UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

24 AUG 2005

Reply To
Attn Of: OCE-164

Roy J. Schepens, Manager
United States Department of Energy, Office of River Protection
P.O. Box 450, MSIN H6-60
Richland, WA 99352

Re: Approval of the Toxic Substance Control Act (TSCA) Risk-Based Disposal Approval (RBDA) Application for the Mobilization of Single-Shell Tank Solid Waste Using Double-Shell Tank Supernate – Phase II Approval for Tanks 241-C-103 and 241-C-109

Dear Mr. Schepens:

This letter constitutes approval under the authority of 40 Code of Federal Regulations (CFR) 761.61(c) to manage certain polychlorinated biphenyl (PCB) remediation wastes in conjunction with single-shell tank (SST) retrieval, subject to conditions established below. The rationale of the United States Environmental Protection Agency (EPA) for establishing each of these conditions is contained in the Statement of Basis appearing as Enclosure 2 to this letter. This written decision for a risk-based method for disposal of PCB remediation waste is based on the United States Department of Energy Office of River Protection (Energy) application for a risk-based disposal approval dated November 19, 2004, as well as additional information provided to the EPA in support of this application as documented in the Statement of Basis. This approval constitutes the Phase II approval (as described in EPA's letter of December 9, 2004, from Michael A. Bussell to you and in the Statement of Basis for this approval) of the November 19, 2004, application for retrieval of tanks 241-C-103 and 241-C-109. Energy is authorized to conduct only those retrieval activities related to tanks 241-S-102, 241-C-103 and 241-C-109 for which Phase II approvals have been issued, and precluded from conducting the remainder of the proposed retrieval activities pending associated Phase II determinations by EPA. Enclosure 1 to this approval documents the administrative record that supports this determination. In granting this approval, EPA finds that the proposed management of PCB remediation wastes for retrieval of wastes from specified single-shell tanks, subject to the conditions below, will not pose an unreasonable risk of injury to health or the environment. Energy shall ensure that activities conducted pursuant to this authorization are in full compliance with conditions of this authorization. The conditions of this approval are enforceable under TSCA and implementing regulations 40 CFR Part 761.61(c). Any actions by Energy which violate the terms and conditions of this letter may result in administrative, civil, or criminal enforcement by EPA in accordance with Section 16 of TSCA, 15 USC § 2615.

Phase II (Tank-Specific) Conditions – Tanks 241-C-103 and 241-C-109

1) For retrieval of tanks 241-C-103 and 241-C-109, the spatial boundaries of this approval shall be the 241-AN-06A pit for supernate retrieved from tank 241-AN-106, extending to (following the direction of supernate flow/retrieved slurry) the connection to tank 241-AN-106 return riser for

slurry returned from tanks 241-C-103 and 241-C-109 to tank 241-AN-106. Tanks 241-C-103 and 241-C-109 are explicitly included within the boundaries of this approval.

2) All equipment used for carrying out retrieval activities external to tanks 241-C-103 and 241-C-109 shall comply with the requirements of 40 CFR 265.191 through 196. Tanks 241-C-103 and 241-C-109 proper and any equipment used for retrieval activities internal to these tanks are excluded from this requirement. With respect to compliance with the requirements of 40 CFR 265.196 (response to leaks or spills, and disposition of leaking or unfit-for-use tank systems), Energy shall maintain and conduct retrieval operations according to procedures no less stringent than Sections 4.2.2, and 4.6 of the draft process control plan for tanks 241-C-103 and 241-C-109, RPP-21895, Rev. 2.

3) Energy shall complete a formal waste compatibility assessment of wastes in tanks 241-C-103 and 241-C-109 according to HNF-SD-QM-OCD-015 and Section 3.1.1 of the C-103/C-109 TWRWP, RPP-21895, Rev. 2. Energy shall provide notice of availability of the waste compatibility assessment report to the EPA contacts listed in Phase I approval Condition 6 prior to the start of retrieval activities covered by this approval. Electronic mail communication is acceptable for this notification. Energy shall provide a printed or electronic copy of this report to EPA upon request.

4) Within 45 days following the effective date of this approval, Energy shall submit to EPA a post-retrieval Data Quality Objective (DQO) report and a sampling and analysis plan (SAP) for post-retrieval characterization and residual PCB remediation waste sampling for tanks 241-C-103 and 241-C-109. These plans may be based in whole or part on closure requirements pursuant to Washington Administrative Code 173-303-610). Energy shall ensure that the DQO report and the sampling and analysis plan provide for generation of data characterizing residual PCB remediation waste adequate for purposes of evaluating the risk of injury to human health and the environment from residual PCB remediation waste, and for evaluation of appropriate removal, decontamination or disposal actions for such residual PCB remediation waste. This plan shall be based on and consistent with the requirements of TPA Appendix I Section 2.1.6 requirements.

