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ATTACHMENT 2

SINGLE-SHELL TANK WASTE MANAGEMENT AREA C RCRA/CERCLA INTEGRATION WHITE PAPER (RPP-46459, REVISION 1)

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Single-Shell Tank Waste Management Area C RCRA/CERCLA Integration White Paper

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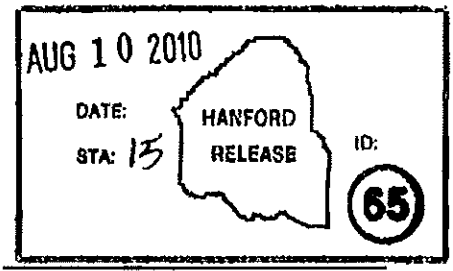

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LIST OF TERMS

Abbreviations and Acronyms

AEA	*Atomic Energy Act of 1954*
ARAR	applicable or relevant and appropriate requirement
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
CMS	corrective measures study
CPP	CERCLA Past Practice
D&D	decontamination and decommissioning (program)
DOE	U.S. Department of Energy
Ecology	State of Washington Department of Ecology
EE/CA	Engineering Evaluation/Cost Analysis
EPA	U.S. Environmental Protection Agency
HFFACO	*Hanford Federal Facility Agreement and Consent Order*
MTCA	*Model Toxics Control Act of 1989*
NEPA	*National Environmental Policy Act of 1969*
OU	Operable Unit
RCRA	*Resource Conservation and Recovery Act of 1976*
RFI/CMS	RCRA facility investigation/corrective measures study
RI/FS	remedial investigation/feasibility study
RPP	RCRA Past Practice
SST	single-shell tank
TSD	Treatment, Storage, and Disposal
WAC	Washington Administrative Code
WMA	Waste Management Area

SINGLE-SHELL TANK WASTE MANAGEMENT AREA C RCRA/CERCLA INTEGRATION WHITE PAPER

1.0 PURPOSE

The following information was developed in a series of workshops held in 2010 between the State of Washington Department of Ecology (Ecology), the U.S. Department of Energy (DOE), Office of River Protection, and its contractor. The paper was identified as a deliverable in RPP-PLAN-46484, *Waste Management Area C Closure Demonstration Project Plan*, and as a *Hanford Federal Facility Agreement and Consent Order* (HFFACO) (Ecology et al. 1989) proposed milestone in M-045-080 (HFFACO Milestone Change Package M-45-09-01) due January 31, 2011.

This paper describes how the dangerous waste management unit closure process for a tank system will be carried out at the Single Shell Tank (SST) System Waste Management Area (WMA) C to ensure that requirements for the *Resource Conservation and Recovery Act of 1976* (RCRA), the *Comprehensive Environmental Response, Compensation and Liability Act of 1980* (CERCLA), and HFFACO are met. The paper also describes other opportunities to efficiently coordinate closure and CERCLA cleanup activities at WMA C. The WMA C is part of a "Tank System" which includes the dangerous waste storage or treatment tanks and associated ancillary equipment and containment systems. Tank system closure requirements are established in Washington Administrative Code (WAC) 173-303-610, "Closure and Post-closure," and WAC 173-303-640, "Tank Systems," subsection (8), "Closure and post-closure care."

2.0 OVERVIEW AND COORDINATION OF RCRA CLOSURE AND CERCLA REQUIREMENTS

2.1 HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER INTEGRATION OF RCRA AND CERCLA REQUIREMENTS

The HFFACO contains specific language regarding the RCRA and CERCLA requirements and the need for their integration during cleanup alternative development and decision making. Pertinent requirements for defining RCRA/CERCLA integration associated with SST System WMA closure and corrective actions are included as described below.

HFFACO Part One, Article IV, "Statutory Compliance and RCRA/CERCLA Integration and Coordination," Paragraph 17, states:

> ...the Parties intend that activities covered by Part Three [Remedial and Corrective Actions] of this Agreement will achieve compliance with CERCLA, 42 U.S.C. Section 9601 et seq.; will satisfy the corrective action requirements of the HWMA, Sections 3004(u) and (v) of RCRA, 42 U.S.C. Section 6924(u) and (v), for a RCRA permit, and Section 3008(h), 42 U.S.C. Section 6928(h); and will meet or exceed all applicable or relevant and appropriate federal and state requirements to the extent required by Section 121 of CERCLA, 42 U.S.C. Section 9621.

