



U.S. Department of Energy

Office of River Protection

0062332

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Richland, Washington 99352

04-TPD-075

AUG 06 2004

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Mr. Ron Kreizenbeck
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EDMC

Addressees:

HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
(HFFACO) CHANGE REQUESTS FOR M-45 SINGLE-SHELL TANK (SST) WASTE
RETRIEVAL AND CLOSURE, AND M-46 DOUBLE-SHELL TANK SPACE EVALUATION
AND STATE OF WASHINGTON DEPARTMENT OF ECOLOGY (ECOLOGY)
CONCURRENCE OF ADDITIONAL TANK ACQUISITION

The U.S. Department of Energy (DOE), Office of River Protection, U.S. Environmental Protection Agency (EPA), and Ecology concluded negotiations on establishing commitments regarding SST Waste Management Area (WMA) waste retrieval and closure pursuant to Agreement M-45-00C. In addition, M-46-00 and M-46-01 have been deleted and the language has been incorporated into the M-45-00C Agreement. A Tentative Agreement was reached by the Parties on February 26, 2004, with the development of draft M-45-04-01 and M-46-04-02. The proposed change packages underwent a 45-day public comment period that concluded on June 7, 2004.

Enclosed for your approval is the M-45-04-01 HFFACO change package (Enclosure 1) and the M-46-04-02 HFFACO change package (Enclosure 2). A Comment Response Document (Enclosure 3) was prepared by the Parties to respond to the comments and issues received on the M-45 change package during the public comment period. Also enclosed is Ecology's Response to the Confederated Tribes of the Umatilla Indian Reservation Comments (Enclosure 4). The original M-45-04-01 and M-46-04-02 change packages are being provided to Ecology for approval. Upon Ecology's approval, it is requested that the original forms be forwarded to EPA for final approval and subsequently returned to Jim Rasmussen, Director, DOE-ORP Environmental Division.

Addressees
04-TPD-075

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If you have any questions, please contact me, or your staff may contact Jim Rasmussen, Director, Environmental Division, (509) 376-2247.

Sincerely,


Roy J. Schepens
Manager

TPD: DLN

Enclosures (4)

cc w/encls:

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Administrative Record, H6-08

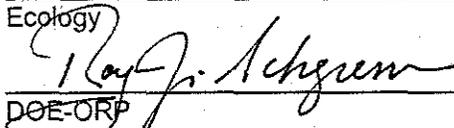
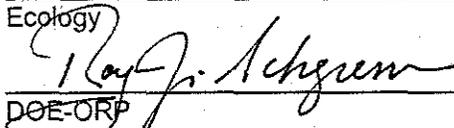
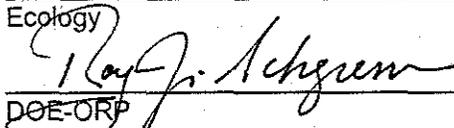
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Environmental Portal

ENCLOSURE 1

**M-45-04-01 Hanford Federal Facility Agreement and Consent Order
Change Package**

(37 pages total,
including coversheet)

Change Number M-45-04-01	Federal Facility Agreement and Consent Order Change Control Form Do not use blue ink. Type or print using black ink.	Date March 30, 2004																				
Originator Ecology		Phone 736 3038																				
Class of Change <input checked="" type="checkbox"/> I – Signatories <input type="checkbox"/> II – Executive Manager <input type="checkbox"/> III – Project Manager																						
Change Title <u>Hanford Federal Facility Agreement and Consent Order (HFFACO or Agreement)</u> modifications pursuant to Milestone M-45-00C including Appendix D work schedule modifications governing single-shell tank (SST) system waste retrieval and closure, and the establishment of new Agreement Appendix I, "Single-Shell Tank System Waste Retrieval and Closure Process."																						
Description/Justification of Change <p>This Agreement modification establishes regulatory requirements under which wastes within the U. S. Department of Energy's (DOE) SST Waste Management Areas (WMA) will be retrieved, and the WMAs subsequently closed pursuant to state and federal law.</p> <p>The parties' "Single-Shell Tank Waste Retrieval and Closure Process" (see following new Agreement Appendix I) has been developed to cover all aspects of SST system waste retrieval and closure including the SSTs per se' and their ancillary equipment (e.g., waste transfer piping, valve pits, diversion boxes, vaults, inactive miscellaneous underground storage tanks [IMUST] etc.), contaminated soils, and contaminated groundwater. The process will be implemented in retrieving wastes from components of the SST system, and eventually closing DOE's SST WMAs in compliance with all applicable federal and state laws and regulations. This includes the requirements of Washington's Dangerous Waste Regulations applicable to waste retrieval and the closure of tank systems, including contaminated media (soils and groundwater).</p>																						
Impact of Change Modification of Agreement requirements regarding SST system waste retrieval and closure. Modification of Agreement Appendix D work schedules. The establishment of new Agreement Appendix I, "Single-Shell Tank System Waste Retrieval and Closure Process".																						
Affected Documents The <u>Hanford Federal Facility Agreement and Consent Order (Agreement)</u> as amended, and Hanford Site internal planning, management, and budget documents (e.g., River Protection Project System Plan, Baseline Control documents, and related work authorizations and directives).																						
Approvals <table border="0" style="width: 100%;"> <tr> <td style="width: 45%; border-top: 1px solid black;">Ecology</td> <td style="width: 15%; border-top: 1px solid black;">Date</td> <td style="width: 15%; border-top: 1px solid black;"><input type="checkbox"/> Approved</td> <td style="width: 25%; border-top: 1px solid black;"><input type="checkbox"/> Disapproved</td> </tr> <tr> <td style="border-top: 1px solid black;"></td> <td style="border-top: 1px solid black;">8/16/04</td> <td style="border-top: 1px solid black;"><input checked="" type="checkbox"/> Approved</td> <td style="border-top: 1px solid black;"><input type="checkbox"/> Disapproved</td> </tr> <tr> <td style="border-top: 1px solid black;">DOE-ORP</td> <td style="border-top: 1px solid black;">Date</td> <td style="border-top: 1px solid black;"><input type="checkbox"/> Approved</td> <td style="border-top: 1px solid black;"><input type="checkbox"/> Disapproved</td> </tr> <tr> <td style="border-top: 1px solid black;">DOE-RL</td> <td style="border-top: 1px solid black;">Date</td> <td style="border-top: 1px solid black;"><input type="checkbox"/> Approved</td> <td style="border-top: 1px solid black;"><input type="checkbox"/> Disapproved</td> </tr> <tr> <td style="border-top: 1px solid black;">EPA</td> <td style="border-top: 1px solid black;">Date</td> <td style="border-top: 1px solid black;"><input type="checkbox"/> Approved</td> <td style="border-top: 1px solid black;"><input type="checkbox"/> Disapproved</td> </tr> </table>			Ecology	Date	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved		8/16/04	<input checked="" type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	DOE-ORP	Date	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	DOE-RL	Date	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	EPA	Date	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved
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Modifications made by this M-45-04-01 Change Request also modify Agreement Appendix D work schedules by: 1) Modifying the requirements of major Milestone M-45-00 to document that the Parties' new Agreement Appendix I is a requirement applicable to the execution of all Milestone M-45 series work, 2) by modifying Agreement Milestone M-45-00B to redefine required near term (prior to October 2006) SST system waste retrieval and interim closure work requirements, 3) by deleting previous Agreement Appendix D requirements regarding SSTs S-103, S-105, and S-106 in order to allow the Parties to focus on the retrieval of wastes and the interim closure of all WMA C SSTs, 4) by modifying Agreement Milestone M-45-00C to govern waste retrieval and closure negotiations scheduled in 2005, 5) by modifying Agreement Milestone M-45-00D to govern waste retrieval and closure negotiations in 2008, and 6) by establishing new Agreement Milestone M-45-00E, governing waste retrieval and closure negotiations scheduled for 2013 (following completion of construction and ramp up of DOE's Waste Treatment Plant [WTP]).

The State of Washington Department of Ecology (Ecology), DOE, and the U.S. Environmental Protection Agency (EPA) agree that work pursuant to this M-45-04-01 Change Request will be managed via one unified schedule incorporating Agreement terms, DOE (internal agency requirements), and DOE's (approved) contractor baseline. On approval of this M-45-04-01 Change Request, Hanford Site internal planning, management (e.g., work authorizations and directives), and budget documents shall be modified accordingly.

In recognition of the preceding, the Parties have agreed as follows:

- I. The following new Agreement Appendix I: "SINGLE-SHELL TANK SYSTEM WASTE RETRIEVAL AND CLOSURE PROCESS" is hereby established:

APPENDIX I

SINGLE-SHELL TANK SYSTEM WASTE RETRIEVAL AND CLOSURE PROCESS

1.0 PURPOSE AND INTRODUCTION

The purpose of this Agreement Appendix I is to:

1. Document the process DOE is required to use to close DOE's SST system (i.e., the SSTs themselves; and associated ancillary equipment including waste transfer piping, valve pits, vaults, etc.; contaminated soils, and contaminated groundwater¹) including the retrieval of tank wastes. The major phases of this closure process under the HWMA are: Tank waste retrieval; SST system, WMA and component closure including WMA corrective actions; and groundwater actions. Groundwater remedial actions and investigations will be conducted under past practice authority consistent with the Hanford Site Wide RCRA permit condition II.Y.2 and WAC 173-303-645. Groundwater investigations conducted under past practice authority will be coordinated with any investigations that may be conducted as part of the SST corrective action/closure process. The process also documents the Parties' recognition that SST WMA closure and other Central Plateau waste site cleanup activities via compliance with federal and state requirements need integration² (reference Agreement Section 5.5). Specific SST WMA closure objectives and standards will be delineated in *Hazardous Waste Management Act* (HWMA) closure plans.
2. To establish and document the agencies' waste retrieval and closure process consistent with that defined in Washington Administrative Code (WAC) 173-303-610 and -640 for closure of all DOE's SST systems (tanks, ancillary equipment, soil, and groundwater).

¹ The DOE and Ecology have grouped the SST system into seven WMAs: WMA A-AX; WMA B-BX-BY; WMA C; WMA S-SX; WMA T; WMA TX-TY; and WMA U.

² For the purpose of this M-45-04-01 Change Request the terms integrate and integration mean to coordinate for the purposes of efficiency and effectiveness. Such terms have no effect on respective agency authority, requirements, or responsibilities.

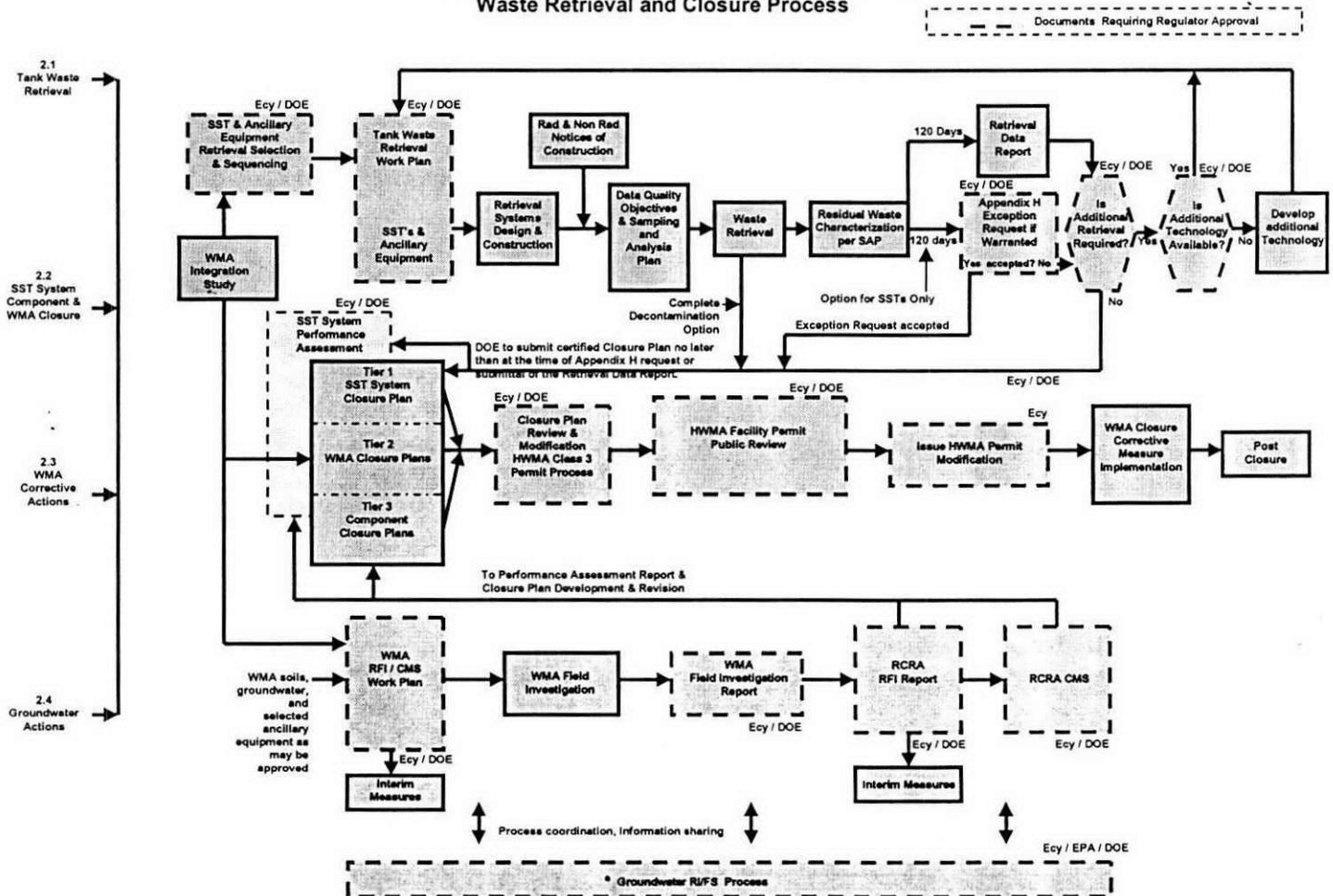
DOE, Ecology and EPA expect that this process will standardize Agreement requirements for SST system closure and to support future post-closure requirements. The process requires the submittal of Agreement primary documents that establish enforceable requirements and schedules in lieu of multiple Agreement milestones. This process further serves as a mechanism to identify and establish requirements to be used throughout the SST system. These requirements include:

- Creating criteria to be used to define the sequence of SSTs selected for retrieval and subsequent closure actions, and
- The process to be utilized in retrieving wastes and closing components of the SST system.

2.0 SST SYSTEM WASTE RETRIEVAL AND CLOSURE PROCESS

Figure I-1 depicts the process DOE is required to follow during SST WMA waste retrieval and closure. It identifies four main areas of emphasis: Tank waste retrieval; SST system, WMA and component closure, including WMA corrective action; and groundwater actions. These areas are discussed in greater detail in the following sections of this appendix. Each box within Figure I-1 identifies an action needed to achieve closure of the SST system. Actions or deliverables requiring approval by Ecology are identified.

Figure I-1.
 Single-Shell Tank Waste Management Area (WMA)
 Waste Retrieval and Closure Process



2.1 TANK WASTE RETRIEVAL

Waste retrieval is a major activity in the process of SST system closure. Criteria applicable to SST waste retrieval activities, as stated in Milestone M-45-00, are: "...retrieval of as much waste as technically possible, with tank residues not to exceed 360 cubic feet (cu. ft.) in each of the 100-series tanks, 30 cu. ft. in each of the 200-series tanks, or the limit of waste retrieval technology capability, whichever is less." If these waste retrieval criteria are not met for a specific tank using the selected technology(s), DOE may use the procedure delineated in Agreement Appendix H to request Ecology approval of an exception to the waste retrieval criteria for that specific tank.

The Parties' waste retrieval and closure process is described in the following sections:

2.1.1 Waste Management Area Integration Study

For each SST tank farm (or WMA), DOE shall submit a WMA integration study. This study shall look at the entire WMA from a system perspective and describe the inter-relationships between the various components. The study shall describe a logical sequence of events that would lead to efficient and effective waste retrieval and closure of the WMA, including field sampling and characterization activities of the ancillary equipment (piping, valve pits, vaults, IMUSTs, diversion boxes, etc.). This study will be used in the development of the WMA closure plan. The document will propose a regulatory path for all ancillary equipment in that WMA and all the activities to achieve efficient and effective closure of that WMA, including:

- SSTs
- SST system ancillary equipment
- Soil remediation per WMA corrective actions and proposed plans for WMA soils
- Activities necessary for integration with Central Plateau groundwater remediation.

It is anticipated that tank waste will need to be retrieved from ancillary equipment in order to meet the closure requirements of WAC 173-303-610 and -640. The criteria for these retrievals will be governed by those regulations.

The submittal of WMA integration studies will be scheduled through the Milestone M-45 series.

2.1.2 Tank Retrieval Selection and Sequencing

The initial phase of SST system tank waste retrieval extends to that point in time when double-shell tank (DST) waste begins to be transferred to the WTP pursuant to Milestone M-62-09. During this phase, DST capacity will be a major factor in DOE's ability to retrieve SST waste. DOE will perform space acquisition and/or optimization activities as required by the Agreement's Milestone M-46 series in order to maximize available DST space. In addition, DOE will perform SST tank waste retrievals to maximally utilize DST space available for retrieval. The second phase of waste retrieval begins when DST capacity is again made available (to receive more SST waste) as DST waste is transferred to WTP for treatment.

SST tank waste retrieval selection and sequencing will be performed on a biennial basis in accordance with the following steps:

- DOE will develop its SST tank retrieval selection and sequence document as a primary document for approval by Ecology in accordance with the Milestone M-45-02 series. The pool of tanks selected by this document will be used as the starting point for selecting and scheduling the following two years' tank waste retrieval activities
- The primary objectives and prioritization criteria for SST tank retrieval selection and sequence are to maximize the reduction of short-term and long-term risk to human health and the environment, and to optimize waste feed so as to maintain efficient WTP operations
- Additional criteria that will be considered in tank selection and that may result in lower risk tanks being retrieved first, include:
 - Worker safety
 - Supporting the completion of WMA closures

- The optimization of DST space utilization considering resource leveling and waste transfer infrastructure
- Waste retrieval and closure requirements for associated ancillary equipment.
- Annually, the Parties will agree on which SSTs are to be retrieved during the coming year from the pool of tanks approved by Ecology through the SST tank retrieval selection and sequencing document
- To maintain optimal operational efficiency, DOE may request approval of changes to the selection of tanks to be retrieved in a certain year. In such cases DOE will propose the new tank(s) from the pool approved by Ecology in the tank sequencing and selection document.

