POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON

WASHINGTON RIVER PROTECTION SOLUTIONS; and U.S. DEPARTMENT OF ENERGY, OFFICE OF RIVER PROTECTION, Appellants, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Respondent.	PCHB No. 14-041c SETTLEMENT AGREEMENT

Respondent State of Washington, Department of Ecology (Ecology), represented by Attorney General Robert W. Ferguson and Assistant Attorneys General Lee Overton and Dorothy Jaffe; appellant Washington River Protection Solutions (WRPS), represented by attorneys Stephen Cherry and Gloria Johnson; and appellant U.S. Department of Energy (USDOE), represented by attorneys Mark Silberstein and Scott Stubblebine, submit this Settlement Agreement (Agreement) to the Pollution Control Hearings Board (Board) as a full and final settlement of the above-referenced appeal, and request that the Board dismiss the appeal with prejudice.

I. BACKGROUND

Ecology regulates hazardous waste under the Hazardous Waste Management Act, RCW 70.105 (HWMA) and the regulations implementing it, WAC 173-303. Ecology is

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authorized by the United States Environmental Protection Agency to implement the HWMA in lieu of the federal Resource and Conservation Recovery Act (RCRA), 42 U.S.C. §§ 69001, *et seq*. RCW 70.105.109 states that Ecology may regulate all hazardous wastes, including those composed of both radioactive and hazardous components, to the extent it is not preempted by federal law. USDOE regulates certain radioactive materials, including the radioactive component of mixed hazardous waste at Hanford, pursuant to the Atomic Energy Act of 1954, 42 U.S.C. §§ 2011, *et seq* (AEA). Any Ecology "approvals" as described in this Agreement shall be predicated solely upon Ecology's authorities under the HWMA and RCRA subject to, and to the extent such approvals are not inconsistent with, USDOE's authority under the AEA.

On March 21, 2014, Ecology issued Administrative Order No. 10618 (Order) requiring WRPS and USDOE to conduct actions related to and including the removal of waste from double shell Tank 241-AY-102 which, since at least August 2012, has been leaking from its primary tank into its secondary containment. A copy of the Order is attached hereto as Exhibit A. USDOE and WRPS appealed the Order to the Board on April 21, 2014 and, shortly thereafter, moved for a stay. Ecology opposed the motion in briefing, and USDOE and WRPS withdrew their motion.

USDOE and WRPS timely completed requirements 1, 8, 9, 10, and 14 of the Order. Ecology, USDOE, and WRPS now agree to resolve the appeal of the Order through the settlement outlined below, which settles the remaining requirements in the Order.

II. SETTLEMENT AGREEMENT

The parties desire to resolve the dispute herein and avoid the cost and time associated with further litigation. The parties, without admitting fault or liability, therefore stipulate and agree as follows:

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A. SCOPE

This Agreement constitutes the entire agreement between the parties to this appeal, and settles all issues and alleged violations raised by the Administrative Order. Ecology agrees to deem the Order satisfied upon USDOE's and WRPS's satisfactory and timely completion of its obligations under this Agreement. This Agreement applies only to Administrative Order No. 10618 issued on March 21, 2014, and does not in any way limit Ecology's authority to issue other administrative orders or enforcement actions for dangerous waste violations that are not addressed in Administrative Order No. 10618.

B. RESOLUTION OF ADMINISTRATIVE ORDER

USDOE and WRPS agree to conduct the following actions, within the deadlines indicated:

1. Provide Report on Integrity Implications of Decanting Liquid[1]

USDOE and WRPS timely completed requirement 1 of the Order. No further action required.

2. Isolate Tank 241-AY-102

No later than February 4, 2016: Complete isolation of Tank 241-AY-102 as described in RPP-PLAN-59931, Rev. 2, Work Plan, Attachment A, Section 2.1.1, p. A-20. Until Tank 241-AY-102 is completely isolated:

a. Keep in place a temporary drain plug in the AY-02A pit to prevent drainage back into Tank 241-AY-102 during transfer of waste external to Tank 241-AY-102; and

b. Conduct video monitoring of the AY-02A pit during any waste transfers.

[1] The numbering scheme of the settlement requirements (1-14) aligns with the numbering of the requirements in Order No. 10618.

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3. Complete Construction, Install Equipment, and Begin Supernatant Retrieval

No later than March 4, 2016: Complete procurement, construction and installation of all equipment necessary for waste removal, and begin retrieving supernatant from Tank 241-AY-102.

4. Begin Sludge Retrieval

Begin retrieving sludge upon completion of supernatant retrieval from Tank 241-AY-102 consistent with AY-102 Recovery Project Waste Retrieval Work Plan, RPP-PLAN-59931, Rev. 2.[2]

5. Complete Waste Retrieval and Provide Waste Retrieval Status Report

a. No later than March 4, 2017: Complete sludge retrieval according to AY-102 Recovery Project Waste Retrieval Work Plan, RPP-PLAN-59931, Rev. 2.

b. Within thirty-five (35) days after reaching the limit of two initial sludge retrieval technologies, conducted in accordance with AY-102 Recovery Project Waste Retrieval Work Plan, RPP-PLAN-59931, Rev. 2 , Section 2, but no later than April 9, 2017, provide Ecology with a written status report which will include: (1) an estimate of the amount of waste remaining on the floor of the primary tank; and (2) a determination either that conditions allow for inspection, or that the remaining waste prevents such inspection.

c. If USDOE determines that conditions allow for inspection, within sixty (60) days of completing an inspection of the tank to determine the cause of the leak, provide a report to Ecology describing the results of the inspection. This

[2] The AY-102 Recovery Project Waste Retrieval Work Plan, RPP-PLAN-59931, Rev. 2, may be subsequently amended by written agreement of the parties. Any proposed extension of a deadline in section II.B of the Agreement is subject to the provisions in section II.G (Extension of Deadlines Set Forth in Section II.B).