Since the original HFFACO, Washington State became a federally-authorized hazardous waste program for corrective action. The State-authorized corrective action program is carried out under RCW 70.105, "Hazardous Waste Management," known as the *Hazardous Waste Management Act of 1976*, and RCW 70.105D, "Hazardous Waste Cleanup – Model Toxics Control Act."

Thus, the HFFACO provides that corrective actions will ensure that a protective remedy is achieved for both radioactive contamination (for compliance with CERCLA) and chemical contamination (for compliance with RCRA and CERCLA) with the caveat that "nothing in this Agreement shall be construed to require DOE to take any action pursuant to RCRA which is inconsistent with the requirements of the Atomic Energy Act of 1954 (AEA), as amended."

The HFFACO Part Four, Article XXIV, "Lead Regulatory Agency and Regulatory Approach Decisions," Paragraph 89, sets up the "lead agency and/or regulatory" decision process for waste sites at Hanford including provisions for dispute resolution. The HFFACO Part One, Article V, "Definitions," Paragraph 22.R. defines "lead regulatory agency" as follows:

> "lead regulatory agency" is that agency (EPA or Ecology) which is assigned regulatory oversight responsibility with respect to actions under this Agreement regarding a particular Operable Unit, TSD Unit/Group or Milestone pursuant to Section 5.6 of the Action Plan. The designation of a lead regulatory agency shall not change the jurisdictional authorities of the Parties.

The HFFACO was developed with the recognition that multiple regulatory requirements for closure and/or remediation of waste sites on the Hanford Site will require coordination. For the SST System, DOE will develop and submit proposed actions. Ecology, as the lead regulatory agency, will recommend actions in consultation with DOE and the U.S. Environmental Protection Agency (EPA). Circumstances where the lead regulatory agency and the non-lead regulatory agency will interact and coordinate activities are described in Paragraph 89 and include instances where:

- the lead regulatory agency has requested the assistance or involvement of the non-lead agency
- Ecology lacks legal authority to approve or require action, such as approval of a CERCLA remedial action or regulation of radionuclides
- the non-lead agency has a mandatory legal obligation or duty, such as under a permit
- EPA is the lead regulatory agency, and Ecology concurrence is sought for a CERCLA Remedial Action.

The HFFACO Part Three, Article XIV, "Remedial and Corrective Actions," Paragraph 54 describes how releases to environmental media will be coordinated between RCRA and CERCLA in accordance with the Action Plan. Where Ecology is the lead regulatory agency for a CERCLA action, this paragraph states that Ecology will recommend the CERCLA remedial action. After consultation with DOE and Ecology, the EPA Administrator will make the final selection of the CERCLA remedial action.

Section 5 of the HFFACO Action Plan further defines the interface between the RCRA Treatment, Storage, and Disposal (TSD) and RCRA and CERCLA Past Practice (RPP and CPP) programs on the Hanford Site and designates waste sites as either RCRA TSD units (Appendix B of the Action Plan) or RPP or CPP units (Appendix C of the Action Plan). The lead agency is responsible for cleanup actions for all applicable requirements, including regulatory oversight, briefing and obtaining approvals from the appropriate legal authorities. In accordance with Appendix B of the Action Plan, Ecology is the lead regulatory agency for the SST System, and closure will occur through the RCRA TSD and corrective action process (i.e., through WA7 89000 8967, *Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste*, better known as the Hanford Site-Wide Permit).

Section 5.5 of the HFFACO Action Plan specifically addresses the interface between TSD units such as the SST System and past practice units. This section specifies that minimization of overlap and duplication of work between the two unit types will be assured through inclusion of all integrating requirements and schedules within the various RCRA field investigation/corrective measures studies (CMS) documents (e.g., sampling and analysis plans and CMS). Similarly, this information can be included in the RCRA TSD permit documentation, as appropriate. Section 5.6 of the Action Plan specifies that lead and non-lead regulatory agencies retain their respective legal authorities and that the lead regulatory agency "shall brief and obtain any necessary approvals" pursuant to those legal authorities.

