

**DISTRIBUTION
PROJECT MANAGERS' MEETING,
200 AREA GROUNDWATER SOURCE OPERABLE UNITS
February 18, 2010**

DOE/RL

(No hard copy distribution)

EPA

Craig Cameron

B1-46

Ecology

Nina Menard

H0-57

CHPRC

Janice Williams (original)

E6-35

Administrative Record (2)

H6-08

Correspondence Control

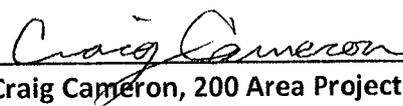
A3-01

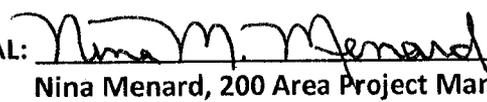
RECEIVED
MAR 02 2010
EDMC

Meeting Minutes Transmittal/Approval
Project Managers' Meeting
200 Area Groundwater and Source Operable Units
February 18, 2010

APPROVAL:  DATE: 02/18/2010
Al Farabee, 200 Area Project Manager, DOE/RL

APPROVAL:  DATE: 02/18/2010
Briant Charboneau, 200 Area Unit Manager, DOE/RL

APPROVAL:  DATE: 2/18/2010
Craig Cameron, 200 Area Project Manager, EPA

APPROVAL:  DATE: 2/18/2010
Nina Menard, 200 Area Project Manager, Ecology

HFFACO Action Plan Section 4.1 requires signature of agreements and commitments made during the Project Manager Meeting. Approval of these minutes documents approval of agreements and commitments documented in Attachment 4 to these minutes. Approval does not apply to any other attachments, which are included in these minutes for informational purposes.

Minutes of the 200 Area Project Managers' Meeting of February 18, 2010 are attached. Minutes are comprised of the following.

Attachment 1	Attendance Record
Attachment 2	Agreements and Issues List
Attachment 3	Action Item List
Attachment 4	Operable Units and Facilities Status
Attachment 5	<i>TPA-CN-321, Waste Control Plan for the Washington State Department of Ecology Comparison of Discrete and Multi-Increment Sampling for Site Characterization and Cleanup, D&D-38841, Rev. 0</i>
Attachment 6	Approval of the Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System Operating Plan for F 2010

200 Area Project Managers' Status Meeting
February 18, 2010

Please print clearly and use black ink

PRINTED NAME	ORGANIZATION	O.U. ROLE	TELEPHONE
Allan Danielson	WDDH		509 946-0192
Sharon Zimat	DOE		(541) 963-0853
T.M. Crane	CHPRC	Outer Area	376-9789
Eus Eberlein	Ecology		372-7906
Janice Williams	CHPRC	Facilitator	372-3553
Arlene Tortoso	DOE	Project Lead	373-9631
John Mousa	DOG	PM	376-0057
Dorey Chyi	DOE-RL-0040	PM	373-9396
Robin Paul	EPA		376-6623
Wade Deoley	RL	PM	372-2889
Zelma Jackson	Ecology	200 Area HG	372-7910
Nina Menard	"	PM	372-7950
Jean Danni	YN		376 945-1100
Fran K Roddy	DOE	PM CP	372-0945
Chris Gurruthi	EPA		376-9529
Rod Lobos	EPA		376-3749
Dottie Norman	CHPRC		373-2027
Jim Hansen	RC		376 4648
RD Hildebrand	DOE-RL		373-9626
CS Louis	DOE-RL		376-6834

**200 Area Project Managers' Meeting
Agreements and Issues List
February 18, 2010**

Agreement: TPA-CN-321, *Waste Control Plan for the Washington State Department of Ecology Comparison of Discrete and Multi-Increment Sampling for Site Characterization and Cleanup*, D&D-38841, Rev. 0 (Attachment 5)

Agreement: Approval of the Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System Operating Plan for FY 2010 (note: FY 2010 operations occur from March through October 2010). RL and EPA have signed the cover sheet to approve the document and it will be entered into the Administrative Record within these meeting minutes (Attachment 6)

Issue: None identified.

Delegations for February 18, 2010 PMM meeting:

EPA	Craig Cameron
Ecology	Nina Menard
DOE/RL	Brian Foley Doug Chapin

200 Area Project Managers' Meeting
February 18, 2010

Attachment 3
CHPRC-0900225.9

OPEN ACTION ITEM TRACKING

Action #	Action/Subject	Assigned To	Owed To	Assigned Date	Original Due Date	Adjusted Due Date	Status
	No Open Action Items						

200 AREA PROJECT FEBRUARY STATUS UPDATES

February 18, 2010

Central Plateau Geographic Remediation

Key Facility Negotiations (RL: Al Farabee) – (Tina Crane)

- The agreement in principle for negotiation of Central Plateau Facility disposition activities was signed by Tri-Parties August 13, 2008. Technical discussions began October 30, 2008.
- Key Facility Negotiations has been combined with Central Plateau Milestone Negotiations.

Schedule Status: Key Facility Negotiations is on schedule with Central Plateau Milestone Negotiations.

Regulator Comments

CP MIS Utilization (RL: Briant Charboneau/Frank Roddy) – (Dave Chojnacki)

- MIS project was placed on hold until the Hazard Categorization could be reviewed and concurred on by DOE. Concurrence was received on February 9, 2010. Equipment and personnel have been temporarily de-mobilized and reassigned to the BCCA project. Page change to the Waste Control Plan has been completed and acceptance of the Waste Profile from ERDF is expected by mid February.

Schedule Status: On schedule.

Regulator Comments

U-Zone Remediation

221-U Disposition (RL: Wade Woolery) – (Tina Crane)

- Eight cells (4, 7, 5, 6, 12, 18, 11, and 13) have initially been loaded with equipment from the deck. A spreadsheet of the equipment loaded into the cells is maintained and updated as the cells are filled. To date, 70% of the major mapped equipment has been placed.
- Cell 2 is near completion (completion delayed due to mechanical issues with the canyon crane; repairs underway). Cells 25 and 26 are the next to be filled.
- Size reduction of some equipment has commenced.
- The access road connecting the railroad tunnel to the main road is complete.
- Bids on the grout system are to be evaluated by February 4, 2010, and the procurement RFP is to be issued by March 15, 2010.

Schedule Status: Canyon work activities on schedule.

Regulator Comments

U-Ancillary Facilities (RL: Wade Woolery) – (Tina Crane)

- D&D operations are ongoing. Demolition preparation, such as application of fixative, and asbestos removal activities continue in 224-U/UA. Asbestos removal in 224-U D Cell and 224-UA Calciner Cells G, H, J, K, L, and M is scheduled to be complete by the end of March 2010. 224-U/UA demolition activities are scheduled to begin in April 2010.

