

FINAL DETERMINATION

Final Determination pursuant to the Hanford Federal Facility Agreement and Consent Order (HFFACO) in the matter of Hanford site high-level radioactive tank waste treatment capacity acquisition, tank waste treatment and associated tank waste regulatory requirements.

This determination concludes efforts at negotiating a resolution of dispute under the HFFACO between the Washington Department of Ecology (Ecology), the U. S. Environmental Protection Agency (EPA), and U. S. Department of Energy (DOE) (hereafter the Parties). As such, this constitutes my final determination pursuant to HFFACO Part Two, Article VIII, Paragraph 30 (D). This determination has been made following review and consideration of Ecology's Administrative Record in this matter¹.

I. Introduction

DOE's 149 Single-Shell Tanks (SSTs) and 28 Double-Shell Tanks (DSTs), located on the Hanford site in south central Washington State, hold some 53,085,000 gallons² of extremely hazardous high-level radioactive mixed waste generated during the fifty plus years of Hanford site operations. Since the close of the cold war, DOE's Hanford mission has focused on cleanup through compliance with federal and state hazardous waste law. Cleanup of DOE's tank wastes constitutes the largest environmental construction and operations project in the world. Nearly half of DOE's SSTs have already failed, releasing an estimated 1,000,000 gallons of radioactive tank waste to surrounding soils. DOE's DSTs are nearing design life and capacity. Most recently, studies documenting that tank leaks have begun to impact area groundwater some 12 miles from the Columbia River have served to underscore the urgency to act.

II. Regulatory Basis

DOE's tank waste and its SST&DST facilities are regulated through the Federal Resource Conservation and Recovery Act (RCRA) 42 U.S.C. § 6901 et seq., Washington's Hazardous Waste Management Act (HWMA) Chapter 70.105 RCW, and their implementing requirements³. The State, through Ecology, is authorized to implement HWMA requirements in lieu of federal program requirements pursuant to 42 U.S.C. § 6926. The EPA retains authority for oversight of the State's hazardous waste program and for elements of RCRA not yet authorized.

¹ Concurrent with the issuance of this Final Determination, I am issuing my Final Determination regarding DOE's compliance with Land Disposal Restriction (LDR) requirements. The administrative record for purposes of this Tank Waste Treatment Final Determination includes the Administrative Record for the LDR Final Determination.

² Waste Tank Summary Report for Month Ending December 31, 1999, CH2MHill Hanford Group Inc., HNF-EP-0182-141, February 2000.

³ See Hanford Site Hazardous Waste Permit Applications (Part A) for DOE's Single-Shell and Double-Shell tank systems, September 26, 1996.

Regulatory requirements applicable to DOE's tank wastes and tank waste systems include but are not limited to those specifying requirements for waste designation, permitting, storage, treatment, disposal, response to releases, and site closure.

Hazardous Waste regulatory requirements of note in the context of this Final Determination include:

- Authorization of revisions to the State's hazardous waste program enabling regulation of the hazardous components of radioactive mixed wastes (52 Federal Register 35556 (September 22, 1987)).

Washington's Dangerous Waste Regulations, Chapter 173-303 WAC, including but not limited to:

- 173-303-140: Land disposal restrictions.
- 173-303-145: Spills and Discharges into the Environment.
- 173-303-400: Interim Status Facility Standards.
- 173-303-640: Tank Systems.
- 173-303-645: Releases from Regulated Units.
- 173-303-646: Corrective Action.
- 173-303-600 & 610: Final Facility Standards, Closure and Postclosure.

The Federal Resource Conservation and Recovery Act, including but not limited to:

- RCRA Land Disposal Restrictions at 40 CFR Part 268.

DOE's Hanford tank wastes are subject to Part 268 Land Disposal Restrictions, which are incorporated by reference into the state program pursuant to WAC 173-303-140 (2) (a). These restrictions include prohibitions banning storage of waste restricted from land disposal unless certain conditions are met, including provisions requiring that storage is solely for the purpose of accumulating such quantities of hazardous waste as necessary to facilitate proper recovery, treatment or disposal.

The Federal Facility Compliance Act of 1992:

- 42 U.S.C. § 6961, waiving sovereign immunity for violation of RCRA requirements and authorized State "RCRA" programs.
- 42 U.S.C. § 6939c, establishing requirements for the preparation of Site Treatment Plans (STP) in order to ensure compliance with federal and state hazardous waste requirements including LDR (the pre-existing HFFACO was recognized as serving the purpose of a STP).

III. Initial Ecology efforts to bring DOE's tanks into compliance with federal and state hazardous waste law.

Prior to the late 1980s DOE, here in Washington State, and at its facilities nationwide, was self regulating, i.e., it operated its Hanford tank farms to its own internal standards and rejected the notion that it was subject to federal and state hazardous waste law to the same extent as the private sector. Ecology's activities from the mid to late eighties focused on pressing for such recognition and played out during some two years of hotly contested congressional hearings. At the conclusion of these activities DOE recognized the applicability of hazardous waste laws at its facilities nationwide. The hazardous components of radioactive mixed wastes were subsequently recognized as also being subject to RCRA, and Ecology was delegated the authority and responsibility for ensuring compliance at facilities managing such wastes pursuant to 42 U.S.C. § 6926. Inspections conducted at Hanford soon documented non-compliant hazardous waste activities of unprecedented magnitude and complexity (e.g., the non-compliant design [single-shell] of DOE's SSTs, the failure of many of them and ongoing releases of radioactive mixed wastes to the environment). In order to address these and related issues site-wide, Ecology, EPA and DOE agreed to attempt the negotiation of an enforceable agreement and order laying out compliance requirements for cleanup of the site.

Negotiations took place during 1988 and the early part of 1989. They brought to bear top agency management, legal counsel, and policy and technical staff. The resulting original Hanford Federal Facility Agreement and Consent Order (HFFACO) was put to public comment in early 1989, modified pursuant to comment, and approved as a landmark cleanup agreement and order marking DOE's recognition of the need to bring its facilities into compliance with federal and state hazardous waste law.

As part of the agreement, DOE recognized that provisions of the HFFACO such as tank waste cleanup schedules "...are RCRA statutory requirements and are thus enforceable by the Parties." (HFFACO at paragraph 41).

Initial HFFACO compliance requirements for DOE actions at its SST and DST facilities included the following:

A. Major milestone series M-01-00: Work schedules governing the stabilization and disposal of the low-activity phase of Hanford's double-shell tank waste via cementitious grout were to be disposed within engineered subsurface disposal vaults.

- 14 vaults were to be constructed and were to receive 1.4M gallons each of grouted double shell tank waste by September 1994. Follow-on schedules setting the number of vaults to be filled each year were to be established as HFFACO milestone requirements after initial operations.

B. Major milestone series M-02-00: Work schedules governing the pretreatment of DOE's tank waste.

- Tank waste pretreatment was scheduled to begin by October 1993, and was to maintain currency with needed low-activity and high-level waste feed streams thereafter.

C. Major milestone series M-03-00: Work schedules governing the construction and initiation of operations of a Hanford site high-level tank waste (vitrification) treatment plant.

- Construction of the Hanford tank waste vitrification plant was to be underway by July 1991. The plant was to be vitrifying waste by December 1999.

D. Major milestone series' M-06-00, M-07-00, M-08-00, and M-09-00: Work schedules governing the development of single-shell tank waste retrieval technology, retrieval itself, and final tank farm cleanup and closure.

- Tank waste retrieval technologies were to be developed and implemented in full-scale beginning in 1997. Waste retrieval and closure of an initial tank farm was required to have begun by 2004, with waste retrieval and cleanup and closure of all SST tank farms to be completed by 2018.

IV. DOE efforts to comply with HFFACO tank waste requirements have been characterized by repeated delay and changes in program direction.

The 10 years following establishment of HFFACO tank waste RCRA requirements have seen substantive progress largely in areas peripheral to the project's main objectives.⁴ DOE has repeatedly approached the State, EPA, and the public with requests that principal tank waste cleanup requirements be delayed or otherwise modified. Examples of revisions and extensions agreed to by the parties include the following:

HFFACO Revision 2, incorporating 1st, 2nd, and 3rd amendments, September 1992:

A. Major milestone series M-01-00: Work schedules governing the stabilization and disposal of the low-activity phase of Hanford's double-shell tank waste.

- Required completion date for constructing and filling 14 grout vaults (stabilizing some 14M gallons of tank waste) delayed by over 2 years to December 1996. A total of 4 vaults were constructed. All but 1 stand empty today.

B. Major milestone series M-02-00: Work schedules governing the pretreatment of DOE's tank waste.

- DOE dropped its plans to utilize B Plant as a pretreatment facility and to initiate pretreatment services by October 1993. The corresponding HFFACO requirement was deleted and the schedule for initiating pretreatment of tank wastes was modified to "To Be Determined".

C. Major milestone series M-03-00: Work schedules governing the construction and initiation of operations of a Hanford site high-level tank waste (vitrification) treatment plant.

⁴ Progress made to date has been largely confined to characterization of tank wastes, resolution of tank safety issues, the construction of canister storage facilities and a new cross-site tank waste transfer line, and tank farm equipment upgrades.

- Construction of the Hanford tank waste vitrification plant delayed by 9 months to April 1992. The operational date of December 1999 was left in place in hopes that compliance could still be achieved.
- D. Major milestone series' M-06-00, M-07-00, M-08-00, and M-09-00:** Work schedules governing concurrent development of Single-Shell tank waste retrieval technology, waste retrieval itself, and final cleanup and closure of the tank farms.
- Waste retrieval progress began to fall behind schedule. HFFACO schedules were left in place in hopes that substantive compliance might still be achieved.

HFFACO Revision 3, January 1994:

A. Major milestone series M-50-00 (renumbered): Work schedules governing the pretreatment of DOE's tank waste.

- Work schedules for the pretreatment of DOE's tank waste were modified to require low level tank waste (LLW) pretreatment facilities to be under construction by November of 1998 and to be operational by December 2004. High-Level tank waste (HLW) pretreatment facilities were required to be under construction by June of 2001 and operational by June of 2008.

Little progress had been made to meet earlier required schedules.

B. Major milestone series M-51-00 (renumbered): Work schedules governing the construction and initiation of operations of a Hanford site high-level tank waste (vitrification) treatment plant.

- The deadline for initiation of construction of the Hanford (tank) Waste Vitrification Plant was delayed by over 10 years to June of 2002. Its operational date was delayed to December 2009. Completion of HLW processing now set at December 2028.

C. Major milestone series M-60-00 (renumbered): Work schedules governing the construction and initiation of operations of a Hanford site Low-Activity (tank) Waste (LAW) vitrification plant.

- Initiation of construction of a LAW vitrification facility was set at December 1997 with initial operations required by June of 2005. Completion of LAW processing was set at 2028.

D. Major milestone series M-45-00 (renumbered): Work schedules governing concurrent development of Single-Shell tank waste retrieval technology, waste retrieval itself, and final cleanup and closure of the tank farms.

- SST waste retrieval schedules were delayed. With the exception of high heat tank C-106, initial full-scale tank waste retrieval demonstrations were delayed by nearly 6 years to September 2003. Waste retrieval and closure of the first SST farm was delayed 10 years to

March 2014. Completion of waste retrieval now set at 2018 with completion of closure delayed to September 2024.

HFFACO Revision 4, February 1996:

- Tank waste milestone series left in place though DOE was making little progress in tank waste pretreatment, LAW vitrification, HLW vitrification, or tank waste retrieval.

HFFACO Revision 5, December 1998:

- Revision 5 of the HFFACO incorporated what is often referred to as DOE's "privatization" initiative. Privatization of tank waste treatment at Hanford focuses on using the competitive forces and expertise within the private sector in the acquisition of tank waste treatment services. Modifications included the following:

A. Major milestone series M-50-00: Work schedules governing the pretreatment of DOE's tank waste.

- Schedules for initiation of construction of LAW pretreatment facilities were deleted and marked "To Be Determined (TBD)" (dependent on award of construction contract). The hot operations requirement of December 2004 was deleted.

Little progress had been made to meet required schedules.

B. Major milestone series M-51-00: Work schedules governing the construction and initiation of operations of a Hanford site high-level tank waste vitrification plant.

- HFFACO requirements for construction of HLW vitrification facilities were not modified. Completion of HLW processing remained December 2028.

Little progress had been made to meet required schedules.

C. Major milestone series M-60-00: Work schedules governing the construction and initiation of operations of a Hanford site Low-Activity Waste tank waste (vitrification) treatment plant.

- Schedule Requirements for initiation of construction of a LAW vitrification facility by December of 1997 were deleted and noted as TBD (dependent on award of construction contract). LAW vitrification facility hot operations were now required to be achieved either under a "primary" path (December 2002) or a pre-agreed to "alternate" path should DOE encounter difficulties in procurement. Required completion of LAW tank waste treatment set at December 2024 or as late as 2028 (optional alternate path).

D. Major milestone series M-45-00: Work schedules governing concurrent development of Single-Shell tank waste retrieval technology; waste retrieval, and final cleanup and closure of the tank farms.

- Tank waste retrieval milestone series were left in place though DOE was making little progress towards full-scale retrieval and tank farm closure.

The preceding examples are offered not as a complete account, but as demonstration of the many DOE delays, changes in plans, and lack of progress in achieving compliance with federal and state hazardous waste law at DOE's Hanford tanks during the first 10 years of the HFFACO. Ecology and EPA flexibility in allowing repeated HFFACO modification was proving increasingly questionable.

V. Groundwater monitoring indicates that leaks of high level radioactive waste from DOE's SST's have begun to impact groundwater.

