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| Change Number M-45-98-03 | Federal Facility Agreement and Consent Order Change Control Form Do not use blue ink. Type or print using black ink. | Date January 22, 2001 |
| Originator Ecology | | 0054858 Phone |
| Class of Change <input type="checkbox"/> I – Signatories <input checked="" type="checkbox"/> II – Executive Manager <input type="checkbox"/> III – Project Manager | | |
| Change Title Agreement Commitments Regarding Initial Single-Shell Tank Waste Management Area (WMA) Corrective Actions, Vadose Zone and Groundwater Characterization, Assessment, and the Integration of Vadose Zone and Groundwater Activities at specified Associated Sites. | | |
| Description/Justification of Change <u>Introduction:</u> <p>The U. S. Department of Energy's (DOE's) Tank Waste Remediation System (TWRS) program mission is to store, retrieve, treat, and immobilize high level radioactive waste presently contained in twenty eight (28) double-shell tanks and one hundred forty nine (149) single-shell tanks (SSTs). The 149 SSTs are hazardous waste management units regulated under Washington's Hazardous Waste Management Act (HWMA, Chapter 70.105 RCW) and its implementing requirements (Washington's Dangerous Waste Regulations at Chapter 173-303 WAC) and applicable portions of the Federal Resource Conservation and Recovery Act (RCRA). The SSTs are currently operating under interim status standards pending closure. They will be closed as a treatment, storage, and/or disposal (TSD) facility under the HWMA and Major Milestone series M-45-00 of the Hanford Federal Facility Agreement and Consent Order (Agreement). The twelve (12) SST farms are grouped into seven (7) Waste Management Areas (WMAs) for purposes of HWMA groundwater assessment and monitoring.</p> <p>To date, tank leaks and associated releases of tank waste including dangerous wastes and dangerous waste constituents have resulted in groundwater contamination documented at four (4) SST WMAs (See Attachment One). These 4 WMAs are WMA S-SX (containing S and SX single-shell tank farms), WMA B-BX-BY (containing B, BX, and BY single-shell tank farms), WMA T (containing the T single-shell tank farm), and WMA TX-TY (containing TX and TY single-shell tank farms).</p> | | |
| Impact of Change Modification of Agreement requirements including major milestone series M-45-00 (Complete Closure of all Single-Shell Tank Farms) Appendix D interim milestones and target dates documenting: (1) integration of groundwater and vadose zone activities related to corrective actions at DOE's SST WMAs, (2) interim measures identified to-date as initial response actions to SST leaks, and (3) commitments between the parties regarding the utilization of HWMA and RCRA corrective action processes. Ecology and DOE agree that work under this M-45-98-03 change will be managed through one unified schedule incorporating Agreement milestones, DOE (internal agency) milestones, and DOE contractor baseline. On approval of this M-45-98-03 change, Hanford site internal planning, management, and budget documents will be modified accordingly. | | |
| Affected Documents The Hanford Federal Facility Agreement and Consent Order, as amended, and Hanford site internal planning, management, and budget documents (e.g., Baseline Change Control documents, Multi Year Work Plans, Sitewide System Engineering Control documents, Project Management Plans, and DOE's Hanford Site Groundwater/Vadose Zone Integration Project Long Range Plan). | | |
| Approvals | | |
| DOE <i>[Signature]</i> NA | Date 2/5/01 | <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved |
| EPA <i>[Signature]</i> Ecology | Date 3/13/01 | <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved |

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Description/Justification of Change (continued)

Releases from tank farm areas have caused surface, underlying vadose zone and groundwater contamination which has led to a number of regulatory responses including: (1) Compliance and Assessment level groundwater monitoring pursuant to the HWMA and its implementing requirements (See interim status standards incorporated by reference at Chapter 173.303.400 WAC, i.e., 40 CFR Part 265 Subpart F); and 40 CFR Part 265, Subpart J [Tank Systems]; and (2) Corrective Action pursuant to Chapter 173.303.646 WAC, and Agreement processes.

On July 10, 1998, Ecology called on the DOE to develop and submit a corrective action plan outside of the Agreement for the S, SX, B, BX, BY, T, TX, and TY SST farms, and that this plan at a minimum: "(1) provide information equivalent to a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) and will include provisions to characterize the vadose zone and aquifer beneath the tank farms, (2) define the sources, nature, and extent of contamination, and (3) identify actual or potential receptors".¹ In response, the DOE invoked the dispute resolution procedures of the Agreement, and asked that the parties work with one another in developing a resolution.² Subsequent correspondence between the agencies³ elevated this dispute to the agencies' Inter Agency Management Integration Team (IAMIT), further described their respective concerns, and documented conditions under which the parties would attempt to resolve this dispute through Agreement negotiations. This dispute was subsequently suspended through December 11, 1998. This Agreement Change Control Form #M-45-98-03 has been developed as a resolution of this dispute. The parties agree that based on information developed as a result of this Agreement modification, or other information, it may be necessary to take additional (now unanticipated) steps to address contamination at the SST WMAs and/or it may be necessary to accelerate either the closure or corrective action process.

This Change Control Form identifies initial actions necessary for the DOE to comply with the corrective action requirements of Chapter 173-303-646 WAC. Actions include the collection of information regarding contaminant nature, extent and migration so as to allow Ecology and EPA to begin to evaluate risk and identify appropriate interim measures. The parties anticipate that investigation and characterization at the SST WMAs will be a phased effort, where information developed during initial investigation and characterization will be used to refine and identify additional investigation and characterization needs. Initial actions to respond to SST leaks at SST WMAs and past tank waste discharges will be followed by additional Agreement commitments as new information is acquired (e.g., additional interim measures, Corrective Measures Study (CMS) documentation, identification of additional WMAs, etc.). This Agreement modification has been coordinated with site-wide groundwater/vadose zone activities under the Groundwater/Vadose Zone (GWVZ) Integration Project.

Many activities addressed by this Change Control Form are also incorporated into DOE's GWVZ Integration Project. One of the purposes of the Integration Project is to allow a comprehensive evaluation of ongoing activities to provide for improved coordination among projects, better use of resources, and elimination of potential redundancies within the projects. The GWVZ Integration Project published its "Project Baseline/Long Range Plan" in early calendar year 1999. The integration of TWRS and Environmental Restoration (ER) characterization and remediation efforts is a clear objective of the plan. On approval, these Change Number M-45-98-03 requirements contained herein will: 1) be incorporated within the "Project Baseline/ Long Range Plan" plan, and 2) will be subject to modification to the same extent as other Agreement requirements.

¹ Letter: Mike Wilson, Program Manager, Washington Department of Ecology, Nuclear Waste Program to Jackson Kinzer, Program Manager, Tank Waste Remediation System, U. S. Department of Energy, Richland Operations Office, July 10, 1998.

² Letter: 98-EAP-400, George Sanders, Tri Party Agreement Administrator, U.S. Department of Energy, Richland Operations Office to Mike Wilson, Program Manager, Washington Department of Ecology, Nuclear Waste Program, July 22, 1998.

³ Letters: (1) 98-EAP-464, George Sanders, Tri Party Agreement Administrator, U.S. Department of Energy, Richland Operations Office to Mike Wilson, Program Manager, Washington Department of Ecology, Nuclear Waste Program, August 21, 1998, (2) Mike Wilson, Program Manager, Washington Department of Ecology, Nuclear Waste Program to George Sanders, Tri-Party Agreement Administrator, U. S. Department of Energy, Richland Operations Office, September 4, 1998, and (3) 98-EAP-508, James E. Rasmussen, Director, Environmental Assurance, Permits and Policy, U. S. Department of Energy, Richland Operations Office to Mike Wilson, Program Manager, Washington Department of Ecology, Nuclear Waste Program, September 11, 1998.

Project Integration and Use of RCRA/HWMA Corrective Action Processes

Groundwater and vadose zone activities addressed by this Change Control Form include activities pertaining to RCRA TSD Units managed by DOE's TWRS Program (the single-shell tank system, per se) and "associated site" (as listed in Attachment One) activities. The parties agree that these activities should be managed in a fully integrated fashion and that overall integration is a function of the Hanford Site GW/VZ Integration Project. Major elements to be integrated under the GW/VZ Integration Project that are related to the SST WMAs include:

- (1) SST "RCRA" compliance and assessment level groundwater monitoring programs (This includes associated borehole characterization activities),
- (2) Groundwater and vadose zone related activities associated with SST farms S, SX, B, BX, BY, T, TX, TY, and remaining tank farms as necessary (e.g., groundwater and vadose zone characterization, RCRA/HWMA RFI/CMS document development),
- (3) Associated groundwater/vadose zone activities undertaken at past practice sites (as listed in Attachment One) historically associated with, but not formally classified as part of SST farm "TSD" Units, and
- (4) Groundwater and vadose zone related work undertaken by TWRS in support of tank waste retrieval e.g., documentation prepared pursuant to the National Environmental Policy Act (NEPA), Retrieval Performance Evaluations (RPE), tank waste processing (e.g., Immobilized Low Activity Waste Performance Assessments), and tank farm closure.

In selecting a regulatory process best suited to the achievement of compliance with State and federal hazardous waste program requirements, and the integration of the above activities, the parties have agreed to use the Agreement RCRA Corrective Action process (Section 7.0). Corrective actions will be coordinated over time in order to support closure of the single-shell storage tanks under the HWMA, and Agreement Major Milestone M-45-00. While use of the RCRA Corrective Action process provides a framework within which groundwater and vadose zone investigations will be planned and carried out to support decisions on interim measures, corrective measures, waste retrieval, and closure, this use does not affect the applicability of state and federal hazardous waste programs or supersede regulatory processes previously established under Tri-Party Agreement Major Milestone M-45-00. Thus while the RCRA Corrective Action process may be used to establish requirements for interim measures and/or corrective measures in SST farms, it will not be used to define tank farm closure or other interim status requirements. As prescribed under Tri-Party Agreement Major Milestone M-45-00 SST farms will be closed in accordance with WAC 173-303-610. The Phase 1 RFI Report that will be produced following investigation of the SST WMAs under RCRA assessment will provide results and conclusions with recommendations for subsequent investigative efforts. These decisions require an understanding of the effectiveness and cost of measures that can be taken to avoid or limit additional releases, or to control subsurface movement of contaminants to minimize additional insult to human health and the environment from SST wastes. SST leaks, potential leaks during retrieval, and residual waste that may remain in tanks and tank farm ancillary equipment at closure are contaminant sources within the purview of DOE's (TWRS) SST Program.