The HFFACO provides that RPP and CPP authorities are functionally equivalent. The EPA, Ecology, and DOE emphasized in the HFFACO that the past practice RCRA corrective action program (which parallels the SST WMA corrective action program[1]) and the CERCLA remedial action program are considered "functionally equivalent" (for example, see HFFACO Action Plan Section 7.4.2) thus ensuring that cleanup actions will be protective for both chemical and radioactive contaminants under the lead agency approach.

The HFFACO addresses the closure process for the SST WMAs in Appendix I of the Action Plan. Appendix I "documents the Parties' recognition that SST WMA closure and other Central Plateau waste site cleanup activities via compliance with federal requirements need integration (reference Agreement Section 5.5)." Specific sections of Appendix I pertinent to integration are:

- Section 2.4, "Groundwater Remedial Actions" – Integration of CERCLA authority with RCRA closure and corrective action requirements is addressed for groundwater contamination. This section specifies agreement that past-practice authority is the most efficient for addressing the mixed-waste groundwater contamination plumes associated with the SST WMAs. However, this section also reserves the right to require groundwater response actions consistent with Ecology's corrective action authority under RCW 70.105.

- Section 3.1, "SST System Closure Regulatory Integration Strategy" – This section addresses a strategy for RCRA/CERCLA integration at the SST WMAs. Of importance is the discussion of EPA involvement such that "closure is proceeding in a manner not inconsistent with what EPA expects would be required if the work was being conducted under CERCLA remedial authority." This includes review of the initial WMA performance assessment and WMA closure action plans, including EPA written comments and identification of additional work that would be required under CERCLA.

- Section 3.2, "Integration with Central Plateau Remedial Actions" – This section describes the Parties' intentions to provide for protective, cost-effective closure of WMAs where Central Plateau waste sites are located adjacent to the WMAs (e.g., groundwater monitoring, protection, and risk assessment methodology).

In March 2010, DOE, EPA, and Ecology signed "Agreement in Principle – Negotiation of Hanford Federal Facility Agreement and Consent Order Revisions to Address Soil Contamination from Single Shell Tanks and Coordination of Investigation and Remediation of this Contamination with Other Deep Vadose Zone Investigation and Remedial Actions." The purpose of this Agreement in Principle was to document agreements relating to the intention of the three parties to "further define the approach described in HFFACO Action Plan Appendix I" such that all soil contamination, including radionuclides, will be addressed according to applicable regulatory requirements and that the investigation and remediation of soil contamination occurs in coordination with "action taken elsewhere at the Hanford site to investigate and remediate deep vadose zone contamination." The Agreement in Principle states

[1] The regulatory process laid out in HFFACO Action Plan Appendix I for performance of corrective actions at WMAs parallels that process for HFFACO past practice corrective actions. This latter process is shown in Figure 7-2 of the HFFACO Action Plan to parallel the CERCLA process.

that the parties agree to conclude discussions on these topics 60 days after the Consent Decree in Washington v. Chu, Case No. 08-5085-FVS is entered into court with an attempt to identify and agree upon HFFACO changes in this time frame. The Agreement in Principle also states that consultation with the Indian Nations and stakeholders will be offered and that a revised HFFACO will result after consideration of public comments, if appropriate.

2.2 RCRA CLOSURE

"Closure" is the term used in RCRA and the Washington State Dangerous Waste Regulations and is defined in WAC 173-303-040, "Definitions" as:

> The requirements placed upon all recycling, used oil and Treatment, Storage, and Disposal (TSD) facilities, plus some generators, and some transporters to ensure that all such facilities are closed in an acceptable manner and once taken out of service, the proper cleaning up and/or decontaminating of a dangerous waste management unit or a recycling unit and any areas affected by releases from the unit.

Closures are carried out on a unit by unit basis. This means that a dangerous waste facility might have operating units, closed units[2], and closing units all at the same time. At Hanford, closures are coordinated with cleanup work carried out under RCRA corrective action or CERCLA (commonly known as "Superfund") processes.