5) Within 120 days following completion of retrieval activities covered by this approval, or other such time corresponding to a submission date approved by Ecology through applicable TPA administrative processes with respect to requirements of TPA Appendix I Section 2.1.7, Energy shall submit to EPA either a retrieval data report pursuant to the approved DQO/sampling and analysis plan required by Phase II Condition 4 above, or a TPA Appendix H request for exception. This report shall include the information required by TPA Appendix I Section 2.1.7. This report shall specifically include results reasonably available at the time of submission from the High-Resolution Resistivity (HRR) pilot test described in Section 4.2.1.3 of the C-103/C-109 TWRWP, TPA primary document (RPP-21895, Rev. 2) as approved by Ecology.

6) Within 120 days following completion of retrieval activities covered by this approval, or other such time corresponding to a submission date approved by Ecology through applicable TPA administrative processes with respect to requirements of TPA Appendix I Section 2.2.1, Energy shall submit plans and schedules for removal, decontamination or disposal of post-retrieval residual PCB remediation waste. These plans and schedules may be based upon and consistent with component closure activity plans for tanks 241-C-103 and 241-C-109 required by WAC 173-303-610, and TPA Appendix I Section 2.2.1. If component closure activity plans are used in

whole or part as the basis for post-retrieval management of residual PCB remediation waste, Energy shall ensure that total PCBs, measured as the sum of Aroclors, are identified as constituents of concern in the component closure activity plans. For retrieval equipment within the scope of Phase II Condition 1 that may be used for subsequent SST retrievals requiring approval under 40 CFR 761.61(c), Energy may submit documentation of the proposed reuse in lieu of the otherwise-required plans and schedules. These plans and schedules shall comprehensively address all aspects of residual PCB remediation waste management related to activities covered by this authorization, specifically including but not limited to in-tank residuals in tanks 241-C-103 and 241-C-109, any spills, releases or leaks from tanks 241-C-103 and 241-C-109 during retrieval, residuals in equipment within the scope of Phase II Condition 1 and any related spills or releases. Energy may also request from EPA written approval of alternate submission schedules as necessary to ensure integration of these submissions with permit modification requests and component closure activity plans required by the Washington State Department of Ecology pursuant to TPA milestone M-45-15.

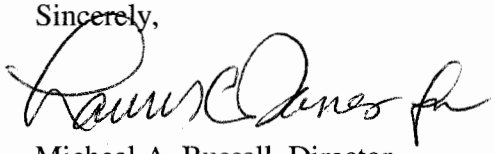
7) Energy shall maintain and operate a baseline (drywell monitoring) and supplemental (modified static liquid level monitoring/waste material balance) leak detection, monitoring and mitigation (LDMM) system as documented in Section 4.0 of the C-103/C-109 TWRWP, RPP-21895, Rev. 2. With respect to this system, Energy shall maintain and conduct retrieval operations pursuant to procedures consistent with Sections 4.2.1 and 4.6 of the process control plan for retrieval of tanks 241-C-103 and 241-C-109,. RPP 21895, Rev. 2

8) Energy may request changes to schedules specified in these tank 241-C-103/241-C-109 Phase II conditions. Such requests shall be in writing, including justification for the requested modifications, and submitted to the EPA contacts listed in Phase I Condition 6. Prior to written approval of the requested change, Energy shall comply with the existing conditions of this approval.

9) Energy shall submit to the EPA contacts listed in Phase I approval Condition 6 the final report of high-resolution resistivity (HRR) leak detection test conducted pursuant to the Ecology-approved test plan RPP-17191, Rev. 1, concurrent with submission of this report to Ecology.

Should you have any questions or comments, please contact Dave Bartus at (509) 372-7938, or Bartus.dave@epa.gov.

Sincerely,



Michael A. Bussell, Director
Office of Compliance and Enforcement

Enclosures (2)

cc: Mike Wilson, Washington State Department of Ecology
Mary Beth Burandt, Department of Energy – Office of River Protection
Moses Jarayssi, CH2M Hill Hanford Inc.
Phil Miller, CH2M Hill Hanford Inc. Inc.

Enclosure 1

Supporting Documentation

Approval of the TSCA RBDA Application for Retrieval of Wastes from Single-Shell Tanks
Phase II Approval for Tanks 241-C-103 and 241-C-109

1) *"241-C-103 and 241-C-109 Tanks Waste Retrieval Work Plan"*, RPP-21895, Rev. 2, R. S. Robinson, dated May 24, 2005, CH2M HILL Hanford Group, Inc., Richland, Washington.

2) Letter, "Re: Letter 05-TPD-054, from R. Schepens, USDOE, to M. Wilson, Ecology, "Submittal of 241-C-103 and 241-C-109 Tank Waste Retrieval Work Plan (TWRWP), RPP=-21895, Revision 2," dated June 1, 2005," Jeffery J. Lyon, Washington State Department of Ecology to Roy J. Schepens, United States Department of Energy, Office of River Protection, June 27, 2005.

3) *"Waste Compatibility Assessment of Tank 241-C-103 Waste with Tank 241-AN-106 Waste,"* RPP-RPT-25160, Rev. 0

4) *"Waste Compatibility Assessment of Tank 241-C-109 Waste with Tank 241-AN-106 Waste,"* RPP-RPT-27078 (Draft)

5) Letter, Jeffery J. Lyon, Washington State Department of Ecology, to Roy J. Schepens, United States Department of Energy – Office of River Protection, "Single-shell Tank Deployment Demonstration and Injection Leak Testing of the High-Resolution Resistivity Long Electrode Leak Detection and Monitoring System, RPP-17191, Rev. 1," dated July 19, 2004.

