closure requirements referenced in WAC 173-303-200(1)(b)(ii) for 90-day tank systems.

The RLWT also has an outlet line that leads up to a truck loading station on the east side of the RPL. This line was installed at the same time as the tank itself and is included in the procedural closure request.

The tank known as the Shielded Analytical Laboratory (SAL) Tank and inlet lines leading to it, located in Room 32 of the RPL, are described in Section 4.2.1 of Attachment 36. The SAL tank system is *not* part of this procedural closure request. However, the transfer line from the SAL tank to the RLWT *is* included in the procedural closure request.

3.0 Process Information and Data Gathering

3.1 Operations History

Historical waste management activities within the RLWT facilities have been limited to use of some of the pipelines as part of the retired 90-day tank system used to transfer liquid waste to the 340 Building prior to April 1998. The RLWT has not managed waste since it was installed, and has been protected from inadvertent additions through the use of locked valves in the pipelines leading to the tank and a series of administrative controls.

3.2 Data Gathering for RLWT Activities

Records review and field inspections were used to establish whether regulated waste treatment, storage, or disposal took place in the RLWT under the permit, or since the discontinuation of transfers to the 300 Area Radioactive Liquid Waste System in 1998. The approach used and the results of this effort are described in the following sections.

3.2.1 Approach

Three primary sources of information were utilized to determine that procedural closure is appropriate and to assure that the certification statement provided in this procedural closure request is true, accurate, and complete. These information sources included:

- Review of administrative controls and records used for RLWT operations under the permit. These controls include the operating contract between RL and PNNL; PNNL's Standards-Based Management System (SBMS), the electronic compilation of PNNL operating requirements; and the RLWT operating log for the HWTUs.
- Review of construction records for the RLWT and ancillary equipment.
- Onsite review of the RLWT equipment.

The reviews concluded that no activities have taken place that would have been regulated as treatment, storage, or disposal, or otherwise initiate regulated activities in the permitted RLWT.

3.2.2 Administrative Controls and Records

Use of the RLWT has never been authorized by RL or PNNL. The sink drain in Room 528 (the origin of one of the three inlet lines) is plugged to avoid inadvertent introduction of waste to the tank. The other two inlet lines are transfer lines from the SAL tank and the High Level Radiochemistry Facility (which includes a 90-day tank system). These transfer lines require substantial coordination to make a transfer.

Each inlet pipeline has a locking valve near the tank to prevent inflows to the tank. All three valves are closed and locked with a padlock. The padlock keys are under the control of PNNL's Environmental Management Services Department (EMSD.) EMSD would have to approve of any discharge prior to unlocking the inlet valve. The same EMSD staff personnel have been responsible for the keys since the RLWT was installed. No such approvals have been issued.

The outlet pipeline (transfer pipeline to the truck lock) was installed with solenoid-controlled valves. These valves only allow transfer out from the tank.

A review of requirements for PNNL operations confirms that any discharge of waste to the RLWT by any PNNL staff member would have required approval from EMSD. The

SBMS requirements for generators to disclose hazardous waste generation at the project planning stage, and promptly file disposal requests after waste has been generated, have been in place since 1996. Approval to discharge any such waste to the RLWT would have required several steps and the cognizance of several EMSD staff, including environmental compliance representatives reviewing projects prior to authorization and funding; field service representatives assisting generators with initial waste accumulation and disposal request paperwork; and radioactive waste operations staff responsible for authorizing disposal requests and managing the RLWT.

EMSD approval of discharges to the RLWT would, in turn, have required RL authorization to begin operation of the RLWT. This approval has never been issued. RL authorization would also have been contingent on successful completion of a tank integrity assessment, as required by WAC 173-303-640(3)(a) and Hanford RCRA Permit condition III.6.B.e. PNNL has never completed this assessment, as the conduct of the assessment would create mixed waste in the RLWT due to the F-listed and radioactive residue in the ancillary equipment resulting from the pre-1997 transfers to the retired 300 Area Radioactive Liquid Waste System. This mixed waste would not have a path forward for disposal, as needed modifications to the 204-AR Unloading Facility have never been performed to support use of the shielded transport cask system to move waste from the RLWT to 204-AR. PNNL received direction from RL in a 1995 letter prohibiting the generation of waste with no path forward for disposal, and this requirement is found in SBMS as well.

The status of preparations to perform the integrity assessment has been frequently discussed with Ecology since 2000, as documented in Project Managers Meeting minutes (see TPA Administrative Record.) Ecology would have been notified if such preparations were forthcoming, in order to alleviate Ecology's concerns regarding compliance with Permit condition III.6.B.e. Ecology, RL, and PNNL engaged in a dialog in late 2000 and early 2001 to resolve these concerns more fully, resulting in a revision to Permit condition III.6.B.e and continued tracking of integrity assessment progress.