Section 5.5 of the HFFACO Action Plan allows for the coordination of closure of a TSD unit with corrective actions or remedial actions to prevent overlap and duplication of work. The HFFACO Milestone M-45 establishes the schedule and requirements for complete closure of the SST System including WMA C. Milestone M-45 specifies that closure requirements will be used for all SSTs (including contaminated soil and ancillary equipment). Milestone M-45 also specifies that when evaluating options for closure of individual SSTs, ancillary equipment, releases to soil and groundwater, and the entire SST System, Ecology and EPA will consider cost, technical practicability, and potential worker exposure to radiation.

Waste retrieval is the first step in closure of SSTs. Under M-45, DOE is required to retrieve as much tank waste as is technically possible, with tank waste residues not to exceed 360 ft^3 in each of the 100-series tanks, 30 ft^3 in each of the 200-series tanks, or the limit of waste retrieval technology capability, whichever is less. Procedures for modifying the retrieval criteria and requests for exceptions are outlined in the HFFACO Appendix H.

Closure planning for SSTs is occurring in parallel with waste retrieval and characterization activities. According to the HFFACO, closure planning involves three levels of plans. The highest-level plan (Tier 1) documents requirements that apply to the SST System overall. It is commonly referred to as the "Framework Plan." Mid-level plans (Tier 2) document requirements for each of the seven specific SST WMAs and are referred to as "WMA Closure Action Plans." The lowest-level plans (Tier 3) document requirements for closure of individual

[2] Closed units might be "clean closed" or "closed with waste in place" (also referred to as "landfill closure"). Units that are closed with waste in place must undergo post-closure care.

SSTs and components (e.g., vaults, catch tanks, diversion boxes, and piping) within each WMA and are referred to as "Component Closure Activity Plans." Appendix I of the HFFACO Action Plan describes the Tank System retrieval, closure processes, and soil remediation.

Soil remediation associated with the SST System will follow a corrective action process in accordance with HFFACO Action Plan Appendix I and decisions will be made in the SST System portion of the Hanford Site-Wide Permit. However, this process is not the same as that identified in HFFACO for past practice units. Solid waste management units on the Hanford Site have been classified in the HFFACO as either TSD units subject to regulation under WAC 173-303, "Dangerous Waste Regulations" or past practice units subject to either CERCLA remedial actions or RCRA corrective actions. The SST System and the components within the WMAs are TSD units in accordance with HFFACO Action Plan Section 3.2 and releases to soil are part of the WMA. In accordance with the HFFACO Action Plan M-45 milestones and Appendix I, a RCRA corrective action will be used to characterize and evaluate releases to soil and select and implement cleanup actions. This process parallels but is not directly applicable to the corrective action process defined in HFFACO Action Plan Section 7.4.

Closure also is addressed in General Facility Conditions in Sections II.J and II.K of the Hanford Site-Wide Permit[3]. Sections II.J and II.K describe the overall requirements for closure and the process for approval of closure and post-closure activities. Unit specific closure requirements for TSD units are addressed in Parts III (for final status operations), V (units undergoing closure) and/or VI (units in post closure) of the Permit, depending on the operating status of the unit and the type of closure that is carried out, by incorporating closure plans into the Hanford Site-Wide Permit.

The closure process will be used for final decision making for cleanup of all SSTs and associated containment structures, ancillary equipment and contaminated soil including the tank system that extends outside of WMA C. The regulatory process used to investigate and remediate ancillary equipment associated with SSTs outside of WMA C may differ. However, the ancillary equipment will be closed out through the Hanford Site-Wide Permit and will meet the performance standards in WAC 173-303-610.

Closure requirements apply to dangerous waste TSD units, associated containment structures and ancillary equipment, and any areas affected by releases to environmental media from such units. A dangerous waste TSD unit is a tank, container, waste pile, containment building, surface impoundment, landfill or other unit where dangerous waste is or was treated, stored or disposed of after November 19, 1980 (for dangerous waste that also is Federally regulated as hazardous waste), March 12, 1982 (for state-only dangerous waste), and November 23, 1987 (for mixed waste).

It has been determined at Hanford that the SST System is a non-compliant TSD facility which is currently operating to remove waste for closure. The Part A Permit Application for the SST System contains components for tank storage and treatment.

[3] The Permit is being revised at the time of writing and these condition numbers may change.