2.1.3 Tank Waste Retrieval Work Plans

Tank waste retrieval work plans (TWRWP) will be submitted to Ecology as Agreement primary documents for a tank or set of tanks and their associated ancillary equipment. TWRWPs may cover tanks, tanks and associated ancillary equipment, or ancillary equipment alone (as may be required). TWRWPs will address only those actions associated with waste retrieval. Processes not covered by a TWRWP will be addressed by separate permitting actions as applicable. These TWRWPs, although expanded in scope by this Appendix I, were formerly identified as the Parties' functions and requirements documents in the various Milestone M-45 series. Work plans will include the following information:

- Tank(s) and/or ancillary equipment condition and configuration
- Retrieval technology or technologies and rationale for selection to meet Agreement Milestone M-45-00 criteria for tanks and regulatory requirements for ancillary equipment
- Leak detection monitoring and mitigation (LDMM) plan, including technology description, rationale for selection, configuration, inspection and monitoring requirements, mitigation response, and anticipated performance goals
- Operational requirements during retrieval
- A pre-retrieval risk assessment of potential residuals, consideration of past leaks, and potential leaks during retrieval, based on available data and the most sophisticated analysis available at the time. The purpose of this risk assessment is to aid operational decisions during retrieval activities. This risk assessment will not be used to make final retrieval or closure decisions. Minimally it will contain the following:
 - Long-term human health risks associated with potential leaks during retrieval and potential residual waste after completion of retrieval:
 - Potential impacts to groundwater, including a WMA-level risk assessment
 - Potential impacts based on an intruder scenario.
 - Process management responses to a leak during retrieval and estimated potential leak volume
 - The pre-retrieval risk analysis will be based on the following criteria:
 - Using the WMA fence line for point of compliance
 - Identify the primary indicator contaminants (accounting for at least 95% of impact to groundwater risk) and provide the incremental lifetime cancer risk (ILCR) and hazard index (HI)
 - Using ILCR and HI for the industrial and residential human scenarios as the risk metric
 - Calculated concentration(s) of primary indicator contaminant(s) in groundwater (mg/L, and pCi/L).
- Functions and associated requirements necessary to support design of proposed waste retrieval and LDMM system(s)
- Preliminary isolation evaluation including list of ancillary equipment associated with the specific component, plans for ancillary equipment removal or waste retrieval, available characterization information for waste contained within ancillary equipment, and anticipated interrelated impacts of various retrieval actions
- Retrieval start dates for each component.

Submittal of the TWRWP will be accompanied by a provisional schedule for informational purposes. The provisional schedule will include design, construction, and field retrieval activities.

Any TWRWP that identifies the use of new aboveground tanks, tank systems or treatment systems (not otherwise permitted), will require the following additional information:

- General arrangement diagrams
- System description
- Piping and instrumentation drawings (P&ID) for the retrieval system
- Process flow diagrams

- Information to demonstrate compliance with WAC 173-303-640
- Describe the disposition of the system at completion of the retrieval.

These new aboveground tanks, tank systems or treatment systems may be operated only during the retrieval duration.

DOE will not begin retrieval activities (i.e. start of the retrieval system installation) until the TWRWP for a particular tank or component has been approved by Ecology, or a separate approval has been requested by DOE and given by Ecology. SST waste retrieval will be completed to achieve Agreement criteria within 12 months of the start date(s) established in the TWRWP. The Parties' working assumption is that upon completion of the work described in the TWRWP, DOE will have met the tank waste retrieval criteria of Milestone M-45-00 for tanks, and the regulatory requirements for ancillary equipment.

The Parties recognize that DOE may be required by Ecology to perform additional retrieval activities depending on the results of the initial retrieval activities, residual waste characterization and risk assessments, or in the event of Ecology disapproval of a request for an exception under Appendix H. Ecology reserves the right to require additional retrieval activities if necessary.

2.1.4 Retrieval System(s) Design & Construction

After selecting the waste retrieval technology or technologies for a tank, group of tanks, and/or ancillary equipment, DOE will complete the design and construction of the retrieval system(s) based on the functions and requirements developed in the TWRWP. This retrieval system design will include as a minimum:

- Final design specifications
- Quality assurance process
- Acceptance test plans and operational test plans
- Process control plan.

2.1.5 Waste Retrieval

Field retrieval activities will be started consistent with the requirements and retrieval start dates approved in the TWRWP. DOE will implement all the requirements, processes and schedules approved in the TWRWP, including LDMM activities, throughout the retrieval.

DOE will complete SST waste retrieval activities meeting Agreement criteria of Milestone M-45-00, and ancillary equipment waste retrieval activities meeting regulatory requirements, within 12 months of the retrieval start date(s) approved in the TWRWP.

2.1.6 Residual Tank Waste Characterization

Before tank waste field retrieval activities are initiated, DOE will develop a tank or component specific retrieval data quality objectives (DQO) document for the residual tank waste characterization in coordination with Ecology. As part of the DQO process, DOE will also develop a sampling and analysis plan for post-retrieval and closure sampling.

2.1.7 Retrieval Data Report/Appendix H Request for Exception

Once DOE has completed the retrieval actions described in the TWRWP, DOE will either complete and submit to Ecology within 120 days its retrieval data report, or a request for exception to retrieval criteria per Agreement Appendix H. The Appendix H option is only applicable for SSTs and the requirements of that request are identified in Agreement Appendix H, Attachment 2.

As a minimum, DOE's retrieval data report will include:

- Residual tank waste volume measurement, including associated calculations
- The results of residual tank waste characterization
- Retrieval technology performance documentation
- DOE's updated post-retrieval risk assessment
- Discussion of feasibility/viability of other available retrieval technologies, the feasibility of developing additional retrieval technologies, associated detailed cost estimates and amount of additional waste that could be removed
- Opportunities and actions being taken to refine or develop tank waste retrieval technologies, based on lessons learned
- LDMM monitoring and performance results
- DOE's recommendation for further action and proposed schedule(s).

Data from this report will be used by Ecology and DOE in making WMA-, tank-, and component-specific closure decisions. Single or multiple tank and component actions will be included in this report as appropriate.

2.2 SST SYSTEM COMPONENT AND WMA CLOSURE

2.2.1 SST System Closure Plan Development

As shown in Figure I-1, SST waste retrieval will occur prior to or in parallel with approval of modifications to the SST system closure plan. At the latest, DOE shall submit a certified component(s) closure activity plan with its retrieval data package or its Appendix H exception request. As noted in Sections 2.3 and 2.4, *Resource Conservation and Recovery Act of 1976 (RCRA)* corrective action authority may be used to develop proposed final actions for some SST system components with approval to occur by Ecology through incorporation of the component closure plans into the Site-Wide Permit.

The SST system closure plan consists of three main sections that are arranged in a hierarchy. The highest-level plan (Tier 1) documents requirements pertaining to the SST system overall and is commonly referred to as the "Framework Plan." Mid-level plans (Tier 2) document requirements pertaining to each of the seven SST WMAs and are termed WMA closure action plans. The lowest level plan (Tier 3) documents requirements pertaining to the closure of individual SSTs, and to the closure of individual ancillary equipment components within a particular WMA. These plans are termed component closure activity plans.

The Hanford Site Hazardous Waste Facility Permit modification process from submittal of initial plans (Revision 0) through public review and issuance of the modification is detailed in Agreement Section 9.2.2. It is expected that review time will become shorter as more SST waste retrieval and closure actions or sets of actions are completed due to experience gained and comparability of scope. Therefore, the Ecology and DOE may develop alternative schedules for permit processing to that appearing at Agreement Table 9-2. Agreements on any alternative schedules will be approved by the Ecology and DOE and included in the Administrative Record.

2.2.2 Ancillary Equipment Closure Actions

SST ancillary equipment will be closed in accordance with WAC 173-303-610 with associated requirements incorporated into the Site-Wide Permit through the component closure activity plans. Regulatory processes used to assess and develop necessary closure requirements for the wide range and location of ancillary equipment may differ depending upon efficiencies that may be gained through integration with other site activities. For example, large ancillary equipment such as vaults or IMUSTs are similar to SSTs and may contain a waste inventory requiring large-scale retrieval actions. Closure of these types of components is expected to be defined as part of a Tier 3 component closure activity plan. Closure of selected ancillary equipment components that are smaller, have less inventory, and that are closely coupled to actual or potential soil contamination may or may not be addressed through the corrective action process in association with adjacent contaminated soil (Section 2.3). Further, RCRA closure of ancillary equipment that is outside of a WMA boundary may or may not be as accomplished in tandem with the remedial action for the operable unit within which it resides. For example, where a *Comprehensive Environmental Response, Compensation and Liability Act of 1980* (CERCLA) action is occurring outside of a WMA, but within a large geographic area that also contains SST system ancillary equipment, it may be logical to clean up/close these components in coordination with the rest of the waste sites and structures in the area in accordance with the process described in Agreement Section 5.5. In all cases, SST ancillary equipment will be closed to meet the requirements of WAC 173-303-610. The closure decisions will be made through the component closure activity plans that are incorporated into the Site-Wide Permit.

The extent to which Ecology will use the RCRA corrective action process to fulfill the requirements of WAC 173-303-610 will be selected through approval of the WMA Closure Action Plans.

2.3 WMA CORRECTIVE ACTIONS

Closure decisions for SST system soils will be made through the RCRA corrective action process pursuant to Agreement Milestones M-45-55 through -60 and its established process for the development of interim measures where appropriate, RCRA facility investigation/corrective measures study (RFI/CMS) work plans, remedial field investigations, and corrective measures studies. It is expected that the Phase I corrective action process required by the specified milestones will result in adequate characterization to make final closure decisions. Ecology reserves the right to require additional characterization either through a Phase II corrective action process or through the development of a component closure activity plan if additional characterization is required.

It is expected that in some cases, the RCRA corrective action process will be used to investigate and analyze alternatives for remediation of selected soils/ancillary equipment. The regulatory process to be used to satisfy closure requirements for each ancillary equipment component will be selected through approval of the WMA closure action plan and incorporated into the Site-Wide Permit.

2.4 GROUNDWATER REMEDIAL ACTIONS

Ecology, as the lead agency for SST system closure, EPA, and DOE are electing to investigate and remediate groundwater under past practice authority. The information generated through the groundwater RI/FS or RFI/CMS process will be utilized in the development of SST system closure plans and performance assessment. Integration of CERCLA authority concurrently with RCRA closure and corrective action requirements, will allow Ecology and EPA to address all regulatory and environmental obligations associated with contaminated groundwater regardless of the types of contaminants of concern being addressed.

There are four past-practice operable units that are affected by DOE's SST system; 200-PO-1, 200-UP-1, 200-ZP-1 and 200-BP-5. Ecology, EPA and DOE agree that past-practice authority provides the most efficient means for addressing mixed-waste groundwater contamination plumes in these operable units which originate from a combination of TSD and past-practice units. However, in order to ensure that TSD units within the operable units are brought into compliance with RCRA and State of Washington hazardous waste regulations, Ecology intends, subject to part four of the Agreement, that all response or corrective actions, excluding situations where there is an imminent threat to the public health or environment as described in Section 7.2.3, will be conducted in a manner which ensures compliance with the technical requirements of the HWMA (Chapter 70.105 RCW and its implementation regulations). In any case, the Parties agree that CERCLA remedial actions will comply with requirements to meet applicable or relevant and appropriate requirements.

Notwithstanding this operating assumption, Ecology reserves the right to require groundwater response actions consistent with Ecology's corrective action authority under the HWMA.

2.5 PERFORMANCE ASSESSMENT

Ecology, as the lead agency for SST system closure, EPA, and DOE have elected to develop and maintain as part of the SST system closure plan one performance assessment for the purposes of evaluating whether SST system closure conditions are protective of human health and the environment for all contaminants of concern, both radiological and nonradiological. DOE intends that this performance assessment (PA) will document by reference relevant performance requirements defined by RCRA, HWMA, *Clean Water Act*, *Safe Drinking Water Act*, and the *Atomic Energy Act of 1954* (AEA) and any other performance requirements that might be ARARs under CERCLA. The PA is of larger scope than a risk assessment required solely for nonradiological contaminants. The PA is expected to provide a single source of information that DOE can use to satisfy potentially duplicative functional and/or documentation requirements. A PA will be developed for each WMA and will incorporate the latest information available. These PAs will be approved by Ecology and DOE pursuant to their respective authorities. For Ecology approval means incorporation by reference, into the Site-Wide Permit through the closure plans.

As individual components are retrieved or characterized, or other component closure activities are completed, the resulting component characterization information will be incorporated into the WMA PA to determine its relative risk compared to the entire WMA performance. In doing this, the Parties will be able to make interim closure decisions for individual components. Initially, the WMAPA will be based on assumptions and available data describing component characterization information. As each WMA proceeds toward closure, its respective PA will be updated to address all pertinent new results and findings – and will, as a minimum, incorporate the following results as they become available: actual volumes of tank waste residuals left after retrieval, results of leak investigations, new geologic and ancillary equipment waste characterization information, and the results of new barrier and tank residual stabilization and fill performance studies and tests. Final WMA closure decisions will be made after all components are retrieved and/or characterized, and all other component closure activities have been completed and a final WMA PA is completed.

3.0 SST SYSTEM CLOSURE/INTEGRATION WITH OTHER CENTRAL PLATEAU ACTIVITIES

3.1 SST SYSTEM CLOSURE REGULATORY INTEGRATION STRATEGY

DOE is the responsible agency for the closure of all SST WMAs through post closure, in close coordination with other closure and cleanup activities of the Central Plateau. Washington State has a state program that is authorized under RCRA and implemented through the HWMA and its associated regulations; therefore, Ecology is the lead regulatory agency responsible for the closure of the SST system. EPA is the support regulatory agency providing oversight of the state's authorized program. The 200 Areas of the Hanford Site have been placed by EPA on the National Priorities List (NPL). The completion of remediation of the 200 Areas overall will eventually be finalized via CERCLA decisions made by the EPA, and permitting decisions made by Ecology.

The Parties acknowledge the need for SST system closure in a manner integrating RCRA treatment, storage, and disposal (TSD) closure requirements (including RCRA corrective action requirements), the closure requirements of the AEA, and Central Plateau CERCLA remedial action requirements in order to achieve a cohesive and effective approach to SST system closure ensuring that regulatory requirements are met. The Parties' expect that this Agreement Appendix I will incorporate Agreement Section 5.5 processes to provide a mechanism for avoiding duplicative regulation between Ecology and the EPA through the lead agency concept.

For the purpose of helping to ensure work is not inconsistent with future CERCLA remedial decisions, if any, Ecology is seeking the involvement of EPA pursuant to Agreement Action Plan Section 5.6 as the non-lead agency in Ecology's review of the performance assessment and SST system closure plan. Involvement with Ecology in conducting these reviews will provide EPA and DOE with a basis to evaluate whether 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.

EPA's involvement in these reviews will not constitute a decision under CERCLA. Based on EPA's involvement supporting Ecology review of the initial WMA performance assessment and WMA closure action plans, EPA will provide written comments to Ecology, made available to DOE, for the purpose described above, as well as to identify the need for additional work that EPA expects would be required if the work was being conducted under CERCLA remedial authority. EPA will evaluate the need to provide additional comments based on its review of proposed modifications to WMA closure action plans, and issue additional comments to Ecology as necessary.

3.2 INTEGRATION WITH CENTRAL PLATEAU REMEDIAL ACTIONS

The Parties will strive to integrate SST system closure actions with Central Plateau remedial actions. Integration will provide for protective, cost-effective site closure. Closure of SST system components such as ancillary equipment and soil contamination outside of WMAs will require close integration with decision making at adjacent sites. A consistent groundwater monitoring, protection, and risk assessment methodology will also be realized through close integration of activities, as described in the Hanford Site Groundwater Strategy (DOE/RL-2002-59). Consistent application of the requirements of this Appendix I will serve to aid the Parties in ensuring cost-effective and consistent cleanup on the Central Plateau. Central Plateau cleanup integration will also allow efficiencies through the coordination of operational interfaces on the Hanford Site.

Modifications to Appendix H incorporated into the HFFACO by approval of this M-45-04-01 Change Request are shown here as either **shaded** additions or **strikethrough** deletions.

SINGLE SHELL TANK WASTE RETRIEVAL CRITERIA PROCEDURE³

INTRODUCTION

The purpose of this procedure is to establish a means to set, evaluate, and revise criteria for determining the allowable residual waste following waste retrieval operations on the Hanford single shell tanks (SST).

The format for this procedure is to progress through a series of steps as depicted in the generic logic diagram displayed as Figure 1. Each step is briefly outlined and includes elements that constitute completion of the step.

DEFINITION OF TERMS SPECIFIC TO WASTE RETRIEVAL ACTIVITIES:

Residual Waste: Tank waste remaining in the tank after all waste retrieval actions have been completed. Some materials may be excluded from residual waste volume calculations, subject to approval in the closure plan.

Step 1: Establish Goal

This initial step establishes the goal (the standard) for waste retrieval percentage and the method to be used to calculate the allowable residual waste volume following completion of retrieval operations. The calculation method is dependent on the variable to be measured (total tank waste inventory), and closure criteria and strategy. The proposed residual waste volume calculation method is shown in Attachment 1. A retrieval goal has been established as defined in milestone M-45-00.

Step 2: Evaluate Major Assessment Areas

Once the goal has been established, it is assessed against two major areas, which are:

- a) SST **Technology Demonstrations**: Demonstrate achievability of waste retrieval goal during tank 241-S-112 (**Salt Cake Dissolution**), and 241-C-104106 (**Modified Sluicing**), 241-C-200 Series (**Vacuum Retrieval**), and either 241-C-110, 241 C-111, or C-101 using **Robotic Technologies + Vacuum Retrieval (whichever is retrieved first)**. ~~-tank retrieval demonstrations. These will demonstrate retrieval of both saltcake and sludge/hard heel wastes as well as tanks in both 200 East and 200 West areas. Experience gained during AX 104, C 106 and earlier past practice sluicing shall be the reference baseline for past practice sluicing. The effectiveness of the retrieval operation will be determined with a topographical measurement, or other methods defined in the Data Quality Objective (e.g., volume displacement method) of remaining waste in the tank, and a calculation of waste inventory.~~ The inventory

³ This procedure was originally appended to Change Request M-45-93-01.

calculation will be based on calculated volume of the tank, waste topography measurements with appropriate surveying techniques, and include adjustments for any detectable deformities in the tank structure (i.e., liner bulges). This technique will be demonstrated and calibrated in this retrieval demonstration. Prepare input to the retrieval goal evaluation (step 3) to accommodate the retrieval operations and residual measurement demonstrations.

- b) Evaluate regulatory requirements of high-level waste (HLW) disposal from applicable rules, regulations and DOE Orders. Establish an interface with the Nuclear Regulatory Commission (NRC), and reach formal agreement on the retrieval and closure actions for single shell tanks with respect to allowable waste residuals in the tank and soil column. Prepare input to the retrieval goal evaluation (step 3) to accommodate the agreements on allowable residuals.

Step 3: Tank Retrieval Demonstration Goal Compliance

Perform a joint assessment by DOE and Ecology of the retrieval goal, based on the inputs from Steps 1 and 2. Modify the retrieval goal to match the most restrictive case (i.e., the highest retrieval % requirement).

Step 4: Tank Farm Retrieval Demonstration(s)

Perform the Tank Farm Retrieval Demonstration(s) on the selected tank farm or initial set of single-shell tanks to be retrieved. Repeat the residual inventory measurement steps identified in the tank retrieval demonstration. Calculate the residual inventory for each tank, based on the formula and procedure in Attachment 1 to this Appendix.