6) Letter, Jeffery J. Lyon, Washington State Department of Ecology, to Roy J. Schepens, United States Department of Energy – Office of River Protection, "Single-shell Tank Deployment Demonstration and Injection Leak Testing of the High-Resolution Resistivity Long Electrode Leak Detection and Monitoring System, RPP-17191, Rev. 1, Letter to Mr. Schepens from Jeffery Lyon, July 19, 2004, HRR Test Plan Requests," dated July 27, 2004.

7) Letter, Roy J. Schepens, United States Department of Energy, Office of River Protection, to Ron Kreizenbeck, United States Environmental Protection Agency, Region 10, "Transmittal of Application for Polychlorinated Biphenyl (PCB) Risk Assessment for the Mobilization of Single-Shell Tank (SST) Solid Waste Using Double-Shell Tank (DST) Supernate," dated November 19, 2004.

8) Letter, Michael A. Bussell, United States Environmental Protection Agency, Region 10 to Roy J. Schepens, United States Department of Energy, Office of River Protection, "Approval of the Toxic Substance Control Act (TSCA) Risk-based

Disposal Approval (RBDA) Application for the Mobilization of Single-Shell Tank Solid Waste Using Double-Shell Tank Supernate," dated June 2, 2005.

9) E-mail, Christopher J. Kemp, CH2M Hill to Dave Bartus, EPA, "FW: C-103/C-109 retrieval – Phase II approval draft," dated August 15, 2005.

Enclosure 2

Statement of Basis

Approval of the Toxic Substances Control Act (TSCA) Risk-Based Disposal Approval (RBDA) Application for Retrieval of Wastes from Hanford's Single-Shell Tanks (SSTs) Using Double-Shell Tank (DST) Supernate.

Phase II Approval for Tanks 241-C-103 and 241-C-109

Background

On November 19, 2004, the United States Department of Energy submitted an application for a risk-based disposal approval (Reference 7) under the Toxic Substances Control Act for retrieval of wastes from twelve of Hanford's single-shell tanks using double-shell tank supernate. On June 2, 2005 (Reference 8), EPA issued a Phase I approval common to retrieval of wastes from all twelve tanks, and a tank-specific Phase II approval specific to tank 241-S-102. The Statement of Basis for this Phase I approval and S-102 Phase II approval contains detailed background information regarding the jurisdictional basis for Energy's SST retrieval RBDA application, the approach adopted by EPA for issuing a determination in response to the application, and the nature of and relationship between Phase I and Phase II approvals. The following June 2, 2005, approval statement of basis sections are incorporated by reference into this Phase II approval for tanks 241-C-103 and 241-C-109:

Background
Overview of Energy's RBDA Application
Relationship of Energy's RBDA Application to Department of Ecology Retrieval Approvals
EPA's evaluation of Energy's application

Phase II Review Evaluation – Tanks 241-C-103 and 241-C-109

The tank-specific component of Energy's retrieval RBDA application for tanks 241-C-103 and 241-C-109 is the corresponding TWRWP, "241-C-103 and 241-C-109 Tanks Waste Retrieval Work Plan," RPP-21895, Rev. 2a, (C-103/C-109 TWRWP, Reference 1). This document was approved as a Tri-Party Agreement (TPA) primary document on June 27, 2005 (Reference 2). Briefly, EPA has considered the following factors in its Phase II evaluation of tanks 241-C-103 and 241-C-109:

- Basic justification for use of DST supernate;
- Technical standards applicable to equipment used for retrieval external to tanks 241-C-103 and 241-C-109, including inspection, monitoring and response procedures with respect to transfer equipment;
- Waste compatibility between tank wastes to be retrieved and DST supernate;
- Leak Detection, Monitoring and Mitigation requirements for tanks 241-C-103 and 241-C-109 during retrieval;
- Post-retrieval characterization of residuals remaining in tanks 241-C-103 and 241-C-109.

Energy has provided a brief outline of benefits and risks of using raw water versus DST supernate for purposes of retrieving solid waste/sludge from tanks 241-C-103 and 241-C-109 in Section 3.2.1 of the C-103/C-109 TWRWP. EPA finds that the significant savings in DST space documented for use of supernate versus raw water, coupled with the reduction in sodium [in the form of sodium hydroxide] addition required for DST corrosion control in the case of raw water use provides an adequate basis for finding the risk differential between raw water and supernate use does not pose an unreasonable risk of injury to health or the environment. EPA notes that its consideration of this point has two components: a finding that the use of DST supernate itself does not pose an unreasonable risk, and a finding that the risk differential between use of raw water and supernate does not pose an unreasonable risk. The comparison of risks and benefits of using raw water versus DST supernate provided by Energy addresses the second component. The remainder of this approval and the accompanying analysis addresses the first component.