Understanding gained from investigating subsurface contaminant distribution and movement will help support SST retrieval and closure decisions associated with the following:

- Retrieval performance criteria,
- Deployment of retrieval technologies,
- Retrieval related operational constraints,
- Control of retrieval leaks,
- Amount of waste that must be retrieved from tanks for closure.

The interrelationship of the SST Program and the RCRA Correction Action process is also illustrated in Attachment Two.

DOE will continue with and complete closure and corrective action as required to protect human health and the environment and to meet associated regulatory requirements under the HWMA and RCRA. Information and data collected to support decisions regarding the control or elimination of releases will also be utilized to support closure and associated corrective actions. To the extent practicable, interim measures and corrective measures to control releases and potential releases will be consistent with anticipated closure and final corrective measures.

Development of the Phase 1 RFI/CMS Work Plan including site-specific SST WMA Phase 1 RFI/CMS Work Plan addenda will be designed to meet regulatory objectives which shall include the following: (1) compliance with interim status standards and corrective action requirements of the HWMA and RCRA (i.e., requirements which apply in the instance of releases from a TSD facility), (2) the generation of groundwater/vadose zone characterization data and information necessary to: (i) define the sources, nature, and extent of vadose zone and aquifer contamination, (ii) identify actual and potential receptors (via air, land, water and groundwater pathways), (iii) determine the need for additional interim measures and interim corrective measures, and (3) support closure of SST WMA TSDs under the HWMA and RCRA. Site-specific Phase 1 RFI/CMS Work Plan addenda will also be designed to provide input for prioritizing well installation, locating wells, and collecting soil samples during well construction, and will consider groundwater sampling needs that can be accommodated in new vadose zone characterization boreholes. Past practice liquid discharge sites associated with the SST WMAs (as listed in Attachment One) and managed by DOE's ER Program will be characterized as necessary, to address identified data gaps for the SST WMAs. Contaminant transport modeling and risk assessment to guide characterization and to support SST WMA corrective action decisions will be coordinated with groundwater models and risk criteria that are being developed through the GW/VZ Integration Project. Conclusions and recommendations in site-specific Phase 1 RFI/CMS Work Plans will incorporate results and conclusions from groundwater monitoring and will be coordinated with assessment activities and remediation/corrective action decisions at nearby past practice sites.

The RFI/CMS Work Plan process provides the overall framework to guide groundwater/vadose zone investigation and decision making for SST WMAs. The Phase 1 RFI/CMS Work Plan will be used to provide the strategy and coordination for the initial investigation of the SST WMAs under RCRA Assessment. Site-specific Phase 1 Work Plan addenda will be prepared in accordance with the objectives as specified in the Phase 1 RFI/CMS Work Plan. Upon completion of each site-specific investigation, information, analyses and recommendations will be documented in a Field Investigation Report. Following completion of all work as outlined in the Phase 1 RFI/CMS Work Plan a Phase 1 RFI Report will be prepared that provides a roll-up of the site-specific Field Investigation Reports and conclusions and recommendations on additional interim measures and/or further investigation. The parties recognize it is likely that more than one iteration of site specific investigation will be conducted prior to obtaining sufficient information to proceed to decision making documentation. If so, updates to the RFI/CMS Work Plan will be made to collect additional data for decisions on interim corrective measures, retrieval and closure. Approval of the Phase 1 RFI Report and any subsequent RFI Reports will provide the basis for generation of the Final RFI/CMS Work Plan. This work plan and subsequent reports will be used to make decisions on corrective measures, retrieval and closure. The iterative nature of this process is illustrated in Attachment Two.

Initial Work Plan Data Evaluation and Subsurface Modeling

In order to ensure that data utilized in the development of site-specific SST WMA RFI/CMS Work Plan addenda is both sound and adequate, a data evaluation and preliminary subsurface modeling effort will be undertaken. For efficiency, this effort will proceed concurrent with initiation of interim measures at the SST WMAs.

Existing data will be evaluated to support the development of conceptual models, to support data quality objective (DQO) efforts, and to identify uncertainties and data gaps. Data of limited value will be discarded or used accordingly. This work will support the development of site-specific SST WMA RFI Work Plans and the initiation of field activities. Evaluation and modeling activities will be undertaken by DOE, with the participation of Ecology, and will include, but not be limited to, the following:

- (1) Compilation of existing data and interpretation of lithologic samples, lithologic borehole logs, well construction documents, analytical results, tank leak information, occurrence reports, tank farm infrastructure information, and applicable results of previous modeling exercises,
- (2) The evaluation and interpretation of previously collected data, and
- (3) The development of a preliminary subsurface tank farm framework/model.

These actions will allow DOE and Ecology to assess the quality and representativeness of the data, the site-specific nature of the data, previous conclusions and/or predictions relevant to the site, and any previously published interpretations that are applicable for the site or site related issues. The identification of data gaps will serve as a critical input in developing site-specific SST WMA RFI/CMS Work Plan addenda, necessary fieldwork, and subsequent corrective action documentation.

Implementation of Initial Interim Measures

The development of corrective action documentation at SST WMAs will enable the parties to identify additional interim measures and interim corrective measures, as well as support the eventual closure of the SST TSDs. To date a wide range of near term interim measures and supporting activities have been identified and agreed to by the parties. Some of these interim measures are relatively straightforward and do not require vadose zone characterization to optimize engineering designs or supporting analyses (e.g., eliminating water sources and preferential pathways for surface water). Other potential interim measures require careful consideration of feasibility, benefits, the protection of human health and the environment, and impacts to tank farm operations including safety and worker risk, and therefore may require improved understanding of subsurface conditions and processes (e.g., placement of surface barriers to limit infiltration).

Initial interim measures or activities that directly support identification of interim measures, and that do not require vadose zone characterization include the following:

(1) Upgrading leak tight caps on monitoring drywells around SSTs.

(2) Conducting an engineering study of other potential near-term interim measures (e.g., identifying and isolating additional potentially leaking water lines in or near the SST WMAs, sealing additional abandoned wells in or near the SST WMAs, and controlling surface drainage and ponding). Completion of this study will aid scheduling additional interim measures that can be implemented in the near term prior to or concurrent with vadose zone characterization.

(3) Conducting a workshop as part of DOE's Innovative Treatment Remedial Demonstration Project to identify concepts for interim surface barriers that could be installed at the SST WMAs to limit migration of contaminants in the vadose zone prior to tank farm closure. Results and recommendations of this workshop, as well as results and conclusions from recommended test and evaluation activities, will be summarized following their completion and a copy submitted to Ecology.

Ecology regulatory decisions and DOE decisions on placing interim surface barriers, controlling retrieval leaks, readying tanks for closure by removing waste, and closing tank farms will be aided by improved understanding of subsurface conditions and processes. Information regarding TWRS vadose zone activities may be found at Table Four (4) of the DOE's Tank Waste Remediation System Vadose Zone Program Plan (DOE/RL-98-49, July 1998). Table 1 is a listing of those activities underway in FY 1999, those which will start or continue after FY 1999, and those that are included in the milestone section of this Change Control Form.

Interim milestones and associated target dates documenting initial SST WMA interim measures, initial investigations of the SST WMAs, and initial regulatory documentation established by approval of this change request are as follows:

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| M-45-50 | Complete development of a spectral gamma logging baseline for SST farms. | September 2000 |
| M-45-50-T01 | Issue final baseline spectral gamma logging report for A tank farm. | March 1999 |
| M-45-50-T02 | Issue final baseline spectral gamma logging report for T tank farm. | September 1999 |
| M-45-50-T03 | Issue final baseline spectral gamma logging report for B tank farm. | March 2000 |
| M-45-51 | Submit to Ecology for review and approval as an Agreement primary document DOE's Phase 1RFI/CMS Work Plan for Single-Shell Tank (SST) Waste Management Areas (WMAs). | August 1999 |

The RFI/CMS Work Plan will provide the overall framework within which site-specific SST WMA RFI/CMS Work Plan addenda will be prepared. The Phase 1 RFI/CMS Work Plan will provide the framework and requirements for the initial investigation of SST WMAs under RCRA assessment. The SST WMA RFI/CMS Work Plan will be designed to meet regulatory objectives which shall include the following: (1) compliance with interim status corrective action requirements of the HWMA and RCRA, (i.e., requirements applicable in the instance of releases from a TSD facility), (2) the generation of groundwater/vadose zone characterization data/information necessary to: (i) define the sources, nature, and extent of vadose zone and aquifer contamination, (ii) identify actual and potential receptors (via air, land, surface water and groundwater pathways), (iii) determine the need for additional interim measures or interim corrective measures, and (3) support closure of SST TSDs under the HWMA and RCRA.

The Phase 1 RFI/CMS Work Plan will describe objectives, criteria that will be used in making groundwater/vadose zone decisions, technical framework for decision-making, regulatory framework, principal interfaces, task prioritization, planning activities, generic information and requirements for site-specific plans, and schedules. Coordination of SST WMA activities with related vadose zone and groundwater activities under DOE's Environmental Restoration Program will be documented (e.g., RCRA groundwater monitoring well installation and sampling, characterization of past practice sites, use of groundwater and vadose zone contaminant transport models, corrective actions at neighboring sites). (See also Initial work plan data evaluation and subsurface modeling).

Work implemented under the RFI/CMS Work Plan (including revisions and site specific SST WMA RFI/CMS Work Plan addenda) must be approved by Ecology in writing prior to implementation.

