

Path Forward to Support TSD System Modifications and Remedial Activities When the Facility Permit is Being Drafted – Abstract # 14642

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ABSTRACT

At some TSD facilities with interim status under the Resource Conservation and Recovery Act regulations, major modifications and construction activities are needed to process waste including remediation waste. For example major facility upgrades for additional treatment activities may be necessary to process, treat or store waste. System upgrade projects are necessary to prepare the TSD for the future to transfer and process waste. By regulation, information relating to design modifications including equipment removal and new equipment installation for these projects will require negotiation with the hazardous waste permitting authority of the State prior to initiating either construction or remedial actions. In the state of Washington, the Department of Ecology is currently in the process of renewing the Hanford Site-wide permit and drafting unit specific permits for systems currently under interim status.

These circumstances present the question of how to obtain regulator approval for projects during the time period when the permit is being drafted and is not yet issued as final.

INTRODUCTION

The Double-Shell Tank (DST) System at the Hanford Site is a Treatment, Storage and Disposal (TSD) Unit consisting of 28 underground tanks and associated ancillary equipment that is operated by Washington River Protection Solutions LLC (WRPS) for the U.S. Department of Energy, Office of River Protection (ORP). The DST System serves to store retrieved waste from Hanford's Single-Shell Tanks (SSTs), and will be providing waste feed to the Hanford Waste Treatment and Immobilization Plant (WTP) once the WTP becomes operational. Waste feed is a term that refers to delivery of mixed hazardous and radioactive waste to the WTP. This waste resulted from processing of spent nuclear fuel during the Manhattan project and Cold War periods.

In order to deliver this waste to the WTP, upgrades and additions to portions of the DST System are necessary to support waste feed delivery to the WTP in the future. Under its' Dangerous Waste (DW) Regulations in Washington Administrative Code (WAC) 173-303 [1], the Washington State Department of Ecology (Ecology) has been authorized to implement the requirements of the Resource Conservation and Recovery Act (RCRA) by the U.S. Environmental Protection Agency (EPA). The DST System currently operates under the interim status requirements of the DW Regulations while Ecology is developing a final status permit for the DST system and other Hanford facilities. The ORP is the owner and operator of the permit, while WRPS is listed as a co-operator on the permit.

In addition to upgrades to the DST System, other activities are underway related to future tank waste treatment. These include retrieval of waste from single shell tanks at Hanford into the double shell tanks, placement of interim barriers over existing tank farms to prevent water intrusion, and planning for future closure of the single shell tank farms.

This paper evaluates pathways available under the current Washington regulations and those of other state programs to support upgrades, additions, and modifications in support of project construction schedules, as well as discusses how other states have approached similar situations. Some of these pathways have been successfully used on the Hanford Site in the past, and some examples are provided. Since the permit for the DST system is not final, the permit modification process allowed for in the regulations is not possible, yet waste feed projects must meet scheduled deliverables in order to avoid impacts to WTP startup and operations.

DESCRIPTION

The Hanford Site operates multiple TSD Units to manage the approximate 56 million gallons of mixed (radioactive and hazardous/dangerous) waste stored in 177 underground single-shell and double-shell tanks. The DST system was designed and constructed in the 1960's through the 1980's, prior to the implementation of the DW Regulations, WAC 173-303 [1] on the Hanford Site (that conform to RCRA regulations found at 40 CFR 264 and 265). The current operation and closure of the TSD Units at the Hanford Site are permitted by Ecology through Permit No. WA 7890008967, Rev. 8C, *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, for the Treatment, Storage, and Disposal of Dangerous Waste* [2](hereafter referred to as the Site-Wide Permit), which was first implemented at the Hanford Site in 1989. The TSD Units not currently incorporated into Rev. 8C; including the DST system, operate under the interim status regulations found in Washington Administrative Code (WAC), Chapter 173-303-400, according to Site-Wide Permit Condition I.A. The term interim status permit means a temporary permit given to TSD facilities which qualify under WAC 173-303-805.