Step 5: Tank Farm Retrieval Demonstration Goal Compliance

Perform a joint assessment by DOE and Ecology of the retrieval goal, based on the tank farm retrieval demonstration results. Modify the goal to match best available technology. Notify NRC as required for compliance with Nuclear Waste Policy Act. Establish formal criteria for retrieval of waste from the remaining SST's. Finalize closure plans for tank farms and obtain concurrence from regulatory agencies.

Step 6: SST Retrieval

Proceed with retrieval of waste from the remaining SSTs. The schedule reflects retrieval activities on a tank-by-tank basis. It also allows flexibility to retrieve tanks from various farms if desired to support safety issue resolution, pretreatment or disposal feed requirements, or other priorities. Completion of retrieval will be in accordance with approved closure plans.

Step 7: Determine Residual Waste Percentage

The waste residuals are calculated for each tank.

Step 8: Retrieval Compliance Evaluation

Compare residual waste in each tank with criteria. Document compliance with criteria via notification to appropriate regulatory agencies. If residual complies with criteria, proceed with final closure operations (step 14). If residuals do not comply with criteria, prepare a request for waiver to the appropriate regulatory agency (step 9).

Step 9: Petition for Regulatory Waiver

An assessment is made as to the applicability of petitioning for regulatory waiver. This requires the review of relevant NRC license issues and possible closure plan modifications. Submit waivers to appropriate regulatory agencies.

Step 10: Waiver Acceptance

If a waiver is accepted, closure operations for the tank farm is initiated (Step 14). If the waiver is not accepted, additional retrieval operations are required. New technology may be needed (step 11). The waiver evaluation will consider the points on Attachment 2.

Step 11: Additional Technology Available

A review of alternate technologies will be performed relative to additional waste removal. If additional technologies are available, they will be deployed (step 12) and waste retrieval will resume. If additional technologies are not available, new technologies must be developed and deployed (steps 13 and 14). The tank farm will be held in interim status pending completion of the additional retrieval operations.

Step 12: Deploy Technology and Perform Additional Retrieval

If additional retrieval technology is available, it is deployed and additional waste retrieval operations are performed. After retrieval operation, the waste residual is again determined (Step 7), followed by the tank goal compliance evaluation (Step 8).

Step 13: Develop New Technology

If additional retrieval technology is not available, new technology is to be developed for the residue waste followed by deployment of the technology and additional waste retrieval operations (Step 12). After retrieval operation, the waste residual is again determined (Step 7), followed by the tank goal compliance evaluation (Step 8).

Step 14: Closure Action

When the tank farm retrieval and waste residual assessment process is complete the closure operations will start. Completion of the retrieval operations will be documented in accordance with the closure plans.

Attachment 2

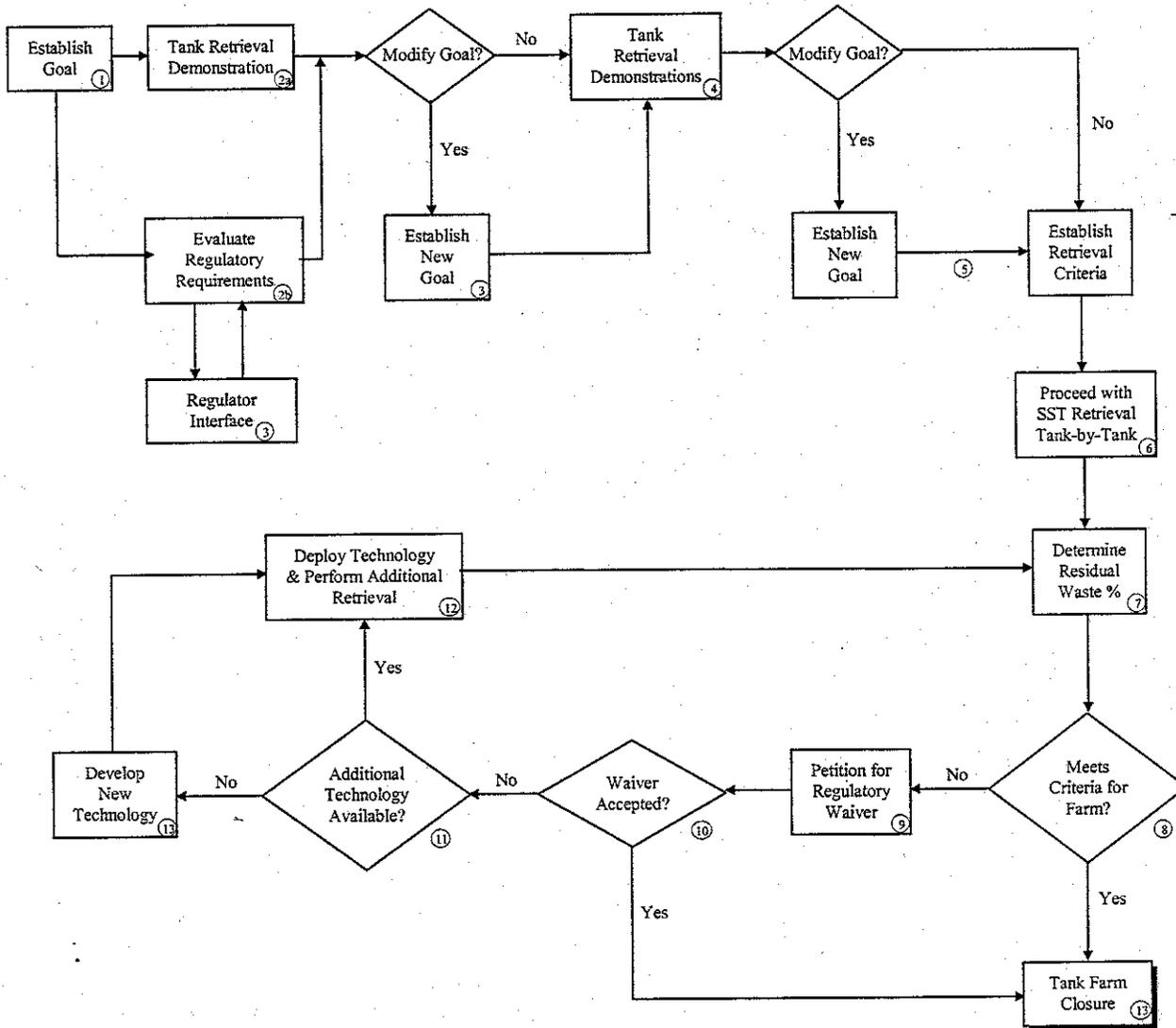
EXCEPTION TO RETRIEVAL CRITERIA FOR SINGLE-SHELL TANKS

The DOE shall retrieve tank waste in accordance with criteria defined in milestone M-45-00. This recovery criteria will be applied to each tank on a tank-by-tank basis. If the DOE does not believe that this criteria is achievable for a specific tank, DOE shall submit a request for an exception to EPA and Ecology. The request shall include, at minimum, the following information:

1. The reason DOE does not believe the retrieval criteria can be met.
2. The schedule, using existing technology, to complete retrieval to the criteria - if possible.
3. The potential for future retrieval technology developments that could achieve the criteria, including estimated schedules and costs for development and deployment.
4. The volume of waste proposed to be left in place, and it's chemical and radiological characteristics.
5. Expected impacts to human health and the environment if the residual waste is left in place.
6. Additional information as required by EPA and/or Ecology.

The above information shall be submitted within 120 days of the decision by DOE that continued retrieval actions will not result in further waste removal. Upon receipt, EPA and Ecology shall provide a response within 60 days, in which they will either approve the exception to the criteria, in which case retrieval will be considered complete for the tanks in question, or they will deny the request. If the request is denied the DOE must continue to attempt to retrieve the tank wastes until the criteria is met for the tank, or they may choose to enter into the RCRA dispute resolution procedures of the Agreement. If an exception to the criteria is approved, the closure plan for the SSTs must be modified to address the remaining residual waste.

Figure H-1. Process for Assessing Percentage of Waste Retrieved from Waste Retrieval Operations



II. Modifications to the Agreement M-45 milestone series incorporated into the HFFACO by approval of this M-45-04-01 Change Request are shown here as either **shaded** additions or **strikethrough** deletions.

<p>M-045-00 LEAD AGENCY: ECOLOGY</p>	<p>COMPLETE CLOSURE OF ALL SINGLE SHELL TANK FARMS.</p> <p>CLOSURE WILL FOLLOW RETRIEVAL OF AS MUCH TANK WASTE AS TECHNICALLY POSSIBLE, WITH TANK WASTE RESIDUES NOT TO EXCEED 360 CUBIC FEET (CU. FT.) IN EACH OF THE 100 SERIES TANKS, 30 CU. FT. IN EACH OF THE 200 SERIES TANKS, OR THE LIMIT OF WASTE RETRIEVAL TECHNOLOGY CAPABILITY, WHICHEVER IS LESS. IF THE DOE BELIEVES THAT WASTE RETRIEVAL TO THESE LEVELS IS NOT POSSIBLE FOR A TANK, THEN DOE WILL SUBMIT A DETAILED EXPLANATION TO EPA AND ECOLOGY EXPLAINING WHY THESE LEVELS CANNOT BE ACHIEVED, AND SPECIFYING THE QUANTITIES OF WASTE THAT THE DOE PROPOSES TO LEAVE IN THE TANK. THE REQUEST WILL BE APPROVED OR DISAPPROVED BY EPA AND ECOLOGY ON A TANK-BY-TANK BASIS. PROCEDURES FOR MODIFYING THE RETRIEVAL CRITERIA LISTED ABOVE, AND FOR PROCESSING REQUESTS FOR EXCEPTIONS TO THE CRITERIA ARE OUTLINED IN APPENDIX H TO THE AGREEMENT.</p> <p>FOLLOWING COMPLETION OF RETRIEVAL, SIX OPERABLE UNITS (TANK FARMS), AS DESCRIBED IN APPENDIX C (200 BP 7, 200 PO 3, 200 RO 4, 200 TP 5, 200 TP 6, 200 UP 3), WILL BE REMEDIATED IN ACCORDANCE WITH THE APPROVED CLOSURE PLANS. FINAL CLOSURE OF THE OPERABLE UNITS (TANK FARMS) SHALL BE DEFINED AS REGULATORY APPROVAL OF COMPLETION OF CLOSURE ACTIONS AND COMMENCEMENT OF POST CLOSURE ACTIONS.</p> <p>FOR THE PURPOSES OF THIS AGREEMENT ALL UNITS LOCATED WITHIN THE BOUNDARY OF EACH TANK FARM WILL BE CLOSED IN ACCORDANCE WITH WAC 173-303-610. THIS INCLUDES CONTAMINATED SOIL AND ANCILLARY EQUIPMENT THAT WERE PREVIOUSLY DESIGNATED AS RCRA PAST PRACTICE UNITS. ADOPTING THIS APPROACH WILL ENSURE EFFICIENT USE OF FUNDING AND WILL REDUCE POTENTIAL DUPLICATION OF EFFORT VIA APPLICATION OF DIFFERENT REGULATORY REQUIREMENTS: WAC 173-303-610 FOR CLOSURE OF THE TSD UNITS AND RCRA SECTION 3004 (U) FOR REMEDIATION OF RCRA PAST PRACTICE UNITS.</p> <p>ALL PARTIES RECOGNIZE THAT THE RECLASSIFICATION OF PREVIOUSLY IDENTIFIED RCRA PAST PRACTICE UNITS TO ANCILLARY EQUIPMENT ASSOCIATED WITH THE TSD UNIT IS STRICTLY FOR APPLICATION OF A CONSISTENT CLOSURE APPROACH. UPGRADES TO PREVIOUSLY CLASSIFIED RCRA PAST PRACTICE UNITS TO ACHIEVE COMPLIANCE WITH RCRA OR DANGEROUS WASTE INTERIM STATUS TECHNICAL STANDARDS FOR TANK SYSTEMS (I.E., SECONDARY CONTAINMENT, INTEGRITY ASSESSMENTS, ETC.) WILL NOT BE MANDATED AS A RESULT OF THIS ACTION. HOWEVER, ANY EQUIPMENT MODIFIED OR REPLACED WILL MEET INTERIM STATUS STANDARDS. IN EVALUATING CLOSURE OPTIONS FOR SINGLE-SHELL TANKS, CONTAMINATED SOIL, AND ANCILLARY EQUIPMENT, ECOLOGY AND</p>	<p>09/30/2024</p>
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	<p>EPA WILL CONSIDER COST, TECHNICAL PRACTICABILITY, AND POTENTIAL EXPOSURE TO RADIATION. CLOSURE OF ALL UNITS WITHIN THE BOUNDARY OF A GIVEN TANK FARM WILL BE ADDRESSED IN A CLOSURE PLAN FOR THE SINGLE-SHELL TANKS.</p> <p>COMPLIANCE WITH THE WORK SCHEDULES SET FORTH IN THIS M-45 SERIES IS DEFINED AS THE PERFORMANCE OF SUFFICIENT WORK TO ASSURE WITH REASONABLE CERTAINTY THAT DOE WILL ACCOMPLISH SERIES M-45 MAJOR AND INTERIM MILESTONE REQUIREMENTS.</p> <p>DOE INTERNAL WORK SCHEDULES (E.G., DOE APPROVED SCHEDULE BASELINES) AND ASSOCIATED WORK DIRECTIVES AND AUTHORIZATIONS SHALL BE CONSISTENT WITH THE REQUIREMENTS OF THIS AGREEMENT. MODIFICATION OF DOE CONTRACTOR BASELINE(S) AND ISSUANCE OF ASSOCIATED DOE WORK DIRECTIVES AND/OR AUTHORIZATIONS THAT ARE NOT CONSISTENT WITH AGREEMENT REQUIREMENTS SHALL NOT BE FINALIZED PRIOR TO APPROVAL OF AN AGREEMENT CHANGE REQUEST SUBMITTED PURSUANT TO AGREEMENT ACTION PLAN SECTION 12.0. COMPLETION OF THIS MAJOR MILESTONE REQUIRES THE COMPLETION OF THE WORK SCOPE IN ALL PRECEDING MILESTONES AND TARGET DATES, UNLESS OTHERWISE AGREED TO BY THE PARTIES.</p> <p><u>ALL WORK UNDER THIS MILESTONE M-45 SERIES SHALL BE CONDUCTED IN COMPLIANCE WITH AGREEMENT REQUIREMENTS INCLUDING BUT NOT LIMITED TO THE PARTIES' AGREEMENT APPENDIX I, "SINGLE-SHELL TANK SYSTEM WASTE RETRIEVAL AND CLOSURE PROCESS".</u></p>	
<p>M-045-00B</p>	<p><u>COMPLETE SPECIFIED "NEAR TERM" SST WASTE RETRIEVAL AND INTERIM CLOSURE ACTIVITIES, TO RESULT IN THE RETRIEVAL OF ALL TANK WASTES IN WMA-C SSTs PURSUANT TO THE AGREEMENT CRITERIA IN MILESTONE M-45-00.</u></p> <p>UNTIL THE WASTE TREATMENT COMPLEX IS OPERATIONAL, THE AMOUNT OF DST SPACE AVAILABLE TO RECEIVE SST WASTE IS LIMITED. THE NEAR TERM FOCUS FOR SST WASTE RETRIEVAL WILL INCLUDE MAXIMIZING THE TRANSFER OF CONTAMINANTS OF CONCERN (LONG-LIVED, MOBILE RADIONUCLIDES) INTO THE DST SYSTEM <u>AND OPTIMIZING WASTE FEED SO AS TO MAINTAIN EFFICIENT WTP OPERATIONS. ADDITIONAL CRITERIA THAT WILL BE CONSIDERED IN TANK SELECTION AND MAY RESULT IN LOWER RISK TANKS BEING RETRIEVED EARLIER IN THE SEQUENCE, INCLUDE;</u></p> <ul style="list-style-type: none"> • <u>WORKER SAFETY</u> • <u>FACILITATION OF WMA CLOSURES.</u> • <u>THE OPTIMIZATION OF DST SPACE UTILIZATION CONSIDERING RESOURCE LEVELING AND WASTE TRANSFER INFRASTRUCTURE</u> • <u>RETRIEVAL AND CLOSURE REQUIREMENTS FOR ASSOCIATED ANCILLARY EQUIPMENT.</u> <p>WORK UNDER THIS MILESTONE ALSO INCLUDES;</p> <ul style="list-style-type: none"> • <u>COMPLETION OF ONEFOUR "LIMITS OF TECHNOLOGY" RETRIEVAL DEMONSTRATIONS, INITIATION OF A SECOND</u> 	<p><u>09/30/2006 or as otherwise indicated within the descriptive text of this milestone.</u></p>

"LIMITS OF TECHNOLOGY" RETRIEVAL DEMONSTRATION, AND RETRIEVAL OF SUFFICIENT SST WASTE CONTAINING NO LESS THAN 800 CURIES OF CONTAMINANTS OF CONCERN AND OCCUPYING A MINIMUM OF 23 MILLION GALLONS OF DST SPACE (PER DOE BEST BASIS INVENTORY DATA, 8/01/2000). "LIMITS OF TECHNOLOGY" RETRIEVAL DEMONSTRATIONS WILL SEEK TO IMPROVE UPON PAST PRACTICE SLUICING (PPS) BASELINE TECHNOLOGY INCLUDING BUT NOT LIMITED TO RETRIEVAL EFFICIENCY, LEAK LOSS DURING RETRIEVAL, AND LEAK DETECTION MITIGATION AND MONITORING (LDMM).

RETRIEVAL DEMONSTRATIONS SHALL BE CONDUCTED FOR 1) SALTCAKE DISSOLUTION (AT TANK S-112), 2) MODIFIED SLUICING (AT TANK C-106, 3) VACUUM RETRIEVAL (AT DOE'S C-200 SERIES TANKS), AND 4) MRS (ROBOTIC TECHNOLOGIES) + VACUUM RETRIEVAL AT TANK C-110, C-111, OR C-101 (WHICHEVER IS RETRIEVED FIRST).

WASTE SHALL BE RETRIEVED TO THE DST SYSTEM TO THE LIMITS OF THE TECHNOLOGY (OR TECHNOLOGIES) SELECTED. SELECTED SLUDGE/HARD HEEL TECHNOLOGY (OR TECHNOLOGIES) MUST SEEK TO IMPROVE UPON THE PAST PRACTICE SLUICING BASELINE IN THE AREAS OF EXPECTED RETRIEVAL EFFICIENCY, LEAK LOSS POTENTIAL, AND SUITABILITY FOR USE IN POTENTIALLY LEAKING TANKS.

INSTALLATION AND IMPLEMENTATION OF FULL SCALE EXTERNAL-TANK LEAK DETECTION, MONITORING, AND MITIGATION (LDMM) TECHNOLOGIES FOR THE FIRST THREE 100-SERIES TANK RETRIEVALS FOLLOWING TANK S-112. THE BASELINE LDMM SYSTEM (I.E. DRYWELL LOGGING) IS TO BE SUPPLEMENTED, USING AN EXTERNAL-TANK ELECTRICAL RESISTIVITY (ER) METHOD. THE ELECTRICAL RESISTIVITY SYSTEM WILL BE DESIGNED FOR IMPLEMENTATION AT THE THREE TANKS AND FULLY DEPLOYED AT THE FIRST TANK TO BE RETRIEVED. CRITERIA FOR THE DEMONSTRATION AT THE FIRST TANK SHALL BE AGREED TO BY DOE AND ECOLOGY BEFORE THE TECHNOLOGY IS INSTALLED.