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| M-45-55-T01 | Submit to Ecology for review and comment as an Agreement secondary document a Field Investigation Report pursuant to the site-specific SST WMA Phase 1 RFI/CMS Work Plan addenda for WMA S-SX. | April 2001 |
| M-45-55-T02 | Submit to Ecology for review and comment as an Agreement secondary document a Field Investigation Report pursuant to the site-specific SST WMA Phase 1 RFI/CMS Work Plan addenda for WMA B-BX-BY. | May 2002 |
| M-45-55-T03 | Submit to Ecology for review and comment as an Agreement secondary document a Field Investigation Report pursuant to the site-specific SST WMA Phase 1 RFI/CMS Work Plan addenda for WMA T and WMA TX-TY. | June 2003 |
| M-45-55 | Submit to Ecology for review and approval as an Agreement primary document a Phase 1 RFI Report integrating results of data gathering activities and evaluations for WMAs S-SX, T, TX-TY, and B-BX-BY and related activities, including groundwater monitoring and impacts assessment using Hanford Site groundwater models, with conclusions and recommendations. | February 2004 |
| M-45-56 | Complete implementation of agreed-to interim measures. Specific interim measures will be implemented pursuant to Agreement commitments (e.g., see interim milestone M-45-57). Interim measures may also be required by Ecology, proposed by DOE in the SST WMA RFI Report (M-45-55) (or engineering studies including that addressed in target milestone M-45-56-T01), or established by agreement of the parties at any time during the Corrective Action process. Also see Table 1 of Agreement Change Control Form #M-45-98-03. Ecology and DOE agree, at a minimum, to meet yearly (by July or as needed to support annual budgeting) for the specific purpose of assessing the adequacy of information, and the need for the establishment of additional Agreement interim measures. Additional Agreement interim measures shall be documented through establishment of Interim Milestones and associated Target Dates as agreed necessary by the parties | TBD |
| M-45-56-T01 | Summarize results of engineering studies and recommendations on isolating water lines in or near SST WMAs, sealing abandoned wells in or near SST WMAs, and controlling surface drainage at SST WMAs and submit these results to Ecology. This engineering study will include data regarding SST WMA surface water runoff and ponding as necessary to support a decision on whether drainage controls are needed to prevent or reduce surface water infiltration. | October 1999 |
| M-45-57 | Complete upgrading of leak-tight caps on monitoring drywells around SSTs. | June 1999 |
| M-45-58 | Submit to Ecology for review and approval as an Agreement primary document a Corrective Measures Study for interim corrective measures (pending results and conclusions in the Phase 1 RFI Report—Milestone M-45-55 or subsequent RFI reports). | TBD |

Control surface water infiltration pathways as needed to control or significantly reduce the likelihood of migration of subsurface contamination to groundwater at the SST WMAs (pending the CMS Report, Milestone M-45-58, and implementation of other interim corrective measures.

TBD

Decisions on controlling surface water infiltration pathways will be made by evaluating the role of surface water infiltration and the transport of subsurface contamination to groundwater. Based on the Corrective Measures Study (M-45-58) interim surface barriers and/or other infiltration controls may be required.

M-45-59-T01

Summarize results of Innovative Treatment Remedial Demonstration workshop, with conclusions and recommendations for test and evaluation of interim surface barrier concepts and submit these results to Ecology.

July 1999

M-45-60

Submit to Ecology for review and approval as an Agreement primary document DOE's RFI/CMS Work Plan for SST WMAs.

6 months following
RFI Report
approval.

This RFI/CMS Work Plan shall document the additional interim measures and further investigations needed for decisions on retrieval, closure, and corrective measures for the SST WMAs.

- 1) Attachment One: Initial Single-Shell Tank Waste Management Areas and associated sites.
- 2) Attachment Two: Utilization of the HWMA and RCRA corrective action processes for SST WMAs and associated site groundwater/vadose zone decision making in coordination with SST tank farm closure under Agreement milestone M-45.

Hanford Federal Facility Agreement and Consent Order

Comments and Responses to the Tentative Agreement Regarding:

- **Initial Single-Shell Tank Waste Management Area Corrective Actions**
- **Associated Vadose Zone and Groundwater Characterization Activities**
- **The Integration of Vadose Zone and Groundwater Activities**

(Agreement Major Milestone Series M-45-00)

January, 2000

**COMMENTS AND RESPONSES
TO THE TENTATIVE AGREEMENT
REGARDING INITIAL SST WMA CORRECTIVE ACTIONS**

(CHANGE REQUEST M-45-98-03)

COMMENTS AND RESPONSES

1. Introduction

The Washington State Department of Ecology (Ecology) and the U.S. Department of Energy (DOE) have completed review of comments received during public review of the agencies' proposed modification of Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement or TPA) Change Request M-45-98-03: "Agreement Commitments Regarding Initial Single-Shell Tank Waste Management Area (WMA) Corrective Actions, Vadose Zone and Groundwater Characterization, Assessment, and the Integration of Vadose Zone and Groundwater Activities at specified Associated Sites". As a result of this review, the parties' proposed modification has been revised as noted in the following text and has been incorporated within the TPA.

2. Background

The mission of DOE's Office of River Protection is to store, treat, and immobilize high-level radioactive waste presently contained in 12 single-shell tank farms and in six double-shell tank farms located on the Central Plateau in the 200 Area of the Hanford Site. The 12 single-shell tank farms are grouped into seven waste management areas for purposes of groundwater assessment and monitoring. These tank farms contain 149 single-shell tanks, which are classed as hazardous waste management units regulated under Washington States Hazardous Waste Management Act (HWMA) and its implementing requirements. The single-shell tanks are currently operating under interim status standards prior to closure.

Releases from tank farm areas have caused surface, underlying vadose zone, and groundwater contamination. On July 10, 1998, Ecology directed DOE to develop and submit a corrective action plan covering the eight single-shell tank farms where groundwater contaminants from tank leaks have been documented. In response, DOE invoked the dispute resolution process of the TPA and asked that the Tri-Parties work together in developing a resolution. Subsequent correspondence between the Parties elevated this dispute and initiated TPA negotiations that were held from October 21 to December 11, 1998. The modifications documented here were developed to resolve the dispute. They constitute a plan for taking initial steps necessary to clean up environmental contamination at and from SST WMAs and to begin to comply with RCRA / HWMA corrective action and closure requirements.

This agreement identifies initial actions necessary for DOE to begin to comply with State and Federal corrective action requirements. The work required by this agreement is in response to single-shell tank leaks and associated past tank waste discharges. As information is developed, the work required by this agreement will be followed and supplemented by additional work (and associated Tri-Party Agreement commitments to complete corrective actions and closure at the SST WMAs. The changes approved by this action have been coordinated with sitewide groundwater and vadose zone activities under the Groundwater/Vadose Zone Integration Project.

3. Public Comment Period

Negotiation of a tentative agreement between the parties in this matter was reached on January 8, 1999. A subsequent comment period was opened on February 16, 1999. Close of this comment period, originally scheduled for April 1, 1999, was extended by agreement of the parties through May 12 to allow for receipt of comment at a public meeting regarding this proposed change. The parties public meeting was held on May 12, 1999 in Hood River Oregon. Comments received during this period are summarized and responded to in the following text.

| COMMENTS RECEIVED AND AGENCY RESPONSES RELATIVE TO AGREEMENT CHANGE | |
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| Comment # | Comments / Agency Responses |
| Nez Perce, Comment#1 | <u>Comments asking why SSTs in U and A Tank Farms are not addressed in this change package.</u> |

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| <p>Introduction-a</p> | <p>Response: Under Washington's HWMA, and specifically Chapter 173.303.645 WAC, owners/operators of facilities at which dangerous waste is treated, stored or disposed are generally required to conduct a groundwater monitoring and a groundwater corrective action program for regulated units. As part of this program, owners/operators are required to monitor the uppermost aquifer at regulated units to determine if a groundwater protection standard is exceeded and to begin corrective action for releases to the uppermost aquifer within a reasonable time period after a groundwater protection standard is exceeded. Under TPA milestone series M-24, DOE is required to comply with WAC 173.303.645 at SST WMAs. In addition to groundwater monitoring and corrective action requirements of WAC 173.303.645, owners/operators of facilities at which dangerous waste is treated, stored or disposed (including owners/operators of facilities containing units that are operating under interim status standards) are required to conduct corrective action, as necessary to protect human health and the environment, for all releases of dangerous waste and dangerous constituents to all media at and from the facility. Groundwater and vadose zone contamination associated with the SST WMAs is therefore, subject to both the groundwater monitoring and corrective action requirements of WAC 173.303.645 and the more general corrective action requirements of WAC 173.303.646. This change request only addresses those single-shell tank (SST) waste management areas (WMAs) where contaminants had been detected in groundwater at the boundary of the WMA at the time of these negotiations (WMAs S-SX, B-BX-BY, and T-TX-TY) (NOTE: Due to the recent detection of contamination at U tank farm, additional HFFACO requirements will be established for assessment at this unit). Groundwater contamination associated with the A, or AX WMAs has not been detected to date. If contamination is detected at these WMAs, another Tri-Party Agreement (TPA) change package will be developed to add milestones for investigation at those units.</p> |
| <p>Nez Perce, Comment #1 Introduction-b and Comment #2 M-45-51-a And Comment #2 M-45-52-T01</p> | <p><u>Comments asserting that one to three additional boreholes per tank farm will probably be insufficient to define the sources, nature and extent of contamination.</u></p> <p>Response: DOE and Ecology agree that one to three boreholes will be insufficient to fully define the nature and extent of contamination. At this time, the goal of characterization is not to fully define contamination, but rather to collect enough information on contaminant nature, extent and migration to allow Ecology and EPA to begin to evaluate risk and identify appropriate interim measures. DOE and Ecology anticipate that investigation and characterization at the SST WMAs will be a phased effort, where information developed during initial investigation and characterization will be used to refine and identify if additional investigation and characterization is needed. In clarifying this, the parties M-45-98-03 change request form has been revised to explicitly state the performance goal for these initial investigations. Investigation and characterization needs identified in the future will be documented through the development of additional TPA modifications and appropriate tribal and public involvement and comment opportunities.</p> <p>The agencies also note that given the expense of boreholes and to make the best use of funds, the characterization program will use the data quality objectives process to identify the optimum location, type, and number of boreholes during these initial investigations. In addition, existing data will be evaluated and other less-costly investigative methods (e.g., cone penetrometer) will be considered to supplement information from boreholes.</p> |
| <p>Nez Perce, Comment #1 Project-a</p> | <p><u>Comments asking why a milestone requiring that integration be achieved is not included.</u></p> <p>Response: Aiding the establishment of an integrated approach to groundwater and vadose zone decision making was one of the principal objectives of the parties' negotiations. As such, the requirements of this Agreement modification were developed by DOE and Ecology, and are being implemented as a joint endeavor between DOE's site-wide Groundwater/Vadose Zone (GW/VZ) Project, the Office of River Protection, the Environmental Restoration Program, and contractor projects such as those of Pacific Northwest National Laboratories. This is an ongoing effort, and not one that lends itself to the establishment of a milestone requiring that integration be accomplished by a certain date.</p> |
| <p>Nez Perce, Comment #1 Project-b</p> | <p><u>Comments noting the importance of treaty rights and the protection of resources on behalf of Indian Nations</u></p> |