All of DOE's 149 single-shell high level radioactive waste tanks (SSTs) are far beyond their design life. Many have already failed, releasing contaminants to the surrounding environment. DOE currently estimates that some 750,000 – 1,050,000 gallons of high level radioactive tank waste has been lost through leakage. A recent DOE sponsored analysis of available historical tank data further estimates that the actual volumes leaked from DOE's SX tank farms may be 3-6 times the official leak estimates reported by DOE⁵. Sixty-seven (67) of DOE's 149 SSTs are classed as leakers to date, and DOE's contractors have noted that "Historical data indicate that it should be assumed that one new leaker will be declared each year"⁶. Data generated at RCRA required groundwater monitoring systems at DOE's SST's indicate downgradient contamination resulting from SST leaks.⁷

This conclusion is corroborated by data obtained as DOE has begun to investigate tank leak contaminant concentrations, contaminant mobility and risk in soils beneath the tanks and vicinity groundwaters. For example, DOE collected a number of soil samples at depth while decommissioning a borehole within its single-shell tank farms (borehole 41-09-39).⁸ Data collected revealed concentrations of contaminants such as Cesium¹³⁷ and Technitium⁹⁹ far greater than had been expected. This contamination appears to be from SST leaks. Analysis of groundwater samples collected at a recently installed monitoring well in DOE's single-shell tank

⁵ Report, HNF-3233, Rev. 0: Analysis of SX Farm Leak Histories – Historical Leak Model (HLM), S. F. Agnew and R. A. Corbin, Los Alamos National Laboratory, Los Alamos New Mexico, August 1998.

⁶ Report, HNF-2358, Rev 3a: Singled Shelled Tank Interim Stabilization Project Plan, J. G. Lewis, Lockheed Martin Hanford Company, March 4, 1999.

⁷ (1) PNNL-11809 / UC-502: Results of Phase I Groundwater Quality Assessment for Single-Shell Tank Waste Management Areas T and TX-TY at the Hanford Site, F. N. Hodges, January, 1998. (2) PNNL-11810 / UC-502: Results of Phase I Groundwater Quality Assessment for Single-Shell Tank Waste Management Areas S-SX at the Hanford Site, V. G. Johnson and C. J. Chou, January, 1998. (3) Results of Phase I Groundwater Quality Assessment for Single-Shell Tank Waste Management Areas B-BX-BY at the Hanford Site, S. M. Narbutovskih, February, 1998.

⁸ Data collected pursuant to the HFFACO and DOE's "Preliminary Site Specific SST Phase 1 RFI/CMS Workplan Addendum for WMA S-SX", HNF-4380 Rev0, LMHC, April 1999.

farm "SX" has revealed radioactive technetium concentrations at 34,000 picocuries per liter, some 37 times the EPA drinking water standard.⁹

This data underscores the need for the Parties to act in establishing and implementing schedules for tank waste retrieval and tank waste treatment facility construction and operations without delay.

VI. DOE has ignored HFFACO tank waste RCRA requirements, and has continually struggled to manage its projects effectively.

To date, DOE has not held itself accountable to meet HFFACO requirements as an agency or to place rigorous management systems in place from top to bottom in order to adhere to required schedules. DOE has refused to strengthen HFFACO compliance requirements, and has argued that the parties should rely solely on outyear milestones as the driver of compliance progress. As a result, HFFACO project delays often mount unaddressed because DOE argues that it remains legally in compliance with outyear milestones even though the work required to achieve these milestones may be halted or far behind schedule. This lack of accountability has been especially damaging in the instance of Hanford site tank waste cleanup requirements due to the magnitude and long term nature of these compliance projects. If left unaddressed, it is likely to continue to result in multi-year delay and excessive expenditures.

Examples germane to this Final Determination include but are not limited to the following.

1. Establishment of tank waste critical path management requirements, January 25, 1994.

Recognizing that DOE management of its tank waste project(s) was suffering from a lack of definitive schedules and schedule management practices, the Parties agreed to new HFFACO Action Plan section 11.7 (now 11.8). This 1994 commitment requires DOE to develop and manage tank waste projects through rigorous attention to critical schedule elements based on HFFACO milestone endpoints. In effect, compliance with HFFACO work requirements was defined as adherence to project critical path. DOE was to have an initial critical path based management system in operation by April 1994. It was to be fully operational by September 1994. However, shortly after establishment, DOE halted implementation of this required management practice, and has yet to act on it, thereby damaging the HFFACO and DOE's abilities to stay on schedule and get results.

2. St. Louis Blueprint for Action and Cost Control, May 3, 1995¹⁰

In the Spring of 1995 DOE, DOE contractor, Ecology and EPA senior management recognized that Hanford cleanup was in a crises and that a bold restructuring was necessary if work

⁹ Environmental Restoration Contractor (ERC) Team Meeting Minutes, CCN: 074043, Michael J. Graham, Bechtel Hanford Inc., October 28, 1999.

¹⁰ Transmitted by letter, Thomas P. Grumbly, Assistant Secretary for Environmental Management, DOE, John D. Wagoner, Manager, DOE Richland Field Office, Dan Silver, Assistant Director, Ecology, and Randall F. Smith, Director, Hazardous Waste Division, EPA to Marilyn Reeves, Chair, HAB, May 4, 1995.

requirements were to be met in the face of increasing budget pressure. As part of the resulting “Blueprint for Action and Cost Control at Hanford” the Parties agreed that “Managing Successful Projects, is the key around which everything else revolves”, that work at Hanford “including the Tank Waste Remediation System” would be managed through the establishment of clearly defined projects “consistent with long-term Hanford Tri-Party Agreement (TPA) commitments”. The Parties also recognized that TWRS project work must be carried out “consistent with Tri Party Agreement critical paths”.

DOE’s subsequent implementation of project management has unfortunately been more superficial than substantive. Initial organization around a project management structure has been followed by a regression to practices not clearly based on responsibility and accountability to meet HFFACO requirements; not tied to the establishment of HFFACO critical paths; and which instead all too often depend on delayed work through renegotiation (See critical path management requirements text at VI (1) above).

3. DOE baseline change control process

DOE oversees its Hanford site work, and issues work directives to its contractor(s) through the approval of project “baseline change control” documentation issued by its chief Contracting Officer. Unfortunately, this work directive process is not required to be consistent with HFFACO requirements. As a result, DOE has knowingly directed its contractors to proceed with work inconsistent with HFFACO tank waste requirements¹¹, and without prior authorization of the lead regulatory agency. This practice has had a debilitating effect on the HFFACO, and sends the message to DOE and DOE contractor staff that HFFACO requirements are not to be taken seriously.

4. DOE noncompliance with HFFACO interim milestone M-60-10 and abuse of HFFACO provisions for a tank waste treatment capacity acquisition “alternate path”.

In recent years the Parties and stakeholders throughout the Pacific Northwest have increasingly focused their efforts on the acquisition of tank waste treatment facilities as required by the HFFACO and underlying federal and state hazardous waste requirements.

As one of the resulting principle commitments between the parties, HFFACO interim milestone M-60-10 was established as a key RCRA requirement.

M-60-10	Select two (2) COCO contractors and issue DOE signed authorizations to proceed with Part B (as defined in the Request for Proposal (RFP) or subsequently negotiated contracts) work for LAW pretreatment and immobilization.	7/31/98
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¹¹ Letter with Attachments, 98-PID-596: Contract No. DE-AC06-96RL13200 – Approval of Baseline Change Request (BCR) TWR-98-033R2 “Fiscal Year 1998 Multi-Year Work Plan Baseline Revisions (Bridge FY 1997 to FY 1998)”, Sally A. Sieracki, Contracting Officer, DOE Richland Operations Office, to Mr. H. J. Hatch, President, Fluor Daniel Hanford Inc., April 2, 1998.

In this instance, few respondents to DOE's Request For Proposals and slow progress towards authorization to proceed with construction caused DOE to: a) select only one contractor, and b) to segment authorized work under its contract so that the contractor selected is restricted to proceeding only with initial design (to 30%).

Following segmentation of its contract for tank waste processing, DOE notified the state and EPA that pursuant to HFFACO "privatization" modifications (Change Control Form M-60-95-03, 7/24/96) it had elected to "implement the Privatization "alternate path" under HFFACO milestone series M-61-00.¹² DOE did so regardless of the fact that it was/is not working towards, and has no intention of meeting interim milestone M-61-02 (Initiate Hot Operations of Phase I LAW Pretreatment and Immobilization Facility: 12/31/2003). Ecology has notified DOE of the impropriety of this action, and has repeatedly asked that DOE provide documentation supporting their claim.¹³ DOE has not provided such documentation. In fact, in contrast to DOE's assertion that it is implementing the HFFACO alternate path, DOE and its contractors have been, and are, working openly to schedules far different from those of the HFFACO¹⁴.

5. DOE's failure to put in place structured project management systems and its seeming inability to meet its commitments has met longstanding criticism in Washington D.C.

Recently, the **U.S. General Accounting Office** released its Department of Energy, Need to Address Longstanding Management Weaknesses".¹⁵ Conclusions and observations included:

"DOE's long-standing failures in managing major environmental cleanup projects also illustrate the need to fundamentally change how DOE operates."

"From 1980 through 1996, we found that DOE conducted 80 projects that it designated as "major system acquisitions" – its largest and most critical projects – ranging in cost from \$100 million to billions of dollars. As of June 1996, 31 of the projects had been terminated before completion after total expenditures of over \$10 billion. Only 15 of the projects were completed, and most of them were finished behind schedule and with cost overruns. Furthermore, 3 of the 15 completed projects had yet to be used for their intended purposes. The remaining 34 projects continue, many with substantial overruns and "schedule slippage".

¹² Letter, 98-WDD-065: George H. Sanders, TPA Administrator, DOE Richland Field Office to Mike Wilson, Program Manager, Nuclear Waste Program, Washington Department of Ecology, and Doug Sherwood, Hanford Project Manager, EPA Region 10, June 18, 1998.

¹³ Letters (2): Michael A. Wilson, Manager, Nuclear Waste Program, Washington Department of Ecology to George Sanders, Hanford Tri Party Agreement Administrator, DOE Richland Field Office, July 8 and November 30, 1998.

¹⁴ For example, see listing of DOE and its contractor's schedules at: "Report to Congress – Treatment and Immobilization of Hanford Radioactive Tank Waste", Section 5.4, DOE, July 1998.

¹⁵ GAO Report GAO/T-RCED-99-255, and corresponding testimony of Victor Rezendez, Director, Energy, Resources, and Science Issues, Resources, Community, and Economic Development Division before the Subcommittee on Energy and Environment, Committee on Science, and the Subcommittee on Energy and Power, Committee on Commerce, U. S. House of Representatives, July 13, 1999.

A **National Research Council** committee that examined DOE's project management skills recently concluded:

“Documentation shows that DOE's construction and environmental remediation projects take much longer and cost about 50 percent more than comparable projects by other federal agencies or projects in the private sector. Moreover, DOE projects commonly overrun their budgets and schedules, leading to pressures for cutbacks that have resulted in facilities that do not function as intended, projects that are abandoned before they are completed, or facilities that are so long delayed that, upon completion, they no longer serve any purpose. In short, DOE's record calls into question the credibility of its procedures for developing designs and cost estimates and managing projects.”¹⁶

VII. History of this Dispute

1. DOE proposal that the Parties renegotiate HFFACO tank waste treatment and related requirements.

DOE has repeatedly implemented major changes in tank waste program direction and has requested associated delays/modifications to HFFACO requirements since the original HFFACO tank waste compliance schedule was approved on May 15, 1989. The most recent chapter of this dispute began in June of 1998, as DOE approached the due date for HFFACO requirement M-60-10 (DOE selection of tank waste treatment contractors by July 31, 1998). At that time, DOE notified Ecology of its decision to elect to implement the “alternate path” for tank waste treatment facility acquisition,¹⁷ and provided two briefings for senior Ecology management.¹⁸ In its July 2, 1998 briefing, DOE informed Ecology that it had (unilaterally) decided to allow its contractor to first construct a high-level tank waste vitrification facility, rather than treatment facilities vitrifying (high volume) low activity tank wastes as required by the HFFACO alternate path (See HFFACO milestone series M-61-00). In addition, at its July 21, 1998 briefing, DOE hand delivered a letter transmitting draft HFFACO change request M-62-98-01.¹⁹ This letter noted that DOE's change request reflected the terms of the contract it had negotiated with British Nuclear Fuels Ltd. (BNFL) (as yet not issued) and that DOE was seeking “...to enter formal negotiations with the Parties to incorporate the TWRS Privatization project into the Tri-Party

¹⁶ Improving Project Management in the Department of Energy, National Research Council, Commission on Engineering and Technical Systems (CETS), National Academy Press, 1999.

¹⁷ Letter, 98-WDD-065: George H. Sanders, Tri-Party Agreement Administrator, U. S. Department of Energy, to Mike Wilson, Program Manager, Nuclear Waste Program, Washington Department of Ecology and Doug Sherwood, Hanford Project Manager, U. S. Environmental Protection Agency Region 10, June 18, 1998.

¹⁸ Attendee sign-in sheets and DOE presentations of July 2, 1998 and July 21, 1998.

¹⁹ Letter, 98-EAP-382: George H. Sanders, Tri-Party Agreement Administrator, U. S. Department of Energy, to Mike Wilson, Program Manager, Nuclear Waste Program, Washington Department of Ecology and Doug Sherwood, Hanford Project Manager, U. S. Environmental Protection Agency Region 10, July 21, 1998.

Agreement”. Subsequent discussions between the Parties resulted in Ecology committing to provide DOE a draft HFFACO tank waste negotiations Agreement In Principle (AIP). Ecology provided DOE this draft on October 14, 1998²⁰.

Unfortunately, and unbeknownst to Ecology, its proposal that the Parties commit to negotiate HFFACO requirements designed to effectively drive all major aspects of the tank project ran counter to an as yet unstated DOE management policy to agree to few if any requirements. As a result, DOE balked repeatedly in the following months as the State, EPA, and Pacific Northwest stakeholders increasingly urged the Parties to finalize an AIP and begin negotiations in earnest.²¹

2. The Parties’ May 24, 1999 Agreement In Principle (AIP) to renegotiate tank waste treatment and associated HFFACO requirements.