- DOE WILL SUBMIT FOR ECOLOGY APPROVAL A TEST PLAN INCLUDING AN INJECTION TEST, DESCRIBING THE CRITERIA AND METHOD TO TEST THE SELECTED ER. 90 DAYS AFTER THE COMPLETION OF THE TESTING, DOE WILL SUBMIT AN EVALUATION REPORT AND ANY RECOMMENDATION FOR FURTHER DEPLOYMENT.
- IF THE PARTIES AGREE THAT THE METHOD IS SUITABLE, ER WILL BE DEPLOYED IN THE SUBSEQUENT APPROPRIATE RETRIEVAL TANKS.
- IF THE PARTIES DO NOT AGREE THAT ER IS SUITABLE FOR SUBSEQUENT RETRIEVALS, OR IF THE DATA IS INCONCLUSIVE, ECOLOGY WILL REQUIRE APPLICATION AND/OR DEVELOPMENT OF APPROPRIATE LDMM TECHNOLOGY IN LIEU OF OR IN ADDITION TO ER.
- SUBMITTAL AS AGREEMENT PRIMARY DOCUMENTS, TANK WASTE RETRIEVAL WORK PLANS FOR TANKS C-101, C-102, C-103,

	<p>C-104, C-105, C-107, C-108, C-109, C-110, C-111, C-112, C-201, C-202, C-203, AND C-204</p> <ul style="list-style-type: none"> o TANKS C-201, C-202, C-203 AND C-204, (PROVIDE SUPPLEMENTAL INFORMATION BY MARCH 31, 2004 TO INCLUDE START OF RETRIEVAL DATE AS PER APPENDIX I REQUIREMENTS). o DOE SHALL SUBMIT TWRWP(S) FOR 2 100-SERIES TANKS BY JULY 31, 2004. o DOE SHALL SUBMIT TWRWP(S) FOR 4 100-SERIES TANKS BY OCTOBER 31, 2004. o DOE SHALL SUBMIT TWRWP(S) FOR 5 100-SERIES TANKS BY JANUARY 31, 2005. <ul style="list-style-type: none"> • SUBMITTAL TO ECOLOGY OF CERTIFIED COMPONENT CLOSURE ACTIVITY PLANS FOR THE PRECEDING SSTs IN ACCORDANCE WITH AGREEMENT APPENDIX I. • SUBMITTAL OF WMA INTEGRATION PLANS FOR WMA-C AND ONE ADDITIONAL WMA BY JUNE 30, 2005. <p>THE SELECTION OF ADDITIONAL SSTs FOR WASTE RETRIEVAL SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF AGREEMENT APPENDIX I, SECTION 2.1.2.</p> <p>IN ADDITION TO THE PRECEDING, DOE WILL PROCESS A BASELINE CHANGE CONTROL, AND ASSOCIATED WORK DIRECTIVES AS MAY BE NECESSARY, CONSISTENT WITH THIS AGREEMENT AND THE PARTIES' MILESTONE M-45-04-01 CHANGE REQUEST NO LATER THAN SEPTEMBER 30, 2004.</p> <p>PROCEDURES FOR MODIFYING THE RETRIEVAL CRITERIA LISTED WITHIN THE ASSOCIATED MILESTONES, AND FOR PROCESSING REQUESTS FOR EXCEPTIONS TO THE CRITERIA ARE OUTLINED IN A NEW APPENDIX "H" TO THE THIS AGREEMENT.</p>	
<p>M-045-00C</p>	<p>COMPLETE RENEGOTIATION OF SECOND PHASE (I. E., 9/30/2006 THROUGH 9/30/2015) SST WASTE RETRIEVAL ACTIVITIES. INITIATE NEGOTIATION OF SST WASTE RETRIEVAL AND CLOSURE ACTIVITIES AND ASSOCIATED SCHEDULES (FOR THE PERIOD SEPTEMBER 2006 THROUGH SEPTEMBER 2008).</p> <p>THESE NEGOTIATIONS SHALL TAKE INTO ACCOUNT VARIABLES SUCH AS WORK IN PROGRESS, E.G., DOE'S TANK WASTE TREATMENT COMPLEX ACQUISITION INITIATIVE, INFORMATION PERTINANT TO, AND THE OUTCOME OF THE PARTIES' WTP PROCESSING CAPACITY AND SUPPLEMENTAL TREATMENT TECHNOLOGY VIABILITY NEGOTIATIONS (PURSUANT TO AGREEMENT MILESTONE M-62-08), AND ENVIRONMENTAL AND HUMAN HEALTH RISKS ASSOCIATED WITH RELEASES FROM DOE'S SSTs. NEGOTIATIONS SHALL BE DESIGNED TO ESTABLISH A SUFFICIENT NUMBER OF AGREEMENT MILESTONES AND TARGET DATES TO EFFECTIVELY DRIVE EACH PHASE OF WORK INCLUDING BUT NOT LIMITED TO: 1.) WASTE RETRIEVAL TECHNOLOGY DEVELOPMENT, 2.) RETRIEVAL PERFORMANCE EVALUATIONS, 3.) LEAK DETECTION, MONITORING, AND MITIGATION, 4.) SELECTION OF SST RETRIEVALS, 5.) DESIGN, CONSTRUCTION AND OPERATION OF SST WASTE RETRIEVAL SYSTEMS, AND 6.) CLOSURE PLANNING AND CLOSURE PLAN DEVELOPMENT, 7.) SCHEDULES FOR WMA</p>	<p>2/28/2004 June 30, 2005</p>

	<p>ANCILLARY EQUIPMENT WASTE RETRIEVAL AND CLOSURE, 8.) OTHER ACTIVITIES AS MAY BE NECESSARY TO SUPPORT WMA CLOSURES, AND 9.) ACQUISITION OF ADDITIONAL COMPLIANT STORAGE SPACE, E.G., NEW DSTs, IF NEEDED.</p> <p>DOE, AND DOE'S CONTRACTOR(S) WILL RETRIEVE AND TRANSFER SST WASTES INTO THE DST SYSTEM AS SOON AS SPACE IS MADE AVAILABLE, ALLOWING DST SPACE FOR TREATMENT PLANT FEED STAGING AND SAFETY ISSUE RESOLUTION. TRANSFER OF SST WASTE WILL BE MADE ONCE SUFFICIENT DST SYSTEM SPACE IS AVAILABLE TO ALLOW A TRANSFER OF AN OPERATIONALLY PRACTICABLE VOLUME OF WASTE. SST WASTE WILL BE RETRIEVED ON A PRIORITY BASIS WITH THE GOALS OF REDUCING ENVIRONMENTAL RISK AND TREATMENT PROCESS OPTIMIZATION. DOE AND ECOLOGY WILL AGREE ON THE CRITERIA TO DETERMINE ENVIRONMENTAL RISK REDUCTION.</p> <p>THE ECOLOGY AND DOE NEGOTIATIONS UNDER THIS MILESTONE SHALL BE COMPLETED WITHIN 120 DAYS. IN THE EVENT THE PARTIES DO NOT REACH AGREEMENT WITHIN THIS TIMEFRAME, THE NEGOTIATIONS WILL BE RESOLVED AS A RESOLUTION OF DISPUTE VIA FINAL DETERMINATION OF THE DIRECTOR OF ECOLOGY PURSUANT TO HFFACO ARTICLE VIII. UNLESS OTHERWISE AGREED BY THE ECOLOGY AND DOE, THIS FINAL DETERMINATION WILL BE ISSUED WITHIN 150 DAYS OF INITIATION OF NEGOTIATIONS.</p>	
<p>M-045-00D</p>	<p>COMPLETE INITIATE RENEGOTIATION OF THE REMAINDER OF THE SST WASTE RETRIEVAL AND CLOSURE ACTIVITIES PROGRAM FOR THE PERIOD SEPTEMBER 2008 TO SEPTEMBER 2013).</p> <p>THESE NEGOTIATIONS WILL ESTABLISH REGULATORY REQUIREMENTS FOR THE REMAINDER OF THE SST WASTE RETRIEVAL AND CLOSURE PROGRAM (THROUGH COMPLETION OF CLOSURE AT ALL SINGLE SHELL TANK FARMS). NEGOTIATIONS WILL INCLUDE MODIFICATION AS MAY BE NECESSARY OF COMPLETION DATES FOR SST WASTE RETRIEVAL AND SST FARM CLOSURE BASED ON EXPERIENCE GAINED FROM SST AND DST WASTE RETRIEVAL WORK COMPLETED, CORRECTIVE ACTIONS, PHASE I TREATMENT COMPLEX OPERATIONS PHASE II TREATMENT PLANNING, KNOWN AND LIKELY VADOSE ZONE AND GROUNDWATER IMPACTS, AND OTHER AVAILABLE ENVIRONMENTAL IMPACT INFORMATION.</p> <p>DOE, AND DOE'S CONTRACTOR(S) WILL RETRIEVE AND TRANSFER SST WASTES INTO THE DST SYSTEM AS SOON AS SPACE IS MADE AVAILABLE, ALLOWING DST SPACE FOR TREATMENT PLANT FEED STAGING AND SAFETY ISSUE RESOLUTION. TRANSFER OF SST WASTE WILL BE MADE ONCE SUFFICIENT DST SYSTEM SPACE IS AVAILABLE TO ALLOW A TRANSFER OF AN OPERATIONALLY PRACTICABLE VOLUME OF WASTE. SST WASTE WILL BE RETRIEVED ON A PRIORITY BASIS WITH THE GOALS OF REDUCING ENVIRONMENTAL RISK AND TREATMENT PROCESS OPTIMIZATION. DOE AND ECOLOGY WILL AGREE ON THE CRITERIA TO DETERMINE ENVIRONMENTAL RISK REDUCTION.</p> <p>THESE NEGOTIATIONS SHALL TAKE INTO ACCOUNT VARIABLES</p>	<p>06/30/2011 January 31, 2008</p>

	<p>SUCH AS WORK IN PROGRESS, E.G., PHASE I RFI REPORTS OF ALL SST WMAs (PURSUANT TO AGREEMENT MILESTONE M-45-55), CORRECTIVE MEASURES STUDIES FOR ALL SST WMAs (PURSUANT TO AGREEMENT MILESTONE M-45-56, DOE'S TANK WASTE TREATMENT COMPLEX ACQUISITION INITIATIVE, INFORMATION PERTINANT TO, AND THE OUTCOME OF THE PARTIES' WTP PROCESSING CAPACITY AND SUPPLEMENTAL TREATMENT TECHNOLOGY VIABILITY NEGOTIATIONS (PURSUANT TO AGREEMENT MILESTONE M-62-08), AND ENVIRONMENTAL AND HUMAN HEALTH RISKS ASSOCIATED WITH RELEASES FROM DOE'S SSTs. NEGOTIATIONS SHALL BE DESIGNED TO ESTABLISH A SUFFICIENT NUMBER OF AGREEMENT MILESTONES AND TARGET DATES TO EFFECTIVELY DRIVE EACH PHASE OF WORK INCLUDING BUT NOT LIMITED TO: 1.) WASTE RETRIEVAL TECHNOLOGY DEVELOPMENT, 2.) RETRIEVAL PERFORMANCE EVALUATIONS, 3.) LEAK DETECTION, MONITORING, AND MITIGATION, 4.) SELECTION OF SST RETRIEVAL SEQUENCE, 5.) DESIGN, CONSTRUCTION AND OPERATION OF SST WASTE RETRIEVAL SYSTEMS, 6.) CLOSURE PLANNING AND CLOSURE PLAN DEVELOPMENT, 7.) SCHEDULES FOR WMA ANCILLARY EQUIPMENT WASTE RETRIEVAL AND CLOSURE, 8.) OTHER ACTIVITIES AS MAY BE NECESSARY TO SUPPORT WMA CLOSURES, AND 9.) ACQUISITION OF ADDITIONAL COMPLIANT STORAGE SPACE, E.G., NEW DSTs, IF NEEDED.</p> <p>DOE, AND DOE'S CONTRACTOR(S) WILL RETRIEVE AND TRANSFER SST WASTE INTO THE DST SYSTEM AS SOON AS SPACE IS MADE AVAILABLE, ALLOWING DST SPACE FOR TREATMENT PLANT FEED STAGING AND SAFETY ISSUE RESOLUTION. TRANSFER OF SST WASTE WILL BE MADE ONCE SUFFICIENT DST SYSTEM SPACE IS AVAILABLE TO ALLOW A TRANSFER OF AN OPERATIONALLY PRACTICABLE VOLUME OF WASTE. SST WASTE WILL BE RETRIEVED ON USING THE GOALS OF REDUCING ENVIRONMENTAL RISK AND TREATMENT PROCESS OPTIMIZATION.</p> <p>THE ECOLOGY AND DOE NEGOTIATIONS UNDER THIS MILESTONE SHALL BE COMPLETED WITHIN 150 DAYS. IN THE EVENT THE PARTIES DO NOT REACH AGREEMENT WITHIN THIS TIMEFRAME, THE NEGOTIATIONS WILL BE RESOLVED AS A RESOLUTION OF DISPUTE VIA FINAL DETERMINATION OF THE DIRECTOR OF ECOLOGY PURSUANT TO HFFACO ARTICLE VIII. UNLESS OTHERWISE AGREED BY THE ECOLOGY AND DOE, THIS FINAL DETERMINATION WILL BE ISSUED WITHIN 180 DAYS OF INITIATION OF NEGOTIATIONS.</p>	
<p>M-45-00E</p>	<p>INITIATE NEGOTIATION OF SST WASTE RETRIEVAL AND CLOSURE ACTIVITIES FOR THE REMAINDER OF THE SST PROGRAM.</p> <p>THESE NEGOTIATIONS WILL ESTABLISH REGULATORY REQUIREMENTS FOR THE REMAINDER OF THE SST WASTE RETRIEVAL AND CLOSURE PROGRAM (THROUGH COMPLETION OF CLOSURE AT ALL SST WMAs). NEGOTIATIONS WILL INCLUDE MODIFICATION AS MAY BE NECESSARY OF COMPLETION DATES FOR SST WASTE RETRIEVAL AND SST WMA CLOSURE BASED ON EXPERIENCE GAINED FROM PHASE I RFI REPORTS OF ALL SST WMAs (PURSUANT TO AGREEMENT MILESTONE M-45-55), CORRECTIVE MEASURES STUDIES FOR ALL SST WMAs (PURSUANT TO AGREEMENT MILESTONE M-45-56), DOE'S TANK WASTE</p>	<p>October 31, 2012</p>

	<p>TREATMENT COMPLEX ACQUISITION INITIATIVE, INFORMATION PERTINANT TO, AND THE OUTCOME OF THE PARTIES' WTP PROCESSING CAPACITY AND SUPPLEMENTAL TREATMENT TECHNOLOGY VIABILITY NEGOTIATIONS (PURSUANT TO AGREEMENT MILESTONE M-62-08), AND ENVIRONMENTAL AND HUMAN HEALTH RISKS ASSOCIATED WITH RELEASES FROM DOE'S SSTs.</p> <p>DOE, AND DOE'S CONTRACTOR(S) WILL RETRIEVE AND TRANSFER SST WASTES INTO THE DST SYSTEM AS SOON AS SPACE IS MADE AVAILABLE, ALLOWING DST SPACE FOR TREATMENT PLANT FEED STAGING AND SAFETY ISSUE RESOLUTION. TRANSFER OF SST WASTE WILL BE MADE ONCE SUFFICIENT DST SYSTEM SPACE IS AVAILABLE TO ALLOW A TRANSFER OF AN OPERATIONALLY PRACTICABLE VOLUME OF WASTE. SST WASTE WILL BE RETRIEVED ON A PRIORITY BASIS WITH THE CRITERIA OF REDUCING ENVIRONMENTAL RISK AND TREATMENT PROCESS OPTIMIZATION.</p> <p>THE ECOLOGY AND DOE NEGOTIATIONS UNDER THIS MILESTONE SHALL BE COMPLETED WITHIN 120 DAYS. IN THE EVENT THE PARTIES DO NOT REACH AGREEMENT WITHIN THIS TIMEFRAME, THE NEGOTIATIONS WILL BE RESOLVED AS A RESOLUTION OF DISPUTE VIA FINAL DETERMINATION OF THE DIRECTOR OF ECOLOGY PURSUANT TO HFFACO ARTICLE VIII. UNLESS OTHERWISE AGREED BY THE ECOLOGY AND DOE, THIS FINAL DETERMINATION WILL BE ISSUED WITHIN 150 DAYS OF INITIATION OF NEGOTIATIONS.</p>	
<p>M-045-02M</p>	<p>SUBMIT ANNUAL BIENNIAL UPDATES TO SST RETRIEVAL SEQUENCE DOCUMENT (AGREEMENT APPENDIX I. SECTION 2.1.2), DOUBLE SHELL TANK SPACE EVALUATION DOCUMENT AND ECOLOGY CONCURRENCE OF ADDITIONAL TANK ACQUISITION.</p> <p>THIS PROVIDES FOR A ANNUAL BIENNIAL UPDATE OF A SST RETRIEVAL SEQUENCE DOCUMENT THAT WILL DEFINE THE TANK RETRIEVAL SEQUENCE, SELECTION CRITERIA AND RATIONALE, REFERENCE RETRIEVAL METHOD(S) FOR EACH TANK, AND THE ESTIMATED RETRIEVAL SCHEDULES. THE RETRIEVAL SEQUENCE DOCUMENT WILL LIST RETRIEVAL METHODOLOGIES TO BE EMPLOYED AND ESTIMATED WASTE VOLUMES TO BE GENERATED DURING RETRIEVAL (TO BE TRANSFERRED TO THE DSTs OR OTHER AVAILABLE SAFE STORAGE). THE REPORT WILL ALSO DETAIL LIST TANK SELECTION RATIONALE BASED ON THE PRIMARY OBJECTIVE OF MAXIMIZING RISK REDUCTION THROUGH THE RETRIEVAL OF MOBILE, LONG-LIVED RADIONUCLIDES OR POTENTIAL AIRBORNE CONTAMINANTS AND PRINCIPLE NONRADIOLOGICAL HAZARDOUS CONSTITUENTS IN A MANNER WHICH IS SENSITIVE TO WASTE TREATMENT FACILITY REQUIREMENTS AND INFRASTRUCTURE CONSTRAINTS. THE SEQUENCING WILL ALSO TAKE IN CONSIDERATION DST SPACE AND DST WASTE COMPATABILITY WHEN SELECTING THE SST RETRIEVAL SEQUENCE. TANK SELECTION FOR RETRIEVAL WILL TAKE INTO CONSIDERATION THE CLOSURE OF WASTE MANAGEMENT AREAS AND RESOURCE OPTIMIZATION. THE ANNUAL BIENNIAL UPDATES WILL BE SUBMITTED TO ECOLOGY FOR APPROVAL AS AGREEMENT PRIMARY DOCUMENTS.</p> <p>THIS ALSO PROVIDES FOR A BIENNIEL UPDATE OF THE DOUBLE SHELL TANK SPACE EVALUATION DOCUMENT. THIS NEW</p>	<p>09/30/2004 03/01/2006 OR AS OTHERWISE INDICATED WITHIN THE DESCRIPTIVE TEXT OF THIS MILESTONE</p>