Schedule Status: U Plant Ancillary Facilities work activities on schedule.

Regulator Comments

200-UW-1

- 200-UW-1 is part of the U-Zone remediation and is reported on later in this presentation.

200 North Remediation

212-N, -P, -R (RL: Wade Woolery) – (Tina Crane)

- Soil samples and radiological surveys were collected from the excavated area beneath the basins in January 2010. Analysis is complete and results are pending.
- Backfilling/Contouring/Application of soil fixatives as appropriate is planned for March 2010.

Schedule Status: 212-N, P, R Demolition project on schedule.

Regulator Comments

200-CW-3 Waste Sites (RL: Frank Roddy) – (Tina Crane)

- Initial waste site sampling is complete.
 - Reclassification forms for CS/NFA sites have been submitted for EPA approval. Those for the pipelines (600-285-PL, 600-286-PL, and 600-287-PL) have been approved by EPA. The remaining three are awaiting EPA approval with completion anticipated in February 2010.
 - Sampling summary reports for the three RTD sites were completed and transmitted to RL.
 - Site contouring and backfilling activities for CS/NFA sites are complete with RTD sites to follow and project field work completion expected in June 2010.
- TPA changes notices for RAWP and SAP to incorporate verification sampling at 216-N-1, 216-N-4 and 216-N-6 sites have been reviewed by RL and approved by EPA. Excavation of 216-N-1 is complete. Excavation has begun on 216-N-4.

Schedule Status: On schedule.

Regulator Comments

Rail Car Disposition (RL: Frank Roddy) – (Tina Crane)

- 212-N,-P, -R EE/CA is in revision to incorporate disposition of railcars. Addenda / revision of follow-on regulatory document (Action Memo, work plan, etc.) to follow as applicable.

Schedule Status: TBD.

Regulator Comments

200-BC Control Area (BCCA) Ecology Lead (RL: Doug Chapin) – (Bo Wier)

- Excavation of contaminated soil in Zone A was continued using six super dump trucks in service, which included use of the fifth and sixth trucks beginning January 21, 2010, and February 02, 2010, respectively (Note: at this time, six total trucks are planned for use by CHPRC to complete the BCCA Zone A and B work). As of the week of February 08, 2010, approximately 5,800 tons have been disposed of at ERDF (~40,000 tons cumulative).
- CHPRC's subcontractor continues preparing their final report (Rev. 0) of their September 2009 aerial (helicopter) remediation survey. RL expects to receive the Rev. 0 report from CHPRC by the end of February 2010. CHPRC also continues to assess impacts to the project resulting from the survey, which have not been finalized for discussion with RL.

Schedule Status: On Schedule.

Regulator Comments

200-MG-1 Ecology Lead (RL: Frank Roddy/ Joe Fritts) – (Bo Wier/Greg Berlin)

- Ecology review of AM for second batch of 37 sites in outer area was completed and responses to their comments are being worked on.
- Cultural Review Report of 5 of the second batch of sites is out for public review.
- Contractor is ready to start work on the second batch of sites.
 - Confirmatory Sample No Further Action (CSNFA) Sites
 - Sampling started at site 600-218 on December 30, 2009, additional sampling is anticipated to occur in February.
 - Sampling of site 600-262 was performed on February 2, 2010. Samples are being analyzed.
 - RAR for sites 200-E-110 and 600-21 comments are being incorporated.
 - Initial field RTD activities for 600-36 are complete pending sampling results.
 - RTD work packages are being prepared for sites 600-40 and 600-275
 - Sampling Instructions are being prepared for sites 600-36, 600-38, 600-275, OCSA and 600-40
 - Site 600-51 is field complete. The RAR is being prepared.
 - Site 200-E-101 will be closed utilizing a reclassification form (no RAR is required).
 - Field walk downs for the next set of MG-1 sites are in process.

Schedule Status: On Schedule.

Regulator Comments:

200-MG-2 EPA Lead (RL: Frank Roddy) – (Greg Berlin)

- The 200-MG-2 Action Memorandum was finalized in December 2009.

Schedule Status: On schedule.

Regulator Comments

Central Plateau Groundwater and Source Operable Units

200-UP-1 Ecology Lead (RL: Naomi Hake) – (Curtis Wittreich)

(M-15-17A, 9/30/10, Combined Remedial Investigation/Feasibility Study Report, and Proposed Plan)

- Revision 3 to the 200-UP-1 OU Groundwater Remedial Design/Remedial Action Work Plan (DOE/RL-97-36) was finalized.
- Initiated remedial design for the extraction system to capture the Tc-99 plumes near WMA S-SX.
- Preparation of the 200-UP-1 OU RI/FS report and revision to the 200-ZP-1 Proposed Plan continues.
- The U Plant P&T System is shutdown while both extraction wells are being rehabilitated to improve performance.

Schedule Status: The Draft A combined RI/FS report and Proposed Plan revision is scheduled to be completed by August 2010.

Regulator Comments

200-ZP-1 EPA Lead (RL: Arlene Tortoso) – (Mark Byrnes)

(M-16, -124, 8/31/10, Submit 200 ZP-1 Remedial Design Report)

Remediation Treatment Status:

- 12 of the 14 groundwater extraction wells are on line pumping water at a rate of approximately 220 gpm. Extraction well 299-W15-47 is offline due to electrical problems. Extraction well 299-W15-36 will be kept offline due to very low flow rates.
- Extraction wells 299-W11-45 and 299-W11-46 are currently off line due to the drier breakdown at ETF. These two wells will remain off line until February 15, 2010 when ETF is scheduled to be put back on line.
- A 90% design review meeting with EPA is scheduled for February 17, 2009.
- Drilling and sampling of eight permanent extraction/injection wells is complete. A swedge was installed in the ninth extraction well (EW-15, C7494) to repair a break in the screen that occurred during installation. Initiated drilling of three new FY10 extraction wells.
- The Draft A Performance Monitoring Plan is being transmitted to EPA for review.
- Engineering design has been completed for both connecting extraction well 299-W15-225 (EW-1) to the ZP-1 interim treatment facility and installing a new heater/chiller unit in the interim treatment facility. Materials are on order.
- Currently preparing to run tests on DOWEX and other resins to see which one is most effective at removing uranium.
- The Operations and Maintenance Plan for the 200-West Area Groundwater Treatment Facility is in the internal review and comment process.
- A literature search was recently completed on using GAC to remove Tc-99 from groundwater. Treatability testing will follow later this year.

Schedule Status: On schedule.