An AIP committing to the negotiation of requirements effectively governing all aspects of DOE’s tank waste program was finally approved by DOE, Ecology, and the EPA on May 24, 1999.²² In approving this AIP, USDOE, EPA and Ecology committed to the development and establishment of a broad range of revised HFFACO RCRA requirements governing the acquisition and operation of a Hanford site high level tank waste treatment complex. Requirements to be developed included, but were not limited to the following:

- a. “Agreement milestones, target dates, and associated Agreement language designed to effectively drive procurement, design, construction, startup and operation of tank waste pretreatment, LAW vitrification, and high-level radioactive waste (HLW) vitrification facilities.”
- b. “Such requirements will: a) be sufficient to effectively identify and drive each phase of required work, and”

²⁰ Inter-agency memorandum, “Ecology proposed Draft TWRS “privatization” (TPA) negotiations AIP”, Roger Stanley, Nuclear Waste Program, Washington Department of Ecology to George Sanders, U. S. Department of Energy, Richland Washington, October 14, 1998.

²¹ Letters (6): 1) Marilyn Reeves, Chair, Hanford Advisory Board to James Owendoff, Assistant Secretary of Energy, Office of Environmental Management (USDOE), John Wagoner, Manager, USDOE Richland Field Office, and Tom Fitzsimmons, Director, Washington Department of Ecology, December 4, 1998. 2) Mike Wilson, Manager, Nuclear Waste Program, Washington Department of Ecology to Lloyd Piper, Deputy Manager, USDOE Richland Field Office and Jackson Kinzer, Acting Manager, Office of River Protection, USDOE Richland Field Office, January 4, 1999, 3) Tom Fitzsimmons, Director, Washington Department of Ecology to Marilyn Reeves, Chair, HAB, January 5, 1999, 4) 99-EAP-119, Lloyd Piper for James C. Hall, Manager, USDOE Richland Field Office to Michael A. Wilson, Program Manager, Nuclear Waste Program, Washington Department of Ecology, January 12, 1999, 5) Tom Fitzsimmons, Director, Washington Department of Ecology to James C. Hall, Acting Manager, USDOE Richland Field Office, January 28, 1999, and 6) Marilyn Reeves, HAB Chair, to Chuck Clarke, Regional Administrator, USEPA Region 10, Tom Fitzsimmons, Ecology Director and James Hall, Acting Manager, USDOE Richland Field Office, March 26, 1999.

²² Letter, Tom Fitzsimmons, Ecology Director to Richard T. French, Manager, USDOE Office of River Protection and Keith Klein, Manager, USDOE Richland Field Office, May 19, 1999 (May 24 AIP attached).

- c. “b) require the revision of Hanford contractor baseline(s) consistent with Agreement requirements.” The Parties’ also committed to develop:
- d. “Agreement milestones, target dates, and associated Agreement language as a result of PHMC work schedules impacted by the contract (e.g., DST upgrades, disposal).”
- e. “Agreement milestones, target dates and associated Agreement language which requires that DOE and the PHMC complete all actions necessary to ensure timely delivery of tank waste feed.”
- f. “Agreement milestones, target dates and associated Agreement language which establish: a) a specific schedule for the Parties to revisit and negotiate Agreement modifications pertaining to tank waste retrieval, and”
- g. “b) a specific schedule for the Parties to revisit and negotiate Agreement modifications pertaining to the processing of the remainder of Hanford tank wastes (post Phase I processing).”
- h. “Agreement requirements as necessary to ensure effective Agreement implementation. To this end, the Parties agree to review and modify such requirements as may be necessary, e.g., work, critical path, change control, reporting, and modifications necessary due to the recent establishment of the Office of River Protection.”

DOE, Ecology and EPA recognized that DOE’s current “privatization” approach to complying with federal and state hazardous waste law was anticipated to proceed under either DOE’s “present privatization path forward”, or under a modified contractual approach. Consequently, the Parties’ May 24, 1999 AIP also committed to the following:

- i. “The Parties recognize that DOE’s present procurement path envisions the award of a fixed unit price contract for treatment and immobilization services for the initial segment of Hanford’s tank wastes, i.e., Phase I²³. In recognition of this primary path forward, the Parties negotiations will focus on requirements in support of this effort. The Parties agree to the following basic structural elements for these negotiations.”
- j. “Agreement modifications will be designed so as to support DOE in its efforts to reach agreement resulting in an Authorization to Proceed (as early as August 31, 2000, but no later than May 31, 2001) to construct and operate the facilities necessary to provide treatment and immobilization services.”
- k. “Agreement modifications will be constrained by the completion of Phase I waste processing no later than February 2018, and”

²³ Phase I waste processing as defined within CLIN 004A through 004D of DOE/BNFL contract DE-AC06-96RL13308, August 1998 Defining quantities of treated LAW and HLW to be produced during Phase I, e.g., 600 HLW canisters).

- I. "...the Parties negotiations will be designed to achieve compliance with Land Disposal Restriction (LDR) requirements of the Resource Conservation and Recovery Act (RCRA) in a manner equivalent to Site Treatment Plans as required by the Federal Facility Compliance Act of 1992."

The Parties AIP also included terms recognizing that the Parties negotiations were to stand in lieu of dispute resolution under Part Two of the HFFACO, and that should the Parties fail to reach agreement, the Director of Ecology shall issue a final decision or determination pursuant to HFFACO, Part Two, Article VIII.

Unfortunately, over the ensuing months, and despite explicit commitments within the agencies' AIP, DOE negotiators refused to commit to any agreements of substance, noting that their management had directed them to agree to "few if any" enforceable compliance requirements. At the close of this period, DOE forwarded Ecology and EPA a letter openly stating its policy that "The operative concept here is a Department policy not to make enforceable commitments before a reasonable project-planning basis is constructed."²⁴ This statement stands in direct contrast to commitments DOE made to Ecology and EPA in the Parties May 24, 1999 AIP (See also EPA's letter on this topic dated September 10, 1999). As a result of this impasse, negotiations were first extended by 2 weeks,²⁵ and then suspended again to allow for a meeting between the principles.²⁶

The importance of establishing a firm DOE commitment to move forward with tank waste retrieval and treatment was also the subject of a September 10, 1999 meeting between Secretary of Energy Richardson and Governor Locke. Of particular note was the Secretary's resulting commitment to the State that DOE would "Begin initial retrieval and treatment of Hanford's liquid high level waste, with hot start of treatment facilities by 2007..."²⁷

Following this basic commitment, HFFACO Senior Executive Committee members met on September 17, 1999. Agency management attending included the Director, Washington Department of Ecology; the Administrator, U. S. Environmental Protection Agency, Region 10; the Manager of the U. S. Department of Energy's Office of River Protection and the Manager of USDOE's Richland Field Office. During the course of this meeting DOE stated that a dual path (contractual) approach to treatment facility acquisition was no longer necessary. Discussion consequently focused on identifying principal enforceable tank waste treatment complex

²⁴ Letter, Richard T. French, Manager, Office of River Protection, USDOE, and Keith Klein, Manager, Richland Field Office, USDOE to Tom Fitzsimmons, Director, Washington Department of Ecology and Chuck Clarke, Administrator, USEPA Region 10, July 30, 1999.

²⁵ Extension of Tank Waste Remediation System (TWRS) Negotiations, Ecology, EPA and USDOE, July 31, 1999.

²⁶ Suspension of Tank Waste Remediation System (TWRS) Negotiations, Ecology, EPA and USDOE, August 12, 1999.

²⁷ STATEMENT OF PRINCIPLES, Bill Richardson, Secretary of Energy and Gary Locke, Governor of Washington, September 10, 1999.

construction and operational requirements for incorporation within the HFFACO. However, a number of standing AIP commitments between the Parties were neither discussed nor modified. This meeting failed to result in agreement between the Parties, and consequently triggered a two week HFFACO time period at the end of which the Director of Ecology was required to issue a Final Determination in this matter. This period was subsequently extended through November 15, 1999.²⁸

3. The Parties' November 15, 1999 Agreement on Principal Regulatory Commitments Pertaining to Hanford Tank Waste Treatment Complex Construction and Operations.

Subsequent to the Parties September 17, 1999 meeting, DOE management distanced themselves from the Parties May 24, 1999 AIP, and focused instead on the development of an agreement reflecting the September 17, 1999 meeting. This latter agreement between the Parties was subsequently approved by the agencies on November 15, 1999.²⁹ Though abbreviated in length, this agreement left the substantive scope of needed negotiations essentially unmodified by: a) specifically identifying 9 key tank waste treatment complex construction and operational milestones to be incorporated into the HFFACO, b) listing specific commitments between the parties regarding issues yet to be agreed to, and c) sending agency negotiators back to the table to convert regulatory commitments in the agreement to HFFACO Change Request format. The Parties November 15, 1999 agreement specifically directed agency negotiators to reinstate negotiations in order to develop HFFACO commitments including but not restricted to the following:

- a. HFFACO language making it clear that the standing requirement for completion of (all) tank waste processing by 2028 is not modified.
- b. HFFACO requirements as necessary to ensure effective HFFACO implementation, e.g., work, critical path, change control, and reporting provisions.
- c. HFFACO revisions requiring that Hanford contractor baselines be consistent with Agreement requirements.
- d. HFFACO milestones, target dates, and associated language as a result of PHMC (*DOE contractor*) work schedules impacted by the tank waste treatment complex contract (e.g., DST upgrades, disposal).
- e. HFFACO milestones, target dates and associated HFFACO language which requires that DOE and its contractors complete all actions necessary to ensure timely delivery of tank waste feed.

²⁸ Extension of Period for Issuance of Final Determination, Ecology, EPA and USDOE, October 1, 1999.

²⁹ "Agreement on Principal Regulatory Commitments Pertaining to Hanford Tank Waste Treatment Complex Construction and Operations", Tom Fitzsimmons, Ecology; Chuck Clarke, EPA Region 10; Keith Klein, DOE Richland Operations Office and Dick French, DOE Office of River Protection, November 15, 1999.

- f. HFFACO language necessary for compliance with Land Disposal Restriction (LDR) requirements of the Resource Conservation and Recovery Act (RCRA) in a manner equivalent to Site Treatment Plans as required by the Federal Facility Compliance Act (FFCA) of 1992.
- g. A HFFACO milestone and associated language scheduling the submittal of DOE's vitrified HLW RCRA delisting petition.
- h. HFFACO milestones, target dates and associated language which establish: a) a specific schedule for the Parties to revisit and negotiate HFFACO modifications pertaining to tank waste retrieval, and b) a specific schedule for the Parties to revisit and negotiate HFFACO modifications pertaining to the processing of the remainder of Hanford tank wastes ((Post Phase I treatment), and
- i. HFFACO modifications necessary due to the recent establishment of DOE's Office of River Protection.

Negotiations were to be completed no later than January 31, 2000 (The Director of Ecology was again required to issue a final decision or determination should agreement not be reached). Negotiations were subsequently reinitiated, and, on December 14, 1999 Ecology provided DOE and EPA a revised proposal, annotated to reference each November 15 agreement commitment.

Unfortunately, throughout the latter part of December 1999 and January 2000, and despite commitments made to the Ecology and EPA in its May 24, 1999 and November 15, 1999 Agreements, DOE's negotiators noted that their DOE HQ management remained in basic opposition to: 1.) Any further milestone establishment (including many milestones called for in the Parties November 15, 1999 Agreement) and 2.) Modifications which would hold DOE accountable to perform necessary HFFACO work. Though local DOE "negotiators" worked with the State and EPA to develop HFFACO language that might be acceptable to both³⁰, they made it clear that they had no ability to agree to such language and that their management was not likely to support their efforts. This proved true when on January 25, 2000 DOE negotiators informed Ecology and EPA that its management had rejected many HFFACO modifications proposed by Ecology and EPA. This verbal notification was followed by a written DOE proposal telefaxed after close of business on January 31, 2000, the last available day for negotiations.³¹

³⁰ See Ecology January 20, 2000 HFFACO Change Request proposals initialed by hand, page by page, by Ecology and DOE lead negotiators (Roger Stanley for Ecology, George Sanders and William J. Taylor for DOE) (initialed January 24, 2000).

³¹ Telefaxed Letter, OO-ORL-026: Keith Klein, Manager, Richland Field Office, USDOE to Tom Fitzsimmons, Director, Washington Department of Ecology and Chuck Clarke, Administrator, USEPA Region 10, January 31, 2000.

VIII. DOE Proposed Resolution

DOE's (last minute) January 31, 2000 proposal was based on the establishment of few HFFACO regulatory requirements in a manner that did not meet commitments made between the agencies and would not hold DOE accountable to perform required work until distant outyear milestones were missed.

Most notably, DOE's proposal rejected Ecology proposed modifications at HFFACO Article VII, paragraph 26: a) redefining compliance with HFFACO work requirements as "...the performance of sufficient work to allow for continued compliance as DOE progresses to meet Agreement major and interim milestone requirements."³² and b.) requiring that DOE internal work schedules and directives to its contractors be consistent with the requirements of the Agreement³³. Significantly, DOE's proposal failed to include "Agreement requirements as necessary to ensure effective Agreement implementation" as required by the Parties' May 24, 1999 and November 15, 1999 Agreements. Other elements of DOE's proposal included the following:

1. **DOE's proposed modification of present HFFACO tank waste critical path management requirements** (HFFACO Action Plan Section 11.8). This element of DOE's January 31, 2000 proposal would delete the existing HFFACO requirement that DOE manage its tank waste program to specific HFFACO milestone endpoints. Under DOE's proposal, major HFFACO milestones would not stand as management system endpoints (drivers of DOE work). Major HFFACO tank waste program objectives would be reduced to the general status of activities. This DOE proposal element is not consistent with commitments between the Parties to develop HFFACO modifications necessary to ensure effective HFFACO implementation, and would allow DOE to further distance itself from accountability.
2. **DOE's proposal that the manager of the Richland Field Office be sole DOE HFFACO signator.** This proposal would afford DOE's Office of River Protection Manager no formal responsibility for tank waste work under the HFFACO contrary to statutory requirements that specifically assign management responsibility for all aspects of the tank waste remediation system to the manager of ORP, i.e., "MANAGEMENT AND RESPONSIBILITIES OF OFFICE. ... (2) The head of the Office shall be responsible for managing all aspects of the tank waste remediation system..." (PL 105-261, October 17, 1998). DOE's proposal would damage the effectiveness of the HFFACO by distancing DOE management from HFFACO accountability.
3. **DOE's proposed modification of HFFACO major milestone M-26:** While DOE's proposal in this matter accepted some of the State's proposed modifications, it did so in a manner having two (2) core deficiencies: a.) It did not include by reference developing

³² See Ecology January 20, 2000 HFFACO Change Request proposals initialed by hand, page by page, by Ecology and DOE lead negotiators (Roger Stanley for Ecology, George Sanders and William J. Taylor for DOE) (initialed January 24, 2000).