Section 3.0 and Appendix B of the HFFACO describes how TSD units are classified, prioritized and grouped for common investigation and response at Hanford and identifies specific classifications for units identified to date. Section 5.0 of the HFFACO describes the interface of regulatory authorities in general.

In identifying TSD units, it is important to keep in mind that the "unit" includes all unit structures, containment systems, ancillary equipment, and areas affected by releases from the unit (e.g., contaminated soil and ground water). It is particularly important to understand containment systems and ancillary equipment when identifying TSD units, such as tank systems. Containment systems include vaults, pads, liners and other structures that are designed to prevent migration of dangerous wastes or accumulated liquid out of a treatment or storage unit to soil, ground water, or surface water. Ancillary equipment includes piping, fittings, vents, and other devices that distribute, meter, or control the flow of dangerous waste from a point of generation, between storage or treatment tanks, or from a storage or treatment tank to a point of disposal or a point of shipment. Containment systems and ancillary equipment are part of the tank system and are subject to closure in the same way and to the same extent as the rest of the unit. Finally, releases from the tank system (including releases from containment systems and ancillary equipment) and any resulting contaminated environmental media also are subject to closure as part of the unit.

2.3 CERCLA REMEDIAL ACTIONS

Cleanup of past practice (non-TSD) units at Hanford occurs under either CERCLA or RCRA corrective action authority. RCRA corrective action follows a process that is functionally equivalent to that of CERCLA. Section 7.3 of the HFFACO Action Plan describes the CERCLA process for evaluation and selection of remedial alternatives. Whereas the RCRA closure process follows a more prescriptive set of requirements that are specific to the type of TSD unit to be closed (for example, tank systems must close as specified by WAC 173-303-640[8][a] or where removal or decontamination of the system cannot practically occur, must close and perform postclosure care in accordance with landfill closure requirements specified in WAC 173-303-665[6]), the CERCLA remedial action process performs a detailed and comparative analysis on a set of alternatives that are developed after characterization efforts are complete and a wide range of remedial technologies are screened based on effectiveness, cost, and implementability in order to propose and select remedial actions that provide the best balance of protection and cost-effectiveness.

2.4 RCRA AND CERCLA PERFORMANCE STANDARDS

The RCRA TSD closure performance standards contained in WAC 173-303-610, Subsection (2) "Closure performance standard" require "protection of human health and the environment from post-closure escape of dangerous waste, dangerous constituents, leachate, contaminated runoff, or dangerous waste decomposition products to the ground, surface water, ground water, or the atmosphere." In order to ensure that these standards are met, the WMA performance assessment will take into account risk associated with dangerous waste constituents in the RCRA TSD

structures and in the contaminated environmental media subject to RCRA corrective action. In addition, in accordance with the HFFACO, the performance assessment will evaluate risk for any additional hazardous substances consistent with CERCLA requirements (radionuclides) in the structures and environmental media. Under the assumption that the WMA C is a tank system [WAC 173-303-640, Subsection (8)(b)] that will be closed as a landfill, the requirements for closure would include a cap and post-closure maintenance and monitoring in accordance with WAC 173-303-665, Subsection (6) "Closure and post-closure care".

A comparison of requirements to achieve protection of human health and the environment is shown in Table 1. Table 1 assumes RCRA TSD landfill closure of WMA C. The evaluation of compliance with performance standards under the RCRA and CERCLA past practice authorities will need to take into account the presence of the cap and any post-closure care requirements associated with landfill closure, should these assumptions be incorporated into the RCRA Hanford Site-Wide Permit.

Table 1. Comparison of Requirements for Protection of Human Health and the Environment Associated with RCRA Closure, RCRA Corrective Action, and CERCLA (2 sheets)