Regulator Comments

200-PW-1, 200-PW-3, & 200-PW-6 EPA Lead (RL: Arlene Tortoso) – (Kathy Davis, Mark Byrnes, Virginia Rohay PW-1 SVE)

- A meeting was held on January 25, 2010 with EPA and Ecology to discuss the inclusion of pipelines in the FS and the proposed inclusion of additional risk scenarios in the FS. The Draft C FS will provide a revised groundwater protection section and address the pipelines connected to the waste sites, including the pipeline associated with CW-5. Additional risk assessment scenarios will be introduced in the Draft C FS, for information, but PRGs will not be calculated. The schedule for completing the FS and the Z Area Liquids Discharge Sites Proposed Plan is being updated.

Soil Vapor Extraction System (SVE):

- Monthly monitoring results for January 2010 for the soil vapor probes and wells were consistent with the results from previous monitoring.
- The two new SVE units have been shut down for the winter, as scheduled. They will be restarted March 1.

- The SVE operating plan for FY 2010 is in preparation to run the SVE units from March through October. The plan will be provided to RL and EPA for review and comment in February 2010. The approved plan signed by RL and EPA will be attached to this status update for submittal to the administrative record.

Schedule Status: A revised schedule is under development to incorporate changes to the PW-1/3/6 Feasibility Study, and prepare a combined Proposed Plan (combined with 200-CW-5).

Regulator Comments

**Deep Vadose Treatability Test M-15-53 (RL: John Morse) – (Glen Chronister)
(M-15-54, 1/31/2010, Submit report on Reactive Gas testing for sequestration of Uranium that will support remedial action decision making)**

- Desiccation Pilot Test:
 - An RFP for procurement of the dry air injection system has been prepared and is now being reformatted to the new SOW criteria and will be prepared for transmittal by the procurement organization as an RFP. Engineering for the instrumentation and monitoring systems, as well as power distribution continue and procurement of instrument monitoring is continuing. A contract was awarded on January 6, 2010 for the drilling and instrumenting of 20 additional boreholes at the BC Cribs and Trenches site to support the Desiccation Pilot Test.
- Characterization Testing:
 - The test report on soil characterization and permeability is now undergoing approval for public release following comment incorporation and tech editing. This report compiles the results of the borehole analysis, permeameter results, laboratory desiccation tests and modeling, and characterization field test results. This report will be transmitted to DOE-RL as a Test Report for their approval before the associated PI due date of March 15, 2010 (anticipated completion date to send the final report to DOE is February 15, 2010).
- Desiccation Lab Testing (PNNL):
 - Additional lab desiccation testing continues by PNNL this fiscal year to evaluate re-wetting as a result of recharge and water vapor transport that will support the overall modeling to evaluate recharge rates following desiccation work.
- Uranium Sequestration Testing (PNNL):
 - PNNL continues testing on large scale soil test columns that will be used as the basis for adaptation to a field scale test scheduled for FY11 supporting uranium sequestration. The test report on uranium sequestration was transmitted to DOE-RL on January 21, 2010. This action satisfies TPA-015-54 due January 31, 2010.
- Soil Flushing and Soil Grouting (PNNL):

- PNNL continues testing on soil flushing as a mechanism to contact targeted contamination in the vadose zone with a leaching solution as well as testing on grouting as a mechanism to contact targeted contamination in the vadose zone to react, stabilize, or isolate the contaminants. Both of these tests will be used to evaluate the possibility of large scale treatment and application and information derived from these tests will also be used for modeling distribution, locations, and effectiveness of these particular technologies.

Schedule Status: TPA milestone M-015-54 met ahead of schedule.

Regulator comments:

200-CS-1 Ecology Lead (RL: Greg Sinton) – (Ron Brunke)

- A change package has been prepared and is under Agency review to incorporate most of the CS-1 waste sites into an outer area Operable Unit (all except 216-B-63 and 216-A-29).

Schedule Status: The proposed milestone for the Outer Area Operable Unit has been submitted for Agency review.

Regulator Comments

200-CW-5 EPA Lead (RL: Greg Sinton) – (Kathy Davis)

- A meeting was held on January 25, 2010 with EPA and Ecology to discuss the inclusion of pipelines in the FS and the proposed inclusion of additional risk scenarios for calculation of PRGs in the FS. The one pipelines connected to the Z-ditches will be addressed with the pipelines connected to the PW-1 waste sites, in the PW-1/3/6 FS. Additional risk assessment scenarios will be introduced in the Draft C FS, but PRGs will not be calculated. The schedule for completing the FS and the Z Area Liquids Discharge Sites Proposed Plan is being updated.

Schedule Status: A revised schedule is under development to support the production of a revised Feasibility Study for CW-5 and a combined Proposed Plan (combined with 200-PW 1/3/6).

Regulator Comments

200-CW-1 Ecology Lead (RL: Greg Sinton) – (Ron Brunke)
(M-015-38B, 11/30/2010, Feasibility Study/Proposed Plan)

- A change package has been prepared and is under Agency review to include the outer area 200-CW-1 Ponds in the new Outer Area Operable Unit.
- Remaining CW-1 supplemental and the Gable pipeline characterization sampling is scheduled to begin in late February 2010.

Schedule Status: The current TPA milestone (M-15-38B) requires submittal of the FS and PP for the Outer Area Ponds on November 30, 2010. A change package has been prepared and is under Agencies review that adjusts this milestone to allow sufficient time to incorporate all the sites in the Outer Area.

Regulator Comments

200-BC-1 EPA Lead (RL: Greg Sinton) - (Mike Hickey)
(M-15-51, 9/30/10, Feasibility Study/Proposed Plan)

- RL requested minor modifications to the final TTR. Internal configuration control requirements necessitated issuing the document as a rev 1. The final document will be issued February 2010.
- Completed the Baseline Risk Assessment and evaluated Tribal scenarios for the 200-BC-1 OU sites.

Schedule Status: On schedule.

Regulator Comments

200-SC-1 EPA Lead (RL: Greg Sinton) – (Mike Hickey)
(TPA schedule to be established through M-15-40E)

- The project safe store report was finalized and this project is in safe store.

Schedule Status: A change package that addresses the 200 SC-1 schedule has been prepared and is under Agency review and approval, as specified in the M-15-40E interim milestone.

Regulator Comments

200-UW-1 Ecology Lead (RL: Kevin Leary) – (Mike Hickey)

- The Draft DQO and Draft A SAP to support future field characterization work at the 216-U-8 and 216-U-12 Cribs was submitted to DOE for distribution to the Agencies.
- The TPA milestone date for submitting the 200-UW-1 Proposed Plan has been changed to June 30, 2010. Currently, DOE and the Agencies are discussing the merits of obtaining additional characterization information and the schedule impacts to the Proposed Plan submittal.
- Preparation of an EE/CA for the U Plant Area has begun. The EE/CA will include both waste sites and structures to support field remediation implementation.
- The revision of the Draft On-Scene Coordinator Report for the Time-Critical Removal Action at 200-W-42 is nearing completion.