³³ Ibid.

agreements between the agencies clarifying required annual Land Disposal Restriction (LDR) Report content, and b.) Did not recognize that milestones established for mixed waste treatment within the HFFACO must be equivalent to Site Treatment Plan schedule elements required by the FFCA as expressly required by the Parties May 24, 1999 and November 15, 1999 Agreements.

4. **DOE's proposed modification of HFFACO major milestone M-45-00:** Single Shell tank waste retrieval is another area where to date, DOE has ignored HFFACO outyear work requirements and has taken advantage of currently deficient HFFACO provisions allowing it to avoid accountability. This program is far behind schedule, and is increasingly funded by DOE at a level well below project requirements (personal communication with DOE staff). DOE's proposal would have Ecology and EPA agree to complete the renegotiation of "near term" (i.e., prior to September 2004) program requirements by 2/28/2001, too late to effectively drive funding of near term work. Other elements of DOE's proposal would aid in cutting the waste retrieval program further, at the same time that concern regarding Hanford tank leaks is on the rise.
5. **DOE's proposed addition of a new HFFACO major milestone M-47-00:** DOE's proposal here was inconsistent with commitments made within the Parties May 24, 1999 and November 15, 1999 Agreements to negotiate HFFACO milestones as necessary to ensure effective Agreement implementation. The Parties May 24, 1999 and November 15, 1999 Agreements directed the Parties negotiators to develop HFFACO milestones and associated language necessary as a result of Project Hanford Management Contractor (PHMC) work schedules impacted by tank waste treatment complex schedule requirements. Milestones were also to be developed to ensure that DOE and its contractors complete all actions necessary to ensure timely delivery of tank waste feed. DOE's proposal of one milestone scheduled at 2018 makes a mockery of these commitments by omitting any enforceable milestones to drive work prior to the Phase I processing completion date.
6. **DOE's proposed addition of a new HFFACO major milestone M-62-00:** This proposal element centered on the deletion of existing HFFACO tank waste requirements and the establishment of replacement schedules governing the construction and operation of a tank waste treatment complex. Under the State's proposal it also serves as the establishing mechanism for associated compliance progress reporting requirements. DOE's proposal retained the current HFFACO requirement for the completion of tank waste processing by 2028, and would establish ten (10) milestones governing treatment complex construction and operations over this 28-year period. However, DOE's proposal rejected language (at HFFACO paragraph 26) holding it accountable year to year to do the work necessary to meet these milestones.

DOE's M-62-00 proposal rejected Ecology requirements which would have DOE ORP report compliance status over time, including reporting whether or not DOE and its contractors remain in compliance with HFFACO requirements, i.e., whether or not "DOE and DOE contractor(s) have completed sufficient work to allow for continued compliance as it progresses to meet Agreement major and interim milestone requirements".

DOE's M-62-00 proposal also rejected language previously agreed to by DOE negotiators defining the minimum amount of waste to be processed in Phase I so as to be accurate, consistent with current DOE/BNFL contract definitions, and so as to not be subject to future abuse.

DOE's M-62-00 proposal also rejected Ecology proposed language establishing a milestone governing DOE submittal of a "RCRA delisting petition" for DOE's vitrified HLW despite a specific commitment to do so within the Parties' November 15 agreement.

DOE's last minute, January 31, 2000 proposal was far too little, too late. With no agreement, the Director of Ecology was again required to issue a final decision or determination. Scheduling of this determination was set at February 14, 2000, pursuant to HFFACO Article VIII, paragraph 30 (D) and the Parties' November 15, 1999 Agreement.

IX. Agency actions following close of the period allotted for resolution

Following receipt of DOE's proposal following close of business on the last day allowed for negotiations, the Director of Ecology forwarded EPA's Regional Administrator a request noting that the Parties had not reached agreement, and asking that EPA join the State in the development and issuance of a Final Determination in this matter.³⁴ EPA's response was received on February 3, 2000.³⁵ Regional Administrator Clarke noted that: "It is appalling that after 18 months of negotiations we don't have agreement on a program to address what certainly is one of the nation's most severe environmental problems." And that: "DOE's refusal to agree to language and milestones in the HFFACO that will hold the Department accountable for making adequate progress each year towards long-term milestones for retrieval of waste, and for startup and completion of tank waste treatment is unacceptable. It is distressing that DOE is unwilling to commit to milestones and other requirements that require DOE and its contractors to complete all actions necessary to provide timely delivery of tank waste feed to the tank waste treatment complex, and won't commit to provide quarterly reports which indicate whether or not DOE is on schedule to meet long-term milestones. These DOE positions are clearly unacceptable. The HFFACO must include requirements and milestones that ensure that real progress is made and sustained each year in addressing the multitude of severe environmental and public health risks posed by the Hanford tanks." EPA also noted that the State could count on its assistance and full support in the development and issuance of a Final Determination.

Agency actions during the ensuing weeks focused on periodic discussions between top State and agency management attempting to narrow the issues barring agreement and the concurrent development of this determination.

³⁴ Letter, Tom Fitzsimmons, Director, Washington Department of Ecology, to Chuck Clarke, Administrator, EPA Region 10, January 31, 2000.

³⁵ Letter, Chuck Clarke, Administrator, EPA Region 10, to Tom Fitzsimmons, Director, Washington Department of Ecology.

Agency actions aimed at narrowing disagreement: The State's disappointment that agreement had not been reached, and that the Parties core disagreement centered on whether or not DOE will be held accountable to perform required work was subsequently noted by Governor Locke within a February 7, 2000 letter to Secretary Richardson³⁶

"Given the history of Hanford cleanup, we must move beyond partial solutions and pledges. We need an enforceable schedule that addresses the full tank waste problem. ...

The second issue involves the accountability measures for tank waste treatment and retrieval under the Tri-Party Agreement. After eighteen months of difficult negotiations, we reached an agreement with your Richland office. However, I am advised that the parts of the agreement assuring us of steady progress toward compliance were rejected by your headquarters staff. I am very troubled by this development."

Governor Locke went on to note that he hoped to meet with the Secretary on these matters while in Washington D. C. in late February. The scheduling of this meeting resulted in Ecology, EPA and DOE extending once again, the deadline for issuance of a Final Determination, in hopes that the Governor and the Secretary could aid the Parties in reaching a mutually acceptable agreement. This additional extension set the due date for Final Determination at March 15, 2000^{37 38}.

Anticipating the meeting between the Governor and the Secretary, Ecology and DOE management and staff conducted a number of discussions hoping to narrow the areas of disagreement. These discussions resulted in a number of tentative agreements including the following:

- Tentative agreement on the wording of draft HFFACO language pertaining to SST waste retrieval and critical path management.
- Tentative agreement on modifications resulting from the establishment of DOE's Office of River Protection (including agreement that DOE's ORP Manager would be signator for major tank waste HFFACO actions).
- Tentative agreement on the wording of a tank waste treatment compliance reporting milestone.
- Tentative agreement on a number of HFFACO tank waste milestones previously rejected by DOE, including milestone wording and due dates.

³⁶ Letter: Governor Gary Locke to Secretary of Energy Bill Richardson, February 7, 2000.

³⁷ "Extension of Period for Issuance of Final Determinations", Tom Fitzsimmons, Director, Ecology; Richard T. French, Manager, USDOE, Office of River Protection; Keith A. Klein, Manager, USDOE, Richland Field Office; and Chuck Clarke, USEPA Regional Administrator, Region 10, February 14, 2000.

³⁸ This meeting was subsequently cancelled by DOE due to unavailability of the Secretary.

Unfortunately, the basic disagreement between the Parties centering on modifications to HFFACO Article VII, paragraph 26 (WORK) remained. This core disagreement over whether or not and how Ecology and EPA may hold DOE accountable to perform required work over time threatens to allow continuing cycles of project delay, and arguably would effectively preclude enforcement action until distant outyear milestones are missed. Though Ecology received a last minute DOE proposal requesting further extension and suggesting that it would be willing to notify Ecology when it felt work was in substantial jeopardy, the basic issue of accountability remained unresolved³⁹.

With no agreement reached by March 15 2000, Ecology prepared for issuance of a final determination in this matter. However, late in the day on March 15, Ecology was notified that DOE Secretary Richardson's Chief of Staff had requested yet another extension by telephone call to Governor Locke's staff. As a result of this request Ecology granted extension through March 29 2000 in hopes that agreement could be reached⁴⁰. Following this final extension, Ecology, DOE, and EPA management and staff continued attempts to resolve areas of disagreement. Though some progress was made, disagreements regarding how, and the extent to which DOE would be held accountable to perform required work remained (e.g., See March 28 offers between the Parties⁴¹, ⁴²).

The Parties have consequently failed to reach agreement.

X. Findings and Final determination

Since negotiation of the Parties' initial HFFACO in 1989, Ecology and EPA have worked to establish tank waste treatment facility (and associated) compliance work requirements which are reasonable, achievable, and which may be met in coordination with other Hanford cleanup (HFFACO) requirements. It is disappointing to say the least that DOE has failed to move forward in the retrieval of wastes from its failing SSTs, to construct and operate a tank waste treatment complex, or to otherwise comply with federal and state hazardous waste law as they pertain to DOE's Hanford site tank wastes. DOE has ignored HFFACO RCRA tank waste requirements after approving them, has repeatedly changed course, has failed to put in place adequately structured compliance management systems designed to track and report continued compliance or noncompliance, and continues to argue for HFFACO terms which would not hold it accountable to comply with the law.

³⁹ Letter, Keith A. Klein, Manager, Manager, DOE Richland to Tom Fitzsimmons, Director, Washington Department of Ecology, March 15, 2000.

⁴⁰ "Extension of Period for Issuance of Final Determinations", Tom Fitzsimmons, Director, Ecology; Richard T. French, Manager, USDOE, Office of River Protection; Keith A. Klein, Manager, USDOE, Richland Field Office; and Chuck Clarke, USEPA Regional Administrator, Region 10, March 15, 2000.

⁴¹ Telefax, Keith Klein, Manager, DOE Richland Operations Office to Tom Fitzsimmons, Director, Ecology, March 28 2000.

⁴² E-mail, Last and Best Offer, Tom Fitzsimmons, Director, Ecology to Keith Klein, Manager, DOE Richland Operations Office, March 28 2000.

DOE's present proposals in this matter would set the stage for additional repeated delays in the construction and operation of tank waste treatment facilities, and in the timely retrieval of Single-Shell Tank wastes. Timely action is necessary to address the risks that these tank wastes pose to human health and the environment.

In the Parties' May 24, 1999 and November 15 1999 Agreements, DOE agreed to the establishment of tank waste treatment requirements designed to effectively drive all phases of work, and to ensure effective HFFACO implementation through the review and modification as necessary of HFFACO requirements including those pertaining to work, critical path, change control, and reporting. DOE has offered no compelling rationale against the establishment of such requirements.

Further negotiations in this matter under the HFFACO are not likely to succeed.

Consequently, in light of the Administrative Record and the findings outlined above, and in an effort to ensure the safe and timely retrieval and treatment of DOE's Hanford site mixed high-level tank wastes, my final determination in this matter is as follows:

1. DOE proposals in this matter are unacceptable and are hereby disapproved.
2. HFFACO modifications made by this Final Determination are made: consistent with the Parties' May 24, 1999 Agreement In Principle and November 15, 1999 Agreement on Principal Regulatory Commitments Pertaining to Hanford Tank Waste Treatment Complex Construction and Operations, in order to ensure timely DOE compliance with Federal and State hazardous waste management requirements, and in order to ensure timely and effective action is taken in recognition of the risks that DOE's high-level radioactive tank wastes pose to human health and the environment.
3. DOE shall perform and complete all work necessary to comply with the terms of this Final Determination as follows⁴³:

A. Acquisition and Operation of a Tank Waste Pretreatment and Vitrification Complex and Associated HFFACO Modifications.

1. HFFACO major milestone completion dates for milestones M-50-00 (Complete Pretreatment Processing of Hanford Tank Waste: 12/31/2028), M-51-00 (Complete Vitrification of Hanford High Level Tank Waste: 12/31/2028), and M-61-00 (Complete Pretreatment and Immobilization of Hanford Low Activity Tank Waste (LAW) *under the alternate path*: 12/31/2028) are not modified and remain in force under the consolidated new M-62-00 major milestone established by this determination (See following text).
2. HFFACO major milestone M-60-00 (Complete Pretreatment and Immobilization of Hanford Low Activity Tank Waste (LAW) *under the primary path*: 12/31/2024), and interim

⁴³ See HFFACO Part Two, Article VIII, paragraph 30 (I).

milestones and target dates in the M-50-00, M-51-00, M-60-00, and M-61-00 series' are hereby deleted in their entirety.