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report shall either describe the process that will be used to repair the tank or report USDOE's decision to close the tank.

d. If USDOE determines that remaining waste prevents inspection, within thirty (30) days of making such a determination, submit a revised workplan for Ecology's approval documenting additional retrieval technology to be used, the expected limits of that technology, and a schedule for implementation; or provide a report documenting USDOE's decision to close the tank.

e. Within sixty (60) days of reaching the limit of the additional retrieval technology or completing use of that technology, provide Ecology with a written status report which will include: (1) an estimate of the amount of waste remaining on the floor of the primary tank; and (2) USDOE's determination either that conditions allow for inspection, or that the remaining waste prevents such inspection and the tank is to be closed.

6. Continuing Obligation to Report Safety Issues and Provide Recovery Plan

Notify Ecology within twenty-four (24) hours of confirming any safety issue, and provide a detailed description of the specific safety issue. Submit a recovery plan within thirty (30) days of providing this notice to Ecology. If the event creating a safety issue occurs during waste retrieval operations, and the proposed solution is to cease retrieval operations, the recovery plan shall include a schedule for correcting and resuming retrieval operations at the earliest practicable time.

7. Submit Contingency Plan and Monitoring Plan

a. Within thirty (30) days after execution of this Agreement, provide a revised contingency plan for Ecology review and approval, for safely managing any worsening conditions indicated by inspections and monitoring.

i. This plan will, at a minimum, specifically address indications of worsening leak rates from the primary tank, indications of loss of secondary

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liner integrity, plugging of the ventilation channels, or failure of ventilation system components. The plan must include specific criteria (numerical where appropriate) for establishing response action(s), the decision process for action, equipment needed, and schedule for response actions. The plan must also include the bases for the action criteria. The plan must show that the equipment needed is available and staged, and that pre-planned work packages are in place and ready for response actions.

ii. The contingency plan will cover the period of design and procurement for Tank 241-AY-102 retrieval. Thirty (30) days before beginning construction activities, USDOE and WRPS will submit a revised contingency plan for Ecology review and approval. Similarly, thirty (30) days before beginning tank pumping operations, USDOE and WRPS will submit a revised contingency plan for Ecology review and approval. The beginning of the construction phase will be the start of physically removing the existing primary transfer pump from Tank 241-AY-102. The beginning of the tank pumping operations will be the start of pumping of supernatant from the primary tank.

iii. Any other new issues not identified in the contingency plan such as those that arise as a result of construction or tank pumping operations, shall result in a revision to the Contingency Plan which will be provided to Ecology within thirty (30) days.

b. Within sixty (60) days of the date of execution of this Agreement, submit to Ecology for approval a revised monitoring plan for annulus inspection, waste temperature monitoring, and annulus ventilation monitoring, including a schedule for calibration of the continuous air monitors (CAMs) and Enraf-Nonius Series 854 (ENRAF) equipment.

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8. Continue to Provide Any Additional Published Reports on Integrity of Secondary Containment

USDOE and WRPS timely completed requirement 8 of the Order. However, any further DST secondary containment system corrosion testing or evaluations which estimate the propensity for any leaked waste to corrode the secondary liner, must be reported in a revision of RPP-RPT-57774, *Evaluation of Tank 241-AY-102 Secondary Containment System*. Should USDOE and WRPS revise RPP-RPT-57774, or issue another report further developing or interpreting data in RPP-RPT-57774, a copy of the subsequent report(s) shall be provided to Ecology within thirty (30) days of its finalization.

9. Submit a Detailed Waste Retrieval Workplan

USDOE and WRPS timely completed requirement 9 of the Order. No further action required.

10. Submit Supporting Documentation Justifying Proposed Schedule

USDOE and WRPS timely completed requirement 10 of the Order. No further action required.

11. Sample the Leak Detection Pit

a. To address a potential leak to the environment, test the liquid for pH and measure the level of the liquid in the leak detection pit monthly. Include test results in the report that is submitted as part of item 12 below.

b. Sample the liquid from the Tank 241-AY-102 annulus leak detection pit whenever the leak detection pit is pumped or there is a significant change in the pH and at a minimum, using inductively coupled plasma/mass spectrometry (ICP/MS), analyze this sample for metals, radionuclides, and pH, and provide the preliminary results to Ecology within fifteen (15) days of taking the sample. Submit the final results to Ecology within sixty (60) days of taking the sample.

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12. Monitor and Inspect for Leaks

a. Every two months: Conduct video inspections of the entire annulus or at least 95 percent of the annulus space.

b. Every two weeks: Conduct video inspections of all currently known waste accumulations in the Tank 241-AY-102 annulus and, as they are discovered, all newly discovered waste accumulations.