Schedule Status: Preparation of the revised 200-UW-1 Proposed Plan is on schedule to be delivered to Ecology by June 30, 2010 without the borehole data. Discussions are underway with Ecology to revise this date based upon the inclusion of the borehole data.

Regulator Comments

200-IS-1 Ecology Lead (RL: Kevin Leary) – (Greg Berlin)

- DOE proposes submittal of the 200-IS-1 Work Plan, Revision 1, into the AR.
- A revision to the 200-IS-1 RI/FS Work Plan is underway to meet the June 30, 2010 deadline.
- Updates to the Hexone Closure Plan are underway.

Schedule Status: The 200-IS-1 OU was in safe store condition for FY2009 and the first quarter of FY2010. A change package has been prepared and is under Agency review to add a TPA milestone for the revision of the 200-IS-1 RI/FS Work Plan.

Timeline for the 200-IS-1 RI/FS Work Plan

Date	Activity
6/27/2007	Letter: RL transmitted 200-IS-1 Work Plan & SAP (DOE/RL-2002-14, Rev. 1, DRAFT B) to Ecology
12/6/2007	Letter: RL transmitted response to comments for the 200-IS-1 WP and SAPs
1/31/2008	Letter: Ecology extended comment response period for DOE/RL-2002-14, Rev. 1 DRAFT B an additional 14 days, to February 18, 2008 for further comment resolution
2/19/2008	Letter: Ecology sent responses to RL's Comment Response Resolution for DOE/RL-2002-14, Rev. 1, DRAFT B to RL.
2/26/2008	Letter: RL initiated Dispute Resolution for DOE/RL-2002-14, Rev. 1, DRAFT B, responding to Ecology disapproval of proposed resolutions for five comments
3/28/2008	Letter: RL letter document resolution of dispute regarding 4 of the 5 comments for DOE/RL-2002-14, Rev. 1, DRAFT B. Unresolved comment (#25) was agreed to be beyond the scope of the work plan.
6/5/2008	Letter: Ecology approval of DOE/RL-2002-14, Rev. 1, DRAFT B, agreeing that only comment #25 remains unresolved.
7/28/2008	TPA Change Notice: TPA-CN-230, DOE/RL-2002-14, Rev. 1, Tanks/Lines/Pits/Boxes/Septic Tank and Drain Fields Waste Group Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan; Includes 200-IS-1 and 200-ST-1. Description of Change: added analytical performance requirements for liquids. Signed by B Charboneau (RL, acting) on 7/23/08 and J Price (Ecology) on 7/28/08.
8/12/2008	Clearance Forms: Forms for DOE/RL-2002-14, Rev. 1 signed by FH and DOE w/note from clearance process stating that document incorporated all comments addresses by administrative document processing and approval form dated 5/24/2007. WP and SAP approved for public release on 8/12/2008 and entered into IDMS.
8/25/2008	TPA Change Notice: TPA-CN-229, DOE/RL-2002-14, Rev. 1, Tanks/Lines/Pits/Boxes/Septic Tank and Drain Fields Waste Group Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan; Includes 200-IS-1 and 200-ST-1. Description of Change: modify sampling locations to accommodate existing field conditions. Signed by B Charboneau (RL) on 8/25/08 and J Price (Ecology) on 08/25/08.
2/10/10	Meeting held with RL, Ecology and CHCRP to discuss the 200-IS-1 RI/FS Work Plan, Rev 1, and that it had not been entered into the Administrative Record.
2/12/10	Paper and electronic copies of the 200-IS-1 RI/FS Work Plan provided to Ecology.
2/17/10	Personal Communication with Mr. Les Fort, former project manager for Ecology that admitted that the updated schedule for the day-by-day-slip (a 6 month "extended" work-plan document review by Ecology) was proposed by DOE-RL/FH, but was never formally transmitted.

Regulator Comments:

Ecology requests that the document be transmitted officially. (DOE/RL-2002-14, Revision 1, Tanks/Lines/Pits/Boxes, Septic Tank and Drain Fields Waste Group Operable Unit RI/FS Work Plan and RCRA TSD Unit Sampling Plan; Includes: 200-IS-1 and 200-ST-1 Operable Units.

200-PW-2 & 200-PW-4 Ecology Lead (RL: Doug Hildebrand) – (Mike Hickey)
(M-15-43D, 12/31/10, Feasibility Study and Revised Recommended Remedy(ies))

216-B-12 and 216-C-1 Boreholes:

- Final analytical data from the on-site laboratory for the 216-C-1 borehole has been received. Grab sample analysis (by PNNL) is under way.
- The 216-B-12 borehole has been advanced to a depth of 272 feet bgs. Groundwater is expected at 305 feet bgs

Schedule Status: Field work is on schedule. A change package that addresses the 200-PW-2/4 schedule has been prepared and is under Agency review, as specified in the proposed M-15-42E interim milestone.

Regulator Comments

200-BP-5 EPA Lead (RL: Doug Hildebrand) – (Curtis Wittreich)
(M-15-82, 12/31/10, Treatability Test Plan; M-15-21A, 12/31/2012, Feasibility Study/Proposed Plan)

- Remedial Investigation:
 - K Well (adjacent B-6 Rev. well) and M well (adjacent B-12 Crib) were drilled/sampled to depths of 342 and 152 ft bgs, respectively.
 - Preparation of the 200-BP-5 RI Report continued.
 - A draft DQO report in support of the 200-BP-5 B Complex Treatability Test Plan is being prepared for internal PRC review.

Schedule Status: The 200-BP-5 Conceptual Transport Model Report is expected to be finalized by February FY10. Drilling of the K, L and M wells is expected to be completed by July 2010. The Draft A RI Report is scheduled to be completed by December 2010. Milestone M-15-82 requires submittal of a treatability test plan for the U/Tc plume near WMA B/BX/BY by December 31, 2010 and is on schedule. Milestone M-15-21A requires submittal of the Draft A Feasibility Study and Proposed Plan by December 31, 2012.

Regulator Comments

**200-PO-1 Ecology Lead (RL: Doug Hildebrand) – (Curtis Wittreich)
(M-15-73, 12/31/2011, Submit FS Report and PP for 200-PO-1)**

- The decisional draft of the 200-PO-1 Groundwater OU RI Report, DOE/RL-2009 is currently being prepared for a DOE review in March.

Schedule Status: The Draft A RI Report is scheduled to be completed by May 2010. Milestone M-15-73 requires submittal of the Draft A Feasibility Study and Proposed Plan by December 31, 2011.