INDUSTRIAL

Risk Driver	RCRA Closure Tank Systems WAC 173-303	RCRA Corrective Action WAC 173-303	CERCLA 40 CFR 300.430	
			Nonradiological Hazardous Substances	Radiological Hazardous Substances
Soil Direct Contact (0 – 15 ft)	Landfill Closure,[a] WAC 173-303-640(8)(b) and WAC 173-303-665(6)	Corrective Action for Releases: WAC 173-303-64620[b] *Model Toxics Control Act of 1989* (MTCA) Method C[c]	ARAR:[d] MTCA Method C[c]	Excess upper bound lifetime cancer risk to an individual of between 10^{-4} to 10^{-6}
Soil Protective of Groundwater (0 ft to Groundwater)	Landfill Closure[a] WAC 173-303-640(8)(b) and WAC 173-303-665(6)	Corrective Action for Releases: WAC 173-303-64620[b] MTCA Method B[e]	ARAR: MTCA Method B[e]	Excess upper bound lifetime cancer risk to an individual of between 10^{-4} to 10^{-6}
Ecological	WAC 173-303-610(2)(a)(ii)	WAC 173-303-64620(1)&(4)[b]	ARAR: WAC 173-303-64620(1)&(4)[b]	Various CERCLA guidance[f]
Groundwater	Closure: WAC 173-303-610(2)(b)(i)[g] MTCA Method B	Corrective Action for Releases: WAC 173-303-64620[b] MTCA Method B[e]	ARAR: MTCA Method B[e]	Excess upper bound lifetime cancer risk to an individual of between 10^{-4} to 10^{-6}
Structures (Tanks, Equipment, Bases, Liners, etc.)	WAC 173-303-640(8)(b)	Not applicable	Not applicable	Not applicable

ARAR = applicable or relevant and appropriate requirement
RCRA = *Resource Conservation and Recovery Act of 1976*
CERCLA = *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*

[a] Assumes single-shell tank to be closed as a landfill. U.S. Department of Energy is considering closure alternatives in the Tank Closure and Waste Management Environmental Impact Statement and will issue its decision based upon these analyses in a *National Environmental Policy Act of 1969* Record of Decision.

[b] WAC 173-303-64620 leads to need for consistency with specified sections within WAC 173-340, "Model Toxics Control Act – Cleanup" (*Model Toxics Control Act of 1989*), including cleanup standards of Part VII.

[c] MTCA Method C Human Health: Individual $\leq 1 \times 10^{-5}$; Total excess cancer risk $\leq 1 \times 10^{-5}$; Hazard Quotient ≤ 1; Hazard Index ≤ 1.

[d] Applicable or Relevant and Appropriate Requirement.

[e] MTCA Method B Human Health: Individual $\leq 1 \times 10^{-6}$; Total excess cancer risk $\leq 1 \times 10^{-5}$; Hazard Quotient ≤ 1; Hazard Index ≤ 1.

[f] http://www.epa.gov/oswer/riskassessment/superfund_eco_planning.htm

Table 1. Comparison of Requirements for Protection of Human Health and the Environment Associated with RCRA Closure, RCRA Corrective Action, and CERCLA (2 sheets)

INDUSTRIAL

Risk Driver	RCRA Closure Tank Systems WAC 173-303	RCRA Corrective Action WAC 173-303	CERCLA 40 CFR 300.430

[g] Also, the State may use alternative standards under WAC 173-303-610(1)(e) and/or WAC 173-303-645, "Releases from Regulated Units," Subsection (1)(e) when applicable (requires commingled plumes).

Note: Unrestricted properties: Clean Closure
WAC 173-303-610(2)(b)(i) = MTCA Method B
WAC 173-303-640(8)(a) = MTCA Method B for soil and ground water protection standards

Note: WAC 173-340-747, "Deriving Soil Concentrations for Ground Water Protection" can be used to establish Method B or Method C soil cleanup levels.

References:
WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended.
WAC 173-303-610, "Closure and Post-closure," *Washington Administrative Code*, as amended.
WAC 173-303-640, "Tank Systems," *Washington Administrative Code*, as amended.
WAC 173-303-665, "Landfills," *Washington Administrative Code*, as amended.
WAC 173-303-64620, "Requirements," *Washington Administrative Code*, as amended.

3.0 COORDINATION OF RCRA CLOSURE AND CERCLA ACTIVITIES AT WMA C

The remainder of this paper addresses coordination of RCRA closure and CERCLA activities at the SST System in WMA C. Waste Management Area C, like other WMAs,[1] includes tanks and ancillary equipment subject to closure. Also included in or near the WMA are other structures and waste sites that are not part of the SST System TSD unit. Cleanup of these and other structures may be accomplished under other authorities, such as CERCLA or other dangerous waste closure plans.