EPA's approach to ensuring that potential leaks from equipment used for retrieval (other than tanks 241-C-103 and 241-C-109) are prevented to the degree necessary to demonstrate that they do not pose an unreasonable risk is based on application of RCRA technical standards found in 40 CFR 265.191 through 196. EPA is applying these standards under TSCA authority in partial satisfaction of the requirements of 40 CFR 761.61(c), not under the statutory authority of RCRA Section 3005(e). This approach is consistent with Section 5.0 and Table 5-1 of the C-103/C-109 TWRWP document.

These standards address key elements related to protective operation of such equipment, including design and installation of the equipment, secondary containment requirements, operating and inspection requirements, and response to leaks or spills. EPA notes that pits (such as the AN-06A pit associated with double-shell tank 241-AN-106, the supernate source proposed for use in retrieving tanks 241-C-103 and 241-C-109) themselves are not required to have secondary containment, since the pits serve as secondary containment for the transfer lines, valves, etc., located in them.

Section 3.1.1 of the C-103/C-109 TWRWP notes that a formal waste compatibility assessment of wastes in tanks C-103/C-109 with those in the receiving DST 241-AN-106 have not yet been completed, but that a preliminary assessment has been completed (References 3 and 4). EPA is including a condition (Condition 3) in the C-103/C-109 Phase II approval to require such an assessment to be completed and the results provided

to EPA prior to the start of the proposed retrieval activities. As with the tank 241-S-102 Phase II retrieval RBDA approval, EPA may then modify or revoke the C-103/C-109 retrieval Phase II RBDA approval should the assessment document compatibility issues that demonstrate the proposed retrieval activities may pose an unreasonable risk of injury to health or the environment.

While EPA has not been provided any data suggesting that compatibility issues might exist, waste in AN-106 is not the result of previous retrieval activities from either tank C-103 or C-109. This situation differs from that in the case of tank 241-S-102, where the supernate used for Phase II retrieval was the result of salt-cake sluicing from tank 241-S-102. Therefore, EPA is accepting Energy's assertion in Section 3.1.1 of the C-103/C-109 TWRWP that there are no known chemical compatibility issues that would prevent the retrieval and transfer of waste from tanks C-103 and C-109 to tank AN-106, but EPA will verify this assertion with results of the required formal waste compatibility assessment.

Section 2.5.1 of the C-103/C-109 TWRWP documents the presence of a separable organic layer in tank 241-C-109, believed to be a mixture of normal paraffin hydrocarbons and tributylphosphate. This organic layer could affect the distribution of PCBs within tank 241-C-103 (PCBs would likely be preferentially soluble in the organic layer, as opposed to whatever aqueous liquids or solids exist in the tank), but EPA has no data suggesting that the bounding estimates of the overall PCB inventory in SSTs undergoing retrieval discussed in the Phase I approval issued June 2, 2005, are not applicable to tank 241-C-103. EPA will, however, examine this question when reviewing the pre-retrieval waste compatibility assessment for tank 241-C-103, as well as the post-retrieval PCB remediation waste residual sampling required by the C-103/C-109 Phase II approval.

Leak detection, monitoring and mitigation (LDMM) with respect to potential releases from tanks 241-C-103 and 241-C-109 during retrieval is of key environmental significance, particularly in connection with use of regulated DST supernate. The C-103/C-109 TWRWP document describes application of both in-tank and ex-tank[1] leak detection for purposes of LDMM. With respect to leaks directly from these tanks, applicable techniques include static water level monitoring, and monitoring/logging of dry wells surrounding the tank. In addition, routine process control data from flow meters, level gauges and density measurements, such as those described in Figure 4.3 of the C-103/C-109 TWRWP can be used as indicators of gross or catastrophic leaks. Energy has asserted in Section 4.3 of the C-103/C-109 TWRWP that these technologies "selected for deployment at tanks C-103 and C-109 represent[s] the best available technology that is consistent with the planned approach for waste retrieval."

Energy has also noted in Section 4.2.1.3 of the C-103/C-109 TWRWP that a pilot deployment of high-resolution resistivity (HRR), which may provide improved leak detection sensitivity, is planned for retrieval of tanks 241-C-103 and 241-C-109. Via

[1] In-tank leak detection may include techniques such as level monitoring and mass balance calculations. Ex-tank leak detection includes techniques such as dry-well logging, and potentially high-resolution resistivity, both of which measure parameters physically exterior to the tank in question.

letters of July 19 and 27, 2004 (References 5 and 6), Ecology has provided approval to Energy of a HRR test plan, RPP-17191, Rev. 1, for field testing and evaluation of the HRR system at tank 241-S-102. EPA is not reviewing or approving of this test plan as a basis for this RBDA approval. EPA (in coordination with Ecology) will, however, consider this test plan and the associated demonstration test results. Data from the test may provide insight into retrieval performance of the three tanks (241-S-102, 241-C-103 and 241-C-109) at which Energy is conducting the technology demonstration, and a basis to EPA to require implementation of HRR leak detection at future SSTs included in Energy's RBDA approval. EPA is requiring inclusion of available data from the HRR test in the post-retrieval report, and for submission of the final test report. See Condition 9 of the tank 241-C-103/241-C-109 Phase II approval. These conditions are consistent with requirements included in Ecology's July 19th letter (Reference 5).