	<p>MILESTONE REPLACED MILESTONE M-31-02 AND SUBSEQUENTLY M-46-00K, M-46-00L, AND M-46-00M, ETC. A TANK VOLUME PROJECTION REPORT SHALL BE SUBMITTED ON A BIENNIEL BASIS TO ECOLOGY AND EPA. THIS REPORT SHALL INCLUDE DISCUSSIONS COVERING ALL ASSUMPTIONS WHICH FORM THE BASIS OF THE PROJECTION. THE REPORT SHALL INCLUDE OR SHALL BE ACCOMPANIED BY DOE'S PLANS FOR ACQUISITION OF ADDITIONAL TANKS BASED ON THE TANK VOLUME PROJECTION. ECOLOGY CONCURRENCE OF ADDITIONAL TANK ACQUISITION WITHIN 60 DAYS. WITHIN 60 DAYS OF RECEIVING THE DST TANK SPACE EVALUATION DOCUMENT, THE THREE PARTIES SHALL MEET TO ESTABLISH NEW MILESTONES, IF REQUIRED, FOR ACQUISITION OF ADDITIONAL TANKS.</p>	
M-045-02N	<p>SUBMIT ANNUAL BIENNIAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT (AGREEMENT APPENDIX I. SECTION 2.1.2), AND DOUBLE SHELL TANK SPACE EVALUATION DOCUMENT AND ECOLOGY CONCURRENCE OF ADDITIONAL TANK ACQUISITION WITHIN 60 DAYS. (SEE TEXT OF M-45-02ML FOR FURTHER DETAILS).</p>	<p>09/30/2005 03/01/2008</p>
M-045-02O	<p>SUBMIT ANNUAL BIENNIAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT (AGREEMENT APPENDIX I. SECTION 2.1.2), AND DOUBLE SHELL TANK SPACE EVALUATION DOCUMENT AND ECOLOGY CONCURRENCE OF ADDITIONAL TANK ACQUISITION WITHIN 60 DAYS. (SEE TEXT OF M-45-02ML FOR FURTHER DETAILS).</p>	<p>09/30/2006 03/01/2010</p>
M-045-02P	<p>SUBMIT ANNUAL BIENNIAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT (AGREEMENT APPENDIX I. SECTION 2.1.2), AND DOUBLE SHELL TANK SPACE EVALUATION DOCUMENT AND ECOLOGY CONCURRENCE OF ADDITIONAL TANK ACQUISITION WITHIN 60 DAYS. (SEE TEXT OF M-45-02ML FOR FURTHER DETAILS).</p>	<p>09/30/2007 03/01/2012 AND BIENNIALLY THEREAFTER</p>
M-045-03C	<p>COMPLETE FULL SCALE SALTCAKE WASTE RETRIEVAL TECHNOLOGY DEMONSTRATION AT SINGLE-SHELL TANK S-112. WASTE SHALL BE RETRIEVED TO THE DST SYSTEM TO THE LIMITS OF THE TECHNOLOGY (OR TECHNOLOGIES) SELECTED. SELECTED SALTCAKE RETRIEVAL TECHNOLOGY (OR TECHNOLOGIES) MUST SEEK TO IMPROVE UPON THE PAST-PRACTICE SLUICING BASELINE IN THE AREAS OF EXPECTED RETRIEVAL EFFICIENCY, LEAK LOSS POTENTIAL, AND SUITABILITY FOR USE IN POTENTIALLY LEAKING TANKS.</p> <p>GOALS OF THIS DEMONSTRATION SHALL INCLUDE THE RETRIEVAL TO SAFE STORAGE OF APPROXIMATELY 550 CURIES OF MOBILE, LONG-LIVED RADIOISOTOPES AND 99% OF TANK CONTENTS BY VOLUME (PER DOE BEST-BASIS INVENTORY DATA, 8/01/2000).</p>	<p>03/31/2005</p>
M-045-03F	<p>COMPLETE FULL SCALE SLUDGE/HARD HEEL, CONFINED SLUICING AND ROBOTIC TECHNOLOGIES WASTE RETRIEVAL DEMONSTRATION AT TANK C-104.</p> <p>WASTE SHALL BE RETRIEVED TO THE DST SYSTEM TO THE LIMITS OF THE TECHNOLOGY (OR TECHNOLOGIES) SELECTED. SELECTED SLUDGE/HARD HEEL TECHNOLOGY (OR TECHNOLOGIES) MUST SEEK TO IMPROVE UPON THE PAST PRACTICE SLUICING BASELINE IN THE AREAS OF EXPECTED RETRIEVAL EFFICIENCY, LEAK LOSS POTENTIAL, AND SUITABILITY FOR USE IN POTENTIALLY LEAKING TANKS. CONFINED SLUICING IS DEFINED AS THE</p>	<p>09/30/2007</p>

	<p>LOCALIZED ADDITION AND RETRIEVAL OF LIQUIDS AND WASTE. THIS DEMONSTRATION SHALL ALSO INCLUDE THE INSTALLATION AND IMPLEMENTATION OF FULL SCALE LEAK DETECTION, MONITORING, AND MITIGATION (LDMM) TECHNOLOGIES. THE PARTIES RECOGNIZE AND AGREE THAT THIS ACTION IS FOR DEMONSTRATION AND INITIAL WASTE RETRIEVAL PURPOSES. COMPLETION OF THIS DEMONSTRATION SHALL BE BY APPROVAL OF DOE AND ECOLOGY.</p> <p>GOALS OF THIS DEMONSTRATION SHALL INCLUDE THE RETRIEVAL TO SAFE STORAGE OF APPROXIMATELY 89 KG OF PLUTONIUM WHICH REPRESENTS APPROXIMATELY 17% OF THE TOTAL PLUTONIUM INVENTORY WITHIN THE SST SYSTEM), AND 99% OF TANK CONTENTS BY VOLUME (PER DOE'S BEST BASIS INVENTORY DATA OF 8/01/2000).</p>	
M-045-03H	<p>COMPLETE C 104 SLUDGE/HARD HEEL, CONFINED SLUICING AND ROBOTIC TECHNOLOGIES, WASTE RETRIEVAL DEMONSTRATION DESIGN (TO INCLUDE ALL PHYSICAL SYSTEMS INCLUDING DESIGN AND OPERATING STRATEGIES NECESSARY FOR LEAK DETECTION MONITORING AND MITIGATION (LDMM)).</p> <p>DESIGN WILL BE CONSIDERED COMPLETE WHEN 90% OF THE DESIGN HAS BEEN APPROVED FOR FABRICATION AND/OR CONSTRUCTION.</p>	09/30/2004
M-045-03I	<p>COMPLETE C 104 SLUDGE/HARD HEEL, CONFINED SLUICING AND ROBOTIC TECHNOLOGIES, WASTE RETRIEVAL DEMONSTRATION CONSTRUCTION (TO INCLUDE ALL PHYSICAL SYSTEMS INCLUDING THOSE NECESSARY FOR LEAK DETECTION MONITORING AND MITIGATION).</p> <p>CONSTRUCTION WILL BE CONSIDERED COMPLETE WHEN ALL PROCESS EQUIPMENT IS INSTALLED AND ACCEPTANCE TESTS ARE COMPLETED.</p>	09/30/2006
M-045-05	<p>RETRIEVE WASTE FROM ALL REMAINING SINGLE-SHELL TANKS. COMPLETE WASTE RETRIEVAL FROM ALL REMAINING SINGLE-SHELL TANKS. RETRIEVAL STANDARDS AND COMPLETION DEFINITIONS ARE PROVIDED UNDER THE MAJOR MILESTONE. THE SCHEDULE REFLECTS RETRIEVAL ACTIVITIES ON A FARM-BY-FARM BASIS. IT ALSO ALLOWS FLEXIBILITY TO RETRIEVE TANKS FROM VARIOUS FARMS IF DESIRED TO SUPPORT SAFETY ISSUE RESOLUTION, PRETREATMENT OR DISPOSAL FEED REQUIREMENTS, OR OTHER PRIORITIES.</p>	09/30/2018
M-045-05-T05	<p>INITIATE TANK RETRIEVAL FROM FIVE ADDITIONAL SINGLE-SHELL TANKS.</p>	09/30/2007
M-045-05-T06	<p>INITIATE TANK RETRIEVAL FROM FIVE ADDITIONAL SINGLE-SHELL TANKS.</p>	09/30/2008
M-045-05-T07	<p>INITIATE TANK RETRIEVAL FROM SEVEN ADDITIONAL SINGLE-SHELL TANKS.</p>	09/30/2009
M-045-05-T08	<p>INITIATE TANK RETRIEVAL FROM EIGHT ADDITIONAL SINGLE-SHELL TANKS.</p>	09/30/2010

M-045-05-T09	INITIATE TANK RETRIEVAL FROM TEN ADDITIONAL SINGLE-SHELL TANKS .	09/30/2011
M-045-05-T10	INITIATE TANK RETRIEVAL FROM 12 ADDITIONAL SINGLE-SHELL TANKS .	09/30/2012
M-045-05-T11	INITIATE TANK RETRIEVAL FROM 14 ADDITIONAL SINGLE-SHELL TANKS .	09/30/2013
M-045-05-T12	INITIATE TANK RETRIEVAL FROM 17 ADDITIONAL SINGLE-SHELL TANKS .	09/30/2014
M-045-05-T13	INITIATE TANK RETRIEVAL FROM 20 ADDITIONAL SINGLE-SHELL TANKS .	09/30/2015
M-045-05-T14	INITIATE TANK RETRIEVAL FROM 20 ADDITIONAL SINGLE-SHELL TANKS .	09/30/2016
M-045-05-T15	INITIATE TANK RETRIEVAL FROM 20 ADDITIONAL SINGLE-SHELL TANKS .	09/30/2017
M-045-05-T17	<p>SUBMIT S 105, S 106, AND S 103 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION FUNCTIONS AND REQUIREMENTS DOCUMENT.</p> <p>THIS DOCUMENT WILL ESTABLISH DEMONSTRATION SYSTEM SPECIFICATIONS (INCLUDING LDMM SYSTEM SPECIFICATIONS) AND WILL ALSO INCLUDE A SCOPING LEVEL RETRIEVAL PERFORMANCE EVALUATION (RPE) FOR EACH TANK. THE FUNCTIONS AND REQUIREMENTS DOCUMENT AND ITS ASSOCIATED RPE SHALL ALSO PROVIDE, AS A SEPARATE EVALUATION FOR EACH OF THE THREE TANKS, ENVIRONMENTAL AND HUMAN HEALTH RISK EVALUATION DATA/INFORMATION ASSOCIATED WITH ESTIMATED WASTE VOLUMES TO BE RETRIEVED, THE MAXIMUM VOLUME WHICH COULD LEAK DURING RETRIEVAL, AND RISK FROM RESIDUAL WASTE. THIS DOCUMENT WILL DETAIL KNOWN AND ESTIMATED RADIONUCLIDE CONTAMINATION AND CONTAMINANT MIGRATION WITHIN THE VADOSE ZONE AS BASES OF CALCULATION. LDMM AND RPE DOCUMENTATION PROVIDED WILL BE ADEQUATE TO ALLOW ECOLOGY TO ASSESS THE ADEQUACY OF THE DEMONSTRATION SYSTEMS. THIS DOCUMENT WILL INCORPORATE LESSONS LEARNED, INCLUDING LDMM, RETRIEVAL, INSTRUMENTATION, AND OPERATIONAL EXPERIENCE FROM PREVIOUS DOE AND INDUSTRY RELATED RETRIEVAL PROJECTS. THE RETRIEVAL FUNCTIONS AND REQUIREMENTS DOCUMENT WILL DOCUMENT ALL PERTINENT RETRIEVAL AND CLOSURE REQUIREMENTS, E.G. THOSE SPECIFIC TO THE EXTENT OF RETRIEVAL NECESSARY TO ALLOW CLOSURE. DOE WILL SUBMIT ITS LDMM STRATEGY AS PART OF THE FUNCTIONS AND REQUIREMENTS DOCUMENT, PRIOR TO INITIATION OF DESIGN. THIS DOCUMENT WILL BE SUBMITTED FOR ECOLOGY APPROVAL AS AN AGREEMENT PRIMARY DOCUMENT.</p> <p>THIS FUNCTIONS AND REQUIREMENTS DOCUMENT WILL BE SUBMITTED IN A TIMELY FASHION SO THAT PROJECT CRITICAL PATH IS NOT AFFECTED, AND SO AS TO ALLOW ADEQUATE TIME FOR DOE AND ECOLOGY REVIEW, REVISION AND APPROVAL.</p>	04/30/2005

<p>M-045-05A</p>	<p>COMPLETE INITIAL WASTE RETRIEVAL FROM TANK S-102.</p> <p>THE S-102 INITIAL WASTE RETRIEVAL TECHNOLOGY (OR TECHNOLOGIES) WILL BE SELECTED BASED ON THE PRINCIPLE CRITERIA OF MAXIMIZING THE RETRIEVAL OF MOBILE, LONG-LIVED RADIOISOTOPES AND NON-RADIOLOGICAL HAZARDOUS CONSTITUENTS. THE PARTIES RECOGNIZE AND AGREE THAT THIS ACTION IS FOR INITIAL WASTE RETRIEVAL PURPOSES. COMPLETION OF THIS INITIAL RETRIEVAL SHALL BE BY APPROVAL OF DOE AND ECOLOGY.</p> <p>GOALS OF THIS INITIAL WASTE RETRIEVAL PROJECT SHALL INCLUDE THE RETRIEVAL TO SAFE STORAGE OF APPROXIMATELY 490 CURIES OF MOBILE, LONG-LIVED RADIOISOTOPES AND 99% OF TANK CONTENTS BY VOLUME <u>AND MEET THE RETRIEVAL CRITERIA SET BY MILESTONE M-45-00</u> (PER DOE BEST-BASIS INVENTORY DATA, 8/01/2000).</p> <p>COMPLETION OF S-102 INITIAL WASTE RETRIEVAL IS SUBJECT TO SAFE STORAGE SPACE AVAILABILITY CONSISTENT WITH M-45-00B.</p>	<p>03/31/2005</p>
<p>M-045-05C</p>	<p>COMPLETE S-102 INITIAL WASTE RETRIEVAL PROJECT CONSTRUCTION (TO INCLUDE ALL PHYSICAL SYSTEMS INCLUDING THOSE NECESSARY FOR LEAK DETECTION MONITORING AND MITIGATION).</p> <p>CONSTRUCTION WILL BE CONSIDERED COMPLETE WHEN ALL PROCESS EQUIPMENT IS INSTALLED AND ACCEPTANCE TESTS ARE COMPLETED.</p>	<p>03/31/2004</p>
<p>M-045-05E</p>	<p>COMPLETE S-105, S-106, AND S-103 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT DESIGN (TO INCLUDE ALL PHYSICAL SYSTEMS INCLUDING DESIGN AND OPERATING STRATEGIES NECESSARY FOR LEAK DETECTION MONITORING AND MITIGATION (LDMM) FOR EACH TANK).</p> <p>THE DESIGN WILL BE CONSIDERED COMPLETE WHEN 90% OF THE DESIGN HAS BEEN APPROVED FOR FABRICATION AND/OR CONSTRUCTION.</p>	<p>06/30/2007</p>
<p>M-045-05F</p>	<p>COMPLETE S-105, S-106, AND S-103 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT CONSTRUCTION (TO INCLUDE ALL PHYSICAL SYSTEMS INCLUDING THOSE NECESSARY FOR LEAK DETECTION MONITORING AND MITIGATION).</p> <p>CONSTRUCTION WILL BE CONSIDERED COMPLETE WHEN ALL PROCESS EQUIPMENT IS INSTALLED AND ACCEPTANCE TESTS ARE COMPLETED.</p>	<p>09/30/2008</p>
<p>M-45-05G-T01</p>	<p>COMPLETE S-105, S-106, AND S-103 WASTE RETRIEVAL.</p> <p>WASTE SHALL BE RETRIEVED TO THE DST SYSTEM TO THE LIMITS OF THE TECHNOLOGY (OR TECHNOLOGIES) SELECTED. RETRIEVAL SHALL RETRIEVE AS MUCH WASTE AS TECHNICALLY POSSIBLE, WITH A REMAINING RESIDUAL OF NO MORE THAN 360 CUBIC FEET (CU. FT.).</p>	<p>10/31/2009</p>

M-45-05H	<p>INTERIM COMPLETION OF TANK C-106 SST WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT.</p> <p>THE C-106 SST WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT WILL BE CONSIDERED INTERIM COMPLETE WHEN THE FOLLOWING CRITERIA HAVE BEEN MET:</p> <ol style="list-style-type: none"> 1. FULL SCALE WASTE RETRIEVAL HAS BEEN COMPLETED IN ACCORDANCE WITH APPLICABLE REGULATORY REQUIREMENTS INCLUDING WASHINGTON'S HAZARDOUS WASTE MANAGEMENT ACT AND REQUIREMENTS SET BY THIS AGREEMENT (DOE WILL DOCUMENT PROJECT DATA AND RESULTS IN A WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT REPORT). 2. REMAINING WASTES HAVE BEEN ADEQUATELY CHARACTERIZED, AND A RISK ASSESSMENT, APPROVED BY ECOLOGY, HAS BEEN COMPLETED FOR RESIDUALS THAT REMAIN IN THE TANK. 3. THE C-106 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN HAS BEEN COMPLETED AND SUBMITTED BY DOE, ALONG WITH ANY ADDITIONAL INFORMATION REQUESTED BY ECOLOGY. 4. IF APPROPRIATE, DOE HAS REQUESTED, AN EXCEPTION TO WASTE RETRIEVAL CRITERIA PURSUANT TO AGREEMENT APPENDIX H. FOR COMPLETION OF THIS MILESTONE, AND FOR THIS TANK ONLY, DOE IS NOT REQUIRED TO OBTAIN NRC CONCURRENCE/APPROVAL PRIOR TO SUBMITTING AN EXCEPTION REQUEST TO ECOLOGY. HOWEVER, APPENDIX H, STEP 2B, WILL NEED TO BE COMPLETED PRIOR TO APPROVAL. 	06/30/04
M-45-05L-T01	<p>COMPLETE FULL SCALE C-106 WASTE RETRIEVAL.</p> <p>WASTE SHALL BE RETRIEVED TO THE DST SYSTEM TO THE LIMITS OF THE TECHNOLOGY (OR TECHNOLOGIES) SELECTED. RETRIEVAL SHALL RETRIEVE AS MUCH WASTE AS TECHNICALLY POSSIBLE, WITH A REMAINING RESIDUAL OF NO MORE THAN 360 CUBIC FEET (CU. FT.).</p>	11/01/2003
M-45-05M-T01	<p>SUBMIT C-106 WASTE RETRIEVAL RESULTS, ANALYSIS OF RESIDUAL WASTE(S), AND (IF APPROPRIATE) REQUEST FOR EXCEPTION TO THE CRITERIA PURSUANT TO AGREEMENT APPENDIX H.</p>	02/27/2004
M-45-05N-T01	<p>FINAL COMPLETION OF TANK C-106 SST RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT.</p> <p>COMPLETION OF THE TANK C-106 RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT IS DEFINED AS THE COMPLETION OF NECESSARY FIELD PROJECT ACTIONS REQUIRED BY THE APPROVED C-106 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN.</p>	06/30/2005
M-045-06	<p>COMPLETE CLOSURE OF ALL SINGLE-SHELL TANK FARMS IN ACCORDANCE WITH APPROVED CLOSURE/POST CLOSURE PLAN(S).</p>	09/30/2024
M-045-06-T03	<p>INITIATE CLOSURE ACTIONS ON AN OPERABLE UNIT OR TANK FARM WMA BASIS. CLOSURE SHALL FOLLOW COMPLETION OF THE RETRIEVAL ACTIONS UNDER PROPOSED MILESTONE M-45-05.</p>	03/31/2012