13. Report on Leak Inspections

Monthly: Provide written reports to Ecology on all Tank 241-AY-102 annulus inspection and monitoring results conducted according to the Monitoring Plan (provided under requirement B.7 above) and the SY Settlement Agreement. These documents shall include reporting on annulus ventilation performance and status, images of the annulus, CAM readings, ENRAF readings, CAM and ENRAF calibration results, sample analysis results, waste heat monitoring results, including any interpretations and conclusions based on the results.

14. Submit Documentation

USDOE and WRPS timely completed requirement 14 of the Order. No further action is required.

C. STIPULATED PENALTIES

If USDOE or WRPS violate the terms of this Agreement, subject to the procedures set forth below, Ecology may assess and impose a penalty based on the stipulated penalty amounts listed in the table below.

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Violation	Amount
1. n/a	n/a
2. Failure to complete isolation of Tank 241-AY-102 by February 4, 2016, in accordance with requirement 2 of this Agreement.	$1,000 per day of delay past the deadline.
3. Failure to complete construction, install equipment, and begin supernatant retrieval by March 4, 2016, in accordance with requirement 3 of this Agreement.	$5,000 for the first week of delay past the deadline, and $7,500 for each week thereafter.
4. Failure to begin sludge retrieval immediately upon completion of supernatant retrieval, in accordance with requirement 4 of this Agreement.	$5,000 for the first week of delay, and $7,500 for each week thereafter.
5.a. Failure to complete sludge retrieval by March 4, 2017, in accordance with requirement 5.a of this Agreement.	$5,000 for the first week of delay past the deadline, and $7,500 for each week thereafter.
5.b. Failure to provide Waste Retrieval Status Report, in accordance with requirement 5.b of this Agreement.	$500 per day of delay.
5.c. Failure to provide a timely inspection report, in accordance with requirement 5.c of this Agreement.	$500 per day of delay.
5.d. Failure to provide a timely workplan for further technology or a decision to close the tank, in accordance with requirement 5.d of this Agreement.	$1,000 per day of delay.
5.e. Failure to provide a timely status report following cessation of an additional technology, in accordance with requirement 5.e of this Agreement.	$500 per day of delay.
6. Failure to give timely notification of safety issues, or failure to provide a timely recovery plan, in accordance with requirement 6 of this Agreement.	$500 per day of delay.
7.a.i. Failure to timely submit an initial contingency plan meeting specifications in agreement, in accordance with requirement 7.a.i of this Agreement.	$1,000 for the first week of delay, and $2,500 for each week thereafter.
7.a.ii. Failure to timely submit a revised contingency plan prior to construction, in accordance with requirement 7.a.ii of this Agreement.	$1,000 for the first week of delay, and $2,500 for each week thereafter.
7.a.iii. Failure to timely submit a revised contingency plan prior to retrieval, in	$1,000 for the first week of delay, and $2,500 for each week thereafter.

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accordance with requirement 7.a.iii of this Agreement.	
7.b. Failure to timely submit a monitoring plan meeting specifications in agreement, in accordance with requirement 7.b of this Agreement.	$500 for the first week of delay, and $1,000 for each week thereafter.
8. Failure to provide additional published reports on secondary containment integrity, in accordance with requirement 8 of this Agreement.	$500 for the first week of delay, and $1,000 for each week thereafter.
9. n/a	n/a
10. n/a	n/a
11. Failure to sample leak detection pit or provide report according to required schedule, per requirement 11 of this Agreement.	$500 for each missed sampling event or report.
12.a. Failure to conduct monthly video inspections, in accordance with requirement 12.a of this Agreement.	$500 for each missed inspection.
12.b. Failure to conduct biweekly video inspection, in accordance with requirement 12.b of this Agreement.	$500 for each missed inspection.
13. Failure to provide timely and complete report on inspection and monitoring results, in accordance with requirement 13 of this Agreement.	$500 for each missed report.
14. n/a	n/a

Prior to issuing a Notice of Penalty Incurred and Due to USDOE and WRPS that assesses stipulated penalties, Ecology shall notify USDOE and WRPS, in writing, of its intention and allow USDOE and WRPS ten (10) calendar days to submit new information solely on the question of whether the violation(s) giving rise to the stipulated penalties occurred. Ecology in its sole discretion may, at USDOE's and WRPS's request, or upon its own initiative, extend this ten (10) day period.

Ecology shall issue its final determination within fifteen (15) days of USDOE's and WRPS's submittal of new information. If Ecology issues a penalty to USDOE and WRPS that assesses stipulated penalties, USDOE and WRPS may appeal to the Board solely on the

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question of whether the violation occurred. USDOE and WRPS may not challenge the reasonableness of stipulated penalty amounts as specified in the table above.

Stipulated penalties assessed pursuant to this Agreement shall be payable to, by check, money order, or as otherwise agreed to by the parties, "Department of Ecology" and shall make reference to this Agreement, and the payment shall be sent to:

Department of Ecology
Attn: Cashiering Unit
P.O. Box 47611
Olympia, WA 98504-7611

D. REMEDIES

In the event that USDOE and WRPS violate the terms of this Agreement, Ecology may pursue all remedies available by law. Where Ecology seeks any remedy beyond judicial enforcement of the stipulated penalties enumerated herein, USDOE and WRPS reserve all applicable rights and defenses available by law. Ecology shall be entitled to recover its costs, including attorney fees, in any action brought to enforce this Agreement in which Ecology is a prevailing party.