Given the pilot nature of deploying HRR technology during retrieval of tanks 241-C-103 and 241-C-109, EPA does not believe it appropriate to rely exclusively on HRR data for LDMM purposes. EPA will, however, evaluate findings of the pilot deployment, and may (as Ecology may do as well) require application of HRR technology as a condition of future retrievals requiring approval under the requested RBDA.

Section 4.6 of the C-103/C-109 TWRWP addresses response actions to leaks in above-ground containment structures. This section states that should a leak be detected in the above-ground containment structures, the waste transfer pumps would be transferred to the SST being retrieved using the sump pump. Via an e-mail of August 15, 2005 (Reference 9), Energy clarified that leaks to secondary containment from some such structures drain by gravity to the SST being retrieved, whereas others, such as valve boxes, are not equipped with drains and must be emptied via a sump pump. This approach is acceptable, and consistent with interim status technical standards applied pursuant to C-103/C-109 Phase II approval Condition 2. See, in particular, 40 CFR 265.196(b).

Measurement and characterization of residual waste remaining in tanks 241-C-103 and 241-C-109 after completion of retrieval activities is critical to evaluate potential environmental impacts of retrieval activities, define any mitigation measures that may be required, and to define the nature and scope of closure activities required under RCRA and residual management under TSCA. Such activities may be performed under either TPA Appendix H procedures, should Energy choose to seek an exception to Appendix H retrieval requirements, or as part of closure activities under TPA Milestone M-45. Although such activities and data are critical to the required TSCA demonstration of no unreasonable risk of injury to health or the environment required by 40 CFR 761.61(c), EPA is not imposing explicit residual or sampling requirements as part of either Phase I or Phase II reviews or determinations. Rather, EPA is electing to require such information to be obtained and included in the plans and schedules to be submitted by Energy to address management of residual PCB remediation waste. EPA will expect these submissions to address PCB remediation waste residuals both within tanks 241-C-103 and 241-C-109 (retrieval residuals), potential leak residuals, residuals in transfer

equipment and ancillary equipment, as well as spills/releases that may have occurred from such equipment.

EPA is not requiring characterization or sampling of retrieved wastes placed in tank 241-AN-106 as part of this RBDA approval. While these data will clearly be needed and consistent with expectation of the Framework Agreement (see item 6 of Reference 8 in the Phase I approval issued June 2, 2005), such activities are outside the scope of this RBDA approval, and are more properly addressed as part of the DST component of the Framework Agreement RBDA. Prior to issuing a determination regarding the DST component of the Framework Agreement RBDA, EPA notes it may be advantageous for Energy to complete a representative characterization of wastes retrieved wastes placed in tank 241-AN-106 during the course of retrieval activities at tanks 241-C-103 and 241-C-109.

This Phase II approval specifically authorizes addition of TSCA-regulated DST supernate to tanks 241-C-103 and 241-C-109 for purposes of waste retrieval. Section 3.1.2 of the C-103/C-109 TWRWP notes "Condensate drain lines from the ventilation system will be routed to the last sound tank in C tank farm scheduled for waste retrieval." Via clarification in Reference 9, Energy notes that condensate will be drained to tank 241-C-104. The C-103/C-109 TWRWP has not provided documentation of any Energy determination of whether or not this condensate is PCB remediation waste, EPA notes that this practice is included in the Ecology-approved C-103/C-109 TWRWP. Phase I approval Condition 1 requires work to be conducted according to approved TWRWPs (or a functions and requirements document in the case of tank 241-S-102). Regardless of whether or not condensate drained to tank 241-C-104 is PCB remediation waste, Section 3.1.2 of the C-103/C-109 TWRWP and Phase I approval Condition 1 together provide authorization for this practice.

Discussion of conditions

Phase II (Tank-Specific) Conditions

1) For retrieval of tanks 241-C-103 and 241-C-109, the spatial boundaries of this approval shall be the 241-AN-06A pit for supernate retrieved from tank 241-AN-106, extending to (following the direction of supernate flow/retrieved slurry) the connection to tank 241-AN-106 return riser for slurry returned from tanks 241-C-103 and 241-C-109 to tank 241-AN-106. Tanks 241-C-103 and 241-C-109 are explicitly included within the boundaries of this approval.

This condition defines the scope of this approval. Elements of the 241-AN-106 tank system "upstream" of the AN-06A pit are considered within the scope of the Framework Agreement tank waste disposal system.

2) All equipment used for carrying out retrieval activities external to tanks 241-C-103 and 241-C-109 shall comply with the requirements of 40 CFR 265.191 through 196. Tanks 241-C-103 and 241-C-109 proper and any equipment used for retrieval activities internal

to these tanks are excluded from this requirement. With respect to compliance with the requirements of 40 CFR 265.196 (response to leaks or spills, and disposition of leaking or unfit-for-use tank systems), Energy shall maintain and conduct retrieval operations according to procedures no less stringent than Sections 4.2.2, and 4.6 of the draft process control plan for tanks 241-C-103 and 241-C-109, RPP-21895, Rev. 2.