As described above, Section 3.0 and Appendix B of the HFFACO describe how Hanford waste management units are classified, prioritized, and grouped for common investigation and response at Hanford and also designate specific classifications for units identified to date. However, in implementing the requirements of Section 3.0 and Appendix B, questions arise regarding the coordination of activities. A number of these situations occur in WMA C, including:

- how to disposition the cesium load-out facility and other buildings,
- how to interface with cleanup activities for soil contamination caused by releases from piping systems associated with the SST System (ancillary equipment) that extend beyond the WMA, and
- how to integrate the cleanup of groundwater that has been contaminated by WMA C and other past practice sources.

The coordination path forward planned for each situation is described below; these descriptions are meant to illustrate how existing HFFACO and other requirements will be implemented. They do not constitute a permitting action and do not alter or change the processes agreed to by Ecology, EPA, and DOE in Section 9.2 of the HFFACO or change any permit condition or HFFACO milestone, and do not constitute a decision under the *National Environmental Policy Act of 1969* (NEPA).

3.1 CESIUM LOAD-OUT FACILITY AND OTHER BUILDINGS

At least 18 buildings are located within or adjacent to the boundary of WMA C including the cesium load-out facility building, the tank farm control room buildings, and the cold chemical make up building. The buildings are not part of the SST System because they were not used to treat, store or dispose dangerous waste and are not part of the tank system containment structure or ancillary equipment. However, some of the buildings are contaminated and must be cleaned up. All of the buildings must be properly decontaminated, decommissioned, and torn down (removed) so that closure activities and other cleanup activities can move forward.

[1] A WMA is an area comprised of one tank farm or group of tank farms in close proximity in which common closure or corrective actions will be evaluated and implemented. Common groundwater monitoring systems may also be maintained. A WMA generally coincides with the fencelines for the tank farm(s) but may extend to contiguous areas of contamination where common closure/corrective actions will be utilized.

U.S. Department of Energy requirements for the decontamination and decommissioning (D&D) program specify that contaminated buildings that pose a threat to human health or the environment will be dispositioned in a manner that is consistent with the requirements of CERCLA. This requirement is based on the DOE and EPA 1995 memorandum, "Policy on Decommissioning Department of Energy Facilities Under CERCLA." The policy establishes that decommissioning activities will generally be conducted as non-time-critical removal actions under CERCLA, unless the circumstances at the facility make it inappropriate (e.g., for generally clean structures or complex, high hazard structures). In brief, non-time-critical removals are response actions initiated under CERCLA removal authority that are conducted under DOE lead-agency authority and that typically have a planning horizon of six months or more. For any non-TSD buildings within a WMA, it is assumed that those buildings would be dispositioned as non-time-critical removals under CERCLA. For WMA C buildings, the CERCLA decision document would likely be a non-time-critical removal action Engineering Evaluation/Cost Analysis (EE/CA) and a subsequent CERCLA Action Memorandum. Action Memoranda and EE/CA have been consistently used at Hanford for making decisions on actions necessary for the D&D of surplus buildings.

3.2 PIPELINES THAT TRANSECT WMA C

Waste sites and structures that are outside of the SST System WMA boundaries (to be defined in the Hanford Site-Wide Permit) may be assigned as either an RPP or CPP waste site in HFFACO Appendix C. One specific Operable Unit (OU) or grouping of RPP waste sites associated with the SST System is the 200-IS-1 OU. The 200-IS-1 OU includes portions of the SST System ancillary equipment and associated contaminated soil that are located outside of and transect the WMA boundaries, including approximately 20 pipeline segments that transect the WMA C fence line.

Even though these components and ancillary equipment are identified in the HFFACO as part of the 200-IS-1 OU, they are part of the permitted SST System. Closure decisions for them will be addressed in the Hanford Site-Wide Permit. Therefore, integration of the CERCLA actions and permit decision processes will be required. Closure actions will be required to meet WAC 173-303-610 closure performance standards and will be subject to closure schedules to be identified in the SST System portion of the Site-Wide Permit.