E. VENUE

USDOE and WRPS agree that the venue for any judicial action to enforce this Agreement shall be in Benton County Superior Court. However, USDOE reserves any and all rights it may have to remove any such action to an appropriate federal court.

F. SERVICE

In the event Ecology pursues any remedy in Benton County Superior Court, USDOE and WRPS agree to accept service of the summons and complaint by United States mail in lieu of personal service, at Ecology's option. Service by mail shall be deemed complete upon the third day following the day the summons and complaint are placed in the mail. The current addresses that Ecology has for USDOE and WRPS are:

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Kevin Smith, Manager
United States Department of Energy
Office of River Protection
P.O. Box 450
Richland, WA 99352

Michael C. Ormsby
United States Attorney
Eastern District of Washington
P.O. Box 1494
Spokane, WA 99210-1494

L. David Olson, President and Project Manager
Washington River Protection Solutions
P.O. Box 850
Richland, WA 99352

USDOE and WRPS each agrees to accept service at this address unless they inform Ecology in writing of any address changes.

G. EXTENSION OF DEADLINES SET FORTH IN SECTION II.B

The parties recognize that events can occur that cause delays and that, depending on the nature of the event, an extension of the deadlines set forth in section II.B above, may be justifiable. As such, provisions for an extension of the deadlines are as follows:

1. An extension of the deadlines set forth in section II.B above shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested or within thirty (30) days after USDOE and WRPS determine that an extension will be necessary, whichever is earlier, and good cause exists for granting the extension. All extensions shall be requested in writing to the attention of Jane Hedges, Nuclear Waste Program Manager. The request shall specify:

a. The deadline that is sought to be extended;

b. The length of the extension sought;

c. The reason(s) for the extension;

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d. Any deadline for required work in part B that would be affected if the extension were granted; and

e. For any request to extend the deadlines for requirements B.3 (Complete Construction, Install Equipment, and Begin Supernatant Retrieval) and B.5 (Complete Waste Retrieval and Provide Waste Retrieval Status Report), a showing that the proposed deadline provides for completing the tasks at the earliest practicable time.

2. The burden shall be on USDOE and WRPS to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include, but is not limited to:

a. Circumstances beyond the reasonable control and despite the due diligence of USDOE and WRPS, including but not limited to delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by USDOE and WRPS; or

b. Acts of God or terrorism, including fire, seismic event, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty.

However, for purposes of this Agreement, neither increased costs of performance of the terms of this Agreement nor changed economic circumstances shall be considered good cause for granting an extension. The parties may confer whether circumstances beyond the reasonable control of USDOE and WRPS but having some relation to economic circumstances, such as a shutdown of the federal government, may justify extension of the deadlines set forth in section II.B above.

USDOE reserves its right to argue that the obligations under this Agreement are subject to the provisions of the Anti-Deficiency Act, 31 U.S.C. § 1341.

3. Ecology shall act upon any written request for extension in a timely fashion and not later than fifteen (15) calendar days. Ecology shall give USDOE and WRPS written

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notification of any extensions granted pursuant to this Agreement. A requested extension shall not be effective until approved by Ecology.

4. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant deadline extensions exceeding ninety (90) days only as a result of circumstances deemed exceptional or extraordinary by Ecology.

H. WAIVER OF APPEAL RIGHTS TO THE POLLUTION CONTROL HEARINGS BOARD

USDOE and WRPS understand that they have the right to contest the Order by presenting evidence at a Board hearing. USDOE and WRPS voluntarily waive their right to a Board hearing upon signature and acceptance of this Agreement by representatives for USDOE, WRPS, and Ecology.

I. DISMISSAL OF APPEAL

The parties consent to the submission of this Agreement to the Board and request that, based upon a full and final settlement having been reached, the Board dismiss this appeal with prejudice. Both parties further agree to bear their own costs and attorneys' fees associated with this appeal.

J. EFFECTIVE DATE

This Agreement shall become effective upon issuance of the Board's order dismissing the appeal.

K. SIGNATORIES AUTHORIZED

The undersigned representatives for Ecology, USDOE, and WRPS certify that they are fully authorized by the party whom they represent to enter into the terms and conditions of this Agreement and to legally bind such party thereto.

L. DURATION OF THE AGREEMENT

This Agreement shall be in effect until USDOE and WRPS have received written notification from Ecology of the timely and satisfactory completion of the requirements set

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forth in section B.5 of this Agreement, or as mutually agreed to otherwise, in writing, by the parties.

M. EXECUTION

This document may be executed in counterparts and may be executed by email, and each executed counterpart shall have the same force and effect as the original instrument.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Maia Bellon
Director

Dated: 9/29/14

U.S. DEPARTMENT OF ENERGY
Office of River Protection

Kevin Smith
Manager

Dated: 9/24/2014

ROBERT W. FERGUSON
Attorney General

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Assistant Attorneys General
Attorneys for Respondent
(360) 586-6770

Dated: 9/29/14

ROBERT M. CAROSINO
Chief Counsel

Mark D. Silberstein
Scott D. Stubblebine
Office of Chief Counsel
Attorneys for Appellant
(509) 376-2380

Dated: 9/24/2014

WASHINGTON RIVER PROTECTION SOLUTIONS

L. David Olsen
President and Project Manager

Dated: 9/24/14

Gloria J. Johnson
Stephen B. Cherry
General Counsel
Attorneys for Appellant
(509) 372-9142