The purpose of this condition is to ensure that PCB remediation waste management activities actually conducted in the field provide substantial assurance that spills, leaks or releases to the environment will not occur, and that should equipment failures or leaks occur, appropriate steps are taken to mitigate such events. For purposes of applying this condition, the cited equipment shall be considered a new tank system. Tanks 241-C-103 and 241-C-109 themselves are excluded from this requirement since it is clear that these tanks cannot achieve compliance with these standards. The risk of leaks/releases from tanks 241-C-103 and 241-C-109 proper are addressed via Phase II approval conditions 6 and 7, relating to tanks 241-C-103 and 241-C-109 leak detection monitoring and mitigation, and management of post-retrieval remediation waste residuals, respectively. The requirement to maintain certain procedures is intended to ensure that retrieval operations conducted according to the approved C-103/C-109 TWRWP document are in compliance with this condition. A discussion of equipment expected to be used for retrieval of tanks 241-C-103 and 241-C-109 can be found in Section 3.1.1 of the C-103/C-109 TWRWP. In establishing this condition, EPA finds that compliance with the cited standards provides an adequate basis to demonstrate that retrieval activities will not pose an unreasonable risk of injury to health or the environment with respect to ex-tank retrieval equipment.

3) Energy shall complete a formal waste compatibility assessment of wastes in tanks 241-C-103 and 241-C-109 according to HNF-SD-QM-OCD-015 and Section 3.1.1 of the C-103/C-109 TWRWP, RPP-21895, Rev. 2. Energy shall provide notice of availability of the waste compatibility assessment report to the EPA contacts listed in Phase I approval Condition 6 prior to the start of retrieval activities covered by this approval. Electronic mail communication is acceptable for this notification. Energy shall provide a printed or electronic copy of this report to EPA upon request.

The purpose of this condition is to ensure that the contents of tanks 241-C-103 and 241-C-109 are compatible with the contents of the receiving DST, tank 241-AN-106, and the supernate from this DST used for retrieval. This condition is consistent with Sections 3.1.1 and 3.2 of the C-103/C-109 TWRWP. As documented in References 3 and 4 and Section 3.1.1. of the C-103/C-109 TWRWP, Energy has completed preliminary waste compatibility assessments – this condition is intended to provide a more definitive evaluation of waste compatibility reflecting tank conditions just prior to the start of retrieval activities.

Conditions imposed by Ecology's approval of the tank 241-S-102 Functions and Requirements document (References 20 and 26 for the tank 241-S-102 Phase II RBDA approval) and the tank 241-S-102 Phase II approval condition 3 require submission of the waste compatibility assessment report to Ecology and EPA, respectively, prior to the start of retrieval using DST supernate. In contrast, the approved C-103/C-109 TWRWP does

not contain this requirement. To maintain consistency between EPA and Ecology approvals for tanks 241-C-103 and 241-C-109, EPA is only requiring notification that the report is available. Condition 3 of the C-103/C-109 approval does allow EPA to request this report, however. If EPA finds that the report provides a basis for modification of this approval, it may do so according to Phase I approval Condition 5. In addition, Energy has an affirmative obligation under Phase I approval Condition 4 to report within specified timeframes data (such as might appear in the waste compatibility report) that may provide a basis for a finding that retrieval activities pose an unreasonable risk of injury to health or the environment, and to cease retrieval activities that may pose such an unreasonable risk.

Future Phase II approvals may contain agency submission requirements for waste compatibility assessment reports should such a requirement appear in approved TWRPS.

4) Within 45 days following the effective date of this approval, Energy shall submit to EPA a post-retrieval Data Quality Objective (DQO) report and a sampling and analysis plan (SAP) for post-retrieval characterization and residual PCB remediation waste sampling for tanks 241-C-103 and 241-C-109. These plans may be based in whole or part on closure requirements pursuant to Washington Administrative Code 173-303-610). Energy shall ensure that the DQO report and the sampling and analysis plan provide for generation of data characterizing residual PCB remediation waste adequate for purposes of evaluating the risk of injury to human health and the environment from residual PCB remediation waste, and for evaluation of appropriate removal, decontamination or disposal actions for such residual PCB remediation waste. This plan shall be based on and consistent with the requirements of TPA Appendix I Section 2.1.6 requirements.

The purpose of this condition is to ensure that EPA receives documentation of Energy's plans for post-retrieval residual sampling and analysis, as this information has not been provided as part of Energy's RBDA application or supplemental information. Particulars of how post-retrieval sampling relates to management of PCB remediation waste residuals are discussed in the section "Evaluation of Other Emission Pathways" in the Phase I approval issued June 2, 2005. Based on Energy's sampling and analysis plan required by this condition, EPA will modify this RBDA approval to incorporate the approved sampling and analysis requirements and appropriate schedules. EPA expects that the submissions required by this condition will be consistent with, if not identical to, the corresponding documents required by TPA Appendix I Section 2.1.6 – few if any modifications to the TPA-required documents should be necessary to fully comply with this RBDA condition. EPA notes that this TPA requirement provides for submission of a DQO and SAP prior to the start of retrieval activities. As with the tank 241-S-102 Phase II retrieval approval issued June 2, 2005, it is EPA's informal understanding that tank 241-C-103 and 241-C-109 retrieval activities will start shortly after finalization of this approval. To provide a reasonable time for Energy to comply with this requirement, EPA is including a 45-day compliance period in lieu of the TPA-required "prior to retrieval" submission schedule.