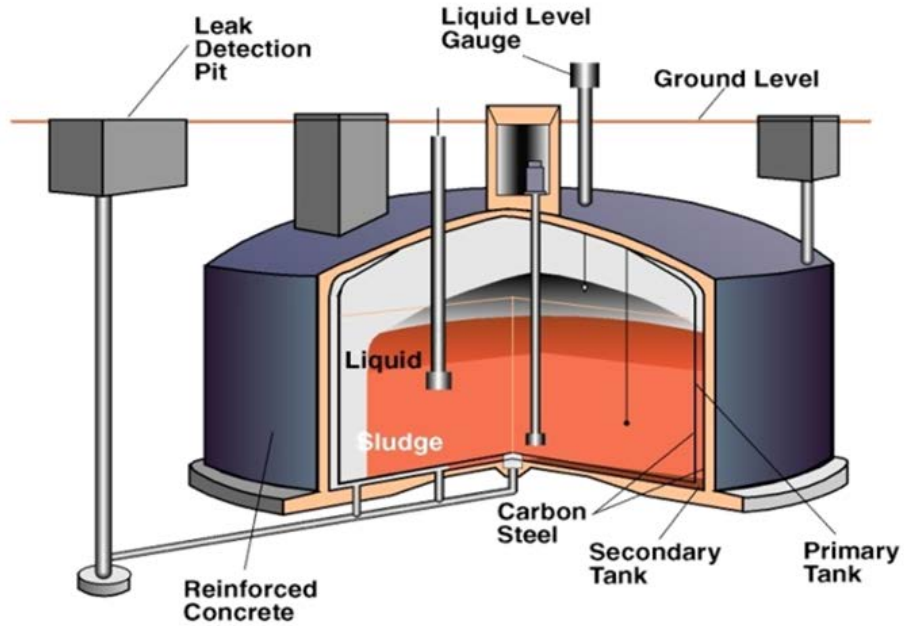


Fig. 1. Typical Hanford Site Double Shell Tank

DISCUSSION

Multiple and discrete waste feed delivery projects will be necessary to prepare the DST system to transfer waste to the WTP. Projects within the DST system to support waste feed for processing include:

- Existing Equipment Removal/Disposal
- Mixing Equipment Installation
- Transfer Equipment Installation
- Other Equipment Installation
- Monitor and Control Systems Installation

An example of these projects includes In Tank Upgrades projects which involve installing Submersible Mixer Pumps (SMPs) that will be used to mix the settled solids and supernatant waste within the tank. A closed loop waste sampling system is being considered, and is connected to the waste transfer equipment. The sampling system will draw samples from the tank while the mixer pumps are in operation, keeping tank contents suspended. The samples will be used for waste validation prior to feeding the WTP to ensure waste acceptance criteria are met. Another alternative being considered is a separate mixing and sampling facility if the tanks are not considered robust enough for the high speed mixer pumps. Tank farm infrastructure equipment is planned to provide: transfer line pre-heat and flushing; waste transfer in-line dilution; mixer pump flushing; provide power to in-tank equipment with Variable Frequency Drive controls as appropriate; and, the hardware for the monitor and control systems.

Historical Processing of DST Permit Modifications

The DST System Part A and Part B permit applications including revisions to the applications and additional supplemental information in support of some tank farm upgrades and waste feed delivery projects were submitted to Ecology, and have been incorporated into the Draft Site-Wide Permit. Since submittal of the initial permit applications, supplemental information has been provided to Ecology as engineering drawings, details of design scope of additions and modifications, for their incorporation into the draft permit process by red-line additions. This process of presenting certified supplemental information to Ecology for projects such as the SY Transfer Lines upgrades, tank farm infrastructure upgrades and ventilation upgrades has worked very well in the past and allowed construction to proceed in a timely manner. As a result, construction for some of the upgrades to the DST System is already underway and/or completed.

Site Wide Permit Renewal

The Site-Wide Permit is currently in the process of being renewed. On May 1, 2012, Ecology issued a draft for public comment titled *Draft Hanford Facility Dangerous Waste Permit* (Site-Wide Permit), Revision 9, WA7890008967 (Publication 12-05-005) [3]. After the comment period closed, issuance of the permit has been delayed as comments are evaluated and the draft permit is amended. The Draft Site-Wide Permit includes all Hanford Site TSD Units that are operating under the interim status regulations, including the DST System, and those units that are operating as final status units.

Managing Changes with Regulatory Agencies for Completing Construction and Modification Projects During Permit Renewal Periods

Interim Status

Until final status conditions are issued for the DST System, the DST System operates under the interim status regulations incorporated by reference by the State of Washington dangerous waste regulations found at WAC 173-303-400. Changes can be made to the DST System as an operating unit under interim status, in compliance with WAC 173-303-805. These regulations provide for changes to treatment storage and disposal facilities. This process has typically involved formally providing Ecology with certified supplemental information or revised permit application materials, and achieving consensus that the DST infrastructure changes meet interim status requirements. This is consistent with Site-Wide Permit Condition I.A which directs Units not yet incorporated into the Site-Wide Permit to comply with interim status requirements in WAC 173-303-400.

A key component to making changes under interim status on a highly visible project such as the DST System upgrades is working in advance with the regulators to ensure that they are familiar with the planned changes and ensuring they are informed as the projects progress.

This approach was used to great success during the accelerated tank farms infrastructure work performed recently. Ecology personnel were provided with engineering drawings in advance and the scope of the project(s) was discussed fully with Ecology engineering and regulatory personnel. The SY Transfer Line replacement project was performed at an accelerated pace with the help and concurrence of Ecology. Modifications performed were documented in the draft permit after the information was provided as certified supplemental information.

The following sections discuss other approaches for accomplishing cleanup work under permitting actions or corrective action.

Interim Measures Work Plan

RCRA Corrective Action rules provide an option for performing remediation work at Hanford. This has been very effective in the SST Farms. For example, interim measures have been used successfully to stop water intrusion by placement of interim barriers over suspected leaking SSTs.