	CLOSURE WILL BE DEFINED IN AN APPROVED CLOSURE PLAN FOR THE DEMONSTRATION FARM. FINAL CLOSURE IS DEFINED AS ECOLOGY ACCEPTANCE OF DOE'S CEDRTIFICATION OF COMPLETION OF CLOSURE. REGULATORY APPROVAL OF COMPLETION OF CLOSURE ACTIONS.	
M-045-06-T04	COMPLETE CLOSURE ACTIONS ON ONE OPERABLE UNIT OR WMA TANK FARM.	03/31/2014
M-45-06-T20A	SUBMIT SST SYSTEM IMPLEMENTATION PLAN IN SUPPORT OF RETRIEVAL AND CLOSURE ACTIVITIES. MAJOR WORK AREAS COVERED IN THE IMPLEMENTATION PLAN WILL INCLUDE WASTE RETRIEVAL OPERABLE UNITS CHARACTERIZATION, TECHNOLOGIES DEVELOPMENT TO SUPPORT CLOSURE, RISK ASSESSMENTS, AND GROUNDWATER MONITORING STRATEGIES. (REFINEMENT OF THE MAJOR WORK AREAS WILL BE DEVELOPED IN A JOINT ECOLOGY/DOE WORKSHOP.) DOE'S SST SYSTEM IMPLEMENTATION PLAN UPDATE WILL BE SUBMITTED TO ECOLOGY AS A PRIMARY DOCUMENT.	06/30/2004
M-45-06-T20B	SUBMIT SST SYSTEM IMPLEMENTATION PLAN IN SUPPORT OF RETRIEVAL AND CLOSURE ACTIVITIES. MAJOR WORK AREAS COVERED IN THE IMPLEMENTATION PLAN WILL INCLUDE WASTE RETRIEVAL OPERABLE UNITS CHARACTERIZATION, TECHNOLOGIES DEVELOPMENT TO SUPPORT CLOSURE, RISK ASSESSMENTS, AND GROUNDWATER MONITORING STRATEGIES. (REFINEMENT OF THE MAJOR WORK AREAS WILL BE DEVELOPED IN A JOINT ECOLOGY/DOE WORKSHOP.) DOE'S SST SYSTEM IMPLEMENTATION PLAN UPDATE WILL BE SUBMITTED TO ECOLOGY AS A PRIMARY DOCUMENT.	06/30/2006
M-45-06-T20C	SUBMIT SST SYSTEM IMPLEMENTATION PLAN IN SUPPORT OF RETRIEVAL AND CLOSURE ACTIVITIES. MAJOR WORK AREAS COVERED IN THE IMPLEMENTATION PLAN WILL INCLUDE WASTE RETRIEVAL OPERABLE UNITS CHARACTERIZATION, TECHNOLOGIES DEVELOPMENT TO SUPPORT CLOSURE, RISK ASSESSMENTS, AND GROUNDWATER MONITORING STRATEGIES. (REFINEMENT OF THE MAJOR WORK AREAS WILL BE DEVELOPED IN A JOINT ECOLOGY/DOE WORKSHOP.) DOE'S SST SYSTEM IMPLEMENTATION PLAN UPDATE WILL BE SUBMITTED TO ECOLOGY AS A PRIMARY DOCUMENT.	06/30/2008 (AND EVERY 2 YEARS THEREAFTER)
M-45-06B	SUBMIT A CERTIFIED (FRAMEWORK) S-112 SST SYSTEM CLOSURE PLAN MODIFICATION AND S-112 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN <u>COMPONENT CLOSURE ACTIVITY PLAN</u> , AS AN APPLICATION FOR A MODIFICATION TO THE HANFORD SITE-WIDE HAZARDOUS WASTE FACILITY PERMIT TO ECOLOGY. THIS SUBMITTAL WILL INCLUDE ALL REQUIRED CLOSURE PLAN ELEMENTS. ADDITIONALLY, THIS SUBMITTAL WILL INCLUDE THE FOLLOWING: 1. CHARACTERIZATION APPROACH FOR RESIDUAL WASTES.	09/30/2004

	<p>THIS APPROACH WILL SUPPORT DECISIONS REGARDING THE COMPLIANCE OF THE RESIDUAL WASTE WITH APPLICABLE REGULATORY REQUIREMENTS (INCLUDING BUT NOT LIMITED TO: CHARACTERIZATION NEEDS, WORK REQUIREMENTS, WORK SCHEDULES, AND CONTAMINANTS OF CONCERN FOR; RISK ASSESSMENT, LAND DISPOSAL RESTRICTION (LDR), AND THE WASHINGTON STATE HAZARDOUS WASTE MANAGEMENT ACT) .</p> <p>2. A RISK ASSESSMENT METHODOLOGY INCLUSIVE OF THE ASSUMPTIONS, APPROACH, CONCEPTUAL MODEL, AND METRICS (E.G., POINT OF COMPLIANCE, RECEPTOR SCENARIOS) .</p> <p>THE CHARACTERIZATION REQUIREMENTS AND RISK ASSESSMENT METHODOLOGY WILL BE JOINTLY DEVELOPED BY DOE AND ECOLOGY PRIOR TO THE SUBMITTAL.</p>	
<p>M-45-06C</p>	<p>SUBMIT A CERTIFIED (FRAMEWORK) S-102 SST SYSTEM CLOSURE PLAN MODIFICATION AND S-102 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN <u>COMPONENT CLOSURE ACTIVITY PLAN</u>, AS AN APPLICATION FOR A MODIFICATION TO THE HANFORD SITE-WIDE HAZARDOUS WASTE FACILITY PERMIT TO ECOLOGY. THIS SUBMITTAL WILL INCLUDE ALL REQUIRED CLOSURE PLAN ELEMENTS. ADDITIONALLY, THIS SUBMITTAL WILL INCLUDE THE FOLLOWING:</p> <p>1. CHARACTERIZATION APPROACH FOR RESIDUAL WASTES. THIS APPROACH WILL SUPPORT DECISIONS REGARDING THE COMPLIANCE OF THE RESIDUAL WASTE WITH APPLICABLE REGULATORY REQUIREMENTS (INCLUDING BUT NOT LIMITED TO: CHARACTERIZATION NEEDS, WORK REQUIREMENTS, WORK SCHEDULES, AND CONTAMINANTS OF CONCERN FOR; RISK ASSESSMENT, LAND DISPOSAL RESTRICTION (LDR), AND THE WASHINGTON STATE HAZARDOUS WASTE MANAGEMENT ACT) .</p> <p>2. A RISK ASSESSMENT METHODOLOGY INCLUSIVE OF THE ASSUMPTIONS, APPROACH, CONCEPTUAL MODEL, AND METRICS (E.G., POINT OF COMPLIANCE, RECEPTOR SCENERIOS) .</p> <p>THE CHARACTERIZATION REQUIREMENTS AND RISK ASSESSMENT METHODOLOGY WILL BE JOINTLY DEVELOPED BY DOE AND ECOLOGY PRIOR TO THE SUBMITTAL.</p>	<p>09/30/2004</p>

<p>M-45-06D</p>	<p>SUBMIT A CERTIFIED (FRAMEWORK) SST SYSTEM CLOSURE PLAN MODIFICATION AND C-104 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN, AS AN APPLICATION FOR A MODIFICATION TO THE HANFORD SITE-WIDE HAZARDOUS WASTE FACILITY PERMIT TO ECOLOGY. THIS SUBMITTAL WILL INCLUDE ALL REQUIRED CLOSURE PLAN ELEMENTS. ADDITIONALLY, THIS SUBMITTAL WILL INCLUDE THE FOLLOWING:</p> <ol style="list-style-type: none"> 1. CHARACTERIZATION APPROACH FOR RESIDUAL WASTES. THIS APPROACH WILL SUPPORT DECISIONS REGARDING THE COMPLIANCE OF THE RESIDUAL WASTE WITH APPLICABLE REGULATORY REQUIREMENTS (INCLUDING BUT NOT LIMITED TO: CHARACTERIZATION NEEDS, WORK REQUIREMENTS, WORK SCHEDULES, AND CONTAMINANTS OF CONCERN FOR, RISK ASSESSMENT, LAND DISPOSAL RESTRICTION (LDR), AND THE WASHINGTON STATE HAZARDOUS WASTE MANAGEMENT ACT). 2. A RISK ASSESSMENT METHODOLOGY INCLUSIVE OF THE ASSUMPTIONS, APPROACH, CONCEPTUAL MODEL, AND METRICS (E.G., POINT OF COMPLIANCE, RECEPTOR SCENARIOS). <p>THE CHARACTERIZATION REQUIREMENTS AND RISK ASSESSMENT METHODOLOGY WILL BE JOINTLY DEVELOPED BY DOE AND ECOLOGY PRIOR TO THE SUBMITTAL.</p>	<p>06/30/2007</p>
<p>M-45-06E</p>	<p>SUBMIT A CERTIFIED (FRAMEWORK) SST SYSTEM CLOSURE PLAN MODIFICATION FOR TANKS S-105, S-106, AND S-103 CLOSURE DEMONSTRATION PLAN, AS AN APPLICATION FOR A MODIFICATION TO THE HANFORD SITE-WIDE HAZARDOUS WASTE FACILITY PERMIT TO ECOLOGY. THIS SUBMITTAL WILL INCLUDE ALL REQUIRED CLOSURE PLAN ELEMENTS, AND PROVIDE A SEPARATE STAND ALONE EVALUATION FOR EACH TANK. ADDITIONALLY, THIS SUBMITTAL WILL INCLUDE THE FOLLOWING:</p> <ol style="list-style-type: none"> 1. CHARACTERIZATION APPROACH FOR RESIDUAL WASTES IN S-105, S-106, AND S-103. THIS APPROACH WILL SUPPORT DECISIONS REGARDING THE COMPLIANCE OF THE RESIDUAL WASTE WITH APPLICABLE REGULATORY REQUIREMENTS (INCLUDING BUT NOT LIMITED TO: CHARACTERIZATION NEEDS, WORK REQUIREMENTS, WORK SCHEDULES, AND CONTAMINANTS OF CONCERN FOR, RISK ASSESSMENT, LAND DISPOSAL RESTRICTION (LDR), AND THE WASHINGTON STATE HAZARDOUS WASTE MANAGEMENT ACT). 2. A RISK ASSESSMENT METHODOLOGY FOR TANKS S-105, S-106, AND S-103, INCLUSIVE OF THE ASSUMPTIONS, APPROACH, CONCEPTUAL MODEL, AND METRICS (E.G., POINT OF COMPLIANCE, RECEPTOR SCENARIOS). <p>THE CHARACTERIZATION REQUIREMENTS AND RISK ASSESSMENT METHODOLOGY WILL BE JOINTLY DEVELOPED BY DOE AND ECOLOGY PRIOR TO THE SUBMITTAL.</p>	<p>12/31/2008</p>
<p>M-045-13</p>	<p>INTERIM COMPLETION OF TANK S-112 SST WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT.</p> <p>THE S-112 SST WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT WILL BE CONSIDERED INTERIM COMPLETE WHEN THE</p>	<p>12/31/2005</p>

	<p>FOLLOWING CRITERIA HAVE BEEN MET:</p> <ol style="list-style-type: none"> 1. FULL SCALE WASTE RETRIEVAL HAS BEEN COMPLETED IN ACCORDANCE WITH APPLICABLE REGULATORY REQUIREMENTS INCLUDING WASHINGTON'S HAZARDOUS WASTE MANAGEMENT ACT, REQUIREMENTS SET BY THIS AGREEMENT, AND THE APPROVED S-112 SALTCAKE WASTE RETRIEVAL TECHNOLOGY FUNCTIONS AND REQUIREMENTS DOCUMENT (DOE WILL DOCUMENT PROJECT DATA AND RESULTS IN A WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT REPORT). 2. REMAINING WASTES HAVE BEEN ADEQUATELY CHARACTERIZED, AND A RISK ASSESSMENT, APPROVED BY ECOLOGY, HAS BEEN COMPLETED FOR RESIDUALS THAT REMAIN IN THE TANK. 3. THE S-112 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN HAS BEEN SUBMITTED BY DOE AND APPROVED BY ECOLOGY, I.E. INCORPORATED INTO THE SITE-WIDE PERMIT. 4. IF APPROPRIATE, DOE HAS REQUESTED, AND ECOLOGY HAS APPROVED AN EXCEPTION TO WASTE RETRIEVAL CRITERIA PURSUANT TO AGREEMENT APPENDIX H. 	
<p>M-45-13-T01</p>	<p>FINAL COMPLETION OF TANK S-112 SST RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT.</p> <p>COMPLETION OF THE TANK S-112 RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT IS DEFINED AS THE COMPLETION OF NECESSARY FIELD PROJECT ACTIONS REQUIRED BY THE APPROVED S-112 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN.</p>	<p>12/30/2006</p>
<p>M-45-14</p>	<p>INTERIM COMPLETION OF TANK C-104 SST WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT.</p> <p>THE C-104 SST WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT WILL BE CONSIDERED INTERIM COMPLETE WHEN THE FOLLOWING CRITERIA HAVE BEEN MET:</p> <ol style="list-style-type: none"> 1. FULL SCALE WASTE RETRIEVAL HAS BEEN COMPLETED IN ACCORDANCE WITH APPLICABLE REGULATORY REQUIREMENTS INCLUDING WASHINGTON'S HAZARDOUS WASTE MANAGEMENT ACT, REQUIREMENTS SET BY THIS AGREEMENT, AND THE APPROVED C-104 SLUDGE/HARD HEEL, CONTAINED SLUICING AND ROBOTIC TECHNOLOGIES WASTE RETRIEVAL FUNCTIONS AND REQUIREMENTS DOCUMENT (DOE WILL DOCUMENT PROJECT DATA AND RESULTS IN A WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT REPORT). 2. REMAINING WASTES HAVE BEEN ADEQUATELY CHARACTERIZED, AND A RISK ASSESSMENT, APPROVED BY ECOLOGY, HAS BEEN COMPLETED FOR RESIDUALS THAT REMAIN IN THE TANK. 3. THE C-104 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN HAS BEEN SUBMITTED BY DOE AND APPROVED BY ECOLOGY, I.E. INCORPORATED INTO THE SITE-WIDE PERMIT. 4. IF APPROPRIATE, DOE HAS REQUESTED, AND ECOLOGY HAS APPROVED AN EXCEPTION TO WASTE RETRIEVAL CRITERIA 	<p>06/30/2008</p>

	PURSUANT TO AGREEMENT APPENDIX H.	
M-45-14-T01	FINAL COMPLETION OF TANK C-104 SST RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT. COMPLETION OF THE TANK C-104 RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT IS DEFINED AS THE COMPLETION OF NECESSARY FIELD PROJECT ACTIONS REQUIRED BY THE APPROVED C-104 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN.	06/03/2009
M-45-15	INTERIM COMPLETION OF TANK S-102 SST WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT. THE S-102 SST WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT WILL BE CONSIDERED INTERIM COMPLETE WHEN THE FOLLOWING CRITERIA HAVE BEEN MET: 1. FULL SCALE WASTE RETRIEVAL HAS BEEN COMPLETED IN ACCORDANCE WITH APPLICABLE REGULATORY REQUIREMENTS INCLUDING WASHINGTON'S HAZARDOUS WASTE MANAGEMENT ACT, REQUIREMENTS SET BY THIS AGREEMENT, AND THE APPROVED S-102 INITIAL WASTE RETRIEVAL FUNCTIONS AND REQUIREMENTS DOCUMENT (DOE WILL DOCUMENT PROJECT DATA AND RESULTS IN A WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT REPORT). 2. REMAINING WASTES HAVE BEEN ADEQUATELY CHARACTERIZED, AND A RISK ASSESSMENT, APPROVED BY ECOLOGY, HAS BEEN COMPLETED FOR RESIDUALS THAT REMAIN IN THE TANK. 3. THE S-102 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN HAS BEEN SUBMITTED BY DOE AND APPROVED BY ECOLOGY, I.E. INCORPORATED INTO THE SITE-WIDE PERMIT. 4. IF APPROPRIATE, DOE HAS REQUESTED, AND ECOLOGY HAS APPROVED AN EXCEPTION TO WASTE RETRIEVAL CRITERIA PURSUANT TO AGREEMENT APPENDIX H.	12/31/2005
M-45-15-T01	FINAL COMPLETION OF TANK S-102 SST RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT. COMPLETION OF THE TANK S-102 RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT IS DEFINED AS THE COMPLETION OF NECESSARY FIELD PROJECT ACTIONS REQUIRED BY THE APPROVED S-102 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN.	12/31/2006
M-45-16	INTERIM COMPLETION OF TANK S-105, S-106, AND S-103 SST WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT. THE S-105, S-106, AND S-103 SST WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT WILL BE CONSIDERED INTERIM COMPLETE WHEN THE FOLLOWING CRITERIA HAVE BEEN MET AND DOCUMENTED FOR EACH OF THE TANKS: 1. FULL SCALE WASTE RETRIEVAL HAS BEEN COMPLETED IN ACCORDANCE WITH APPLICABLE REGULATORY REQUIREMENTS INCLUDING WASHINGTON'S HAZARDOUS WASTE MANAGEMENT ACT, REQUIREMENTS SET BY THIS AGREEMENT, AND THE APPROVED S-105, S-106, AND S-103 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION FUNCTIONS AND	07/31/2010