EPA acknowledges that it has endorsed the TPA Appendix I requirements referenced by Conditions 4, 5 and 6 through approval of TPA change form M-45-04-01. Two key

factors, however, warrant restatement of these TPA Appendix I requirements in this risk-based disposal approval. First, EPA's approval of TPA change form M-45-04-01 was based solely on federal statutory authorities cited by the TPA – these do not include the Toxics Substance Control Act. Therefore, this approval is the only EPA action establishing these requirements under TSCA authority.

Second, the language of TPA Appendix I is quite clear that the documents referenced by Conditions 4, 5 and 6 are required to be submitted only to Ecology, not also to EPA. Therefore, Conditions 4, 5 and 6 are necessary to ensure submission of these documents to EPA for consideration under TSCA authority with respect to this Phase II approval.

5) Within 120 days following completion of retrieval activities covered by this approval, or other such time corresponding to a submission date approved by Ecology through applicable TPA administrative processes with respect to requirements of TPA Appendix I Section 2.1.7, Energy shall submit to EPA either a retrieval data report pursuant to the approved DQO/sampling and analysis plan required by Phase II Condition 4 above, or a TPA Appendix H request for exception. This report shall include the information required by TPA Appendix I Section 2.1.7. This report shall specifically include results reasonably available at the time of submission from the High-Resolution Resistivity (HRR) pilot test described in Section 4.2.1.3 of the C-103/C-109 TWRWP, TPA primary document (RPP-21895, Rev. 2) as approved by Ecology.

The purpose of this condition is to ensure that EPA receives data necessary to evaluate the environmental performance of retrieval activities necessary to evaluate the need for and nature of post-retrieval PCB remediation waste residual management requirements. This condition and its schedule are fully consistent with requirements in the TPA for submissions to Ecology, documented in TPA Appendix I, Section 2.1.7. EPA notes that only portions of the approved HRR test plan (RPP-17191, Rev. 1) will be completed during tank 241-C-103 and 241-C-109 retrievals, and that key portions will be conducted following completion of retrieval activities. EPA is requiring inclusion in the post-retrieval report only those results that are reasonably available for reporting at the time the post-retrieval report or Appendix H exception report are to be submitted. EPA is requiring submission of the final HRR test plan report under a separate condition of this approval.

EPA is including language in Conditions 5 and 6 to accommodate possible modification of TPA Appendix I schedules approved by Ecology. Consistent with EPA's stated intent that retrieval requirements and schedules be developed through the RCRA process under Ecology lead regulatory agency oversight, EPA believes it entirely appropriate for TSCA to conform to Ecology-authorized project schedules. In the highly-unlikely event that EPA finds that Ecology-authorized schedules do not support a finding of no unreasonable risk, EPA may modify Phase II approval Conditions 5 and 6 accordingly pursuant to Phase I approval Condition 5. It is EPA's intent to structure conditions relating to existing TPA requirements in a way that avoids duplicative administrative processes that may be necessary to ensure consistency between TPA/RCRA requirements and conditions of this approval.

6) Within 120 days following completion of retrieval activities covered by this approval, or other such time corresponding to a submission date approved by Ecology through applicable TPA administrative processes with respect to requirements of TPA Appendix I Section 2.2.1, Energy shall submit plans and schedules for removal, decontamination or disposal of post-retrieval residual PCB remediation waste. These plans and schedules may be based upon and consistent with component closure activity plans for tanks 241-C-103 and 241-C-109 required by WAC 173-303-610, and TPA Appendix I Section 2.2.1. If component closure activity plans are used in whole or part as the basis for post-retrieval management of residual PCB remediation waste, Energy shall ensure that total PCBs, measured as the sum of Aroclors, are identified as constituents of concern in the component closure activity plans. For retrieval equipment within the scope of Phase II Condition 1 that may be used for subsequent SST retrievals requiring approval under 40 CFR 761.61(c), Energy may submit documentation of the proposed reuse in lieu of the otherwise-required plans and schedules. These plans and schedules shall comprehensively address all aspects of residual PCB remediation waste management related to activities covered by this authorization, specifically including but not limited to in-tank residuals in tanks 241-C-103 and 241-C-109, any spills, releases or leaks from tanks 241-C-103 and 241-C-109 during retrieval, residuals in equipment within the scope of Phase II Condition 1 and any related spills or releases. Energy may also request from EPA written approval of alternate submission schedules as necessary to ensure integration of these submissions with permit modification requests and component closure activity plans required by the Washington State Department of Ecology pursuant to TPA milestone M-45-15.