Since no internal or external approvals have ever been received to utilize the RLWT, no discharges to the RLWT have been approved since its installation.

The old 300 Area Radioactive Liquid Waste System transfer log (used prior to 1998 to record discharges to the since-retired system) was also reviewed. This log would also have been used to record any discharges to the RLWT since its installation. No entries indicating such discharges exist. The last discharge to the 300 Area Radioactive Liquid Waste System is noted as taking place March 30, 1998.

3.2.3 Construction Records

The RLWT consists of a new tank, pumps, and piping as well as existing piping from other tank systems within the RPL. To facilitate operations of the RPL, the piping associated with the existing systems was left intact while the new components of the tank system were installed. This allowed the continued transfers of waste to the 300 Area

Radioactive Liquid Waste System during the construction of the new RLWT. Some of the existing piping in the RPL had been used to transfer F-listed hazardous waste to the former system.

The integrity assessment of the new tank system components was performed as an integral part of the design, construction and installation of the new components. After all of the new tank system components were installed, they were leak tested prior to connecting the new components to the preexisting piping that was located in the RPL. Clean water was used for the leak testing, and the water was then removed from the tank and disposed of. Therefore, this leak testing did not result in any hazardous waste being introduced into the new system components.

The integrity assessment, including leak testing, of the preexisting piping was performed prior to 1997 as part of the integrity assessment of the Room 40A and Room 32 tank systems. The water from this test was transferred via the 300 Area Radioactive Liquid Waste System.

The last step of the new RLWT installation was cutting into the preexisting piping and making tie-in welds between the preexisting and new system components. These final tie-ins were never leak tested because to do so would have resulted in F-listed hazardous waste in the tank with no way to dispose of the waste (see discussion in Section 3.2.2 above.)

Hence, the construction and associated integrity assessment activities did not result in the RLWT being used to treat or store hazardous waste.

3.2.4 Field Evaluations

A facility walkthrough was conducted on September 26, 2003 by EMSD staff. Specific verification of the following data points was conducted as part of the walkthrough.

- The lines leading into the RLWT were inspected and confirmed to be valved closed and locked.
- All lines were physically observed to verify that no evidence of waste is present in the lines and that no physical modification has been made to the lines (i.e., could suggest an attempt at unauthorized disposal).

The facility walkthrough indicated no evidence of unauthorized waste disposal, or of any activity that would indicate the tank and piping has been utilized for any purpose since 1998.

4.0 Summary

No activities have been conducted within the scope of the RLWT that would constitute treatment, storage, or disposal of dangerous or mixed waste, and none are planned to take place. There is no indication of any activity in the RLWT since it was installed. RL and

Radioactive Liquid Waste System during the construction of the new RLWT. Some of the existing piping in the RPL had been used to transfer F-listed hazardous waste to the former system.

The integrity assessment of the new tank system components was performed as an integral part of the design, construction and installation of the new components. After all of the new tank system components were installed they were leak tested prior to connecting the new components to the preexisting piping that was located in the RPL. Clean water was used for the leak testing, and the water was then removed from the tank and disposed of. Therefore, this leak testing did not result in any hazardous waste being introduced into the new system components.

The integrity assessment, including leak testing, of the preexisting piping was performed prior to 1997 as part of the integrity assessment of the room 40A and room 32 tank systems. The water from this test was transferred via the 300 Area Radioactive Liquid Waste System.

The last step of the new RLWT installation was cutting into the preexisting piping and making tie-in welds between the preexisting and new system components. These final tie-ins were never leak tested because to do so would have resulted in F-listed hazardous waste in the tank with no way to dispose of the waste (see discussion in Section 3.2.2 above.)

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4.0 Summary

No activities have been conducted within the scope of the RLWT that would constitute treatment, storage, or disposal of dangerous or mixed waste, and none are planned to take place. There is no indication of any activity in the RLWT since it was installed. RL and

PNNL request that procedural closure in accordance with Section 6.3.3 of the Hanford Federal Facility Agreement and Consent Order Action Plan be approved by Ecology.

5.0 RADIOACTIVE LIQUID WASTE TANK PROCEDURAL CLOSURE TECHNICAL DATA SYNOPSIS CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Owner/Operator
Keith A. Klein, Manager
U.S. Department of Energy
Richland Operations Office

DEC 9 2003
Date

Co-Operator
Roby D. Enge, Director
Environment, Safety, Health, and Quality
Pacific Northwest National Laboratory

10/31/03
Date