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| | <p>Response: DOE and Ecology agree that treaty rights of Native American governments are and will continue to be one of the most important elements in establishing future land uses at the Hanford Site. Future land use decisions will, in turn, be one of the most important factors in determining final cleanup levels and associated remedial actions (including closures under RCRA and the HWMA) at Hanford. Decisions regarding final actions at Hanford tank farms, however, are still a number of years away. In the meantime, consistent with Agreement Action Plan section 7.2.4, the parties will undertake interim measures in a manner consistent with anticipated final remedial actions.</p> |
| <p>Nez Perce, Comment #1 Project-c</p> | <p><u>Comments asserting that it is inappropriate to use contaminant transport modeling to guide the collection of characterization data, and suggesting instead, that contaminant transport models should be based on the results of a characterization campaigns at SST WMAs.</u></p> <p>Response: DOE and Ecology agree that contaminant transport modeling alone would not be sufficient to guide the collection of characterization data. However, because of the amount of information already available regarding SST WMA releases, potential releases, and subsurface characteristics, and because of the high costs associated with characterization activities in a highly radioactive area, DOE and Ecology have also agreed that a blanket approach to SST WMA characterization is not appropriate.</p> <p>Ecology and DOE expect that the relationship between contaminant transport modeling and characterization under this Agreement modification will be iterative. Under this approach, preliminary transport models along with information on past contamination and leaks will be used to help guide initial characterization efforts. The resulting characterization data can then be used to refine and verify the preliminary models or suggest alternative models, and to determine the need for additional characterization efforts.</p> |
| <p>Nez Perce, Comment #1 Initial</p> | <p><u>Comments requesting that DOE and Ecology include EPA, Tribes, and other stakeholders in the assessment of the quality and representativeness of data.</u></p> <p>Response: DOE and Ecology are committed to the timely and open sharing of all data collected through these efforts, and associated regulatory decision making documents. EPA, the tribes, and stakeholders will have the opportunity to review and comment on all data used in the corrective action decision-making process, and on associated regulatory decision making documents as they are produced.</p> |
| <p>Nez Perce, Comment #2 M-45-51-b</p> | <p><u>Comments asserting that the August 1999 milestone for submittal of DOE's SST WMA RFI/CMS Work Plan was optimistic.</u></p> <p>Response: The parties August 1999 (M-45-51), and other near term submittal requirements (including those of M-45-52 and M-45-52-T01) were met.</p> |
| <p>Nez Perce, Comment #2 M-45-53</p> | <p><u>Comments-asking that the work plan addenda for WMA B-BX-BY be completed by December of 1999 instead of May 2000.</u></p> <p>Response: DOE and Ecology agreed to complete review and comment on the S-SX addendum before completing the B-BX-BY addendum so that B-BX-BY work can be informed by S-SX activities. The agencies believe that this has resulted in more efficient use of resources and a higher quality B-BX-BY addendum. Consequently, the schedule for this addendum was not accelerated.</p> |
| <p>Nez Perce, Comment #2 M-45-54</p> | <p><u>Comments asking that the workplan addenda for WMAsT-TX-TY be completed by May 2000 rather than December 2000.</u></p> <p>Response: DOE and Ecology agreed to complete the review and comment on the B-BX-BY addendum before completing work on the T and TX-TY addendum so that T and TX-TY work could be informed by activities B-BX-BY activities. The agencies believe this will utilize resources efficiently and result in a higher quality T-TX-TY addendum. In a August 3, 2000 letter from the Nez Pierce to Mr. Hector Rodriguez of the U.S. Department of Energy, the Nez Pierce announced their support for a change in completion dates for the M-45-54 milestone (changing the completion date for M-45-54 from December 2000 to March 2001).</p> |

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| <p>Nez Perce, July 2 letter comment regarding M-45-57 (See also comment regarding M-45-51)</p> | <p>Comments advocating the use of existing SST lateral boreholes.</p> <p>Response: DOE and Ecology agrees that the lateral boreholes, when available, under the tanks have the potential to provide access to obtain valuable characterization data. Since the caissons, which provide access to the lateral boreholes, have not been used for this purpose recently, it first must be determined whether or not these boreholes are fit for use. A study completed in FY2000 determined that hazards present in the caissons precluded using the caissons for sample collection at the present time. Work is planned in FY2001 to determine fitness, and if appropriate use of laterals to collect gamma and neutron data from these boreholes (collecting this data does not require personnel entry into the caissons).</p> |
| <p>Alyssa Huckaby, Comments # 1, 2, and 3</p> | <p>Comments regarding Washington's Model Toxics Control Act (MTCA), the need to resolve issues regarding its applicability at Hanford, and associated issue resolution documentation (See also Change Request Attachment One).</p> <p>Response: The U.S. Department of Energy (DOE) and the Washington Department of Ecology (Ecology) are in disagreement on the legal applicability of the Model Toxics Control Act (MTCA) at Hanford. There are also issues and disagreements regarding whether MTCA can technically be applied to radioactive contaminants. Both agencies are committed to resolving, in a manner open to tribal and public scrutiny, their disagreements regarding the applicability of MTCA at Hanford, including the applicability of MTCA to radioactive contaminants. However, the Agencies believe that it is not necessary to resolve these disagreements before moving forward with the first steps at investigating, characterizing, and identifying interim measures at SST WMAs, that is, it is more beneficial to utilize known regulatory processes now, and to begin with field work necessary in either case.</p> <p>In any case, both DOE and Ecology acknowledge that implementation of MTCA presents technical challenges, especially with respect to radionuclides. The agencies have not finalized their positions on the MTCA issue, so it is not possible at this time to provide further information in the change package. However, resolution of MTCA related issues is not required to begin characterization efforts. Agreements made by the agencies regarding the application of MTCA to specific cleanup actions will be documented in the Hanford Administrative Record. To the extent that these agreements are backed by meeting minutes of discussions between the agencies, these minutes will also be included in the Administrative Record.</p> |
| <p>Alyssa Huckaby, Comment #4</p> | <p>Comments regarding informal discussion of issues regarding this change with Hanford Advisory Board members.</p> <p>Response: The February 11-12, 1999 Hanford Advisory Board (HAB) meeting was a forum for open discussion and information exchange. Although the members of the HAB provided their personal input based on discussions in the meeting, the comments were not identified as formal public comment either from those individuals or from the organizations that they represent. The timing of the February 11-12, 1999 meeting was, in part, to assure that the HAB had information on the change package prior to the public comment period so that the members of the HAB would have sufficient opportunity to prepare and submit formal public comments if they so chose (The HAB did not comment on this change request).</p> |
| <p>Alyssa Huckaby, Comments #5 and 6</p> | <p>Comments regarding the documentation and processing of disputes that may arise between Ecology and DOE as a result of comments received (See also Enclosure 3).</p> <p>Response: If there is dispute between Ecology and DOE regarding responses to the public comments, the agencies' positions and the resolution of the dispute will be formally documented and reflected in the Responsiveness Summary. Agency correspondence documenting the dispute and associated agency actions would also be part of the public record. Finalized modifications are subject to citizen suit provisions to the same extent as other actions under the Agreement.</p> |

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| <p>Alyssa Huckaby, Comment #7</p> | <p>Comments regarding extension of the comment period allowed for this change, and regarding target date M-45-52-T01 (See also Enclosure 3).</p> <p>Response: Ecology and DOE agreed to extend the public comment period. However, Ecology and DOE each wanted to begin preliminary environmental investigations at the SSTs without delay. Ecology requested that DOE proceed with preparation of the preliminary S-SX work plan identified under Milestone M-45-52-T01. This early effort was necessary to stay on schedule for future characterization activities. It is also important to note that RFI/CMS Work Plans, and WMA specific Work Plan addenda under this change are submitted as primary documents subject to Ecology review, and revision as appropriate prior to approval. This milestone was completed on April 29, 2000.</p> |
| <p>Alyssa Huckaby, Comment #8</p> | <p>Comments regarding the suggested insertion of the acronym "RCRA" for the purpose of "regulatory clarification" (See also Change Request Attachment One).</p> <p>Response: The SSTs are regulated under the state's Hazardous Waste Management Act (HWMA) and the Federal Resource Conservation and Recovery Act (RCRA).</p> |
| <p>Alyssa Huckaby, Comments #9 and 10</p> | <p>Comments regarding documents cited under the Change Request heading "Affected Documents" (See also Enclosure 3).</p> <p>Response: As described in Section 12.3.1 of the TPA, the "Affected Documents" section is intended to "list all documents that will have to be revised because of the [proposed TPA] change." It is not intended to list documents that will be generated as a result of the change. Documents that are produced on an annual basis (e.g., groundwater monitoring report) will reflect changes as a result of this HFFACO modification when updated.</p> <p>Similarly, DOE and Ecology do not anticipate that the Columbia River Comprehensive Impact Assessment (CRCIA) documents, groundwater monitoring reports, or other past-practice site documents will have to be revised because of this change package. Therefore, it is not appropriate to add them to the Affected Documents section of the change control form. There may be a modification to milestones related to implementation of past-practice characterization. However, the only existing document this would affect would be the TPA, which is already identified as an affected document.</p> |
| <p>Alyssa Huckaby, Comment #11</p> | <p>Comments regarding the inclusion of EPA as a Change Request signator.</p> <p>Response: Ecology is approving this modification pursuant to its responsibilities as lead regulatory agency. EPA approval is not required.</p> |
| <p>Alyssa Huckaby, Comment #12 and Comment #19</p> | <p>Comments regarding the utilization of the word "compliance" at specific locations within the Change Request (See also Enclosure 3).</p> <p>Response: The term "compliance" referred to at page 2 of the change form was meant to identify the "compliance monitoring" program required under WAC 173.303.645, and applied to the SST WMAs by milestone M-24 requirements. Change request form language has been modified accordingly.</p> |
| <p>Alyssa Huckaby, Comments #13, 14, 15, 16, and 17</p> | <p>Comments regarding Change Request language concerning the compliance status of DOE groundwater monitoring systems, associated documentation within the agencies' administrative record, and the scheduling of regulatory evaluations of SST WMA groundwater monitoring systems (See also Enclosure 3).</p> <p>Response: The phrase "Notwithstanding DOE's groundwater monitoring program which presently is in compliance with HWMA and RCRA interim status standards..." has been deleted. This deletion does not constitute a determination of compliance or non-compliance relative to ground water monitoring at the SST WMAs. It only reflects the agencies' agreement that, at this time, this Agreement modification is not the appropriate place to make compliance related assertions.</p> |