Regulator Comments –

200-SW-1 Ecology Lead (RL: Kevin Leary) – (Ron Brunke)

- The NRDWL and SWL closure plans were submitted to Ecology on November 2, 2009. Ecology and RL are working together to expedite the review and approval cycle for the closure plans. Working groups are addressing resolving document content regarding soil cap design and groundwater monitoring plan, as well as regulatory path forward and public involvement preparation. Two new working meetings are scheduled in February to include the integrated groundwater monitoring plan and the integrated cap design. The expedited effort is intended to make use of available American Recovery and Reinvestment Act funding prior to October 2011 towards the closure of these landfills.

200-SW-2 Ecology Lead (RL: Frank Roddy) – (Greg Berlin)

- RI/FS Work Plan (Rev 0) was approved by RL and Ecology on December 22, 2008.
- Geophysical investigations were performed at the 218-E-2, 218-E-4, 218-E-9 and 218-W-4A Burial Grounds; the investigation summary report (SGW-43771) was finalized in December 2009 and will be entered into the Administrative Record.
- Passive organic vapor samplers (~350 total) were installed in 200 East and West Area landfills during the month of September 2009, removed and shipped for lab analyses; the investigations summary report (SGW-42563) was finalized in December 2009 and will be entered into the Administrative Record.

Schedule Status: This OU has been in safe store since FY2009, however, non-intrusive characterization tasks (i.e., surface geophysics and passive organic vapor sampling) were funded using ARRA support. Field activities began in August 2009 and were completed in December 2009.

Regulator Comments

200-MW-1 EPA Lead (RL: Frank Roddy) – (Mike Hickey)

(M-15-44B, 2/28/2010, Feasibility Study, M-015-44C, 02/28/2011, Submit Proposed Plan)

- The Draft A 200-MW-1 Feasibility Study was submitted to RL on January 26, 2010. The contractor is currently incorporating comments and processing the document through the clearance process.

Schedule Status: On schedule to submit the Draft A 200-MW-1 Feasibility Study to meet TPA interim milestone M-015-44B on February 28, 2010.

Regulator Comments

EPA expects the document to be of requisite quality and be complete. EPA has not been involved in the latest development and would like to meet with DOE regarding preferred alternatives before the document is transmitted.

200-LW-1/200-LW-2 Ecology Lead (RL: Frank Roddy) – (Mike Hickey)

(M-15-46B, 12/31/11, Feasibility Study/Recommended Remedy) Ecology

216-B-6 Borehole C5860:

- Borehole C5860 encountered the water table at 304.9 feet bgs and all samples have been collected. Laboratory analysis is currently in progress.

Schedule Status: Other than the C5860 borehole (above), the project activities funded for this OU in FY09 are related to completing FY08 field activities and consolidating project information and actions to date. A change package that addresses the 200-LW-1/2 schedule has been prepared and is under review by the Agencies, as specified in the proposed M-15-446B interim milestone.

Regulator Comments

Ecological Risk Assessment (RL: James Hansen) – (John Lowe)

- DOE is scheduled to meet with EPA and Ecology during the week of February 22, 2010 to provide an overview of how ecological risk assessment issues are being addressed in the Central Plateau. This will be the first of a series of meetings to discuss the path forward for assessing Central Plateau ecological risks, including completion of a revised Central Plateau Ecological Risk Assessment report.

Schedule Status: The schedule for the ecological risk assessment will support proposed plans for the Outer and Inner Areas. A revised draft report is scheduled to be provided to DOE in March 2010, and provided to the agencies in June 2010. DOE will meet with the Agencies beginning in late February 2010 to discuss the path forward for the assessments of ecological risks in the Central Plateau.

Regulator Comments

Well Decommissioning Status: (RL: Frank Roddy) - (Chris Wright)

- Initial screening of candidates for decommissioning being performed with groundwater and source OU leads, DOE, and Ecology.
- As of February 8, 2010, 16 wells have been decommissioned with 48 wells on contract. An additional 20 wells are ready to add to contract.
- A walkdown of the wells on Gable Mountain was performed.

Schedule Status: Decommissioning field work began January 19, 2010.

Regulator Comments

**200-TW-1 & 200-PW-5 EPA Lead (RL: Arlene Tortoso) – (Mike Hickey)
M-15-42D, 12/31/11, Feasibility Study/Proposed Plan for TW-1 & PW-5)**

Schedule Status: A change package that addresses the 200-TW-1 & PW-5 schedule has been prepared and is under Agency review, as specified in the proposed M-15-42D interim milestone.

Regulator Comments

**200-TW-2 Ecology Lead (RL: Arlene Tortoso) – (Mike Hickey)
(M-15-42E, 12/31/11, Feasibility Study/Revised Recommended Remedy(ies) for TW-2)**

Schedule Status: A change package that addresses the 200-TW-2 schedule has been prepared and is under Agency review, as specified in the proposed M-15-42E interim milestone.

Regulator Comments

200-UR-1 Ecology Lead (RL: Frank Roddy) – (Ron Brunke)

- The Draft A West Lake Sampling and Analysis Plan has been prepared and includes sampling of salt, salt-soil mixtures, sediment, surface water, and groundwater with testing for radionuclides, metals, polychlorinated biphenyls (PCBs) (solid matrices only), and general chemistry parameters. The Draft A SAP was transmitted to DOE for transmittal to Ecology for review.
- A meeting was held with Ecology to discuss the past and future activities, including schedule for development and implementation of the West Lake sampling.

Scheduled Status: Transmit the Draft A West Lake SAP to Ecology in early March. Ecology Review: March-April 2010; SAP Approved: July 2010; Field Sampling: July 2010; FSR / DQA Reports: October 2010.

Regulator Comments



Change Notice for Modifying Approved Documents/ Work Plans
In Accordance with the Tri-Party Agreement Action Plan,
Section 9.0, *Documentation and Records*

Change Number	Document Submitted Under		Date:	
TPA-CN-321	Tri-Party Agreement Milestone N/A		January 2, 2010	
Document Number and Title: D&D-38841, Rev. 0, <i>Waste Control Plan for the Washington State Department of Ecology Comparison of Discrete and Multi-Increment Sampling for Site Characterization and Cleanup</i>			Date Document Last Issued: August 2008	
Originator: Tina Crane, CHPRC		Phone: 509-376-9789		
Description of Change: Modification of language to more specifically address soils in the waste streams generated through performance multi-increment sampling.				
This change modifies an approved waste control plan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, <i>Documentation and Records</i> , and not Chapter 12.0, <i>Changes to the Agreement</i> .				
Sections 1.1, 1.4, and 1.5 of Attachment 1 were modified, and section 1.3.5 was added to Attachment 1, to more specifically address the soil component of the waste streams that will be generated and dispositioned during multi-increment sampling activities. Figure 1 in Attachment 2 was modified to show the correct general location of the waste container storage area (WCSA).				
The table of contents was also modified to show subsections which were absent from the original revision.				
The redlined affected pages are attached.				
Justification and Impacts of Change: As originally written, the Waste Control Plan did not specifically address the soil component in the waste stream(s) to the extent currently deemed appropriate.				
Approvals:				
 RL Unit Manager		1/15/10 Date	<input checked="" type="checkbox"/>	<input type="checkbox"/>
NA EPA Unit Manager		Date	<input type="checkbox"/>	<input type="checkbox"/>
 Ecology Unit Manager		1/22/10 Date	<input checked="" type="checkbox"/>	<input type="checkbox"/>