The RCRA Corrective Action process allows for interim response actions in support of final remedial actions using the interim measures process. EPA has emphasized the importance of interim actions and site stabilization efforts in the RCRA corrective action program. An interim measure is not a final remedial action, but supports actions that are consistent with and expedite a final action. Generally, interim measures are accomplished via an Interim Measures Work Plan submitted by DOE and approved by Ecology. Interim measures may be initiated at any point during the corrective action process and implementation of the interim measure must be consistent with the conceptual corrective measure, or at least not obviate an alternative under development for the final remedy accomplished under Corrective Measures Implementation. Interim measures do not require the preparation of a statement of basis nor do they require public notice, they are streamlined and they represent agreement between the agencies and regulatory parties involved, that is, DOE/ORP and Ecology. The work plan defines the scope and schedule for the interim measure including analyses of all relevant environmental requirements and permits required, as well as Quality Assurance and Health and Safety requirements. (OSWER Directive 9902.3-2A, RCRA CORRECTIVE ACTION PLAN, May, 1994) [4]

Remedial Action Plan Permit (RAPP)

An approach that may be useful in the future to assist in streamlining the remedial process is a special permit for remediation waste. The Remedial Action Plan (RAP) or Remedial Action Plan Permit (RAPP) is provided for under RCRA at 40 CFR 270 Subpart H [5]. The purpose of the RAP process is to streamline cleanup actions by providing a permit to generate and manage remediation waste during the course of a cleanup project. In the final Hazardous Waste Identification Rule for Contaminated Media, (HWIR-media) [6], EPA established this new type of permit. It provides specifically for remediation waste treatment, storage and disposal and may be used only to permit treatment, storage and disposal of remediation waste. Although

RAPs are streamlined permits, they do require public involvement. The information submission requirements are reduced however. They include the facility and the remediation wastes that the RAP will cover the treatment, storage and disposal practices involved and information demonstrating compliance with applicable RCRA requirements. The RAP is issued only for the area of contamination where the remediation wastes to be managed originated. RAPs can be stand alone, modify an existing permit or be included within other cleanup documents such as work plans or a CERCLA record of decision (ROD). RAPs are available for interim status facilities and can last for up to ten years with options for renewal.

The RAP process and permit has been used by several states such as Illinois. (FR 65874 [6] and 40 CFR Subpart H)[5]. Other States making use of this streamlined permit include Maine, Arkansas, Alaska, New Jersey, New York, Arizona and Texas; Washington has not applied for this authority under RCRA.

The state of Illinois adopted the federal regulations and points out that the RAPP provides for the following regarding streamlining the cleanup process:

- The content requirements for application are significantly less than those required in a RCRA Part B permit application.
- The “completeness check” is not required.
- There are reduced public notice requirements.
- The procedural requirements for modification are much more flexible.[7]

The RAP is a very versatile tool to assist in expediting closure actions. The RAP is very flexible and it can be used as a standalone permit and modify an existing permit at a later date, or it can be used as a modification to an existing permit.

CONCLUSION

The Double-Shell Tank or DST System operates under the interim status requirements of the DW Regulations in Washington State. The Washington State Department of Ecology is developing a final status permit for the DST system as well as other Hanford facilities under a revision to the Hanford Site wide Permit. Modifications and upgrades to the DST system are required to support the tank farm mission of tank waste feed delivery to the Hanford Waste Treatment Plant to occur on schedule. Specific information relating to these upgrades and additions is required to be provided to Ecology prior to initiating construction or modifications by regulation. The experience of other states’ use of a Remedial Action Plan approach, or RAP, provides information that might be useful for consideration in the future at Hanford should Washington elect to adopt these rules. A RAP is special form of RCRA permit that the owner or operator may obtain for authorization to treat, store or dispose of hazardous remediation waste.

The RAP is a streamlined permit for remediation wastes by virtue of a streamlined information submittal and approval process and public involvement is still required.

REFERENCES

1. *Dangerous Waste (DW) Regulations in Washington Administrative Code (WAC) 173-303.*
2. Washington State Department of Ecology, Permit No. WA 7890008967, Rev. 8C, Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion, for the Treatment, Storage, and Disposal of Dangerous Waste
3. Washington State Department of Ecology, Draft Hanford Facility Dangerous Waste Permit (Site-Wide Permit), Revision 9, WA7890008967 (Publication 12-05-005).
4. EPA OSWER Directive 9902.3-2A, RCRA CORRECTIVE ACTION PLAN, May, 1994
5. 40 CFR 270 Subpart H, Remedial Action Plans
6. 65874 Federal Register/ Vol. 63, No. 229, Hazardous Remediation Waste Management Requirements (HWIR-media) final rule
7. Remedial Action Plan Permit for Hazardous Remediation Waste – Fact Sheet, State of Illinois, Illinois Pollution Control Board