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| <p>Alyssa Huckaby, Comment #18</p> | <p>Comments regarding the parties' commitment to ensure integrated management of activities addressed by this change including reference to specific documents potentially effected.</p> <p>Response: The paragraph on (change request) page 2 and the four items on page 3 identify activities associated with RCRA TSD units managed by DOE's Office of River Protection (i.e., the SST WMAs) which are required by this Agreement modification, which will be managed in an integrated fashion in coordination with the Hanford Groundwater/Vadose Zone (GW/VZ) Program. This Agreement modification is not intended to list non-SST activities or other documents that are also integrated by the GW/VZ Program (such as the Columbia River Comprehensive Impact Assessment). The Tank Waste Remediation System Environmental Impact Statement will be added as an example under item (4). Retrieval Performance Evaluation (RPE) is an activity of ORP's waste retrieval program and has been noted as such. DOE is fully committed to supporting this integration effort.</p> |
| <p>Alyssa Huckaby, Comment #20</p> | <p>Comments recommending clarification of administrative processes that will or may be utilized over time to ensure timely response to contaminant migration and eventual coordination with tank farm WMA closure (See also Enclosure 3).</p> <p>Response: Ecology and DOE agree that based on information developed as a result of this Agreement modification, or other information, it may be necessary to take additional (now unanticipated) steps to address contamination at the SST WMAs and/or it may be necessary to accelerate either the closure or corrective action process. The parties hope to minimize contaminant migration where there is a clear and practicable option for risk reduction. Currently, the approach is to use interim measures (which do not involve a CMS or a lengthy administrative process) to the maximum extent possible to address releases and potential releases at SST WMAs in the near term and to complete final cleanup using the closure process (where closure activities will be conducted in a manner satisfying corrective action requirements). If information developed as a result of this Agreement modification (e.g., information indicating that contamination is significantly greater than previously known or understood), the agencies could employ existing provisions of the Agreement (e.g., section 7.2.3, responses to imminent and substantial endangerment), and, potentially other enforcement authorities to respond. The agencies have added a sentence at change form page 2, paragraph 2 to recognize this possibility.</p> |

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| <p>Alyssa Huckaby, Comment #21, 22, 23, 24, and 25</p> | <p>Comments regarding Change Request language noting that the parties' corrective action decisions "require an understanding of the effectiveness and cost of measures that can be taken".</p> <p>Response: The HWMA and implementing regulations in the WAC do not specify criteria for evaluating potential corrective measures. However, such criteria that will be considered include : 1) Washington's Model Toxics Control Act (MTCA) as Interim Measure objectives (See WAC 173.340.430), and 2) those identified in EPA's RCRA corrective action guidance. Criteria include overall effectiveness, long- and short-term effectiveness, implementability, and cost. Criteria are also specified under CERCLA, and Section 7.0 of the TPA requires that any corrective action documents at Hanford be functionally equivalent to CERCLA. To satisfy the RCRA and CERCLA requirements, it is necessary to gather sufficient information during the environmental investigations at the SST WMAs to be able to develop an understanding of the effectiveness and cost of measures that can be taken to address contamination. NEPA is not the driver behind the effectiveness and cost criteria, and to add NEPA administrative requirements to the flowchart (proposed in Comment #24) would be confusing.</p> <p>The referenced paragraph states that effectiveness and cost considerations relate to measures that can be taken to mitigate contamination. The sentence does not make reference to considering effectiveness and cost with respect to characterizing the nature and extent of contamination in the vadose zone or groundwater (as indicated by Comment #23). Ecology and DOE recognize that in any given year, there are finite budgets for Hanford. DOE is responsible for requesting funding from Congress to support the activities (both characterization and corrective measure) specified in the change package. If that funding is not forthcoming, DOE and Ecology will work together to prioritize activities. While it might seem that interim measures would be a higher priority (proposed by the reviewer in Comment #22), developing an understanding of the nature and extent of the contamination is also important. As the reviewer notes in Comment #23, this understanding of the contamination is important to making decisions regarding appropriate corrective measures.</p> <p>Budgetary evaluations will occur at multiple points in the corrective action process, such as multi-year work planning, annual work planning, and individual WMA data quality objectives processes. Evaluating and comparing the costs of various corrective measure alternatives will occur during preparation of CMSs. It would be confusing to show all of these on the flowchart. The reviewer's concern (Comment #25) that evaluating the cost for interim measures and corrective measures would itself be costly is an important one; however, performing these evaluations is necessary both to satisfy the regulatory requirements and to have adequate justification to Congress and the public for taking action.</p> |
| <p>Alyssa Huckaby, Comment #26</p> | <p>Comments requesting clarification of Change Request language identifying principal Phase 1 RFI/CMS Work Plan addenda regulatory design objectives, i.e., "...compliance with interim status standards and corrective action requirements of the HWMA and RCRA (i.e., requirements which apply in the instance of releases from a TSD facility...".</p> <p>Response: The TPA requires that the groundwater monitoring program for the SSTs comply with WAC 173-303-645. In accordance with WAC 173-303-645(10) "Compliance Monitoring" and - 645(11) "Corrective Action Program", the corrective action program will be designed to identify the nature and extent of contamination (both vadose zone and groundwater) to the extent necessary to (1) evaluate whether detected contaminants are in compliance with groundwater standards and (2) make decisions regarding interim measures and interim corrective measures.</p> |

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| <p>Alyssa Huckaby, Comment #27</p> | <p>Comments regarding Change Request language recognizing the likelihood of more than one iteration of site specific investigation prior to obtaining sufficient information to proceed to decision making documentation.</p> <p>Response: The sentence cited refers to the need for further environmental investigations after activities under the Phase 1 RFI/CMS Work Plan and addenda (to be developed) are completed. This need will not be based solely on information from the current groundwater monitoring program, but rather on a combination of that and the future Phase 1 investigations. Neither can the need for additional characterization be established until the results from implementing the Work Plan and addenda are evaluated.</p> |
| <p>Alyssa Huckaby, Comment #28</p> | <p>Comments regarding use of the term "interim corrective measures" within the parties Change Request.</p> <p>Response: Section 7.2.4 of the TPA establishes a process for interim measures at Hanford RCRA sites. The TPA process requires that DOE submit an interim measure proposal to the lead regulatory agency (Ecology) and the lead regulatory agency approve the proposal prior to implementation. The format of the proposal is not specified. However, consistent with EPA RCRA corrective action guidance, interim measures do not require a formal RFI/CMS. The TPA requirements are reflected in Milestone M-45-56 and will be included in the RFI/CMS Work Plan. It would not be appropriate to reflect the U.S. Ecology requirements.</p> <p>Interim measures must be distinguished from corrective measures. The latter follow from a formal corrective measures study. In the case of the SSTs, any corrective measures implemented prior to closure are by their nature "interim," thus the term interim corrective measures.</p> |
| <p>Alyssa Huckaby, Comment #29</p> | <p>Comments proposing modification of Change Request Attachment 2 depicting HWMA and RCRA corrective action decision processes in coordination with tank farm closure processes under TPA milestone M-45-00.</p> <p>Response: Milestones M-45-56 and M-45-56-T01 will be added to the "Interim Measures" box on the flow chart, joining Milestone M-45-57. Milestone M-45-55 requires submittal of an RFI report, not implementation of interim measures (the RFI report may identify interim measures, but implementation would be under M-45-56) so it was not added. Milestone M-45-56 encompasses all interim measures that have been identified or that might be identified in the future. The arrow to future "Additional Interim Measures" hopefully can convey that there may be a continuum of interim measures. A multitude of boxes could be confusing.</p> |
| <p>Alyssa Huckaby, Comment #30</p> | <p>Comments proposing Change Request language modifications regarding notification and assessment requirements pertaining to sites such as newly identified solid waste management units (SWMUs), areas of concern (AOCs), including unremediated unplanned releases. Corresponding comments proposing the inclusion of permit conditions regarding these types of sites.</p> <p>Response: Procedures for documenting newly-discovered waste sites and including them in the Hanford database to be addressed under appropriate cleanup programs are already in place under TPA Procedure #TPA-MP-14. It would not be appropriate to develop a separate process as part of this change package.</p> |
| <p>Alyssa Huckaby, Comment #31</p> | <p>Comments regarding the identification of interim measures within the Change Request.</p> <p>Response: With respect to interim measure requirements, please refer to the Response to Comment #28. No specific interim measures other than those listed in this change package have been identified to date by Ecology and DOE. However, Ecology has required DOE to continue evaluating opportunities for interim measures. The engineering study and annual workshops although not interim measures in and of themselves, are part of the plan to accomplish this and are fully supported by Ecology. If these activities are delayed until the CMS is prepared, it will mean a several-year delay in identifying and implementing additional interim measures.</p> |