D&D-38841, Rev. 0
08/2008

CONTENTS

1.0	WASTE MANAGEMENT	1
1.1	Waste Streams	1
1.2	Designation	1
1.3	Management of Specific Waste Streams.....	1
1.3.1	Miscellaneous Solid Waste.....	2
1.3.2	Decontamination Fluids.....	2
1.3.3	Equipment and Construction Materials	2
1.3.4	Nondangerous/Nonradioactive Solid Waste.....	2
1.3.5	Soils.....	3
1.4	Management of Waste Containers	3
1.5	Final Disposal/Storage	3
1.6	Records.....	4
1.7	Reporting Requirements for Nonroutine Releases.....	4

ATTACHMENTS

1	INVESTIGATION DERIVED WASTE MANAGEMENT.....	ATT 1-1
2	WASTE CONTAINER STORAGE AREAS	ATT 2-1

D&D-38841, Rev.0
08/2008

ATTACHMENT 1

INVESTIGATION DERIVED WASTE MANAGEMENT

1.0 WASTE MANAGEMENT

All wastes generated from this project will be managed in accordance with this waste control plan and State and Federal regulations. An overview of the waste management strategy for the 200 Areas waste sites is presented in Appendix E of DOE/RL-98-28, *200 Areas Remedial Investigation/Feasibility Study Implementation Plan – Environmental Restoration Program*. Every effort will be used to minimize waste generated during this project.

The following sections describe how the waste generated from the investigation activities will be managed.

1.1 Waste Streams

One or all of the waste streams listed below are anticipated and may fall into any combination of the following categories: radioactive, mixed, hazardous, dangerous, suspect radioactive, suspect dangerous, suspect mixed, and nonregulated:

- Miscellaneous solid waste that has contacted potentially contaminated materials (e.g., soils, rubber, glass, paper, personal protective equipment, cloth, plastic, metal, wood)
- Decontamination fluids
- Equipment and construction materials (e.g., drift fences, pitfall traps, wood, related materials and sampling equipment)
- Nondangerous/nonradioactive solid waste (e.g., paper, wood, construction debris, metal, plastic, glass).
- Soils in support of multi-increment sampling (MIS) sampling.

1.2 Designation

Waste will be designated in accordance with Washington Administrative Code (WAC) 173-303 using a combination of process knowledge, historical analytical data, and analyses of samples required by DOE/RL-2008-50, Rev. 0, *Sampling and Analysis Plan for the Washington State Department of Ecology Comparison of Discrete and Multi-Increment Sampling for Site Characterization and Cleanup*, as appropriate.

1.3 Management of Specific Waste Streams

Wastes will be stored at the appropriate Waste Container Storage Area (WCSA) located near each waste site as shown in Attachment 2.

The following subsections provide details on the types and management of expected wastes.

D&D-38841, Rev. 0
08/2008

not be radiologically released, the materials will then be disposed to the ERDF as suspect environmentally controlled material.

1.3.5 Soils

Miscellaneous soils will be placed in container(s). Soils that have been generated as a result of MIS may be disposed to the Environmental Restoration Disposal Facility (ERDF) if the acceptance criteria can be met, or to another offsite approved facility or Hanford Site Facility, if the ERDF criteria cannot be met. Waste may also be shipped to the Central Waste Complex (CWC) for storage pending final disposition. An offsite determination will be required for any waste that is not sent to the ERDF for storage or disposal with the exception of solid waste that is non-hazardous and radiologically released or waste that has not contacted potentially contaminated materials. This type of solid waste may be disposed off the Hanford Site to a solid waste landfill, or recycled as appropriate without an offsite determination.

1.4 Management of Waste Containers

The containers will be stored inside the applicable site-specific WCSA. The WCSAs are shown in Attachment 2, but may be relocated within or adjacent to the identified waste site to accommodate changes in the investigation field operations. If a WCSA is relocated, the lead regulatory agency will be notified before the change and relocation of the WCSA. Signs will be posted identifying the WCSAs. All containers of IDW will be managed in accordance with the applicable substantive Federal and/or state requirements including labels that define the known major risks, dangerous waste codes, and if awaiting analysis, wording that state "waste pending analysis" with the date of initial sampling. Containers will also be labeled "Investigation Derived Waste" as applicable. Weekly inspections will be performed to document the integrity, container marking/labeling, physical container placement, storage area boundaries/identification/warning signs, and spill control. Containers showing signs of deterioration will be identified on the container inspection form and immediately overpacked or repackaged. Spills or releases will be reported as stated in Section 1.7. In the event of a spill or release, appropriate immediate action will be taken to protect human health and the environment. Containers that are direct hauled to ERDF will not require the use of WCSA.

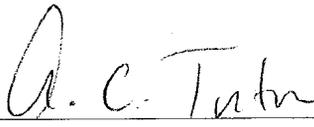
1.5 Final Disposal/Storage

All IDW will be stored in the appropriate site-specific WCSA until the waste samples are returned and the proper waste shipping papers are completed. Much of the IDW ~~is generated in small quantities on an ongoing basis~~ will be soil generated from MIS. The IDW waste may be stored for up to 6 months after analyses are completed. Any waste generated after analyses are completed may be stored for up to 6 months from the date of waste generation. An extension is required from the lead regulatory agency for storage beyond 6 months.

The process to develop proper waste shipping papers includes, at a minimum, the following activities: receipt of analytical results, designation, profiling, and proper disposal paperwork. The designation process ensures that the waste will be profiled for the proper disposal facility. Waste profiling provides information concerning each waste stream. The designation and profile are conducted in accordance with dangerous waste regulation requirements (WAC 173-303-070, "Designation of Dangerous Waste," through 173-303-100). Dangerous waste will be evaluated for applicable land disposal restrictions in accordance with WAC 173-303-140, "Land Disposal Restrictions."

APPROVAL OF THE CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION
SOIL VAPOR EXTRACTION SYSTEM OPERATING PLAN FOR FY 2010

The Project Managers for the Carbon Tetrachloride Expedited Response Action (200-PW-1 Operable Unit) approve the attached FY 2010 Soil Vapor Extraction System Operating Plan.