Dated: 9/24/2014

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EXHIBIT A

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

April 1, 2014

Mr. Kevin W. Smith, Program Manager
Office of River Protection
United States Department of Energy
PO Box 450, MSIN: H6-60
Richland, Washington 99352

Mr. L. David Olson
President & Project Manager
Washington River Protection Solutions
PO Box 850, MSIN: H6-04
Richland, Washington 99352

Re: Corrected Docket Number for Administrative Order for the Hanford Site, EPA/State ID # WA7890008967

Dear Mr. Smith and Mr. Olson:

On March 21, 2014, the Department of Ecology issued an Administrative Order to the United States Department of Energy, Office of River Protection. The Order Docket Number on the Administrative Order was listed as 10156. However, upon review of our records, it was discovered that the number assigned was a duplicate. **The correct docket number assigned to the March 21, 2014, Administrative Order is Docket 10618.**

The purpose of this letter is to amend the above-referenced Administrative Order as issued on March 21, 2014, by changing the docket number to correctly reflect Order Docket Number 10618. You should clearly reference Order Docket Number 10618 on all future matters regarding this Administrative Order.

Please accept my apologies for this administrative error. If you have additional questions, please do not hesitate to contact Jane Hedges, Nuclear Waste Program Manager, at (509) 372-7905 or jane.hedges@ecy.wa.gov.

Sincerely,

Maia D. Bellon
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF AN ADMINISTRATIVE ORDER AGAINST	)))	ADMINISTRATIVE ORDER DOCKET #10156

United States Department of Energy
Mr. Kevin Smith, Program Manager
Office of River Protection
PO Box 450, MSIN: H6-60
Richland, Washington 99352

Washington River Protection Solutions
Mr. L. David Olson, President & Project Manager
PO Box 850, MSIN: H6-04
Richland, Washington 99352

Order Docket #	10156
Site Location	The Hanford Site within Benton, Franklin, and Grant Counties of Washington
EPA ID	#WA 7890008967

The Washington State Department of Ecology (Ecology) issues this Administrative Order (Order) requiring the U.S. Department of Energy (USDOE) and Washington River Protection Solutions (WRPS) to comply with:

- Chapter 70.105 Revised Code of Washington (RCW) Hazardous Waste Management Act.
- Chapter 173-303 Washington Administrative Code (WAC) Dangerous Waste Regulations.
- Hanford Facility Dangerous Waste Permit, No. WAD WA7890008967 (Permit).

AUTHORITY

Ecology is authorized under RCW 70.105.095 to issue an administrative order requiring compliance upon determining that a person has violated, or is about to violate, any provision of Chapter 70.105 RCW.

RCW 70.105.130 authorizes Ecology to implement the federal Resource Conservation and Recovery Act (RCRA), and establish a permit system for owners or operators of facilities that treat, store, or dispose of dangerous waste. The permit system is established in the Dangerous Waste Regulations, Chapter 173-303 WAC.

Ecology issued Permit No. WAD WA7890008967 (Permit) for USDOE's Hanford Dangerous Waste Facility (Facility), effective August 1994. Revision 8c of the Permit currently applies to the operation of and corrective actions taken, or to be taken, at, this Facility.

Pursuant to Part I.A of the Permit, Revision 8c, the standards used to evaluate compliance for this enforcement are the interim status facility standards in WAC 173-303-400 and the regulations incorporated into the interim status standards by reference.

FACTUAL FINDINGS

Ecology's determination that a violation has occurred is based on the following facts:

1. Tank 241-AY-102 is one of two one-million gallon tanks in the 241-AY Tank Farm (AY Farm) located in the southeast portion of the 200 East Area of the Hanford Dangerous Waste Facility. The 241-AY-102 system includes:

   - Primary tank and secondary tank structure
   - Concrete shell, insulating pad (refractory), and foundation
   - Central pump pit
   - Sluice pits
   - Annulus pump pit
   - Leak detection pit (and well)
   - Air lift circulators
   - Monitoring and alarm systems

   The primary steel tank rests inside the secondary steel tank and is supported by the refractory on the floor of the secondary tank. An annular space of 2.5 feet is formed between the primary tank and secondary tank.

2. In August 2012, an accumulation of material was discovered at two locations on the floor of the 241-AY-102 annulus that separates the primary tank from the secondary tank.

   The accumulation of material was discovered during a routine video inspection. None of this material was present during the last visual inspection of the annulus, taken in 2006 - 2007. USDOE and WRPS conducted further investigation and sampling, and determined that the accumulated material was leaking from the primary tank.

3. On October 22, 2012, USDOE notified Ecology that Tank 241-AY-102 was leaking waste into the tank's secondary containment.

4. Hazardous and highly radioactive waste material cascaded from refractory slots to the floor of the annulus in two locations – near Riser 90 and near Riser 83. The flow near Riser 90 has shown no changes since the notification. The flow near Riser 83 shows a continuing leak. As of November 15, 2012, the amount of hazardous and radioactive waste material that has leaked from both areas was approximately 520 gallons.

5. On March 5, 2014, USDOE notified Ecology that a third leak had been discovered from Riser 77. The volume of this leak is unknown at this time.