3. **The following new HFFACO M-62-00 series milestones and target work requirements for procurement, construction and operation of a tank waste treatment complex for the pretreatment and vitrification of DOE's Hanford site SST and DST tank wastes are hereby established.**

M-62-00	<p>COMPLETE PRETREATMENT PROCESSING AND VITRIFICATION OF HANFORD HIGH LEVEL (HLW) AND LOW ACTIVITY (LAW) TANK WASTES.</p> <p>COMPLIANCE WITH THE WORK SCHEDULES SET FORTH IN THIS M-62 SERIES IS DEFINED AS THE PERFORMANCE OF SUFFICIENT WORK TO ASSURE WITH REASONABLE CERTAINTY THAT DOE WILL ACCOMPLISH SERIES M-62 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</p>	12/31/2028 <i>(not modified, consolidated from M-50-00, M-51-00, M-60-00 and M-61-00 due dates)</i>
M-62-00A	<p>COMPLETE PRETREATMENT PROCESSING AND VITRIFICATION OF HANFORD HLW AND LAW PHASE I TANK WASTES.</p> <p>PHASE I TANK WASTE PROCESSING SHALL PRETREAT AND VITRIFY NO LESS THAN 10% OF HANFORD'S TANK WASTE BY MASS⁴⁴ AND 25% BY ACTIVITY.</p>	2/28/2018
M-62-01	<p>SUBMIT SEMI-ANNUAL PROJECT COMPLIANCE REPORT</p> <p>DOE'S MANAGER, OFFICE OF RIVER PROTECTION (ORP), WILL SUBMIT A "<u>PROJECT COMPLIANCE REPORT</u>" TO ECOLOGY SEMI-ANNUALLY (A COPY OF THIS REPORT WILL ALSO BE PROVIDED TO EPA'S REGION 10 OFFICE OF WASTE AND CHEMICALS MANAGEMENT). THIS REPORT WILL DOCUMENT DOE COMPLIANCE WITH AGREEMENT REQUIREMENTS AND SHALL BE SEQUENTIALLY UPDATED BY INFORMATION DOCUMENTING WORK PERFORMED AND ISSUES</p>	Semi-annually beginning July 31, 2000.

⁴⁴ In meeting this requirement DOE will pretreat and vitrify no less than 6000 metric tons of sodium (in the instance of LAW feed) and 800 metric tons of waste oxides (in the instance of HLW feed).

	<p>ENCOUNTERED DURING THE PREVIOUS REPORT PERIOD. THE ORP PROJECT COMPLIANCE REPORT WILL BE PROVIDED AS PART OF THE PARTIES' INTER AGENCY MANAGEMENT INTEGRATION TEAM (IAMIT) MEETINGS, AND SHALL DOCUMENT THE STATUS OF PROGRESS TO DATE, PROGRESS MADE DURING THE REPORT PERIOD, AND ACTIVITIES EXPECTED IN THE FORSEEABLE FUTURE. THE REPORT WILL INCLUDE BUT IS NOT LIMITED TO: (1) A CONCISE DESCRIPTION OF PROJECT ACCOMPLISHMENTS AND ISSUES INCLUDING THOSE ENCOUNTERED DURING THE PREVIOUS YEAR AND THOSE EXPECTED IN THE NEAR TERM, (2) WHEN APPLICABLE, A DESCRIPTION OF ACTIONS INITIATED OR OTHERWISE TAKEN TO RECOVER ANY AGREEMENT SCHEDULE SLIPPAGE, (3) A BUDGET AND COST STATUS, (4) A STATEMENT DOCUMENTING WHETHER OR NOT DOE AND DOE'S CONTRACTOR(S) REMAIN IN COMPLIANCE WITH AGREEMENT REQUIREMENTS, I.E. WHETHER OR NOT "DOE AND DOE CONTRACTOR(S) HAVE COMPLETED SUFFICIENT WORK TO ALLOW ACHIEVEMENT OF AGREEMENT REQUIREMENTS." , AND (5) CONCISE DESCRIPTIONS OF ANY NONCOMPLIANCE. COPIES OF ALL PERTINENT DOE WORK DIRECTIVES AND/OR AUTHORIZATIONS ISSUED TO DOE'S CONTRACTOR(S) SHALL BE PROVIDED ON REQUEST.</p>	
M-62-02	<p>SUBMITAL OF HANFORD TANK WASTE TREATMENT ALTERNATIVES REPORT.</p> <p>DOE WILL SUBMIT A REPORT THAT DESCRIBES THE ALTERNATIVES (TECHNICAL, FINANCIAL, AND CONTRACTUAL) TO TREAT HANFORD TANK WASTE. THE REPORT WILL: 1.) IDENTIFY AND DESCRIBE CREDIBLE ALTERNATIVES TO THE CURRENT PRIVATIZATION APPROACH THAT MEET DOE COMMITMENTS TO ACHIEVE HOT OPERATIONS BY DECEMBER, 2007, AND TO TREAT NO LESS THAN 10 PERCENT OF THE TANK WASTE BY MASS AND 25 PERCENT OF THE TANK WASTE BY ACTIVITY BY FEBRUARY, 2018, 2.) SERVE AS A BASIS TO AMEND THE FISCAL YEAR 2001 BUDGET REQUEST FOR AUTHORITY TO IMPLEMENT A CONTINGENCY OPTION (AUTHORITY TO USE PRIVATIZATION SET-ASIDE FUNDS), AND 3.) BE RELEASED CONCURRENTLY TO ECOLOGY, EPA, AND THE PUBLIC.</p>	3/01/2000
M-62-03	<p>SUBMIT DOE PETITION FOR RCRA DELISTING OF VITRIFIED HLW.</p> <p>DOE WILL SUBMIT ITS PETITION FOR DELISTING OF THE IMMOBILIZED HIGH-LEVEL WASTE (HLW) FROM THE PHASE I WASTE TREATMENT PLANT FROM RCRA AND THE WASHINGTON STATE HWMA (DELISTING PETITION) IN ACCORDANCE WITH 40 CFR 260.22 AND</p>	12/31/2006

	WAC 173-303-072.	
M-62-04T	<p>READINESS TO PROCEED – SUPPORT TO PHASE I TREATMENT.</p> <p>DOE AND ITS HANFORD TANK FARMS OPERATIONS CONTRACTOR WILL COMPLETE ALL NECESSARY WORK AND ACHIEVE READINESS TO PROCEED IN SUPPORT OF PART B-2, PHASE I.</p>	5/01/2000
M-62-05	<p>ISSUANCE OF DOE AUTHORIZATION TO PROCEED – PHASE I TREATMENT.</p> <p>DOE WILL AUTHORIZE PART B-2, PHASE I OF CONTRACT DE-AC06-96RL13308 (THE CONTRACT PHASE TO DESIGN, CONSTRUCT, COMMISSION, AND PROVIDE SERVICES FOR HANFORD TANK WASTE PRETREATMENT, LOW-ACTIVITY WASTE VITRIFICATION, AND HIGH-LEVEL WASTE VITRIFICATION).</p> <p>THE PARTIES WILL REVISE OR CONFIRM START OF CONSTRUCTION AND CONSTRUCTION PROGRESS MILESTONE DUE DATES (SEE MILESTONES M-62-06 AND M-62-07) WITHIN SIX (6) MONTHS OF AUTHORIZATION TO PROCEED. REVISION, IF NECESSARY, SHALL BE CONSISTENT WITH HOT COMMISSIONING BY DECEMBER 2007, COMMERCIAL OPERATIONS BY DECEMBER 2009, AND COMPLETION OF PHASE I TREATMENT BY FEBRUARY 2018.</p>	8/31/2000
M-62-06	<p>START OF CONSTRUCTION – PHASE I TREATMENT COMPLEX.</p> <p>FIRST PLACEMENT OF STRUCTURAL CONCRETE AT ONE OF THE TREATMENT COMPLEX PRINCIPLE FACILITIES (I.E, PRETREATMENT, LOW-ACTIVITY WASTE VITRIFICATION, OR HIGH-LEVEL WASTE VITRIFICATION FACILITIES).</p>	7/31/2001
M-62-07	<p>CONSTRUCTION PROGRESS MILESTONES (2) – PHASE I TREATMENT COMPLEX.</p> <p>DOE SHALL COMPLETE TWO CONSTRUCTION PROGRESS MILESTONES DURING THE PERIOD BETWEEN START OF CONSTRUCTION AND START OF COMMERCIAL OPERATIONS; THESE MILESTONES WILL BE ESTABLISHED WITHIN 60 DAYS OF ISSUANCE OF THE DOE AUTHORIZATION TO PROCEED WITH PHASE I TREATMENT.</p>	TBD
M-62-08	<p>SUBMITTAL OF HANFORD TANK WASTE PHASE II TREATMENT ALTERNATIVES REPORT.</p> <p>DOE WILL SUBMIT A PRELIMINARY REPORT THAT</p>	7/31/2005

	<p>DESCRIBES THE TECHNICAL, FINANCIAL, AND CONTRACTUAL ALTERNATIVES TO TREAT THE TANK WASTES REMAINING AFTER COMPLETION OF PHASE I TREATMENT. THE REPORT WILL IDENTIFY CREDIBLE ALTERNATIVES TO COMPLETE TREATMENT OF THE REMAINING WASTES BY 2028, AND AID IN BUDGET PLANNING FOR FUTURE BUDGET AUTHORITY SUBMITTAL. THE REPORT WILL BE UPDATED EVERY TWO YEARS UNTIL THE TANK WASTE TREATMENT PHASE II PLAN IS FINALIZED.</p>	
M-62-09	<p>START (HOT) COMMISSIONING – PHASE I TREATMENT COMPLEX.</p> <p>DOE WILL START HOT COMMISSIONING OF ITS TANK WASTE TREATMENT COMPLEX (DEFINED AS FIRST PRINCIPLE FACILITY RECEIPT OF RADIOACTIVE TANK WASTE FOR TREATMENT).</p>	12/31/2007
M-62-10	<p>START COMMERCIAL OPERATIONS – PHASE I TREATMENT COMPLEX.</p> <p>DOE WILL ACHIEVE SUSTAINED THROUGHPUT OF PRETREATMENT, LOW-ACTIVITY WASTE VITRIFICATION AND HIGH-LEVEL WASTE VITRIFICATION PROCESSES, AND DEMONSTRATED TREATMENT COMPLEX AVAILABILITY TO COMPLETE TREATMENT OF NO LESS THAN 10% OF THE TANK WASTE BY MASS AND 25% OF THE TANK WASTE BY ACTIVITY BY DECEMBER 2018.</p>	12/31/2009
M-62-11	<p>SUBMITTAL OF HANFORD TANK WASTE TREATMENT PHASE II PLAN.</p> <p>DOE WILL SUBMIT TO ECOLOGY A DETAILED PLAN AND PROPOSAL FOR THE PROCESSING OF THE REMAINDER OF DOE’S LAW AND HLW WASTES (PHASE II WASTES). THIS PLAN AND PROPOSAL WILL BE ACCOMPANIED BY A DRAFT NEGOTIATIONS AGREEMENT IN PRINCIPLE (AIP), AND DRAFT AGREEMENT CHANGE REQUEST CONTAINING SUFFICIENT ENFORCEABLE MILESTONES AND ASSOCIATED AGREEMENT REQUIREMENTS TO EFFECTIVELY DRIVE PHASE II WORK TO COMPLETION IN ACCORDANCE WITH AGREEMENT REQUIREMENTS. PHASE II AGREEMENT NEGOTIATIONS WILL BE COMPLETED WITHIN SIX (6) MONTHS OF AIP FINALIZATION.</p>	3 years after start of Commercial Operations (See M-62-10).
M-62-12	<p>ISSUANCE OF DOE AUTHORIZATION TO PROCEED – PHASE II TREATMENT.</p> <p>DOE WILL AUTHORIZE THE CONTRACT PHASE TO DESIGN, CONSTRUCT, COMMISSION, AND PROVIDE SERVICES FOR HANFORD TANK WASTE</p>	TBD (To be determined by negotiations provided for at M-62-11)

	PRETREATMENT, LOW-ACTIVITY WASTE VITRIFICATION, AND HIGH-LEVEL WASTE VITRIFICATION OF ALL REMAINING HANFORD TANK WASTE, CONSISTENT WITH COMPLETION OF TREATMENT BY DECEMBER 2028.	
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B. Other work requirements in support of tank waste treatment complex construction and operations⁴⁵.

1. The following modifications are hereby made to HFFACO major milestone series M-20-00 (RCRA Part B Permit Applications and Closure/Post Closure Plans). Modifications made to existing HFFACO requirements are shown here as either **shaded new text** or deleted ~~strikeout~~ text as follows:

M-20-00 LEAD AGENCY: ECOLOGY	SUBMIT PART B PERMIT APPLICATIONS OR CLOSURE/POST CLOSURE PLANS FOR ALL RCRA TSD UNITS. PERMIT APPLICATIONS, CLOSURE, AND POST CLOSURE PLANS WILL BE SUBMITTED TO ECOLOGY FOR APPROVAL. INDIVIDUAL UNIT SUBMITTALS (ENFORCEABLE AS INTERIM MILESTONES) WILL OCCUR AS SHOWN IN APPENDIX D. PRECLOSURE WORK PLANS WILL BE PREPARED AND SUBMITTED FOR APPROVAL FOR TSD UNITS WHICH WILL ACHIEVE CLOSURE IN CONJUNCTION WITH THE DISPOSITION OF THE FACILITY IN WHICH THEY ARE CONTAINED. COMPLIANCE WITH THE WORK SCHEDULES SET FORTH IN THIS M-20 SERIES IS DEFINED AS THE PERFORMANCE OF SUFFICIENT WORK TO ASSURE WITH REASONABLE CERTAINTY THAT DOE WILL ACCOMPLISH SERIES M-20 MAJOR AND INTERIM MILESTONE REQUIREMENTS. 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.	2/28/2004
M-20-56	SUBMIT CANSITER STORAGE FACILITY PART B DANGEROUS WASTE PERMIT APPLICATION TO ECOLOGY.	12/31/2000 6/30/2002
M-20-57	SUBMIT INTERIM ILAW DISPOSAL FACILITY CERTIFIED PART	12/31/2000

⁴⁵ The reader should note that disagreements between the Parties regarding the modification of HFFACO milestone series M-26-00 (e. g., See Ecology Change Request M-26-00-01 dated February 23, 2000) are resolved within the context of Ecology's March 15, 2000 LDR Final Determination and are consequently not addressed by this determination.