 2/17/2010  2/25/10

A. C. Tortoso
U.S. Department of Energy
Richland Operations Office

Date	E. Laija	Date
	U.S. Environmental Protection Agency	
	Region 10, Hanford Office	

FY 2010 SOIL VAPOR EXTRACTION SYSTEM OPERATING PLAN FOR THE
CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION
(200-PW-1 OPERABLE UNIT)

CONTENTS

Summary.....	2
Soil Vapor Extraction System Configuration.....	4
Soil Vapor Extraction Plan for Soil Vapor Extraction Sites	7
Vadose Zone Monitoring Plan for Soil Vapor Extraction Sites	9
Waste Management	11
References.....	12
Appendix A SVE Extended Operation Evaluation Plan	20

SUMMARY

Soil vapor extraction will be used at the 200-PW-1 Operable Unit (OU) from March through October 2010 to remove carbon tetrachloride from the vadose zone. The primary objectives for this remediation are protection of the groundwater and mass removal. Two soil vapor extraction (SVE) systems, each with a design capacity of 14.2 m³/min, will be operated. Two sites will be remediated using SVE: the 216-Z-9 (Z-9) site and the 216-Z-1A/Z-18/Z-12 (Z-1A) site. One SVE system will be located at each site. Specific on-line wells have been selected prior to start-up at each site based on vapor monitoring, previous concentration trends, and location. These site-specific plans are included in this operating plan for approval by the Project Managers prior to implementation. Based on sampling data collected at on-line wells during operation, the mix of on-line wells may be reconfigured during operations to optimize removal. These adjustments to the mix of on-line wells will not be submitted to the Project Managers for approval prior to implementation but will be reported in the annual performance evaluation report.

Ongoing passive soil vapor extraction will be maintained at Z-1A wells. Passive soil vapor extraction is a remediation technology that uses naturally induced pressure gradients between the subsurface and the surface to drive soil vapor to the surface. In general, falling atmospheric pressure causes subsurface vapor to move to the atmosphere through wells, while rising atmospheric pressure causes atmospheric air to move into the subsurface. The passive soil vapor extraction systems will be used to remove carbon tetrachloride from the vadose zone.

Soil vapor monitoring will be conducted at vadose zone locations near the groundwater, the Cold Creek unit, and the ground surface at the Z-1A and Z-9 sites. The soil vapor monitoring plan for both sites during SVE operations is included with this operating plan for approval prior to implementation. Anomalies in the monitoring results will be reported at the 200-Area Project Manager Meetings. If carbon tetrachloride vapor concentrations increase such that the carbon tetrachloride contamination may impact human health or the environment (including

groundwater), the Project Managers will decide on the appropriate response to mitigate the problem (e.g., relocating the vapor extraction system to address the problem).

The anticipated schedule for SVE operations and soil vapor monitoring is:

March 2010 through October 2010: Operate one SVE system at the Z-1A site
 Operate one SVE system at the Z-9 site
 Monitor soil vapor concentrations at the Z-1A and Z-9 sites

SVE operations may be initiated in late February 2010 to ensure that both systems are able to maintain full-time operations beginning in March 2010.

Between 1997 and 2009, the SVE equipment typically was operated from April through September. This year, the SVE systems will also be operated during March and October to evaluate the feasibility and cost of operating the systems for additional months. The plan to operate the SVE equipment during the months of March and October 2010 in addition to the normal April through September operation is provided as Appendix A. In accordance with this plan, data will be collected to evaluate the feasibility and cost/benefit of the extended operation. Based on the results of this year's test of an extended period of SVE operation, recommendations may be made on the future system operations schedule as well as SVE system and well field enhancements.

The SVE system(s) may be operated during November 2010, beyond the previously identified operational period of March through October 2010, to support field testing of characterization methods proposed by a technical working group that is funded by the DOE-HQ Office of Environmental Management Science and Technology Program (EM-32) to examine the flux of vadose zone carbon tetrachloride across the water table under conditions relevant to the 200-PW-1 OU. A separate test plan will be prepared to describe the testing activities. The test plan will be provided to DOE-RL and EPA for review and approval prior to implementation.

Soil vapor extraction is being used for remediation of carbon tetrachloride in the vadose zone in accordance with the action memorandum issued in January 1992 by the U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology) (*Action Memorandum: Expedited Response Action Proposal for 200 West Area Carbon Tetrachloride Plume* [EPA and Ecology 1992]) under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)*. This plan implements continued system operations as determined by the 200-PW-1 operable unit project managers, consistent with *Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Change Number M-15-97-01, "Revised 200-ZP-2 Rebound Study Restart."*

SOIL VAPOR EXTRACTION SYSTEM CONFIGURATION

Two soil vapor extraction (SVE) systems will be used to remove volatile organic compounds (VOCs) from the subsurface soils through numerous vapor extraction wells located to the south and east of the Plutonium Finishing Plant (PFP) in the 200 West Area. The extraction wells are in the vicinity of the waste sites in the 200-PW-1 Operable Unit that received liquid wastes containing carbon tetrachloride. The primary VOC to be extracted from the soil is carbon tetrachloride. The VOCs in the extracted soil vapor are adsorbed on granular activated carbon (GAC) contained in canisters. After removal of the VOCs, the treated soil vapor is discharged directly to the atmosphere.

Each SVE system consists of a filter skid, a process trailer, and GAC canisters.

- Each filter skid includes a filter, valves, and manifolds for connection to process lines.
- Each process trailer is divided into two sections separated by a dividing wall. The rear section (approximately 3/4 of the trailer) contains process equipment, and the front section is the control room.
 - The process section in the rear of each process trailer includes a primary water separator, a positive displacement air blower, an air-to-air heat exchange process air cooler, a secondary water separator, and an exhaust stack.
 - The control room in the front of each process trailer includes the SVE control and monitoring system, which consists of a programmable logic controller (PLC) and operator interface computer (OIC) for control, monitoring, and data logging; a gas chromatograph analyzer for measurement of VOC concentrations in soil vapor; and electrical distribution equipment. The SVE control and monitoring system also includes local instrumentation, distributed controls, and interlocks for monitoring and control of system parameters.
- Two GAC canisters are located outside the process trailer and are connected to it by flexible hoses with quick disconnect fittings. Each GAC canister contains granular activated carbon to adsorb the VOCs from the extracted soil vapor.