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| <p>Alyssa Huckaby, Comment #32</p> | <p>Comments requesting clarification of activities considered interim measures within the parties Change Request. Response: Items number 2 and 4 are interim measures. They have been identified by a footnote reading: "These activities are interim measures."</p> |
| <p>Alyssa Huckaby, Comment #33</p> | <p>Comments regarding the identification of newly identified waste sites within Change Request Table 1. Response: Newly-discovered waste sites will be addressed via TPA procedure #TPA-MP-14. Because it is uncertain whether or when such sites will be identified, it cannot be added as a specific activity in the table.</p> |
| <p>Alyssa Huckaby, Comments #34, 35 and 36</p> | <p>Comments recommending revision of descriptive text at proposed interim milestones M-45-51, M-45-52 and M-45-53. Response: Although Ecology is ultimately requiring DOE to submit work plans for approval, Ecology plans to work closely with DOE during the data quality objectives (DQO) process that will form a fundamental foundation of the work plans and as the environmental investigations proceed. In addition, Ecology and DOE expect to incorporate lessons learned from corrective action activity so as to allow continuous improvement. Providing a prescriptive process up front could hinder this.</p> |
| <p>Alyssa Huckaby, Comment #37</p> | <p>Comments recommending revision of descriptive text at proposed milestones M-45-54, M-45-55, M-45-56, M-45-57, M-45-58, M-45-59 and M-45-60. Response: The second paragraph of page 3 of the change package states "...the parties have agreed to use the Agreement [TPA] RCRA Corrective Action process (Section 7.0)." Therefore, it is not necessary to repeat the TPA requirements here.</p> |
| <p>Alyssa Huckaby, Comment #38</p> | <p>Comments requesting clarifying revision of language at Change Request Attachment 1 identifying tank waste units and ER sites. Response: The following footnote has been added regarding SSTs, diversion boxes, catch tanks, and receiving vaults: "These tanks and ancillary facilities are part of the SST RCRA treatment, storage, and disposal system."</p> |
| <p>Alyssa Huckaby, Comment #39</p> | <p>Comments requesting clarifying revision of language at Change Request Attachment 1 so as to identify unplanned release sites (UPRs). Response: The UPR designation numbers will be added to the table. However, consistent with the rest of the table, a more detailed description of the UPRs will not be added. The UPR designation numbers are unique and are tracked in the Hanford Waste Information Data System (WIDS). Information on the location and nature of the releases can be found there.</p> |
| <p>Alyssa Huckaby, Comments #40 and 41</p> | <p>Comments recommending revision of Change Request Attachment 2 (flow chart) interim measure milestone identifiers. Response: Milestones M-45-56 and M-45-56-T01 address implementation of both immediate interim measures and those that might be implemented later in the corrective action process. Therefore, the flowchart will be modified to add these milestones to the "Interim Measures" box. Milestone M-45-57 only addresses monitoring well cap upgrades and was completed in July 1999. Thus, it is appropriately only reflected in the near-term "Interim Measures" box.</p> |
| <p>Scott Gehring, Greg deBruler Comment #1</p> | <p>Comments proposing the establishment of enforceable milestones designed to achieve an adequate understanding of vadose zone contaminant migration prior to tank waste treatment. Response: Included in the change are Agreement primary documents which are used to define the program that DOE is implementing to determine how contaminants have and are impacting the vadose zone. This is an iterative process and if understanding of the movement of contaminants is inadequate, DOE and Ecology will determine further data needs and additional work will be required completed. Work under this Agreement modification is being undertaken concurrent with the parties' efforts to acquire tank waste treatment facilities. Because investigative activities at DOE's SST WMA's and tank waste treatment facility acquisition are both multiyear projects, approaching them sequentially is not appropriate, and would delay cleanup activities further.</p> |

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| <p>Scott Gehring, Greg deBruler Comment #2</p> | <p>Comments recommending the characterization of all SST WMAs, and the prioritization of vadose zone characterization based on contaminant plumes rather than DOE's tank farms.</p> <p>Response: As part of Single-Shell Tank Farm retrieval and closure, the impact of any contamination outside of the tanks must be examined in all tank farms. The WMAs under assessment are being examined first because studies suggest that the eight Tank Farms within the four WMAs have impacted groundwater and require prioritized investigation. Other Single-Shell Tank Farms will be characterized as a part of tank retrieval and closure.</p> |
| <p>Scott Gehring, Greg deBruler Comment #3</p> | <p>Comments proposing that characterization activities meet Columbia River Comprehensive Impact Assessment Part II requirements.</p> <p>Response: The characterization at WMAs S-SX, B-BX-BY, T and TX- TY is driven by a RCRA Corrective Action and will look to define the "nature and extent" of contaminant migration. While it will take guidance from or provide input to site-wide assessments and tools, such as the CRCIA or the System Assessment Capability (SAC), the characterization work addressed by this Agreement modification will be, and has been specifically designed to meet regulatory requirements.</p> |
| <p>Scott Gehring, Greg deBruler Comment #4</p> | <p>Comments asserting that USDOE must fully fund contaminant plume characterization, and that associated requirements be established as Agreement milestones.</p> <p>Response: DOE has multi-year planning in place to characterize vadose zone contamination at these WMAs. If initial characterization proves to be inadequate, additional work will be identified and funded to adequately define the nature and extent of the contamination.</p> <p>It would be difficult, if not impossible, to identify budget costs directly in milestones. These costs will vary depending upon methods used. The characterization methods used are decided upon in a Data Quality Objectives (DQO) process, with input from DOE, contractors, regulators, tribal nations and stakeholders. Since a plan for characterization is not available until after this DQO process is complete, the milestone which dictates the characterization would not be able to predict the outcomes of this process, and therefore its costs. Also, as new technologies are developed they are incorporated into characterization. Defining costs in milestones would not be able to take into account the costs of these emerging technologies.</p> |

6. Actions Taken

As a result of the comments received, the Agreement Change Control Form (Enclosure) has been modified and approved by the three agencies. Modifications prior to final approval were as follows:

- Language describing initial investigation performance objectives has been added to the M-45-98-03 Change Request.
- Change Request Language has been clarified to recognize that DOE's SST WMAs are subject to regulation under Washington's Hazardous Waste Management Act and the Federal Resource Conservation and Recovery Act.
- Change Request language addressing compliance status of DOE's SST WMA groundwater monitoring systems has been deleted.
- Language describing major elements of SST WMA work which must be managed in a manner integrated with the sitewide groundwater vadose zone (GW/VZ) project has been modified to include related actions under NEPA and DOE's tank specific RPE.
- Change Request language has been added to recognize that the parties recognize and agree that information gained as the result of this modification, or other information, may warrant additional (now unanticipated) work

to address contamination at the SST WMAs, and that it may be necessary to accelerate either the closure or corrective action processes.

- Minor corrections to the parties' M-45-98-01 process flow sheet have been made.
- Change Request language has been added to clarify that the SSTs, and associated piping, diversion boxes, catch tanks, and receiving vaults are part of the SST RCRA treatment, storage, and/or disposal unit (TSD) system.
- Modifications to Change Request Attachment One "Initial Single-Shell Waste Management Areas and Associated Sites" have been made to clarify the applicability of RCRA/HWMA, and to identify unplanned release sites (UPR).

7. Delayed Approval of this Agreement Modification

Modification pursuant to public comment and final approval of this M-45-98-03 Change Request has been delayed as the party's activities focused on work necessary for the acquisition of tank waste treatment facilities. However, during this time, work under this proposed modification has proceeded. The parties agree that though a number of due dates within this modification are now past (and were met), it is in the best interest of the parties to approve this change request in order to establish the basic structure for the integration of closure and corrective action process at the SST WMAs. Future modifications will be made by separate Change Request.

8. Availability of Information

This summary as well as the parties approved M-45-98-01 Change Request are available for review at the three Agreement repositories (Seattle, Spokane, and Portland) and at DOE's Public Reading Room in Richland.

Seattle

University of Washington
Suzzallo Library
Government Publications Room
Mail Stop FM-25
Seattle, WA 98195
(206) 543-4664
Attention: Eleanor Chase

Spokane

Gonzaga University
Foley Center
E. 502 Boone
Spokane, WA 99258
(509) 328-4220 extension 3125
Attention: Lewis Miller

Portland

Portland State University
Bradford Price Millar Library
SW Harrison and Park
P.O. Box 1151
Portland, OR 97207
(503) 725-3690
Attention: Michael Bowman

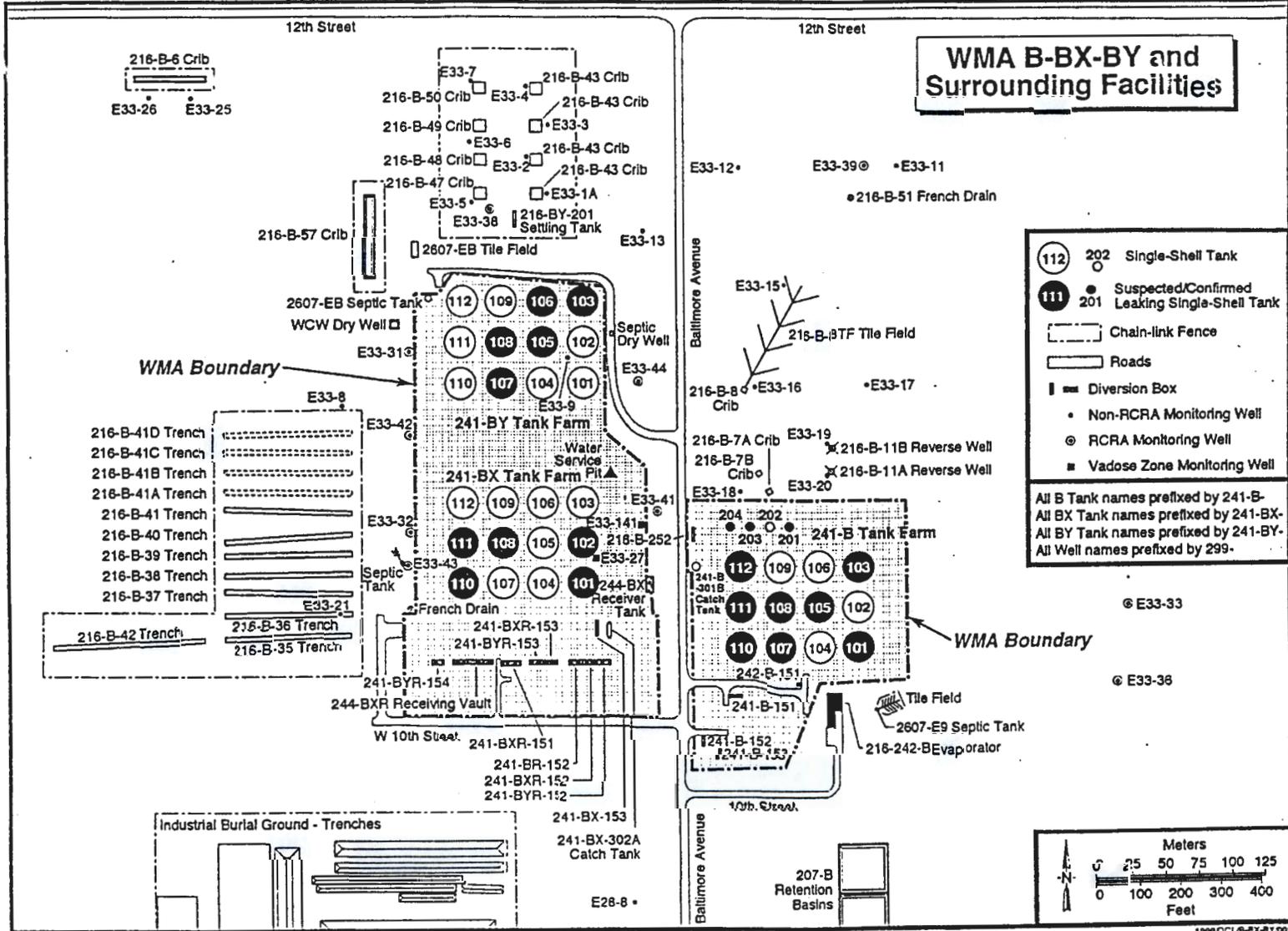
Richland

Washington State University/Tri-Cities
DOE Public Reading Room
2770 University Drive
Room 101L
Richland, WA 99352
(509) 372-7443
Attention: Terri Traub