The characterization of 200-IS-1 waste sites and the evaluation of remedial alternatives for the 200-IS-1 OU is being performed through integration of the ongoing CERCLA decision process with Site-Wide Permit conditions, as agreed to by Ecology, EPA, and DOE in Section 5 of the approved 2008 work plan *Tanks/Lines/Pits/ Boxes/Septic Tank and Drain Field Waste Group Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan; Includes: 200-IS-1 and 200-ST-1 Operable Units* (DOE/RL-2002-14). Ecology is the lead regulatory agency for this OU. Characterization activities for pipelines within this OU, including those associated with and transecting WMA C, have been approved in this work plan. A future 200-IS-1 OU remedial investigation/feasibility study (RI/FS) will be developed and used to define remedial actions for components, including those identified within the SST System. The CERCLA RI/FS is functionally equivalent to the RCRA facility investigation/corrective measures study (RFI/CMS)

process and will need to meet the closure performance standards of WAC 173-303-610. The CERCLA RI/FS process is a risk based process in which decisions are made through an evaluation of nine criteria including long-term risk, short-term risk, cost, and implementability to ensure that all important considerations are factored into remedy selection decision making.

Decisions regarding interface points between SST System closure in WMA C and 200-IS-1 characterization activities on the associated ancillary equipment, pipelines, and components will be determined based on what characterization and cleanup actions will be required for these elements. The characterization and clean-up action decisions will be determined and documented as part of WMA C closure plan approval, OU remedy decision making under CERCLA, or both. The risk of leaving this ancillary equipment, piping, and components in place may be shown in future RFI/CMS or RI/FS process documents to require that pipeline interface points be isolated within the effective edge of the surface barrier prior to WMA C barrier placement, e.g., at a diversion box or along the pipe itself. The final design of the WMA C surface barrier may be the logical place to point to the location and actions to be taken at these 200-IS-1 OU pipeline interface points. Barrier design will be submitted to Ecology in the WMA C closure plan and approved through a modification to the Hanford Site-Wide Permit.

3.3 GROUNDWATER REMEDIATION

Groundwater beneath the Central Plateau is divided into four CPP OUs for purposes of remedial investigation and remedy selection. Both WMA B-BX-BY and WMA C overlay the boundaries of one of these OUs, the 200-BP-5 OU. As stated in HFFACO Action Plan Appendix I, groundwater remedial actions and investigations will be conducted under CERCLA past practice authority and will be integrated with the SST System closure in WMA C by:

- coordinating CERCLA groundwater actions with any investigations that may be conducted as part of the SST System corrective action/closure process
- utilizing information and evaluations from the CERCLA process in the development of SST System closure plans and performance assessments
- integrating CERCLA authority concurrently with RCRA closure and corrective action requirements allowing Ecology and EPA to address all regulatory and environmental obligations associated with contaminated groundwater regardless of the contaminants of concern being addressed
- conducting CERCLA actions in a manner which ensures compliance with RCRA and dangerous waste requirements
- recognizing that Ecology reserves the right to require groundwater response actions to be consistent with Ecology's corrective action authority under RCRA.

Compliance with RCRA groundwater protection standards will be a requirement of the final remedy for groundwater contaminated by the SST System. Post-closure monitoring of groundwater to evaluate the effectiveness of the groundwater remedy is expected to be a requirement of the CERCLA Record of Decision as well as the Hanford Site-Wide Permit.

4.0 REFERENCES

Atomic Energy Act of 1954, 42 USC 2011, et seq.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601, et seq.

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WAC 173-303-040, "Definitions," *Washington Administrative Code*, as amended.

WAC 173-303-610, "Closure and Post-closure," *Washington Administrative Code*, as amended.

WAC 173-303-640, "Tank Systems," *Washington Administrative Code*, as amended.

WAC 173-303-645, "Releases from Regulated Units," *Washington Administrative Code*, as amended.

WAC 173-303-665, "Landfills," *Washington Administrative Code*, as amended.

WAC 173-303-64620, "Requirements," *Washington Administrative Code*, as amended.

WAC 173-340, "Model Toxics Control Act – Cleanup," *Washington Administrative Code*, as amended.

WAC 173-340-747, "Deriving Soil Concentrations for Ground Water Protection," *Washington Administrative Code*, as amended.