6. Through a series of meetings and other interactions from October 2012 through the date of this Order, Ecology has given USDOE and WRPS opportunities to voluntarily comply with applicable regulations.

   During this period, Ecology stated numerous times, both orally and in written form, that the leak response requirements at 40 CFR 265.196 [incorporated by reference into interim status standards at WAC 173-303-400(3)][1] apply and must be complied with. In particular, 40 CFR 265.196(b) requires removal of waste from the primary tank and secondary containment of a leaking tank system.

7. By email on October 23, 2012, Ecology told USDOE and WRPS that waste removal must begin immediately, and requested a detailed schedule for completing such removal. USDOE was told to immediately notify Ecology if it did not intend to comply with the requirements.

8. By email on December 3, 2012, Ecology again reminded USDOE and WRPS of the requirements to immediately pump Tank 241-AY-102 or provide a schedule and justification for completing this at the earliest practicable time.

9. On January 15, 2013, WRPS, along with USDOE, presented three options for coming into compliance with 40 CFR 265.196:

   (1) Closure pursuant to the requirements of 40 CFR 265.196(e).

   (2) Repair and recertification pursuant to the requirements of 40 CFR 265.196(e) and (f).

   (3) Obtaining a secondary containment variance pursuant to the provisions for this at 40 CFR 265.193 (g) and (h).

   Ecology informed WRPS and USDOE that these options did not meet the tank leak response requirements in 40 CFR 265.196. In particular, none of these options addressed the requirement to, within 24 hours, or if that is demonstrably not possible, at the earliest practicable time, remove as much of the waste as necessary to allow for tank system inspection.

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[1] For brevity purposes, for the remainder of the Order Ecology will only cite to 40 Code of Federal Regulations (CFR) 265.196. In all cases, however, the citation is to the federal regulation as it is incorporated by reference under WAC 173-303-400(3).

10. In multiple meetings and conversations since December 2012, Ecology requested that USDOE provide a response to the regulatory requirements and a plan to remove the waste from Tank 241-AY-102. Ecology reviewed and provided comments to USDOE on multiple versions of a draft letter intended to provide this information.

11. On May 6, 2013, USDOE provided a letter to Ecology that:

    (1) Provided a regulatory basis for not pumping the tank within 24 hours.

    (2) Indicated that the tank was not isolated from waste additions.

    (3) Indicated that the ability of the secondary tank to maintain integrity, once waste entered it, was still under evaluation.

    (4) Committed to provide to Ecology a pumping plan specific to Tank 241-AY-102 by June 14, 2013.

12. On May 24, 2013, Ecology issued a letter to USDOE and WRPS documenting its expectations for the June 14, 2013, pumping plan submittal. The letter conveyed the following expectations:

    - The pumping plan must provide a schedule for removing waste from the primary tank. [40 CFR 265.196(b)(1)]
    - The pumping plan must provide a schedule for removing waste from the secondary containment, demonstrating that such removal is in as timely a manner as is possible to prevent harm to human health and the environment. [40 CFR 265.196(b)(2)]
    - The pumping plan must provide a schedule for isolating the 241-AY-02A pit, which could provide a path to allow waste into Tank 241-AY-102.
    - The pumping plan must provide a schedule to revise the January 2006 evaluation of the integrity of the secondary containment.
    - The pumping plan must document technical challenges that may affect the schedule, separate from limitations on funding. Funding may not be a factor in determining "earliest practicable time" or "as timely as possible." [40 CFR 265.196(b)]
    - The pumping plan must document readiness to pump, within a specific and reasonable timeframe, from both the primary tank and secondary containment, if the leak worsens.
    - An earlier-prepared Emergency Pumping Guide must be immediately revised because it did not fulfill the goal of allowing pumping of a double-shelled tank (DST) within 10 days if a leak occurred, determined through previous compliance actions to address 40 CFR 265.196(b).

      Ecology conveyed this expectation because USDOE had documented its belief that the earlier Emergency Pumping Guide does not apply to a leak from the bottom of a tank.

13. On June 14, 2013, USDOE delivered the "241-AY-102 Pumping Plan," RPP-PLAN-55220, Rev. A, (Pumping Plan) to Ecology. Through this Pumping Plan and its accompanying letter, USDOE:

    - Declined to remove any waste from the primary tank unless conditions change, stating that "removal of waste from the primary tank is not practicable, nor is it necessary to prevent release to the environment."
    - Laid out a schedule of approximately 19 months for "planning, procurement and installation of the out-of-tank equipment that will be needed to allow for pumping of the solids in the primary tank."
    - Declined to schedule installation of in-tank pumping equipment necessary for solids removal during the 19 months of planning, procurement, and installation of equipment.
    - Indicated that waste removal, if initiated, would take 14 months to complete, after which the tank would be evaluated for repair or closure.
    - Expressly assumed that "the secondary containment will remain intact until waste from tank AY-102 can be removed and the 'repair or close' decision made."
    - Commits to completing a study on the structural integrity of secondary containment by April 2014.

14. The impact of the waste in the Tank 241-AY-102 annulus on the integrity of the secondary liner is unknown at this time.

15. USDOE has taken no action to mitigate the leak into the secondary containment. As of the date of this Order, USDOE has taken no action to prevent the flow of dangerous waste into Tank 241-AY-102 or stop the flow of waste into its secondary containment.