February 4, 2004

	<p>REQUIREMENTS DOCUMENT (DOE WILL DOCUMENT PROJECT DATA AND RESULTS IN A WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT REPORT).</p> <p>2. REMAINING WASTES HAVE BEEN ADEQUATELY CHARACTERIZED, AND A RISK ASSESSMENT, APPROVED BY ECOLOGY, HAS BEEN COMPLETED FOR RESIDUALS THAT REMAIN IN THE TANK.</p> <p>3. THE S 105, S 106, AND S 103 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN HAS BEEN SUBMITTED BY DOE AND APPROVED BY ECOLOGY, I.E. INCORPORATED INTO THE SITE WIDE PERMIT.</p> <p>4. IF APPROPRIATE, DOE HAS REQUESTED, AND ECOLOGY HAS APPROVED, AN EXCEPTION TO WASTE RETRIEVAL CRITERIA PURSUANT TO AGREEMENT APPENDIX H. A REQUEST MAY BE MADE FOR EACH AND/OR ALL TANKS.</p> <p>5. THIS DEMONSTRATION SHALL ALSO INCLUDE THE INSTALLATION AND IMPLEMENTATION OF FULL SCALE EXTERNAL TANK LEAK DETECTION, MONITORING, AND MITIGATION (LDMM) TECHNOLOGIES FOR THESE THREE TANKS. THE BASELINE LDMM SYSTEM (I.E. DRYWELL LOGGING) IS TO BE SUPPLEMENTED, USING AN EXTERNAL TANK ELECTRICAL RESISTIVITY (ER) METHOD. THE ELECTRICAL RESISTIVITY SYSTEM WILL BE DESIGNED FOR IMPLEMENTATION AT THE THREE TANKS AND FULLY DEPLOYED AT THE FIRST TANK TO BE RETRIEVED. CRITERIA FOR THE DEMONSTRATION AT THE FIRST TANK SHALL BE AGREED TO BY DOE AND ECOLOGY BEFORE THE TECHNOLOGY IS INSTALLED, BASED ON THE PERFORMANCE OF THE FIRST DEMONSTRATION.</p> <p>IF THE PARTIES AGREE THAT THE METHOD IS SUITABLE, ER WILL BE DEPLOYED IN THE SUBSEQUENT SALTCAKE RETRIEVAL TANKS.</p> <p>IF THE PARTIES DO NOT AGREE THAT ER IS SUITABLE FOR SUBSEQUENT SALTCAKE RETRIEVALS, OR IF THE DATA IS INCONCLUSIVE, ECOLOGY WILL REQUIRE APPROPRIATE LDMM TECHNOLOGY IN LIEU OF OR IN ADDITION TO ER.</p>	
<p>M-45-16 T01</p>	<p>FINAL COMPLETION OF TANK S 105, S 106, AND S 103 SST RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT.</p> <p>COMPLETION OF THE TANK S 105, S 106, AND S 103 RETRIEVAL AND CLOSURE DEMONSTRATION PROJECT IS DEFINED AS THE COMPLETION OF NECESSARY FIELD PROJECT ACTIONS REQUIRED BY THE APPROVED S 105, S 106, AND S 103 WASTE RETRIEVAL AND CLOSURE DEMONSTRATION PLAN.</p>	<p>07/31/2011</p>
<p>M-045-55</p>	<p>SUBMIT TO ECOLOGY FOR REVIEW AND APPROVAL AS AN AGREEMENT PRIMARY DOCUMENT A PHASE 1 RFI REPORT INTEGRATING RESULTS OF DATA GATHERING ACTIVITIES AND EVALUATIONS FOR ALL SST WMAS, INCLUDING GROUNDWATER MONITORING AND IMPACTS ASSESSMENT USING HANFORD SITE GROUNDWATER MODELS, WITH CONCLUSIONS AND RECOMMENDATIONS. RESULTS FROM WMAS A-AX AND C WILL BE INCLUDED AS APPENDICES TO THE RFI ROLLUP REPORT ADDRESSING THE SST WMAS UNDER RCRA CORRECTIVE ACTION, SO</p>	<p>01/31/2007</p>

	<p>THAT A SINGLE DOCUMENT CONTAINS ALL AVAILABLE INFORMATION FOR THE 200 AREA SST WMAS AND WILL SUPPORT SST RETRIEVAL AND CLOSURE.</p>	
M-045-55-T03	<p>SUBMIT TO ECOLOGY FOR REVIEW AND COMMENT AS AN AGREEMENT SECONDARY DOCUMENT A FIELD INVESTIGATION REPORT PURSUANT TO THE SITE-SPECIFIC SST WMA PHASE 1 RFI/CMS WORK PLAN ADDENDA FOR WMA T AND WMA TX-TY.</p>	01/31/2005
M-45-55-T04	<p>SUBMIT TO ECOLOGY FOR REVIEW AND COMMENT A DRAFT FIELD INVESTIGATION REPORT COMBINING THE RESULTS OF FIELD INVESTIGATIONS AND ANALYSIS FOR WMAS A-AX, C & U PURSUANT TO THE SITE-SPECIFIC SST WMA PHASE 1 RFI/CMS WORK PLAN ADDENDA FOR WMA A-AX, C AND U.</p>	01/31/2006
M-045-56	<p>COMPLETE IMPLEMENTATION OF AGREED-TO INTERIM MEASURES.</p> <p>SPECIFIC INTERIM MEASURES WILL BE IMPLEMENTED PURSUANT TO AGREEMENT COMMITMENTS (E.G., SEE INTERIM MILESTONE M-45-57). INTERIM MEASURES MAY ALSO BE REQUIRED BY ECOLOGY, PROPOSED BY DOE IN THE SST WMA RFI REPORT (M-45-55) (OR ENGINEERING STUDIES INCLUDING THAT ADDRESSED IN TARGET MILESTONE M-45-56-T01), OR ESTABLISHED BY AGREEMENT OF THE PARTIES AT ANY TIME DURING THE CORRECTIVE ACTION PROCESS. ALSO SEE TABLE 1 OF AGREEMENT CHANGE CONTROL FORM #M-45-98-03.</p> <p>ECOLOGY AND DOE AGREE, AT A MINIMUM, TO MEET YEARLY (BY JULY OR AS NEEDED TO SUPPORT ANNUAL BUDGETING) FOR THE SPECIFIC PURPOSE OF ASSESSING THE ADEQUACY OF INFORMATION, AND THE NEED FOR THE ESTABLISHMENT OF ADDITIONAL AGREEMENT INTERIM MEASURES. ADDITIONAL AGREEMENT INTERIM MEASURES SHALL BE DOCUMENTED THROUGH ESTABLISHMENT OF INTERIM MILESTONES AND ASSOCIATED TARGET DATES AS AGREED NECESSARY BY THE PARTIES.</p>	To Be Determined
M-045-58	<p>SUBMIT TO ECOLOGY FOR REVIEW AND APPROVAL AS AN AGREEMENT PRIMARY DOCUMENT A CORRECTIVE MEASURES STUDY FOR INTERIM CORRECTIVE MEASURES FOR ALL SST WMA's (PENDING RESULTS AND CONCLUSIONS IN THE PHASE 1 RFI REPORT-MILESTONE M-45-55 OR SUBSEQUENT RFI REPORTS).</p>	06/30/2007
M-045-59	<p>CONTROL SURFACE WATER INFILTRATION PATHWAYS AS NEEDED TO CONTROL OR SIGNIFICANTLY REDUCE THE LIKELIHOOD OF MIGRATION OF SUBSURFACE CONTAMINATION TO GROUNDWATER AT THE SST WMAS (PENDING THE CMS REPORT, MILESTONE M-45-58, AND IMPLEMENTATION OF OTHER INTERIM CORRECTIVE MEASURES.</p> <p>DECISIONS ON CONTROLLING SURFACE WATER INFILTRATION PATHWAYS WILL BE MADE BY EVALUATING THE ROLE OF SURFACE WATER INFILTRATION AND THE TRANSPORT OF SUBSURFACE CONTAMINATION TO GROUNDWATER. BASED ON THE CORRECTIVE MEASURES STUDY (M-45-58) INTERIM SURFACE BARRIERS AND/OR OTHER INFILTRATION CONTROLS MAY BE REQUIRED.</p>	To Be Determined
M-045-60	<p>SUBMIT TO ECOLOGY FOR REVIEW AND APPROVAL AS AN AGREEMENT PRIMARY DOCUMENT DOE'S RFI/CMS WORK PLAN FOR ALL SST WMAS.</p>	09/30/2007

	THIS RFI/CMS WORK PLAN SHALL DOCUMENT THE ADDITIONAL INTERIM MEASURES AND FURTHER INVESTIGATIONS NEEDED FOR DECISIONS ON RETRIEVAL, CLOSURE, AND CORRECTIVE MEASURES FOR ALL SST WMAS.	
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ENCLOSURE 2

**M-46-04-02 Hanford Federal Facility Agreement and Consent Order
Change Package**

(4 pages total,
including coversheet)

Change Number M-46-04-02	Federal Facility Agreement and Consent Order Change Control Form <small>Do not use blue ink. Type or print using black ink.</small>	Date March 30, 2004
Originator U. S. Department of Energy - Office of River Protection		Phone
Class of Change <input checked="" type="checkbox"/> I - Signatories <input type="checkbox"/> II - Executive Manager <input type="checkbox"/> III - Project Manager		
Change Title Hanford Federal Facility Agreement and Consent Order (HFFACO or Agreement) Modifications to Milestone M-46-00 for Double-Shell Tank Space Evaluation and Milestone M-46-01 for Ecology concurrence of Additional Tank Acquisition.		
Description/Justification of Change This change form deletes Milestone M-046-00 for Double-Shell Tank Space Evaluation and Milestone M-46-01 for Ecology concurrence of Additional Tank Acquisition and incorporates those requirements into modifications pursuant to Milestone M-45-00C (Change Form M-45-04-01). Submittal dates of the Double-Shell Tank Space Evaluation were consistent. This change combines the submittals.		
Impact of Change This Hanford Federal Facility Agreement and Consent Order (HFFACO) change request deletes M-46-00 and M-46-01 and incorporates language into Milestone M-45-00C. The major impact will be that submittals will be biennial instead of on an annual basis.		
Affected Documents The Hanford Federal Facility Agreement and Consent Order, as amended, including HFFACO Action Plan Appendix D, and Hanford site internal planning, management, and budget documents (e.g., DOE and DOE contractor Baselines, Baseline Change Control documents; Sitewide System Engineering Control documents; Project Management Plans; and the Hanford site Integrated Priority List (IPL)).		
Approvals  DOE _____ EPA _____ Ecology _____		Date <u>8/6/04</u> <input checked="" type="checkbox"/> Approved _____ Disapproved _____ Date _____ Approved _____ Disapproved _____ Date _____ Approved _____ Disapproved _____

<p>M-046-00K LEAD AGENCY: ECOLOGY</p>	<p>DOUBLE SHELL TANK SPACE EVALUATION. THIS NEW MILESTONE REPLACES EXISTING MILESTONE M-31-02. A TANK VOLUME PROJECTION REPORT SHALL BE SUBMITTED ON AN ANNUAL BASIS TO ECOLOGY AND EPA. THIS REPORT SHALL INCLUDE DISCUSSIONS COVERING ALL ASSUMPTIONS WHICH FORM THE BASIS OF THE PROJECTION. THE REPORT SHALL INCLUDE OR SHALL BE ACCOMPANIED BY DOE'S PLANS FOR ACQUISITION OF ADDITIONAL TANKS BASED ON THE TANK VOLUME PROJECTION.</p>	<p>09/30/2004</p>
<p>M-046-00L LEAD AGENCY: ECOLOGY</p>	<p>DOUBLE SHELL TANK SPACE EVALUATION. THIS NEW MILESTONE REPLACES EXISTING MILESTONE M-31-02. A TANK VOLUME PROJECTION REPORT SHALL BE SUBMITTED ON AN ANNUAL BASIS TO ECOLOGY AND EPA. THIS REPORT SHALL INCLUDE DISCUSSIONS COVERING ALL ASSUMPTIONS WHICH FORM THE BASIS OF THE PROJECTION. THE REPORT SHALL INCLUDE OR SHALL BE ACCOMPANIED BY DOE'S PLANS FOR ACQUISITION OF ADDITIONAL TANKS BASED ON THE TANK VOLUME PROJECTION.</p>	<p>09/30/2005</p>
<p>M-046-00M LEAD AGENCY: ECOLOGY</p>	<p>DOUBLE SHELL TANK SPACE EVALUATION. THIS NEW MILESTONE REPLACES EXISTING MILESTONE M-31-02. A TANK VOLUME PROJECTION REPORT SHALL BE SUBMITTED ON AN ANNUAL BASIS TO ECOLOGY AND EPA. THIS REPORT SHALL INCLUDE DISCUSSIONS COVERING ALL ASSUMPTIONS WHICH FORM THE BASIS OF THE PROJECTION. THE REPORT SHALL INCLUDE OR SHALL BE ACCOMPANIED BY DOE'S PLANS FOR ACQUISITION OF ADDITIONAL TANKS BASED ON THE TANK VOLUME PROJECTION.</p>	<p>09/30/2006</p>
<p>M-046-00N LEAD AGENCY: ECOLOGY</p>	<p>DOUBLE SHELL TANK SPACE EVALUATION. THIS NEW MILESTONE REPLACES EXISTING MILESTONE M-31-02. A TANK VOLUME PROJECTION REPORT SHALL BE SUBMITTED ON AN ANNUAL BASIS TO ECOLOGY AND EPA. THIS REPORT SHALL INCLUDE DISCUSSIONS COVERING ALL ASSUMPTIONS WHICH FORM THE BASIS OF THE PROJECTION. THE REPORT SHALL INCLUDE OR SHALL BE ACCOMPANIED BY DOE'S PLANS FOR ACQUISITION OF ADDITIONAL TANKS BASED ON THE TANK VOLUME PROJECTION.</p>	<p>09/30/2007</p>
<p>M-046-00O LEAD AGENCY: ECOLOGY</p>	<p>DOUBLE SHELL TANK SPACE EVALUATION. THIS NEW MILESTONE REPLACES EXISTING MILESTONE M-31-02. A TANK VOLUME PROJECTION REPORT SHALL BE SUBMITTED ON AN ANNUAL BASIS TO ECOLOGY AND EPA. THIS REPORT SHALL INCLUDE DISCUSSIONS COVERING ALL ASSUMPTIONS WHICH FORM THE BASIS OF THE PROJECTION. THE REPORT SHALL INCLUDE OR SHALL BE ACCOMPANIED BY DOE'S PLANS FOR ACQUISITION OF ADDITIONAL TANKS BASED ON THE TANK VOLUME PROJECTION.</p>	<p>09/30/2008 AND ANNUALLY THEREAFTER</p>
<p>M-046-01J</p>	<p>CONCURRENCE OF ADDITIONAL TANK ACQUISITION. THE THREE PARTIES SHALL MEET TO ESTABLISH NEW MILESTONES, IF REQUIRED, FOR ACQUISITION OF ADDITIONAL TANKS.</p>	<p>08/12/2004</p>
<p>M-046-01K</p>	<p>CONCURRENCE OF ADDITIONAL TANK ACQUISITION. THE THREE PARTIES SHALL MEET TO ESTABLISH NEW MILESTONES, IF REQUIRED, FOR ACQUISITION OF ADDITIONAL TANKS.</p>	<p>11/30/2004</p>
<p>M-046-01L</p>	<p>CONCURRENCE OF ADDITIONAL TANK ACQUISITION. THE THREE PARTIES SHALL MEET TO ESTABLISH NEW MILESTONES, IF REQUIRED, FOR ACQUISITION OF</p>	<p>11/30/2005</p>

	ADDITIONAL TANKS.	
M-046-01M	CONCURRENCE OF ADDITIONAL TANK ACQUISITION. THE THREE PARTIES SHALL MEET TO ESTABLISH NEW MILESTONES, IF REQUIRED, FOR ACQUISITION OF ADDITIONAL TANKS.	11/30/2006 AND ANNUALLY THEREAFTER
M-46-21	<p>COMPLETE IMPLEMENTATION OF DOUBLE SHELL TANK SPACE OPTIMIZATION STUDY RECOMMENDATIONS (TANK SPACE OPTIONS REPORT, DOCUMENT NO. RPP-7702, APRIL 12, 2001).</p> <p>WORK UNDER THIS INTERIM MILESTONE SHALL HAVE THE OBJECTIVE OF CREATING SUFFICIENT DOUBLE-SHELL TANK STORAGE SPACE TO ACCOMMODATE THE PARTIES' WASTE RETRIEVAL AND CLOSURE DEMONSTRATIONS AT TANKS S-112, S-102, C-104, S-105, S-106, S-103 AND C-106. SUCH ACTIONS SHALL INCLUDE, BUT ARE NOT LIMITED TO DECREASING DEDICATED OPERATIONAL SPACE, CONCENTRATING WASTES TO A HIGHER SPECIFIC GRAVITY, AND RAISING ALLOWABLE TANK LEVELS.</p>	12/31/2005

ENCLOSURE 3

Comment Response Document

(7 pages total,
including coversheet)

Response to Public Comments on the M-45 Change Package

Comment Number	Agency/Individual	Comment	Response
1	Oregon Hanford Cleanup Board	We are concerned that in moving some requirements from milestones into primary documents, Appendix I has reduced the amount of public involvement in the single shell retrieval process, since primary documents have no public review requirements. After reviewing the primary documents required by Appendix I, we find that the following documents or portions of documents should include public involvement requirements:	Public participation is very important to the Tri-Parties and we do not believe that the package reduces public review. Previously, the parties have established interim milestones for the design, construction and operation of SST retrieval systems for specific tanks. The public was then asked to comment on the selection of tanks to be retrieved first and the length of time allowed for retrieval. In the new package, DOE is being required to retrieve 12 tanks in Waste Management Area C, by 2006. Through this public comment period, the public is being asked again to comment on the selection of tanks and the amount of time allowed for retrieval. When future milestones to initiate the retrieval process are established for the remaining tanks, the public will again be asked to comment.
2		Tank Retrieval Selection and Sequencing	The Tank Retrieval Selection and Sequencing document was not created by this package. It was created as a primary document by a previous change package which went through public comment. No comments were received at that time objecting to this being a primary document, not subject to public comment. This document provides information for the parties to use when determining future retrieval milestones which the public will be asked to comment on. The M-45 milestones identify when these documents are due to Ecology and if requested, will be made available to any individual wanting to review a document and provide input to the agencies.
3		The Pre-Retrieval Risk Assessment portion of the Tank Waste Retrieval Work Plan	The Pre-Retrieval Risk Assessment provided in the Tank Waste will be used to make retrieval decisions and will not be used to make closure decisions. If requested, the pre-retrieval risk assessments will be made available to any individual wanting to review this document and provide input to the agencies.