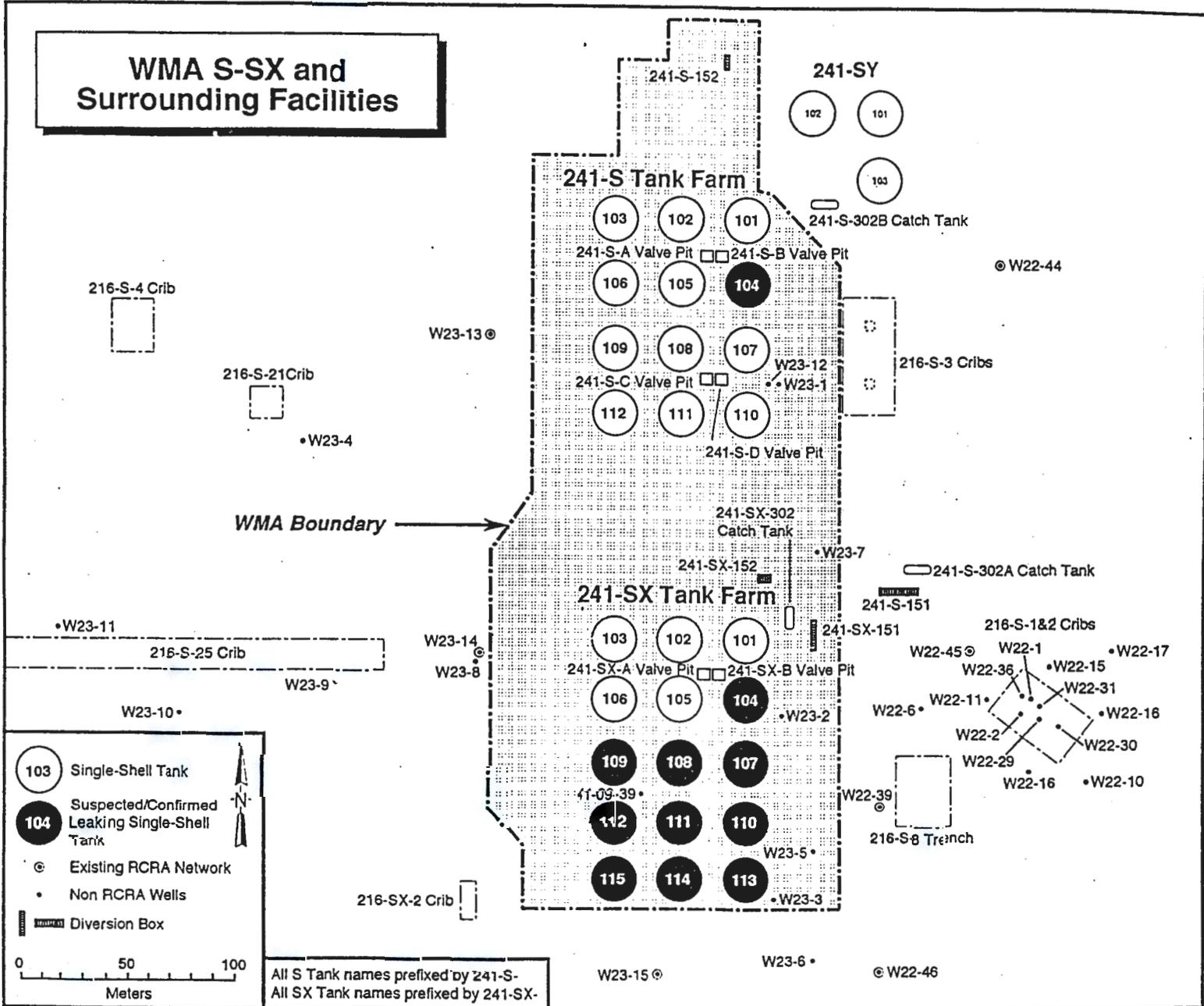
A copy of the final Agreement change and this Comments and Responses document may also be obtained by contacting the parties Hanford Cleanup Line at 800-321-2008. More information about the TPA and Hanford can be found on the Hanford Web site (<http://www.hanford.gov>).

Attachment One:

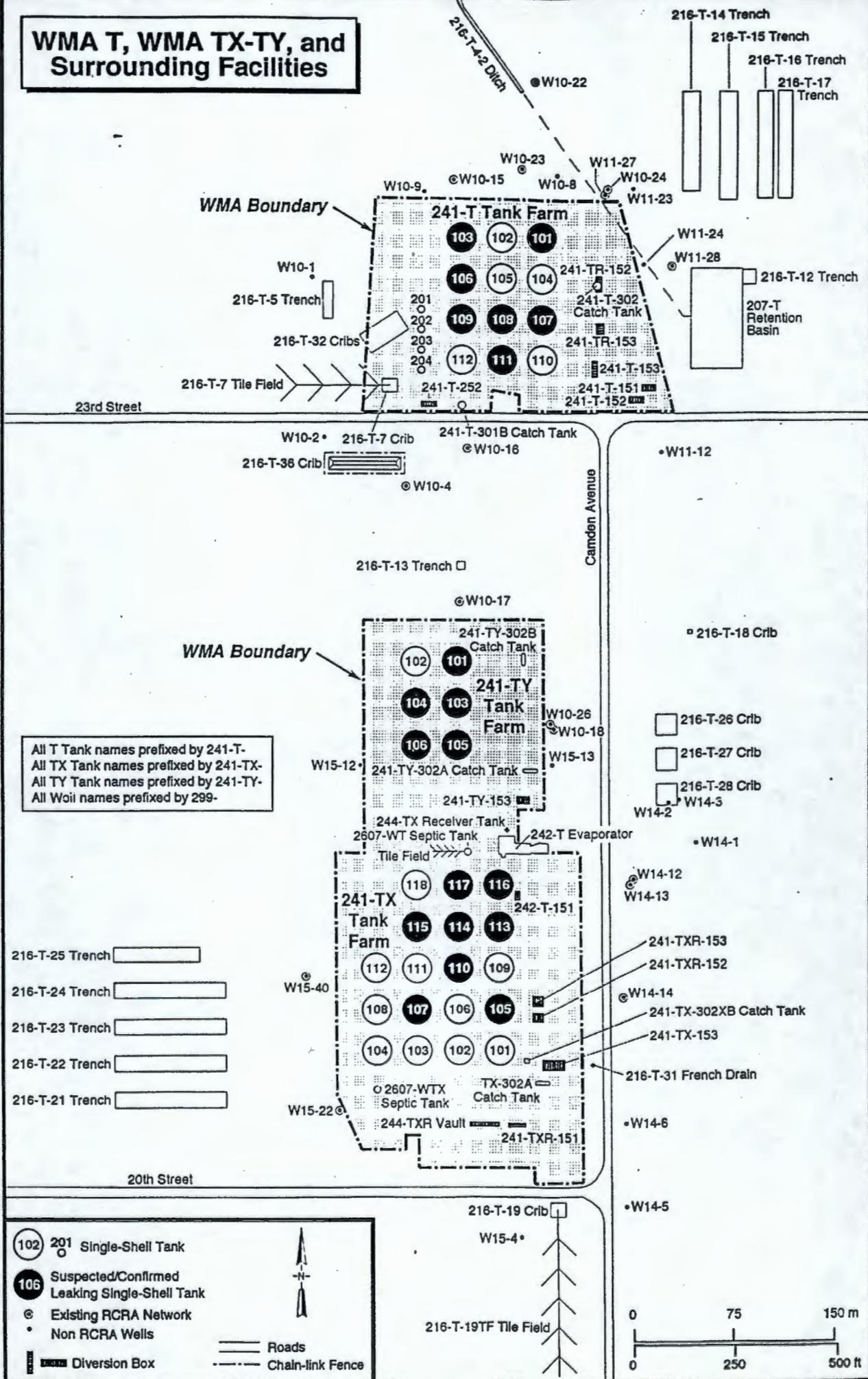
Initial Single-Shell Tank Waste Management Areas and Associated Sites.



WMA S-SX and Surrounding Facilities



WMA T, WMA TX-TY, and Surrounding Facilities



All T Tank names prefixed by 241-T.
 All TX Tank names prefixed by 241-TX.
 All TY Tank names prefixed by 241-TY.
 All Well names prefixed by 299-

| Tank Waste-Related Units and ER Sites Associated with SST WMAs ¹ | | |
|---|---|---|
| WMA | Within WMA Boundary | Outside WMA Boundary |
| B-BX-BY | Single Shell Tanks (40) 241-B-151 Diversion Box 241-B-152 Diversion Box 241-B-153 Diversion Box 241-B-252 Diversion Box 241-B-301B Catch Tank 241-BR-152 Diversion Box 241-BX-153 Diversion Box 241-BX-302A Catch Tank 241-BXR-151 Diversion Box 241-BXR-152 Diversion Box 241-BXR-153 Diversion Box 241-BYR-152 Diversion Box 241-BYR-153 Diversion Box 241-BYR-154 Diversion Box 242-B-151 Diversion Box 244-BXR Receiving Vault 2607-EB Septic Tank | 216-242-B Evaporator 216-B-7A Crib 216-B-7B Crib 216-B-8 Crib 216-B-8TF Tile Field 216-B-11A Reverse Well 216-B-11B Reverse Well 216-B-35 Trench 216-B-36 Trench 216-B-37 Trench 216-B-38 Trench 216-B-39 Trench 216-B-40 Trench 216-B-41 Trench 216-B-41A Trench 216-B-41B Trench 216-B-41C Trench 216-B-41D Trench 216-B-42 Trench 216-B-43 Crib 216-B-44 Crib 216-B-45 Crib 216-B-46 Crib 216-B-47 Crib 216-B-48 Crib 216-B-49 Crib 216-B-50 Crib 216-B-51 French Drain 216-B-57 Crib ² |
| T | Single-Shell Tanks (16) T-7 Crib T-32 Crib ⁴ 241-T-151 Diversion Box 241-T-152 Diversion Box 241-T-153 Diversion Box 241-T-252 Diversion Box 241-T-301 Catch Tank 241-T-302 Catch Tank 241-TR-152 Diversion Box 241-TR-153 Diversion Box | 216-T-5 Trench 216-T-7-TF Tile Field ³ 216-T-14 Trench 216-T-15 Trench 216-T-16 Trench 216-T-17 Trench |