	B PERMIT APPLICATION TO ECOLOGY.	8/31/2002
M-20-58	SUBMIT LAND DISPOSAL FACILITY PART B PERMIT APPLICATION TO ECOLOGY.	12/31/2003
M-20-59	<p>SUBMIT DANGEROUS WASTE PERMIT APPLICATION FOR PHASE I TANK WASTE TREATMENT COMPLEX.</p> <p>DOE WILL SUBMIT ITS CERTIFIED APPLICATION FOR A MODIFICATION TO THE HANFORD DANGEROUS WASTE PERMIT (PERMIT NUMBER WA7890008967) TO AUTHORIZE TREATMENT AND STORAGE OF DANGEROUS AND MIXED WASTE AT THE TREATMENT COMPLEX. AT THIS TIME, DOE WILL PROVIDE PUBLIC REVIEW AND COMMENT OPPORTUNITIES THAT ARE CONSISTENT WITH THE REQUIREMENTS FOR A PERMITTEE-INITIATED CLASS 3 PERMIT MODIFICATION.</p>	4/28/2000

2. **The following modifications are hereby made to HFFACO major milestone series M-26-01 (RCRA Part B Permit Applications and Closure/Post Closure Plans). Modifications made to existing HFFACO requirements are shown here as either shaded new text or deleted strikeout text as follows (See also, Ecology's associated March 29 2000 LDR Final Determination):**

M-26-011	<p>SUBMIT AN ANNUAL HANFORD LAND DISPOSAL RESTRICTIONS REPORT IN ACCORDANCE WITH THE LDR PLAN AGREEMENT REQUIREMENTS TO COVER THE PERIOD FROM 4-1 OF THE PREVIOUS YEAR THROUGH 3-31 OF THE REPORTING YEAR.</p> <p>DOE'S ANNUAL HANFORD LAND DISPOSAL RESTRICTIONS REPORT: 1) WILL BE EQUIVALENT TO (I.E., SHALL MEET ALL SUBSTANTIVE REQUIREMENTS OF) SITE TREATMENT PLANS AS REQUIRED BY THE FEDERAL FACILITY COMPLIANCE ACT OF 1992 (FFCA), AND 2) WILL MEET ALL REQUIREMENTS OF ECOLOGY'S FINAL DETERMINATION IN THIS MATTER DATED MARCH 29, 2000. THE REPORT SHALL INCLUDE A DESCRIPTION OF ACTIVITIES PLANNED AND TAKEN IN ACCORDANCE WITH AGREEMENT REQUIREMENTS THE LDR PLAN AND PRIOR ANNUAL LDR REPORTS TO ACHIEVE FULL COMPLIANCE WITH AGREEMENT AND LDR REQUIREMENTS. THE REPORT SHALL UPDATE ALL INFORMATION CONTAINED IN THE LDR PLAN AND THE PRIOR ANNUAL LDR REPORT, INCLUDING PLANS AND SCHEDULES.</p> <p>THE FORMAT FOR THE REPORT SHALL BE BASED ON EQUIVALENCY WITH SITE TREATMENT PLAN REQUIREMENTS OF THE FFCA, ECOLOGY'S FINAL DETERMINATION IN THIS MATTER DATED MARCH 29, 2000, AND THE "REQUIREMENTS FOR THE HANFORD LDR PLAN," ISSUED BY EPA AND ECOLOGY ON APRIL 10, 1990. ADDITIONALLY, THE REPORT SHALL DESCRIBE ANY OTHER STUDIES OR EFFORTS THAT HAVE BEEN OR WILL BE UNDERTAKEN TO IDENTIFY ALTERNATIVES TO LAND DISPOSAL OF MIXED WASTES. THE NONRADIOACTIVE PORTION OF ANY MIXED WASTES THAT ARE REGULATED UNDER WASHINGTON STATE-ONLY REGULATIONS SHALL BE ADDRESSED IN THE REPORT. THE REPORT SHALL BE SUBMITTED AS A PRIMARY</p>	4/30/1999
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	<p>DOCUMENT.</p> <p>THE REPORT SHALL DOCUMENT SPECIFY AGREEMENT MAJOR AND INTERIM MILESTONES FOR ACHIEVING COMPLIANCE WITH LDR TREATMENT REQUIREMENTS AT TSD MIXED WASTE UNITS BY: 1) IDENTIFYING AND REPORTING PROGRESS AGAINST AGREEMENT MILESTONES, AND 2) PROPOSING THE ESTABLISHMENT OF MILESTONES IN THE INSTANCE OF TSD MIXED WASTES NOT YET COVERED UNDER THE AGREEMENT, AND FOR THE MODIFICATION OF CURRENT HFFACO SCHEDULES AS NECESSARY TO ACHIEVE COMPLIANCE WITH LDR TREATMENT REQUIREMENTS IN A MANNER EQUIVALENT TO STPs AS REQUIRED BY THE FFCA. THESE MILESTONES SHALL BE BASED ON SIGNIFICANT EVENTS IDENTIFIED IN THE LDR REPORT (I.E., SCHEDULES EQUIVALENT TO THOSE OF SITE TREATMENT PLANS AS REQUIRED BY THE FFCA) AND ARE WILL BE SHOWN IN AS SCHEDULES WHICH ARE UPDATED ANNUALLY AS PART OF THE REPORT. APPROPRIATE MILESTONES WILL BE INCORPORATED IN THE AGREEMENT VIA THE CHANGE PROCESS DEFINED IN SECTION 12 OF THE ACTION PLAN UPON ISSUANCE OF THE APPROVED REPORTS.</p>	
M-26-01J	<p>SUBMIT AN ANNUAL HANFORD LAND DISPOSAL RESTRICTIONS REPORT IN ACCORDANCE WITH THE LDR PLAN AGREEMENT REQUIREMENTS TO COVER THE PERIOD FROM 4-1 OF THE PREVIOUS YEAR THROUGH 3-31 OF THE REPORTING YEAR.</p> <p>"SEE M-26-01I FOR COMPLETE WORDING OF THIS MILESTONE"</p>	4/30/2000
M-26-01K	<p>SUBMIT AN ANNUAL HANFORD LAND DISPOSAL RESTRICTIONS REPORT IN ACCORDANCE WITH THE LDR PLAN AGREEMENT REQUIREMENTS TO COVER THE PERIOD FROM 4-1 OF THE PREVIOUS YEAR THROUGH 3-31 OF THE REPORTING YEAR.</p> <p>"SEE M-26-01I FOR COMPLETE WORDING OF THIS MILESTONE"</p>	4/30/2001
M-26-01L	<p>SUBMIT AN ANNUAL HANFORD LAND DISPOSAL RESTRICTIONS REPORT IN ACCORDANCE WITH THE LDR PLAN AGREEMENT REQUIREMENTS TO COVER THE PERIOD FROM 4-1 OF THE PREVIOUS YEAR THROUGH 3-31 OF THE REPORTING YEAR.</p> <p>"SEE M-26-01I FOR COMPLETE WORDING OF THIS MILESTONE"</p>	4/30/2002
M-26-01M	<p>SUBMIT AN ANNUAL HANFORD LAND DISPOSAL RESTRICTIONS REPORT IN ACCORDANCE WITH THE LDR PLAN AGREEMENT REQUIREMENTS TO COVER THE PERIOD FROM 4-1 OF THE PREVIOUS YEAR THROUGH 3-31 OF THE REPORTING YEAR.</p> <p>"SEE M-26-01I FOR COMPLETE WORDING OF THIS MILESTONE"</p>	4/30/2003 and annually thereafter

3. The following modifications are hereby made to HFFACO major milestone series M-45-00 (Complete closure of all single-shell tank farms). Modifications made to existing HFFACO requirements are shown here as either shaded new text or deleted ~~strikeout~~ text as follows:

M-45-00	COMPLETE CLOSURE OF ALL SINGLE SHELL TANK FARMS.	9/30/2024
LEAD AGENCY:	CLOSURE WILL FOLLOW RETRIEVAL OF AS MUCH TANK WASTE AS TECHNICALLY POSSIBLE, WITH TANK WASTE	

ECOLOGY	<p>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 WAIVER REQUESTS ARE OUTLINED IN THE APPENDIX TO THIS CHANGE REQUEST.</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 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-</p>
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	<p>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</p>	
<p>M-45-00A</p>	<p>COMPLETE RENEGOTIATION OF "NEAR TERM" (I.E., PRIOR TO 9/30/2006) SST WASTE RETREIVAL ACTIVITIES.</p> <p>THESE NEGOTIATIONS SHALL TAKE INTO ACCOUNT VARIABLES SUCH AS WORK IN PROGRESS, DOE'S DEVELOPING "PRIVATIZATION" INITIATIVE 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 RETREIVAL TECHNOLOGY DEVELOPMENT (INCLUDING CONFINED SLUICING AND ROBOTIC TECHNOLOGIES), 2.) RETREIVAL PERFORMANCE EVALUATIONS, 3.) LEAK DETECTION, MONITORING, AND MITIGATION, 4.) SELECTION OF SST RETREIVAL SEQUENCE, AND 5.) DESIGN, CONSTRUCTION AND OPERATION OF SST WASTE RETREIVAL SYSTEMS. THESE M-45-00A NEGOTIATIONS SHALL INCLUDE THE ESTABLISHMENT OF INTERIM MILESTONES FOR: A) INITIATION OF CONSTRUCTION, B) INITIATION OF RETREIVAL, AND C) COMPLETION OF CONFINED SLUICING AT TANK C-104, AND D) INITIATION OF CONSTRUCTION OF A SALTCAKE DISSOLUTION AND RETREIVAL SYSTEM, E) INITIATION OF RETREIVAL, AND F) COMPLETION OF SALTCAKE WASTE RETREIVAL AT TANK S-103.</p>	<p>8/31/2000</p>
<p>M-45-02</p>	<p>SUBMIT ANNUAL UPDATES TO SST RETRIEVAL SEQUENCE DOCUMENT.</p> <p>THIS PROVIDES FOR AN ANNUAL UPDATE OF AN SST RETRIEVAL SEQUENCE DOCUMENT THAT WILL DEFINE THE TANK SELECTION CRITERIA, TANK SELECTION RATIONALE, REFERENCE RETRIEVAL METHOD(S) FOR EACH TANK, AND THE ESTIMATED RETRIEVAL SCHEDULES. THE ANNUAL UPDATES WILL BE SUBMITTED TO ECOLOGY FOR</p>	<p>9/30/2017 9/30/2000 and annually thereafter.</p>

	APPROVAL.	
M-45-02D	SUBMIT ANNUAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT FOR ECOLOGY APPROVAL. (SEE TEXT OF M-45-02 FOR ADDITIONAL DETAILS).	9/30/1999
M-45-02E	SUBMIT ANNUAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT FOR ECOLOGY APPROVAL. (SEE TEXT OF M-45-02 FOR ADDITIONAL DETAILS).	9/30/2000
M-45-00B	<p>COMPLETE RENEGOTIATION OF SECOND PHASE (I.E., 9/30/2006 THROUGH 9/30/2015) SST WASTE RETRIEVAL ACTIVITIES.</p> <p>THESE NEGOTIATIONS SHALL TAKE INTO ACCOUNT VARIABLES SUCH AS WORK IN PROGRESS, DOE'S DEVELOPING "PRIVATIZATION" INITIATIVE 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, AND 6.) CLOSURE PLANNING AND CLOSURE PLAN DEVELOPMENT.</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>	2/28/2004
M-45-02F	SUBMIT ANNUAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT FOR ECOLOGY APPROVAL. (SEE TEXT OF M-45-02 FOR ADDITIONAL DETAILS).	9/30/2001
M-45-02G	SUBMIT ANNUAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT FOR ECOLOGY APPROVAL. (SEE TEXT OF M-45-02 FOR ADDITIONAL DETAILS).	9/30/2002

M-45-02H	SUBMIT ANNUAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT FOR ECOLOGY APPROVAL. (SEE TEXT OF M-45-02 FOR ADDITIONAL DETAILS).	9/30/2003
M-45-02I	SUBMIT ANNUAL UPDATE OF SST RETRIEVAL SEQUENCE DOCUMENT FOR ECOLOGY APPROVAL. (SEE TEXT OF M-45-02 FOR ADDITIONAL DETAILS).	9/30/2004 and annually thereafter
M-45-03-T01	COMPLETE SST WASTE RETRIEVAL DEMONSTRATION. INITIATE AND COMPLETE A FULL SCALE DEMONSTRATION OF SST RETRIEVAL TECHNOLOGY. THIS DEMONSTRATION WILL BE CONSIDERED COMPLETE WHEN NO LESS THAN 99% OF THE WASTE INVENTORY IS REMOVED FROM THE TANK.	9/30/2003
M-45-03-T02	INITIATE FINAL RETRIEVAL DEMONSTRATION OF C-106. INITIATE FINAL RETRIEVAL OF TANK 241 C-106 TO COMPLETE INITIAL DEMONSTRATION OF SST RETRIEVAL TECHNOLOGIES.	6/30/2002
M-45-03A	INITIATE SLUICING RETRIEVAL OF C-106. INITIATE SLUICING RETRIEVAL OF TANK 241 C-106 TO RESOLVE THE HIGH HEAT SAFETY ISSUE AND DEMONSTRATE WASTE RETRIEVAL.	10/31/1997
M-45-04-T01	PROVIDE INITIAL SINGLE-SHELL TANK RETRIEVAL SYSTEMS. COMPLETE CONSTRUCTION AND RELATED TESTING OF THE INITIAL SST RETRIEVAL SYSTEMS. THIS MILESTONE WILL PROVIDE RETRIEVAL SYSTEMS FOR AN ENTIRE SINGLE-SHELL TANK FARM OR AN EQUIVALENT NUMBER OF TANKS.	11/30/2003
M-45-04-T02	COMPLETE DESIGN FOR THE INITIAL SST RETRIEVAL SYSTEMS.	12/31/2000
M-45-04-T03	COMPLETE CONSTRUCTION FOR THE INITIAL SST RETRIEVAL SYSTEMS.	6/30/2003
M-45-05	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.	9/30/2018