16. The Defense Nuclear Facilities Safety Board (DNFSB) reviewed USDOE report RPP-RPT-53901, Rev. 2, "Management of Supernatant Level in Tank 241-AY-102." On October 24, 2013, the DNFSB released a staff issue report on the subject of "Integrity Implications of Decanting Liquid from Hanford Tank 241-AY-102."

    The report recommends:

    - Continued visual inspection of the tank annulus and close monitoring for variations in the waste temperature.
    - Monitor for signs of increased leakage and blockage of the insulating refractory slots that distribute cooling air to the tank bottom.
    - Develop a more rigorous multi-dimensional, transient thermal analysis model to aid in understanding the safety significance of any observed changes in tank conditions subsequent to decanting.

17. On January 9, 2014, Ecology issued a letter to USDOE and WRPS with comments on the 241-AY-102 Pumping Plan, Rev. A (RPP-PLAN-55220). Ecology found the Pumping Plan unacceptable because the plan expressly declined to meet USDOE's and WRPS's regulatory obligation to remove the waste from Tank AY-102 at the earliest practicable time. Ecology's letter requested a workable plan for pumping waste from Tank AY-102 no later than February 15, 2014

18. On February 4, 2014, USDOE issued a letter to Ecology asking for an extension for submittal of the revised 241-AY-102 Pumping Plan to March 7, 2014

19. On February 11, 2014, Ecology issued a letter to USDOE approving the extension to March 7, 2014.

20. On March 7 USDOE submitted Rev C of the Revised 241-AY-102 Pumping Plan (revised Pumping Plan). The plan announces that it "has been revised to proceed with the planning, engineering and design, procurement, and installation of out of tank equipment." However, it does not contain a plan for conducting these activities. Its only schedule is an estimated timeframe of approximately two years for conducting only the preparatory activities.

    The revised Pumping Plan indicates this estimated timeframe may be subject to change for various reasons. The plan does not attempt to show that this two-year timeframe satisfies the requirement of "earliest practicable time." It does not provide any plan or schedule for actually removing the waste from Tank 241-AY-102.

DETERMINATION OF VIOLATIONS

Ecology has determined that the following violations have occurred based on the facts provided above.

Violation 1 - Failure to stop the flow of hazardous waste into secondary containment

40 CFR 265.196(a) requires the owner or operator of the tank to immediately stop the flow of hazardous waste into the secondary containment system.

As of the date of this Order, USDOE and WRPS have not stopped the flow of waste into the secondary containment of 241-AY-102.

Violation 2 - Failure to inspect the tank to determine the cause of the release

40 CFR 265.196(a) requires the owner or operator of the tank to inspect the tank to determine the cause of the release.

As of the date of this Order, USDOE and WRPS have not inspected the tank to determine the cause of the release. USDOE states in the revised Pumping Plan that Tank 241-AY-102 will have to be emptied to determine the cause of the release. USDOE has not emptied the tank and has submitted a plan according to which waste removal will not be authorized, nor a removal schedule determined, before March 4, 2016. The revised plan does not demonstrate that an initial pumping date sometime after March 4, 2016 is the earliest practicable time to begin waste removal.

Violation 3 - Failure to remove, at the earliest practicable time, as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the tank to be performed.

Where the release is from the tank system, as it is here, 40 CFR 265.196 (b) provides that "the owner or operator must, within 24 hours after detection of the leak or, if the owner or operator demonstrates that that is not possible, at the earliest practicable time remove as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the tank system to be performed."

As of the date of this Order, USDOE and WRPS have failed to remove, or take any actions to begin removing, as much of the waste as is necessary to prevent further release to the environment and to allow for inspection and repair of the tank system to be performed.

USDOE states in its revised Pumping Plan that removing the contents of the tank will not be authorized before March 4, 2016. USDOE has not demonstrated that March 4, 2016, or later would be the "earliest practicable time" to begin removing the waste.

Violation 4 - Failure to remove all released materials from the secondary containment system within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment

40 CFR 40 CFR 265.196 (b)(2) requires that, if the release was to a secondary containment system, all released materials must be removed within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment.

As of the date of this Order, USDOE and WRPS have failed to remove any of the released materials from the secondary containment. The revised plan indicates that the released materials will be removed only after waste is removed from the primary tank.

ORDER TO COMPLY

Based on the factual findings and the determinations of violations, as stated above, IT IS ORDERED THAT USDOE and WRPS take the actions described below.

Immediately upon receipt of this Order and continuously thereafter USDOE and WRPS must:

1. Provide to Ecology, upon publication, the results of any modeling that USDOE or WRPS conducts in accordance with recommendations of the DNFSB staff report, "Integrity Implications of Decanting Liquid from Hanford Tank 241-AY-102" (October 24, 2013).

2. Complete isolation of Tank 241-AY-102 by August 15, 2014.

3. After the 241-AY-02A pump pit has been isolated, and no later than September 1, 2014, begin pumping the supernatant from Tank 241-AY-102. Remove all supernatant, except as necessary to maintain the minimum height of supernatant above the maximum solids level prescribed in RPP-RPT-53901 (prescribing 96 inches above solids level), or as prescribed in other USDOE documents regulating safety in Tank 241-AY-102.

4. Complete installation of sludge removal equipment and initiate waste removal in Tank 241-AY-102 no later than December 1, 2015. This will include all activities that USDOE will need to complete for authorization to initiate and complete all waste transfers.