| WMA | Within WMA Boundary | Outside WMA Boundary |
|-------|---|---|
| TX-TY | Single-Shell Tanks (24) 242-T-151 Diversion Box 241-TX-153 Diversion Box 241-TX-302A Catch Tank 241-TX-302-XB Catch Tank 241-TXR Vault 241-TXR-152 Diversion Box 241-TXR-153 Diversion Box 241-TY-153 Diversion Box 241-TY-302A Catch Tank 241-TY-302B Catch Tank 244-TXR Vault 2607-WT Septic Tank 2607-WTX Septic Tank | 216-T-18 Crib 216-T-19 Crib ² 216-T-19 TF Tile Field ² 216-T-21 Trench 216-T-22 Trench 216-T-23 Trench 216-T-24 Trench 216-T-25 Trench 216-T-26 Crib 242-T Evaporator ² |
| S-SX | Single-Shell Tanks (27) 241-S-152 Diversion Box 241-S-A Valve Pit 241-S-B Valve Pit 241-S-C Valve Pit 241-S-D Valve Pit 241-SX-151 Diversion Box 241-SX-152 Diversion Box 241-SX-302 Catch Tank | 216-S-3 Crib ² 216-S-4 French Drain ² 216-S-21 Crib ² 216-S-25 Crib ² 216-S-8 Crib 216-SX-2 Crib 241-S-151 Diversion Box 241-S-302B Catch Tank |

note 1: not including unplanned release (UPR) sites. For UPR sites see Appendix B of Tri-Party Agreement

note 2: unit handled condensate from evaporator operations or from self-boiling waste

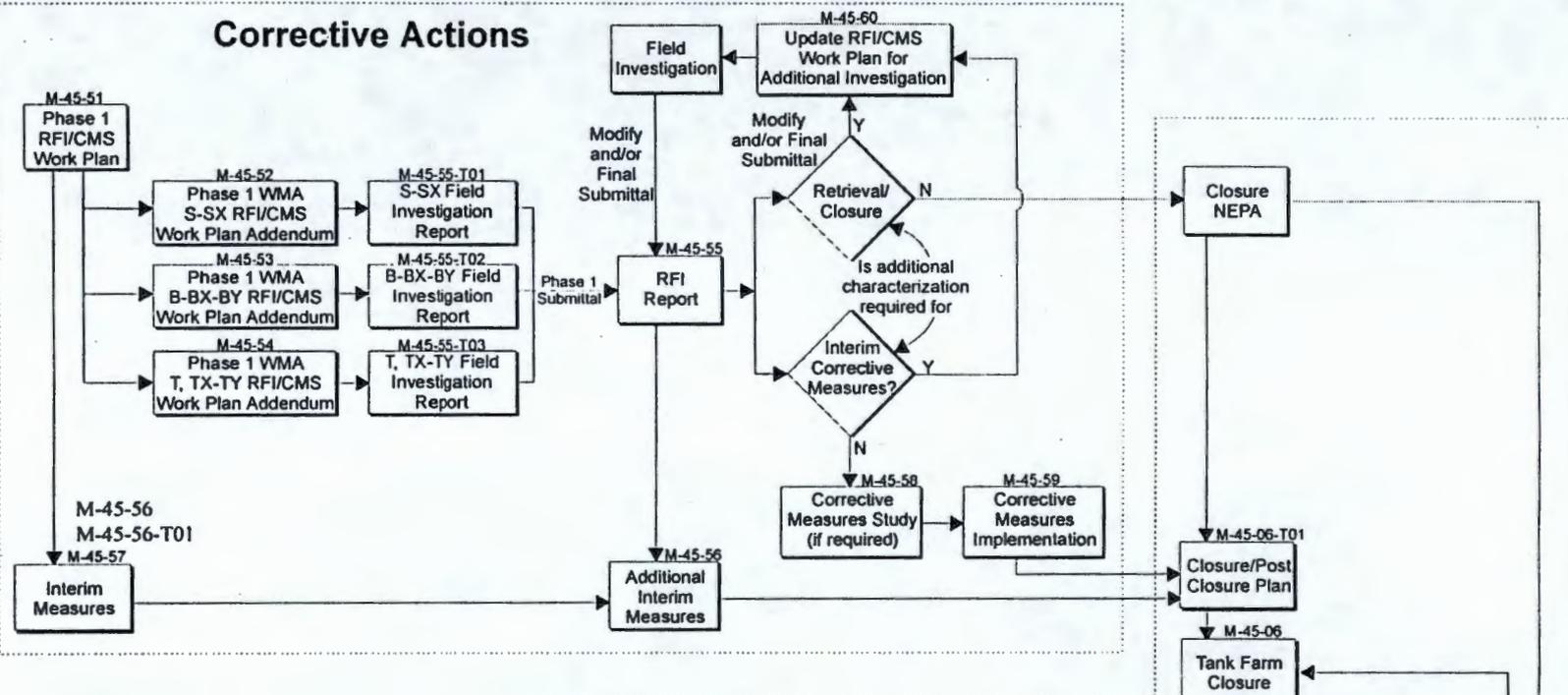
note 3: unit is partially inside WMA boundary

note 4: unit is partially outside WMA boundary

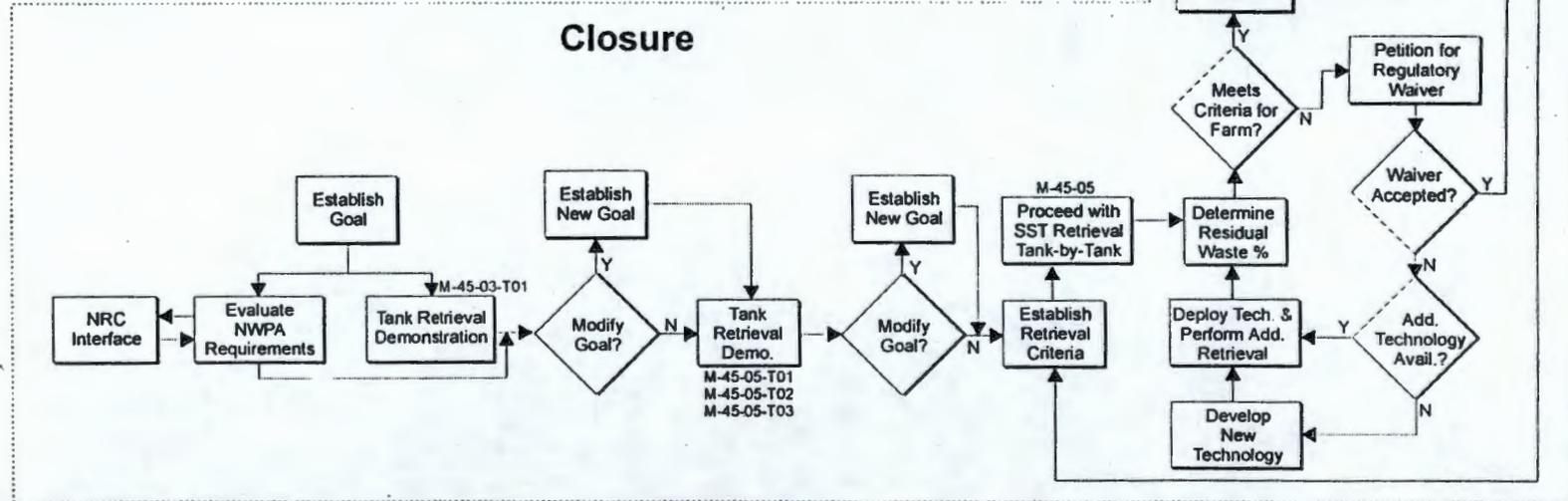
Attachment Two:

**Utilization of the HWMA and RCRA Corrective Action Processes for
SST WMA and Associated Site Groundwater/Vadose Zone Decision
Making in Coordination with SST Tank Farm Closure Under
Agreement Milestone M-45.**

Corrective Actions



Closure



Hanford Federal Facility Agreement and Consent Order

Change Control Form M-45-00-02

January 22, 2001

Page 2 of 2

That the following Tri Party Agreement milestone completion dates be modified to reflect the following changes:

M-45-54: Submit to Ecology for review and approval as an agreement primary document a Site-Specific SST WMA Phase 1 RFI/CMS Work Plan Addenda for WMA T and WMA TX-TY:
~~December 31, 2000~~
March 31, 2001

This plan will describe and schedule the gathering of specific information for WMA T and WMA TX-TY necessary to meet the objectives specified in the Phase 1 RFI/CMS Work Plan for the SST WMAS. The plan will also define specific locations and methods for sampling and analysis to meet work plan objectives. This plan will identify requirements for groundwater sampling from new vadose zone boreholes, and vadose zone sampling from planned groundwater monitoring wells. In addition, the plan will identify data needs from the characterization of past practice sites to resolve SST WMA data gaps.

M-45-55-T01: Submit to Ecology for review and comment as an agreement secondary document a Field Investigation report pursuant to the Site-Specific SST WMA Phase 1 RFI/CMS Work Plan addenda for WMA S-SX:
~~April 30, 2001~~
January 31, 2002

M-45-55-T02: Submit to Ecology for review and comment as an agreement secondary document a Field Investigation report pursuant to the Site-Specific SST WMA Phase 1 RFI/CMS Work Plan addenda for WMA B-BX-BY:
~~May 31, 2002~~
October 31, 2002

References

1. Letter, H. Rodriguez, RL to M. Wilson, Ecology: Completion Dates for Two Target and One Interim Milestone which are part of the tentatively agreed Change Request M-45-98-03 (Milestones M-045-54, M-045-55-T01 and M-045-55-T02) dated July 13, 2000.