The purpose of this condition is to ensure that EPA timely receives Energy's plans relevant to post-retrieval management of PCB remediation waste residuals. As discussed in this approval and in EPA's letter of December 9, 2004 (Reference 18), EPA anticipates that closure activities and requirements developed pursuant to WAC 173-303-610, -640, and -800 will provide a basis to demonstrate that the proposed retrieval activities do not pose an unreasonable risk of injury to human health or the environment with respect to remediation waste residuals. That said, EPA is wording this condition to state that such plans "may" be based upon, rather than "shall" be based upon to accommodate the possibility that post-retrieval flushing of tanks 241-C-103 and 241-C-109 may be sufficiently effective that post-retrieval management of PCB remediation waste residuals is better addressed through a decontamination-based strategy than one based on a RCRA-based component closure activity plan.

This RBDA condition is consistent with the requirements of TPA Appendix I, Section 2.2.1, which requires submission of a RCRA closure plan/permit modification request no later than concurrent with the retrieval data report or Appendix H exception request required by TPA Appendix I Section 2.1.7, which in turn is 120 days following completion of retrieval activities. Therefore, this condition is functionally identical to corresponding TPA requirements governing submission of closure component activity work plans to Ecology.

The RBDA condition relating to inclusion of PCBs in component closure activity plans is to help ensure that decision documents developed pursuant to regulatory authorities other

than TSCA (specifically, Ecology's authorized dangerous waste program) will satisfy TSCA requirements when reviewed by EPA for incorporation into this approval. Nothing in this condition is intended to preclude self-implementing re-use, decontamination or disposal of retrieval equipment external to tanks 241-C-103 and 241-C-109 in compliance with applicable rules and requirements prior to submission of documents required by this condition.

7) Energy shall maintain and operate a baseline (drywell monitoring) and supplemental (modified static liquid level monitoring/waste material balance) leak detection, monitoring and mitigation (LDMM) system as documented in Section 4.0 of the C-103/C-109 TWRWP, RPP-21895, Rev. 2. With respect to this system, Energy shall maintain and conduct retrieval operations pursuant to procedures consistent with Sections 4.2.1 and 4.6 of the process control plan for retrieval of tanks 241-C-103 and 241-C-109,. RPP 21895, Rev. 2

EPA is establishing this condition to ensure, to the extent technically practicable, that potential leaks from tanks 241-C-103 and 241-C-109 are detected during or following retrieval activities. Although Energy's RBDA application provides no basis to conclude that either of tanks 241-C-103 and 241-C-109 are currently leaking or is likely to leak during retrieval, the design and age of SSTs in general make it clear than an engineering approach alone to preventing leaks is not defensible. Therefore, EPA considers an explicit condition requiring an LDMM system necessary to demonstrate that the approved retrieval activities do not pose an unreasonable risk of injury. EPA is providing specific references to the process control plan document as a performance baseline for procedures necessary to implement the required LDMM system as the basis for this approval. EPA understands that portions of this document will not be finalized until shortly before retrieval activities subject to this authorization begin, and that the document may be periodically revised during retrieval. To accommodate these expected revisions without delays to retrieval activities, EPA is requiring Energy to maintain procedures on a performance, not proscriptive basis, regardless of the format or organization of the document during retrieval activities.

EPA notes that the combination of drywell monitoring, and liquid level monitoring, represents the best currently available technology for SST leak detection. EPA will be reviewing results of the high-resolution resistivity (HRR) LDMM technology being deployed on a demonstration basis at tank 241-S-102, as well as tanks 241-C-103 and 241-C-109. Should HRR offer improved leak detection performance (minimum detectable leak, time required for detection, etc.), EPA will consider application of HRR to future SST retrievals requiring TSCA authorization for use of DST supernate. See Phase II approval Condition 9.

8) Energy may request changes to schedules specified in these tank 241-C-103/241-C-109 Phase II conditions. Such requests shall be in writing, including justification for the requested modifications, and submitted to the EPA contacts listed in Phase I Condition 6. Prior to written approval of the requested change, Energy shall comply with the existing conditions of this approval.

The purpose of this condition is to reflect EPA's recognition that some elements of retrieval activities (including reporting and documentation) covered by this approval may of necessity require additional time beyond that specified in this approval. In addition, EPA recognizes the need for work to be conducted pursuant to this approval to be integrated to the extent practicable and consistent with EPA's obligation to ensure the approved activities do not pose an unreasonable risk of injury to health or the environment with requirements by Ecology.

9) Energy shall submit to the EPA contacts listed in Phase I approval Condition 6 the final report of high-resolution resistivity (HRR) leak detection test conducted pursuant to the Ecology-approved test plan RPP-17191, Rev. 1, concurrent with submission of this report to Ecology.

The purpose of this condition is to ensure that data necessary for evaluation of HRR performance as a LDMM technology and whether HRR should be applied to future retrievals within the scope of Energy's RBDA application. EPA notes that no report submission date has been established by Ecology – for purposes of program integration, EPA will defer to Ecology's role as lead regulatory agency overseeing retrieval activities under RCRA authorities to establish appropriate schedules with respect to future retrieval activities. EPA notes that Section 4.2.1 of the C-103/C-109 TWRWP provides that should HRR be validated before completion of waste retrieval, HRR will, at that time, become the primary leak detection system for these tanks and drywell monitoring will be stopped for the retrieval LDM where HRR is the primary LDM system. Should this occur, EPA will modify this and other C-103/C-109 Phase II approval conditions accordingly.