M-45-05-T01	INITIATE TANK WASTE RETRIEVAL FROM ONE SINGLE-SHELL TANK.	12/31/2003
M-45-05-T02	INITIATE TANK RETRIEVAL FROM TWO ADDITIONAL SINGLE-SHELL TANKS.	9/30/2004
M-45-05-T03	INITIATE TANK RETRIEVAL FROM THREE ADDITIONAL SINGLE-SHELL TANKS.	9/30/2005
M-45-05-T04	INITIATE TANK RETRIEVAL FROM FOUR ADDITIONAL SINGLE-SHELL TANKS.	9/30/2006
M-45-05-T05	INITIATE TANK RETRIEVAL FROM FIVE ADDITIONAL SINGLE-SHELL TANKS.	9/30/2007
M-45-05-T06	INITIATE TANK RETRIEVAL FROM FIVE ADDITIONAL SINGLE-SHELL TANKS.	9/30/2008
M-45-05-T07	INITIATE TANK RETRIEVAL FROM SEVEN ADDITIONAL SINGLE-SHELL TANKS.	9/30/2009
M-45-05-T08	INITIATE TANK RETRIEVAL FROM EIGHT ADDITIONAL SINGLE-SHELL TANKS.	9/30/2010
M-45-00C	<p>COMPLETE RENEGOTIATION OF THE REMAINDER OF THE SST WASTE RETREIVAL AND CLOSURE PROGRAM.</p> <p>THESE NEGOTIATIONS WILL ESTABLISH REGULATORY REQUIREMENTS FOR THE REMAINDER OF THE SST WASTE RETREIVAL 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 RETREIVAL AND SST FARM CLOSURE BASED ON EXPERIENCE GAINED FROM SST AND DST WASTE RETREIVAL 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 RETREIVE 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 RETREIVED 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>	6/30/2011

M-45-05-T09	INITIATE TANK RETRIEVAL FROM TEN ADDITIONAL SINGLE-SHELL TANKS.	9/30/2011
M-45-05-T10	INITIATE TANK RETRIEVAL FROM 12 ADDITIONAL SINGLE-SHELL TANKS.	9/30/2012
M-45-05-T11	INITIATE TANK RETRIEVAL FROM 14 ADDITIONAL SINGLE-SHELL TANKS.	9/30/2013
M-45-05-T12	INITIATE TANK RETRIEVAL FROM 17 ADDITIONAL SINGLE-SHELL TANKS.	9/30/2014
M-45-05-T13	INITIATE TANK RETRIEVAL FROM 20 ADDITIONAL SINGLE-SHELL TANKS.	9/30/2015
M-45-05-T14	INITIATE TANK RETRIEVAL FROM 20 ADDITIONAL SINGLE-SHELL TANKS.	9/30/2016
M-45-05-T15	INITIATE TANK RETRIEVAL FROM 20 ADDITIONAL SINGLE-SHELL TANKS.	9/30/2017
M-45-06	<p>COMPLETE CLOSURE OF ALL SINGLE-SHELL TANK FARMS.</p> <p>THE SINGLE-SHELL TANK CLOSURE WORK PLAN WILL BE PREPARED DESCRIBING THE WORK INTEGRATION PROCESS FOR SINGLE-SHELL TANK CLOSURES AND STATUS OF WORK AND INTEGRATION PROCESS. KNOWN ISSUES WILL BE IDENTIFIED AND AN EXPLANATION WILL BE GIVEN ON HOW THESE ISSUES ARE BEING ADDRESSED. THIS WORK PLAN WILL BE PROVIDED TO ECOLOGY FOR REVIEW/COMMENT AND WILL BE USED AS A ROADMAP FOR CLOSURE OF THE SINGLE-SHELL TANKS. BECAUSE OF THE UNCERTAINTIES IN THE CLOSURE PROCESS, THE WORK PLAN WILL EVOLVE AS THESE UNCERTAINTIES ARE RESOLVED AND EVENTUALLY IT WILL BECOME THE SST CLOSURE/POST-CLOSURE PLAN(S) ISSUED FOR ECOLOGY'S APPROVAL UNDER SUBSEQUENT TPA INTERIM MILESTONES. MAJOR WORK AREAS COVERED IN THE WORK PLAN WILL INCLUDE WASTE RETRIEVAL, OPERABLE UNITS CHARACTERIZATION, TECHNOLOGIES DEVELOPMENT TO SUPPORT CLOSURE, REGULATORY PATHWAY AND STRATEGY FOR ACHIEVING CLOSURE.</p>	9/30/2024
M-45-06-T01	SUBMIT TANK CLOSURE/POST-CLOSURE PLAN FOR SELECTED CLOSURE DEMONSTRATION OPERABLE UNIT OR TANK FARM TO ECOLOGY FOR APPROVAL.	11/30/2004
M-45-06-T02	ECOLOGY WILL ISSUE FINAL CLOSURE/POST CLOSURE PLAN FOR SELECTED CLOSURE DEMONSTRATION OPERABLE UNIT OR TANK FARM.	9/30/2006
M-45-06-T03	INITIATE CLOSURE ACTIONS ON AN OPERABLE UNIT OR TANK FARM BASIS. CLOSURE SHALL FOLLOW COMPLETION OF THE RETRIEVAL ACTIONS UNDER PROPOSED MILESTONE	3/31/2012

	M-45-05. CLOSURE WILL BE DEFINED IN AN APPROVED CLOSURE PLAN FOR THE DEMONSTRATION FARM. FINAL CLOSURE IS DEFINED AS REGULATORY APPROVAL OF COMPLETION OF CLOSURE ACTIONS.	
M-45-06-T04	COMPLETE CLOSURE ACTIONS ON ONE OPERABLE UNIT OR TANK FARM.	3/31/2014
M-45-08	ESTABLISH FULL SCALE CAPABILITY FOR MITIGATION OF WASTE TANK LEAKAGE DURING RETRIEVAL SLUICING OPERATIONS.	6/30/2003
M-45-08A	COMPLETE SYSTEM DESIGN AND OPERATING STRATEGY FOR TANK LEAK MONITORING AND MITIGATION FOR SYSTEMS TO BE USED IN CONJUNCTION WITH INITIAL RETRIEVAL SYSTEMS FOR SSTs.	12/31/2000
M-45-08B	COMPLETE DEMONSTRATION AND INSTALLATION OF LEAK MONITORING AND MITIGATION SYSTEMS FOR INITIAL SST RETRIEVAL.	6/30/2003
M-45-09D	SUBMIT ANNUAL PROGRESS REPORTS ON THE DEVELOPMENT OF WASTE TANK LEAK MONITORING/DETECTION AND MITIGATION ACTIVITIES IN SUPPORT OF M-45-08. REPORTS WILL PROVIDE A DESCRIPTION OF WORK ACCOMPLISHED UNDER M-45-08, TECHNOLOGIES, APPLICATIONS, COST, SCHEDULE, AND TECHNICAL DATA. REPORTS WILL ALSO EVALUATE DEMONSTRATIONS PERFORMED BY DOE AND PRIVATE INDUSTRY FOR APPLICABILITY TO SST RETRIEVAL AND PROVIDE RECOMMENDATIONS FOR FURTHER TESTING FOR USE IN RETRIEVAL OPERATIONS.	9/30/1999
M-45-09E	SUBMIT ANNUAL PROGRESS REPORTS ON THE DEVELOPMENT OF WASTE TANK LEAK MONITORING/DETECTION AND MITIGATION ACTIVITIES IN SUPPORT OF M-45-08. REPORTS WILL PROVIDE A DESCRIPTION OF WORK ACCOMPLISHED UNDER M-45-08, TECHNOLOGIES, APPLICATIONS, COST, SCHEDULE, AND TECHNICAL DATA. REPORTS WILL ALSO EVALUATE DEMONSTRATIONS PERFORMED BY DOE AND PRIVATE INDUSTRY FOR APPLICABILITY TO SST RETRIEVAL AND PROVIDE RECOMMENDATIONS FOR FURTHER TESTING FOR USE IN RETRIEVAL OPERATIONS.	9/30/2000
M-45-09F	SUBMIT ANNUAL PROGRESS REPORTS ON THE DEVELOPMENT OF WASTE TANK LEAK MONITORING/DETECTION AND MITIGATION ACTIVITIES IN SUPPORT OF M-45-08. REPORTS WILL PROVIDE A DESCRIPTION OF WORK	9/30/2001

	ACCOMPLISHED UNDER M-45-08, TECHNOLOGIES, APPLICATIONS, COST, SCHEDULE, AND TECHNICAL DATA. REPORTS WILL ALSO EVALUATE DEMONSTRATIONS PERFORMED BY DOE AND PRIVATE INDUSTRY FOR APPLICABILITY TO SST RETRIEVAL AND PROVIDE RECOMMENDATIONS FOR FURTHER TESTING FOR USE IN RETRIEVAL OPERATIONS.	
M-45-09G	SUBMIT ANNUAL PROGRESS REPORTS ON THE DEVELOPMENT OF WASTE TANK LEAK MONITORING/DETECTION AND MITIGATION ACTIVITIES IN SUPPORT OF M-45-08. REPORTS WILL PROVIDE A DESCRIPTION OF WORK ACCOMPLISHED UNDER M-45-08, TECHNOLOGIES, APPLICATIONS, COST, SCHEDULE, AND TECHNICAL DATA. REPORTS WILL ALSO EVALUATE DEMONSTRATIONS PERFORMED BY DOE AND PRIVATE INDUSTRY FOR APPLICABILITY TO SST RETRIEVAL AND PROVIDE RECOMMENDATIONS FOR FURTHER TESTING FOR USE IN RETRIEVAL OPERATIONS.	9/30/2002
M-45-09H	SUBMIT ANNUAL PROGRESS REPORTS ON THE DEVELOPMENT OF WASTE TANK LEAK MONITORING/DETECTION AND MITIGATION ACTIVITIES IN SUPPORT OF M-45-08. REPORTS WILL PROVIDE A DESCRIPTION OF WORK ACCOMPLISHED UNDER M-45-08, TECHNOLOGIES, APPLICATIONS, COST, SCHEDULE, AND TECHNICAL DATA. REPORTS WILL ALSO EVALUATE DEMONSTRATIONS PERFORMED BY DOE AND PRIVATE INDUSTRY FOR APPLICABILITY TO SST RETRIEVAL AND PROVIDE RECOMMENDATIONS FOR FURTHER TESTING FOR USE IN RETRIEVAL OPERATIONS.	9/30/2003 and annually thereafter
M-45-10A-T1	SUBMIT TO ECOLOGY A DOE APPROVED DATA QUALITY OBJECTIVE(S) (DQOs) THAT HAS BEEN DEVELOPED AND/OR REVISED WITH ECOLOGY'S ACTIVE PARTICIPATION, FOR TANK WASTE RETRIEVAL THAT, BASED UPON AVAILABLE INFORMATION, IDENTIFIES THE RETRIEVAL PROGRAMS' TANK WASTE CHARACTERIZATION INFORMATION NEEDS, IN SUPPORT OF THE TANK WASTE REMEDIATION SYSTEM (TWRS) PRIVITIZATION PHASE II CONTRACT(S). TANK CLOSURE ACTIVITIES WILL BE COVERED BY FUTURE TRI-PARTY AGREEMENT MILESTONES. ECOLOGY WILL ACCEPT OR REJECT THE DQO FOR M-45-10A-T01 WITHIN ONE MONTH OF THE FINAL DQO BEING APPROVED AND SUBMITTED BY DOE.	5/31/1999

3. The following HFFACO milestones and target work requirements governing DOE, DOE Project Hanford Management Contractor (PHMC), and associated contractor work necessary to support the acquisition and operations of the Hanford site Phase I tank waste treatment complex are hereby established:

M-47-00	<p>DOE, DOE's PROJECT HANFORD MANAGEMENT CONTRACTOR (PHMC), AND ASSOCIATED CONTRACTORS SHALL COMPLETE ALL WORK NECESSARY IN SUPPORT OF THE ACQUISITION AND PHASE I OPERATIONS OF HANFORD SITE HIGH-LEVEL RADIOACTIVE TANK WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES.</p> <p>WORK INCLUDED UNDER THIS MILESTONE SERIES SHALL INCLUDE BUT IS NOT LIMITED TO WORK NECESSARY TO: (1) PROVIDE TIMELY TANK WASTE FEED TO TANK WASTE TREATMENT FACILITIES, (2) PROVIDE ADEQUATE DOUBLE-SHELL TANK (DST) SPACE, (3) PROVIDE NECESSARY INFRASTRUCTURE INCLUDING SOLID WASTE SERVICES AND SECONDARY WASTE TREATMENT (E.G., TANK WASTE TREATMENT FACILITY LIQUID EFFLUENTS). SEE ALSO MILESTONE SERIES M-90-00.</p> <p>THE PARTIES WILL REVISE OR CONFIRM THE DUE DATES FOR MILESTONES M-47-01, M-47-02, M-47-03, M-47-03A, M-47-04, M-47-05 AND M-47-05A WITHIN SIX (6) MONTHS OF AUTHORIZATION TO PROCEED (SEE MILESTONE M-62-04). REVISION, IF NECESSARY, SHALL BE CONSISTENT WITH HOT COMMISSIONING BY 2007, COMMERCIAL OPERATIONS BY 2009, AND COMPLETION OF PHASE I TREATMENT BY 2018.</p> <p>COMPLIANCE WITH THE WORK SCHEDULES SET FORTH IN THIS M-47 SERIES IS DEFINED AS THE PERFORMANCE OF SUFFICIENT WORK TO ASSURE WITH REASONABLE CERTAINTY THAT DOE WILL ACCOMPLISH SERIES M-47 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.</p>	2/28/2018
M-47-01	COMPLETE CONSTRUCTION OF THE TRANSFER SYSTEM FROM THE 241-AP TANK FARM TO THE BNFL FACILITY TO SUPPORT THE START OF HOT COMMISSIONING OF THE PHASE I TANK WASTE TREATMENT COMPLEX.	3/31/2006
M-47-02	COMPLETE STARTUP AND TURNOVER ACTIVITIES FOR REQUIRED TRANSFER SYSTEM UPGRADES TO ALLOW TRANSFER OF FIRST HIGH- LEVEL WASTE FEED TO THE PRETREATMENT / TREATMENT COMPLEX.	3/31/2007
M-47-03	START CONSTRUCTION OF WASTE RETREIVAL AND	7/30/2004