5. Complete waste removal to a level sufficient for inspection to determine the cause of the leaks, no later than December 1, 2016.

6. Immediately inform Ecology of any safety issues that arise after pumping has begun and provide a detailed description of the specific safety issue. If the solution to an immediate concern is to cease pumping, provide a recovery plan within 30 days. The recovery plan must include a schedule for correcting and restarting pumping at the earliest practicable time.

7. Within 60 days of the effective date of this Order, submit to Ecology for approval:

    a. Monitoring plans for annulus inspection, waste temperature monitoring and annulus ventilation monitoring including a schedule for calibration of the continuous air monitor (CAM) and Enraf-Nonius Series 854 (ENRAF). The monitoring plans must provide clear, immediate actions for maintaining annulus ventilation.

    b. A contingency plan for safely managing any worsening conditions indicated by inspections and monitoring. Such indications include suspected increased leak rate or blockage on the ventilation channels causing increases in waste temperatures.

    Any other new issues not identified in the contingency plan such as those that arise as a result of construction or waste transfer activities, must be identified and evaluated, with a recovery plan and schedule provided to Ecology within 30 days.

8. Within 90 days of the effective date of this Order, submit a report that evaluates the integrity of the secondary containment system including, but not limited to, the impacts of the waste that is currently in the annulus.

9. Within 120 days of the effective date of this Order, submit a detailed waste retrieval work plan to Ecology for removing the remaining waste from Tank 241-AY-102. The waste retrieval work plan shall include, but is not limited to, detailed descriptions of:

   a. The engineering design and the steps taken to procure equipment, including those steps already undertaken, with a schedule for the procurement of each piece of equipment, showing that these activities either have been or will be completed at the earliest practicable time.

   b. The steps necessary for installation of all needed out-of-tank equipment and in-tank equipment for removing the waste from Tank 241-AY-102.

   c. The number and schedule of 242-A Evaporator runs, including support activities needed.

   d. The schedule for installation and start-up of equipment needed to support transfers to other DSTs.

10. Officially submit all supporting documentation that justifies the schedule for the above requirements.

11. To address the potential leak to the environment, sample the liquid from the Tank 241-AY-102 annulus leak detection pit monthly, starting within five days of the effective date of this Order. At a minimum, using inductively coupled plasma/mass spectrometry (ICP/MS), analyze this sample for metals, radionuclides, and pH, and report the results to Ecology within 15 days of taking the sample.

12. Conduct monthly video inspections of the entire annulus and weekly video inspections on the current leaks and weekly video inspections of any future leaks into the annulus.

13. Provide Ecology with monthly reports on the results of the visual and video annulus inspections, annulus ventilation performance and status, CAM readings, ENRAF readings, CAM and ENRAF calibration results, sample analysis results, waste heat monitoring results, including any interpretations and conclusions based on the results.

14. Officially submit to Ecology, within 10 working days of the effective date of the Order, copies of:

   a. All documents listed in the revised Pumping Plan, Attachment A, that were not previously officially submitted to Ecology

   b. All Technical Safety Requirements and all Safety Basis evaluations used to determine the requirements to control flammable gas levels and impacts to operational limits for waste storage (OSD-T-151-00007), as referenced in the revised Pumping Plan, Section 1.1, that were not previously officially submitted to Ecology

EFFECTIVE DATE

This Order is to be considered effective 30 days from the day of issuance.

ELIGIBILITY FOR PAPERWORK VIOLATION WAIVER AND OPPORTUNITY TO CORRECT

Under RCW 34.05.110, small businesses are eligible for a waiver of a first-time paperwork violation and an opportunity to correct other violations.

Ecology has determined the requirements of RCW 34.05.110 do not apply to the violation(s) described in this Order because you are not a small business as defined in RCW 34.05.110 (9).

FAILURE TO COMPLY WITH THIS ORDER

Failure to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

YOUR RIGHT TO APPEAL

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do both of the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

- **ADDRESS AND LOCATION INFORMATION**

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, Washington 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Suite 301 Tumwater, Washington 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia WA 98504-0903

CONTACT INFORMATION

Please direct all questions about this Order to:

Nina M. Menard, Acting Section Manager
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Nuclear Waste Program
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Richland, Washington 99354

(509) 372-7972

Nina.Menard@ecy.wa.gov

MORE INFORMATION

- **Pollution Control Hearings Board**
  www.eho.wa.gov/Boards_PCHB.aspx
- **Chapter 43.21B RCW - Environmental and Land Use Hearings Office – Pollution Control Hearings Board**
  http://apps.leg.wa.gov/RCW/default.aspx?cite=43.21B
- **Chapter 371-08 WAC – Practice and Procedure**
  http://apps.leg.wa.gov/wac/default.aspx?cite=371-08
- **Chapter 34.05 RCW – Administrative Procedure Act**
  http://apps.leg.wa.gov/RCW/default.aspx?cite=34.05
- **Chapter 70.105 RCW – Hazardous Waste Management**
  http://apps.leg.wa.gov/rcw/default.aspx?cite=70.105
- **Chapter 173-303 WAC – Dangerous Waste Regulations**
  http://apps.leg.wa.gov/wac/default.aspx?cite=173-303

SIGNATURE

Maia D. Bellon

Maia D. Bellon
Director

3/21/14
Date