Response to Public Comments on the M-45 Change Package

Comment Number	Agency/Individual	Comment	Response
4		<p>The following portions of the Retrieval Data Report:</p> <ul style="list-style-type: none"> • The updated post retrieval risk assessment • The discussion of feasibility/viability of other available retrieval technologies, the feasibility of developing additional retrieval technologies, associated detailed cost estimates and amount of additional waste that could be removed. • Opportunities and actions being taken to refine or develop tank waste retrieval technologies, based on lessons learned • Opportunities and actions being taken to refine or develop tank waste retrieval technologies, based on lessons learned. • DOE's recommendations for further action and proposed schedules. 	<p>The Retrieval Data Report (RDR) is required when DOE has met the retrieval criteria of M-45. This is not a decision document, but rather documents the nature and volume of residual waste remaining after retrieval. Appendix I requires DOE to submit this information within 120 days of meeting the retrieval requirements and if requested, will be made available to any individual wanting to review document and provide input to the agencies. In addition, portions of the RDR will be added to the Closure Plan or draft permit as agreed to by DOE-ORP and the Department of Ecology. The draft closure permit will be submitted for public comment as required by the regulations, as part of being incorporated into the Site Wide Permit.</p>
5		<p>The citizens of Oregon and Washington have a vital stake in ensuring that the high-level waste tanks at Hanford are cleaned up in a technically sound, environmentally safe and expeditious manner. Public involvement in these issues assures that our citizens are fully informed and aware of the myriad decisions associated with this effort</p>	<p>The parties agree with the comment and encourage full public involvement in these important decisions. The public provided comments on previous M-45 change packages that established retrieval criteria and set schedules for the first SST tank retrievals. The public will be given the opportunity to comment on future change packages that set dates for the retrieval of the remaining tanks. In addition, the public will be asked to provide comment on the closure plans for each tank, waste management area and SST system. In addition, all documents submitted to Ecology as part of SST retrieval are available to the public. Interested parties are encouraged to review these documents and provide input to the agencies in a timeframe that supports the schedule of associated activities.</p>

Response to Public Comments on the M-45 Change Package

Comment Number	Agency/Individual	Comment	Response
6	Oregon Department of Energy	We are concerned that this change results in the development of new schedules and requirements through submittal of primary documents rather than through establishing new TPA milestones. In the TPA milestone development process, there are specific points and requirements for public involvement. The potential exists for the public to lose their voice in a critical aspect of Hanford cleanup. We recommend that very specific public involvement requirements be included in Appendix I for the tank retrieval and closure primary document development process, equivalent to the public involvement requirements for milestone development.	The parties encourage full public involvement in these important decisions associated with SST retrieval and closure. The public provided comments on previous M-45 change packages that established retrieval criteria and set schedules for the first SST tank retrievals. The public will be given the opportunity to comment on future change packages that set dates for the retrieval of the remaining tanks. In addition, the public will be asked to provide comment on the closure plans for each tank, waste management area and SST system. In addition, all documents submitted to Ecology as part of SST retrieval will be available to the public. Interested parties are encouraged to review these documents and provide input to the agencies in a timeframe that supports the schedule of associated activities.
7	Oregon Department of Energy	Appendix I also appear to make the assumption that the tank waste retrieval residuals will be allowed to remain in place in the tanks. We recommend that somewhere in Appendix I it be acknowledged that this may not turn out to be the case. The potential implications should also be explained.	The parties agree that the decision pertaining to what happens to tank waste residuals is not made in Appendix I, or the M-45 milestones. That is a closure decision that will be made through the closure plans. Appendix I does not reference the ultimate fate of the tank waste retrieval residuals and explicitly states closure decisions will be made through the closure plans.
8	Oregon Department of Energy	This change package needs a synopsis or summary that clearly articulates to the public the scope and breadth of this change. The package itself is too detailed to get this information easily	The parties agree that a synopsis or summary would have been beneficial to public review, and will consider this for future change packages.

Response to Public Comments on the M-45 Change Package

Comment Number	Agency/Individual	Comment	Response
9	Oregon Department of Energy	The Waste Management Area (WMA) integration study mentioned in Appendix I, Section 2.1.1 should look not only at a particular WMA, but should also discuss the effects of the WMA in question on all other tanks WMAs.	
10	Oregon Department of Energy	The pre-retrieval risk assessment required by Appendix I, Section 2.1.3, should also include a long-term ecological risk assessment based on potential leaks during retrieval and potential residual waste after retrieval.	The purpose of the pre-retrieval documents is to support the near-term retrieval of waste from the tanks. The Office of River Protection (ORP) has committed to work in conjunction with the Richland Department of Energy (RL) in conducting an Ecological Risk Assessment for the Central Plateau. DQO's have already been held and Sampling and Analysis Plans are in preparation. The pre-retrieval risk assessment is a tool that will support decisions during retrieval in response to unexpected occurrences such as equipment failure, leak detection, etc.
11	Richard J. Smith	The total change package is an obvious improvement over the original version, simplifying the individual milestone structure greatly, and making good sense in how these new milestones are utilized in moving the program forward.	Thank you for the comment. The parties agree.
12		However, I could not find anywhere in the change package any avenues for public review and comment on a number of activities that would be of interest to the public. For example, DOE is required to submit documents to Ecology for approval, such as Tank Waste Retrieval Work Plans (TWRWP) prior to initiating retrieval actions on a tank, and Petitions for Regulator Waivers (PRW) under Appendix H when the residual content of tank exceeds the agreed-upon goal. It would seem reasonable to me that the public should have access to the submitted documents for review and comment during the same time frame as Ecology has for their review, and the public could provide their comments to Ecology within a perhaps shorter time frame such that the public comments might assist Ecology in their review.	The parties encourage full public involvement in the important decisions associated with SST retrieval and closure. The public provided comments on previous M-45 change packages that established retrieval criteria and set schedules for the first SST tank retrievals. The public will be given the opportunity to comment on future change packages that set dates for the retrieval of the remaining tanks. In addition, the public will be asked to provide comment on the closure plans for each tank, waste management area and SST system. In addition, all documents submitted to Ecology as part of SST retrieval are available to the public. Interested parties are encouraged to review these documents and provide input to the agencies in a timeframe that supports the

Response to Public Comments on the M-45 Change Package

Comment Number	Agency/Individual	Comment	Response
			schedule of associated activities.
13	Richard J. Smith	There are presently four retrieval technologies/combinations of technologies scheduled to be demonstrated in the initial SST retrieval efforts. Are these four the only technologies that can be considered as candidates for secondary/tertiary retrieval attempts in a given tank when the results of the initial effort are not satisfactory? If none of these four are successful in achieving the residuals goal for that tank, will DOE be required to develop something entirely new?	DOE is demonstrating four retrieval technologies that are at the present time believed to be able to achieve the retrieval criteria required in M-45. Right now, these are the only retrieval technologies available on the Hanford site, so likely would be DOE's preferred choice for secondary/tertiary retrieval attempts. If DOE cannot achieve that requirement, they must submit a request for a waiver. The waiver request must look beyond these four technologies and address the development of new technologies. If necessary, DOE could be required to develop additional technologies
14	Richard J. Smith	The language in Appendix H appears to be rather Flexible as to what Ecology could require DOE to do when the retrieval residuals do not satisfy the goals for a given tank, but would also seem likely that DOE might move directly from having received a waiver rejection to the RCRA Dispute Resolution process if they don't want to spend any additional time and money on a given tank.	The commenter is correct. When Appendix H was originally agreed to DOE's right to dispute was maintained. In that event, the dispute would be managed at the project manager level and then the senior manager level and if not settled, the Director of Ecology would issue a Final Determination. This determination could come as quickly as 86 days after DOE formally disagrees with Ecology's decision.

Response to Public Comments on the M-45 Change Package

Comment Number	Agency/Individual	Comment	Response
			The TPA provides that DOE can then appeal Ecology's Final Determination, to the Pollution Control Hearings Board or in the courts; however, the determination is in force until and unless it is overturned by a Board or court decision.
15	Richard J. Smith	Step 2B in Appendix H says to establish an interface with the Nuclear Regulatory Commission (NRC) and reach formal agreement with NRC as regards allowable waste residuals in the retrieved tanks and related soil columns. Has such an agreement been reached? If so, where in M-45 is that agreement documented. If not, how can DOE and Ecology decide what residual waste levels are acceptable?	Currently, an Inter-Agency Agreement is under negotiation between the NRC and the Office of River Protection. This agreement will not likely be documented as part of the proposed changes to the Tank Waste Retrieval Milestones, but will be considered by Ecology in evaluating whether an Appendix H Waiver or closure decision can be made.
16	Richard J. Smith	Page 15, Appendix H, Attachment 2, paragraph 6- suggest the meaning of paragraph 6 could be made more explicit by inserting the phrase "using the initial retrieval process" on line 7 between "actions" and "will". Similarly, by inserting the phrase "using an alternative retrieval process" on line 7 between "wastes" and "until"	The parties respectfully disagree. If the request for a waiver is denied, it may be because Ecology does not agree that DOE has retrieved all it can with the initial technology. In that case, Ecology may require that they continue with the same technology, and not an alternative.
17	Richard J. Smith	Full-scale LDMM are to be in place during waste retrieval from the first tank, with criteria for that demonstration to be agreed between DOE and Ecology. Since that first tank has been retrieved, it would seem appropriate that the agreed-upon LDMM criteria should appear somewhere in M-45, or at least a reference to a document containing that criteria.	Section 2.1.3 of Appendix I, identifies that the Tank Waste Retrieval Work Plans will contain the LDMM plan, including technology description, rationale for selection, configuration, inspection and monitoring requirements, mitigation response, and anticipated performance goals.
18	Richard J. Smith	Page 19, M-45-00B, first bullet: There appears to be something missing from the first sentence near the end of the third line. What is written there doesn't make sense.	Accept. The first sentence of the first bullet will be revised as follows: "DOE will submit for Ecology Approval a Test Plan, including an injection test, describing the criteria and method to test the selected ER."

ENCLOSURE 4

**Ecology's Response to the Confederated Tribes
of the Umatilla Indian Reservation Comments**

(7 pages total,
including coversheet)



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

3100 Port of Benton Blvd • Richland, WA 99352 • (509) 372-7950

July 29, 2004

Mr. Stuart G. Harris, Director
Department of Science and Engineering
Confederated Tribes of the Umatilla Indian Reservation
73239 Confederated Way
Pendleton, Oregon 97801

Dear Mr. Harris:

Re: Response to Comments on Tri-Party Agreement M-45, Proposed Changes to Tank Waste Retrieval Milestones

The Washington State Department of Ecology (Ecology) would like to thank the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Science and Engineering (DOSE) for taking the time and effort to provide input on the proposed changes to the Tri-Party Agreement (TPA) for the M-45, Complete Closure of All Single Shell Tank (SST) Farms. Ecology would be happy to meet with CTUIR to discuss your comments and our responses to them. Both are included below.

Comment:

"We believe that the greatest challenge to tank farm closures is to integrate each closure into the overall central plateau end-state or "source term Section 3.0 [SST System Closure Regulatory Integration Strategy] discusses integration as a general requirement for tank closure, but without much detail. We probably cannot support the final closure of one tank at a time even if each tank is 99% retrieved. That is, unless there is a tangible and detailed Plateau-wide integration plan based on cumulative source terms and cumulative risk. We clearly support retrieval; however, final closure should not occur until we know that all the tank farms or the entire Plateau meets some yet to be defined cumulative risk-based criteria. This is necessary because we may need to return and retrieve a tank or tanks at some point in time.

Response:

Decisions related to closure of individual tanks will be interim decisions, while the final closure decisions are to be made at the Waste Management Area (WMA) level. The Tri-Parties are committed to conducting closure activities in a risk informed manner.

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Closure decisions will incorporate risk from the tank or component under consideration, risk from sources immediately surrounding the facility, and risk from facilities further away.

Comment:

We support the requirement to meet the Hanford Site Groundwater Strategy as necessary but not entirely sufficient to protect human health and the environment. Integration must go much further and toward a truly multi-media, multi-contaminant, and multi-source assessment. Therefore, we cannot support the less than 99% retrieval, which would occur under United States Department of Energy's (USDOE) proposal to reclassify waste and leave large volumes grouted in place. We strongly urge Ecology to hold firm to its retrieval requirements.

Response:

The M-45-00 Milestone as it describes the Tri-parties commitment to the extent of retrieval remains unchanged and states "closure will follow retrieval of as much waste as technically possible, with tank waste residues not to exceed 360 cubic feet in each of the 100 series tanks, 30 cubic feet in each of the 200 series tanks, or the limits of waste retrieval technology capability, whichever is less." This modification to the TPA does not change this previously established criterion.

Comment:

We support Ecology in protecting the aquifer as a state resource. However, we strongly object to allowing USDOE to commit groundwater irreversibly and irretrievably with increased contamination due to solid waste and/or tank waste disposal. Groundwater is a trust resource of the CTUIR and the federal government and its agencies are obligated to protect such resources for the benefit of the CRUIR as well as for the general public.

Response:

Protecting and avoiding further contamination to groundwater is one of the major drivers behind the retrieval of the SST System. Ecology has also voiced concern in regard to USDOE's recent statement regarding the groundwater and do not believe USDOE has the ability to unilaterally make an "irreversible and irretrievable" commitment. Ecology will require USDOE to continue to perform groundwater remediation activities consistent with TPA, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and Resource Conservation and Recovery Act (RCRA) requirements. Ecology will continue to insist that USDOE implement its roles and responsibilities as a trustee of the natural resources associated with the Hanford Reservation and is required to work within the State and Federal legal and regulatory framework as demonstrated by this TPA change request.

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Comment:

Section 2.1.3 [Tank Waste Retrieval Work Plans] includes risk-based metrics. We have several comments in this regard:

- The long-term human health risks must be based not only on an intruder scenario, but also on occupational, residential, and Native American scenarios. Because the tank waste will be hazardous essentially forever, the full range of scenarios must be applied to post-retrieval conditions.

Response:

The risk assessment discussed here is a preliminary risk assessment for the sole purpose of supporting retrieval decisions. Presently, it includes a calculation of the concentrations of the primary groundwater contaminant levels, groundwater risks from hazardous constituents, and carcinogenic constituents for both industrial and residential scenarios. We agree with the need for the calculation of the impacts to other potential land use scenarios, including Native American Scenarios. The results for these scenarios can be found in the risk assessments submitted in support of closure actions covering post retrieval conditions.

- The baseline or pre-retrieval risk assessment must use the same scenarios, including the CTUIR exposure scenario (upon update). We are aware that Model Toxic Control Act (MTCA) does not include this scenario, but it is clearly essential whenever there are treaty-reserved rights. Further, the State of Washington has confirmed their trust responsibilities in the Centennial Accord.

Response:

*The purpose of this pre-retrieval assessment is to aid in making "on the spot" decisions during the retrieval operations due to unforeseen challenges such as the discovery of a tank leak. It is meant to deal with "immediate and short-term impacts" not long-term impacts. Scenarios to be used with WMA risk assessments are described in HNF-SD-WM-TI-707, 2003, Exposure Scenarios and Unit Dose Factors for the Hanford Tank Waste Performance Assessment, Rev 3**. Currently, a general Native American scenario is described in the document. Should the CTUIR develop a specialized scenario, it will be evaluated for inclusion also.*

- We support the use of the fence line for the WMA boundary rather than the 200 Area boundary of the Central Plateau boundary.

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We are still concerned regarding the method for closing individual tanks, individual tank farms, or the entire 200 East and 200 West areas, as well as developing a pan-plateau source term that includes Environmental Restoration and Disposal Facility (ERDF) and US Ecology. We have not seen a plan for this level of integration, and we are unsure as to whether the Composite Analysis will provide the level.

Response:

Currently, the WMA risk assessments examine several potential points of compliance: the edge of the WMA (as noted above), the edges of the 200 Areas, and a point located near the Columbia River prior to the mixing zone. Multiple points of compliance are usually included to allow risk to be evaluated in a broader perspective i.e. to facilitate "risk informed" decisions. Also, the WMA risk assessments and the Tank Closure Environmental Impact Statement (EIS) evaluate the impacts from other sources on the Central Plateau that "cumulatively" impact the receptors at the points of calculation mentioned above.

- We wish to note that radiological and chemical risks must be summed which further underlines the need for a multi-contaminant risk-based approach and not simply by using a single constituent approach.

Response:

Estimates of Incremental Lifetime Cancer risks include risks associated with chemical and radiological contaminants. This change package does considerably expand the number of contaminants to be used in the calculation of risk metrics. Primary indicator contaminants must account for 95% of the impact.

Comment:

Section 2.3 (soils) and 2.4 (groundwater) are unclear as to whether closure will be based on a multimedia approach. It is not enough to simply meet drinking water standards (which are not based on multimedia exposures such as drinking water plus irrigation plus soil-based exposures).

For example, there is a difference between standards-based closures and risk-based closures.

(1) Standards-based closures simply meet standards for one contaminant at a time in one medium at a time. (2) Risk-based closures are based on multi-contaminant, multi-pathway exposures, and are much preferred over simply meeting standards. However, the risk-based closures must use the proper exposure scenarios, in particular the CTUIR scenario.

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Along these same lines, we would like to be included in the Data Quality Objective (DQO) process and Sampling and Analysis Plan (SAP) development, especially for post-retrieval and closure verification sampling. We will be looking for data that will be needed in the risk-based closure verification and long-term multi-media (soil plus groundwater) risk assessments using the CTUIR exposure scenario.

Response:

At the current time, estimates of both "standards-based" and "risk-based" indicators of risk are being calculated. The final decisions on this issue will be evaluated during the review and approval of the Closure Plans.

The CTUIR will be invited to all future DQOs related to Sampling and Analysis Plan (SAP) development.

Comment:

We would like to better understand the general rationale for sequencing retrieval and vitrification. We would also like to confirm that Ecology is standing firm on the 99% retrieval requirement even if USDOE request variances to leave more waste in tanks or continues its attempts at High Level Waste (HLW) reclassification.

Response:

Retrieval sequencing must meet a number of criteria to be effective. These criteria include reduction of risk, generating appropriate waste for operating the Waste Treatment Plant, Double Shell Tank (DST) space management, resource leveling, closure of the first WMA, and other operational considerations. The intent of the changes to this milestone is to improve efficiency of the retrieval process while allowing flexibility needed to respond to operational problems as they develop, and maximizing the use of the limited DST space.

Ecology has made no change in its commitment to SST retrievals to the limit of technology or to 360 cubic feet, whichever is less as stated in an earlier response. The TPA Appendix H describes the steps to process a "waiver" based on Office of River Protection's (ORP) demonstration of reaching the limits of the retrieval technology. Ecology will consider such waiver requests according to this TPA requirement.

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Comment:

We should note that on a recent visit to the tank farms, the guide very carefully used the terminology Low Activity Waste (LAW) rather than Low Level Waste (LLW). Does USDOE believe it will succeed in reclassifying waste? If so, will the intention still be to retrieve 99%?

Response:

USDOE is required to meet its commitment in the TPA to retrieve as much waste as technically possible, with tank residues not to exceed 360 cubic feet in each of the 100 series tanks, 30 cubic feet in each of the 200 series tank, or the limits of waste retrieval technology capability, whichever is less", regardless of the classification issue.

Again, thank you for your comments on this important issue. We look forward to ongoing dialogue about this and other Hanford cleanup issues.

If you would like to set up a meeting for further discussion, please contact me at (509) 372-7891.

Sincerely,



Laura Cusack
Tank Waste Treatment and TPA Section Manager
Nuclear Waste Program

LC:jc

cc: Jim Rasmussen, USDOE
Stuart Harris, CTUIR
Pat Sobotta, NPT
Russell Jim, YN
Todd Martin, HAB
Ken Niles, ODOE
Administrative Record: M-45
Environmental Portal