	MOBILIZATION SYSTEMS FOR SELECTED INITIAL HIGH-LEVEL WASTE FEED TANK.	
M-47-03A	COMPLETE STARTUP AND TURNOVER ACTIVITIES FOR WASTE RETRIEVAL AND MOBILIZATION SYSTEMS FOR SELECTED INITIAL HIGH-LEVEL WASTE FEED TANK.	2/28/2007
M-47-04	COMPLETE STARTUP AND TURNOVER ACTIVITIES FOR REQUIRED TRANSFER SYSTEM UPGRADES TO ALLOW TRANSFER OF FIRST LOW-ACTIVITY WASTE FEED TO THE PRETREATMENT / TREATMENT COMPLEX.	6/30/2007
M-47-05	START CONSTRUCTION OF WASTE RETRIEVAL AND MOBILIZATION SYSTEMS FOR SELECTED INITIAL LOW-ACTIVITY WASTE FEED TANK (OTHER THAN AZ-101 AND AZ-102).	5/31/2004
M-47-05A	COMPLETE STARTUP AND TURNOVER ACTIVITIES FOR WASTE RETRIEVAL AND MOBILIZATION SYSTEMS FOR SELECTED INITIAL LOW-ACTIVITY WASTE FEED TANK (OTHER THAN AZ-101 OR AZ-102).	4/30/2006
M-47-06	COMPLETE NEGOTIATION OF ADDITIONAL AGREEMENT REQUIREMENTS (MILESTONES, TARGET DATES, AND ASSOCIATED LANGUAGE) GOVERNING WORK NECESSARY TO SUPPORT COMPLETION OF TREATMENT COMPLEX PHASE I OPERATIONS BY 2018.	6/30/2010

4. The following modifications are hereby made to HFFACO major milestone series M-90-00 (IHLW and ILAW storage and disposal facility schedule requirements). Modifications made to existing HFFACO requirements are shown here as either **shaded new text** or deleted ~~strikeout~~ text as follows:

M-90-00	<p>COMPLETE ACQUISITION OF NEW FACILITIES, MODIFICATION OF EXISTING FACILITIES, AND/OR MODIFICATION OF PLANNED FACILITIES AS NECESSARY FOR STORAGE OF HANFORD SITE IHLW AND ILAW, AND DISPOSAL OF ILAW.</p> <p>COMPLIANCE WITH THE WORK SCHEDULES SET FORTH IN THIS M-90 SERIES IS DEFINED AS THE PERFORMANCE OF SUFFICIENT WORK TO ASSURE WITH REASONABLE CERTAINTY THAT DOE WILL ACCOMPLISH SERIES M-90 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</p>	<p>TO BE ESTABLISHED 9 MONTHS AFTER APPROVAL OF PROJECT MANAGEMENT PLAN</p>
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	PRIOR TO APPROVAL OF AN AGREEMENT CHANGE REQUEST SUBMITTED PURSUANT TO AGREEMENT ACTION PLAN SECTION 12.0.	
M-90-03	INITIATE ILAW INTERIM STORAGE FACILITY CONSTRUCTION INITIATION OF CONSTRUCTION OCCURS WHEN DOE OR ITS CONTRACTORS (AS AUTHORIZED) ISSUES AN APPROVAL TO START CONSTRUCTION, AND STRUCTURAL MODIFICATION OF AN EXISTING FACILITY, OR INSTALLATION OF STRUCTURAL COMPONENTS OF A NEW FACILITY COMMENCES.	6/30/2001
M-90-04-T01	DELETE ILAW INTERIM STORAGE FACILITY DETAILED DESIGN.	6/30/2001
M-90-06	INITIATE HOT COMMISSIONING OF ILAW INTERIM STORAGE FACILITY. (LOW ACTIVITY WASTE UNITS PLACED WITHIN THESE FACILITIES WILL BE DESIGNED SO AS TO BE RETRIEVABLE IF NECESSARY).	12/31/2002
M-90-07-T01	COMPLETE ILAW DISPOSAL FACILITY CONCEPTUAL DESIGN.	6/30/2000
M-90-08	INITIATE ILAW DISPOSAL FACILITY CONSTRUCTION. INITIATION OF CONSTRUCTION OCCURS WHEN DOE OR ITS CONTRACTOR (AS AUTHORIZED) ISSUES AN APPROVAL TO START CONSTRUCTION, AND MODIFICATION OF AN EXISTING FACILITY, OR INSTALLATION OF STRUCTURAL COMPONENTS OF A NEW FACILITY COMMENCES THE CONTRACTOR COMMENCES EXCAVATION OF THE RCRA DISPOSAL FACILITY.	6/30/2003 7/31/2004
M-90-09-T01	COMPLETE ILAW DISPOSAL FACILITY DETAILED DESIGN.	3/31/2003 3/30/2004
M-90-10	INITIATE HOT COMMISSIONING OF PLACEMENT OF ILAW WASTE CANISTERS IN ILAW DISPOSAL FACILITY. (LOW ACTIVITY WASTE UNITS PACKAGES PLACED WITHIN THESE FACILITIES WILL BE DESIGNED SO AS TO BE RETREIVABLE IF NECESSARY)	12/31/2005 1/31/2007
M-90-11	COMPLETE CANISTER STORAGE FACILITY CONSTRUCTION. COMPLETION OF THIS MILESTONE REQUIRES THE COMPLETION OF ALL CONSTRUCTION, INTERNAL / EXTERNAL FACILITY(S) MODIFICATIONS AND STARTUP ACTIVITIES NECESSARY FOR CANNISTER STORAGE FACILITY RECEIPT OF ALL PHASE I HANFORD SITE HIGH LEVEL WASTE CANISTERS FROM TANK WASTE REMEDIATION SYSTEM (TWRS) PROCESSING. FOR	12/31/2003 2/01/2007

	PURPOSES OF THIS INTERIM MILESTONES PHASE I IHLW CANISTER STORAGE IS DEFINED AS THE CAPABILITY FOR STORAGE OF AT LEAST 500 600 IHLW CANISTERS. INTERIM MILESTONES AND ASSOCIATED TARGET DATES ESTABLISHING WORK SCHEDULES FOR PHASE II IHLW CANISTER STORAGE WILL BE ESTABLISHED PURSUANT TO THE PHASE II REQUEST FOR PROPOSAL FOR TWRS PRIVATIZATION.	
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5. The following modifications are hereby made to HFFACO Action Plan Sections 4.2, 4.3, 11.4, 11.8, and 14, and Appendices A and E. Modifications made to existing HFFACO requirements are shown here as either shaded new text or deleted ~~strikeout~~ text as follows:

ACTION PLAN SECTION 4.2 INTERAGENCY MANAGEMENT INTEGRATION TEAM

The DOE, EPA and Ecology shall each designate a representative to act as a member of the Interagency Management Integration Team (IAMIT). The DOE representative shall be an Assistant Manager (In the instance of DOE's Office of River Protection, DOE shall designate two (2) IAMIT members, i.e., the ORP Assistant Manager for Tank Waste Processing and Disposal, and the ORP Assistant Manager for Tank Waste Storage and Retrieval). The EPA representative shall be the Project Manager, Hanford Project Office. The Ecology representative shall be the Program Manager for the Nuclear Waste Program. The assigned representatives acting as members of the IAMIT shall be reasonably available in the Tri-Cities to perform the roles described in this section. Roles of the IAMIT or their designated representatives shall include the following responsibilities.

ACTION PLAN SECTION 4.3 SENIOR EXECUTIVE COMMITTEE

The DOE, EPA and Ecology shall each designate a representative to act as a member of the Senior Executive Committee (SEC). The DOE representative shall be the Deputy Manager for the Hanford Site, or Manager of DOE's Office of River Protection in the instance of tank waste remediation issues. The EPA representative shall be the Director, Office of Environmental Clean Up. The Ecology representative shall be Ecology's Deputy Director ~~the Assistant Director for Waste Management~~.

ACTION PLAN SECTION 11.4 DOE BASELINE CHANGE CONTROL DOCUMENTATION, MULTI YEAR WORK PLANS AND SYSTEMS ENGINEERING CONTROL DOCUMENTS

Unless otherwise agreed to by the Parties, DOE Baseline Change Control documentation, Multi Year Work Plans (MYWP) and sitewide systems engineering control documents, shall be consistent with this Agreement, e.g., such plans and documents shall describe and require all work necessary to maintain or achieve compliance with the RCRA, CERCLA, and the requirements of this Agreement. At the time such plans/control documents are submitted they shall describe in detail work to be done, e.g., project start and completion dates, interfaces between programs and projects, and performance standards to be met. Such plans/control

documents shall include a DOE determination that they are consistent with the requirements of this Agreement.

ACTION PLAN SECTION 11.8 TANK WASTE REMEDIATION SYSTEM OFFICE OF RIVER PROTECTION CRITICAL PATH PROCESS

Tank waste remediation milestones schedules and associated work directives will be established using a critical path process as described in this section. The tank waste remediation program Office of River Protection, River Protection Project will be established and managed as an integrated system and shall include all activities associated with waste characterization, retrieval/closure, tank stabilization, pretreatment, treatment of high-level and low-level tank waste, acquisition of new tanks, and the multi-purpose storage complex. The parties DOE will develop detailed operating procedures and implement the critical path milestone management system on a trial basis, in April 1994 2000, with full implementation by September 30, 1994 February 28, 2001.

A. For the purposes of critical path analysis, negotiated dates for completion of single-shell tank waste retrieval, the final closure of single-shell tank farms, and completion of all high level and low level tank waste treatment Agreement milestone compliance dates for the tank waste treatment complex including: (i) start of construction, (ii) hot commissioning, (iii) commercial operations, (iv) completion of Phase I tank waste processing, and (v) completion of HLW and LAW treatment shall be designated as program endpoints and shall be major milestones. Project critical path management schedules shall be established in part from, and shall be consistent with these program endpoints.

B. Activities and associated schedules for this program shall be included in the Site Management System (SMS). All activities, milestones, and target dates necessary for tracking the program will be negotiated for inclusion in this Agreement. Activity definition will be based generally on SMS level O schedules, but may in some instances include SMS level 1. Based on a critical path analysis, any event appearing on the critical path shall be designated as either a major or an interim milestone. Any event not on the critical path shall be designated a target date.

C. On a semi-annual basis, the integrated schedule shall be updated by the project managers or their designees and the critical path shall be re-evaluated. Updates shall be based on current Site Management System (SMS) information. Additional events falling on the critical path shall be designated as interim milestones. The integrated management schedule shall identify schedule float for each task. Schedule float shall be defined as the amount of time available before an activity becomes a critical path activity. Any activity found to be no longer on the critical path shall revert to target date status.

D. The Department of Energy shall have the ability to reschedule any activity associated with a target date as necessary to efficiently manage the project, provided such movement shall not adversely affect the critical path or the program endpoints. Project managers shall be advised in advance in writing of any such changes.

ACTION PLAN: APPENDIX A

(The following acronym is added at the Appendix A listing)

ORP OFFICE OF RIVER PROTECTION

(The following definition is added to Appendix A, Definition of Terms Used in the Action Plan)

Office of River Protection (ORP): DOE's organizational structure at the Hanford Site that is responsible for managing all aspects of the Tank Waste Remediation System (Also referred to as the Hanford Tank Farm Operations). The Manager of the Office of River Protection reports directly to DOE's Assistant Secretary of Energy for Environmental Management.

**APPENDIX E
 KEY INDIVIDUALS**

	U.S. Environmental Protection Agency Region 10	Washington State Department of Ecology	U.S. Department of Energy, Richland Operations
Executive Managers	Project Manager for the Hanford Project Office (509) 376-9529	Program Manager for the Nuclear Waste Program (360) 407-7150	Assistant Manager for Waste Management (509) 376-7434 Assistant Manager for the Tank Waste Remediation System (509) 376-7591 Assistant Manager for Planning and Integration (509) 376-6657, Assistant Manager for the Office of River Protection, Tank Waste Processing and Disposal (509) 376-7272, Assistant Manager for the Office of River Protection, Tank Waste Storage and Retrieval (509) 376-7591 Assistant Manager for Environmental Restoration (509) 376-6628 Assistant Manager for Facility Transition (509) 376-7435 Assistant Manager for Technology Management (509) 372-4005 Director, Environmental Assurance, Permits, and Policy (509) 376-5441
	Environmental Protection Agency Region 10 712 Swift Blvd., Suite 5 Richland, WA 99352	Washington Department of Ecology Nuclear Waste Program P.O. Box 47600 Olympia, WA 98504-7600	U.S. Department of Energy Richland Operations Office P.O. Box 550 Richland, WA 99352
Community Relations Contacts	Public Involvement Representative (509) 376-8631	Public Involvement Supervisor (509) 735-7581	Public Involvement Program Manager (509) 373-5647
	Environmental Protection Agency Region 10 712 Swift Blvd., Suite 5 Richland, WA 99352	Washington Department of Ecology Nuclear Waste Program 1315 W. 4 th Avenue Kennewick, WA 99336-6018	U.S. Department of Energy Richland Operations Office P.O. Box 550 Richland, WA 99352

Approved and issued this 29th day of March 2000.

(Original signed by T.F.)

Tom Fitzsimmons, Director
Washington Department of Ecology
(As issuing agency)

(Original signed by C.C.)

Chuck Clarke, Administrator
U. S. Environmental Protection Agency, Region 10
(As oversight agency in support of issuance)