Flexible hoses are connected from the extraction wells to manifolds installed inside each process trailer. Soil vapor from the wells is drawn through the manifold and a demister into the primary water separator (dropout tank). From the primary water separator, the vapor passes out of the trailer, through a filter, and then back into the trailer upstream from the suction side of the positive displacement blower. The vapor stream leaving the blower passes through the air-to-air cooler, the secondary water separator, and then out of the trailer through a flexible hose to the primary GAC canister. From the primary GAC canister the vapor line loops back into the trailer through a sample point and then back out to the polishing GAC canister. The vapor stream leaving the polishing GAC canister goes back into the trailer through a sample point and then is exhausted out of the stack.

The following table summarizes the differences between the configuration of the SVE system(s) as described in supporting documentation and as configured for FY 2010 operations.

Differences – SVE System Supporting Documentation and Current Configuration			
Affected Components	Reference	Supporting Documentation Requirements	Current Status and Justification
Record Air Sampler Vacuum Pump	BHI-00395 ^a , (May 1996)	Radioactive particulates in the soil vapor stream are to be measured using a vacuum sample pump and filter paper located after each HEPA filtration unit. The sample filter paper to be analyzed for radionuclide particulates.	No samplers are installed. System is monitored through routine surveillance.
Record Air Samplers	BHI-00395 ^a , (May 1996)	A continuous sample of the vapor stream will be drawn through sample filter paper and analyzed for the presence of particulate radionuclides.	
Record Air Sampler	BHI-00089 ^b , (May 1995)	A record sampler is required to be located on the positive pressure side of the blower.	
Filter Moisture Control	DOE/RL-91-32 ^c (September 1991)	As a precaution, filtration and moisture control will be required for systems placed within radiologically-zoned areas.	No electric heaters or moisture control devices other than passive moisture separators are in place. Filter functionality shall be validated by monitoring of filter differential pressure.
Filter Electric Heater	BHI-00395 ^a , (May 1996)	A non-contact electric heater may be installed before the pre-filter to raise the vented gas temperature and reduce its relative humidity	
System Interlocks Blower Shutdown	BHI-00089 ^b , (May 1995)	A control system should be in place to maintain in-line air stream temperature (because of heat from the in-line heaters) to < 94 °C (200 °F). This is important to eliminate any decomposition of carbon tetrachloride.	Current interlock shuts-down blower if temperature exceeds 275 °F. Undesirable by-products are formed at 400 F. Current 275 °F setpoint provides an adequate margin of safety and will be maintained.
Filter Relative Humidity Criteria	BHI-00395 ^a , (May 1996)	The ... soil vapor is treated to... cool and/or heat the vapor (maintain relative humidity at about 40%) .	There are no controls in the system to maintain relative humidity at 40%. Filter functionality shall be validated by monitoring of filter differential pressure.

Differences – SVE System Supporting Documentation and Current Configuration			
Filter	BHI-00089 ^b , (May 1995)	Listed in System Components: The HEPA filter housing containing a pre-filter and two HEPA filters in series.	Each SVE system has one stage of air filtration. Radiological Control operating experience strongly supports that particulate contamination (other than radon progeny) is not an issue with operation of the SVE units. The conservatively calculated unabated release potential for SVE operations is 1.69E-04 mrem/yr to the onsite receptor.

HEPA = High-efficiency particulate air (filter)

^a BHI-00395, Rev. 0, *Design, Operations, and Maintenance of the Soil Vapor Extraction Systems for the 200 West Area Carbon Tetrachloride Expedited Response Action* (May 1996).

^b BHI-00089, Rev. 02, *Safety Analysis for the 200 West Area Expedited Response Action for Remediation of Carbon Tetrachloride* (May 1995)

^c DOE/RL-91-32, Draft B, *Expedited Response Action Proposal (EE/CA & EA) for 200 West Area Carbon Tetrachloride Plume* (September 1991)

SOIL VAPOR EXTRACTION PLAN FOR SOIL VAPOR EXTRACTION SITES

Scope

Twenty-nine wells at the 216-Z-1A, 216-Z-18, and 216-Z-12 site (Z-1A site) are identified for potential soil vapor extraction (Table 1). Twenty-nine wells at the 216-Z-9 site (Z-9 site) are identified for potential vapor extraction (Table 2). Selected wells will be prepared for hook-up to the soil vapor extraction systems during late February 2010 to support full-time SVE operations from March through October 2010.

The last non-operational soil vapor monitoring prior to SVE restart will take place in mid to late February 2010. At that time, any sampling tubes will be removed from potential on-line wells. The current wellhead assemblies (configured for non-operational soil vapor monitoring) will not be disturbed until the monitoring has been completed and the tubing removed.

Z-1A Extraction Wells

Passive soil vapor extraction is being conducted at the following Z-1A wells with lower intervals open between the Cold Creek unit and groundwater: 299-W18-6L, 299-W18-7, 299-W18-10L, 299-W18-11L, 299-W18-12, 299-W18-246L, 299-W18-247L, and 299-W18-252L (Table 3).

For initial start-up operations at Z-1A, extraction will be implemented at five planned intervals in the Z-1A Tile Field: 299-W18-165, 299-W18-166, 299-W18-167, 299-W18-168, and 299-W18-174 (Table 1) (Figure 1). Start-up operations in FY 2001, FY 2002, FY 2003, FY 2004, FY 2005, FY 2008, and FY 2009 also were initiated using these five extraction intervals (a sixth interval selected in FY 2001 produced virtually no flow). In FY 2006 and FY 2007, start-up operations were initiated using three of these wells. Selecting the same set of initial wells will allow the rebound in FY 2010 to be compared to the rebound in previous years.

The mix of on-line wells will be periodically changed during operations, based on changing concentrations, extraction interval locations, and operating experience. In general, the initial extraction wells will be nearer the primary carbon tetrachloride source (Z-1A Tile Field) and wells added later will expand operations away from this source.

Z-9 Extraction Wells

For initial start-up operations at Z-9, extraction will be implemented at four planned intervals: 299-W15-9U, 299-W15-9L, 299-W15-82, and 299-W15-217 (Table 2) (Figure 1). Start-up operations at Z-9 in FY 1998, FY 1999, FY 2001, FY 2002, FY 2004, FY 2006, FY 2007, and FY 2009 also were initiated using these four extraction intervals. (A slightly different set of initial wells was used in FY 2005 and FY 2008). Selecting the same set of initial wells will allow the rebound in FY 2010 to be compared to the rebound in previous years. (The SVE system was not operated at the Z-9 site during FY 2000 and FY 2003.)

The mix of on-line wells will be periodically changed during operations, based on changing concentrations, extraction interval locations, and operating experience. In general, the initial

extraction wells will be nearer the carbon tetrachloride source (Z-9 Trench) and wells added later will expand operations away from this source.

One narrow diameter well, CPT-21, was converted for use as an SVE well during FY 2008 and will be prioritized for use in FY 2010. Three narrow-diameter wells (C4937, C4938, and C5340), which were installed south of Z-9 in FY 2007, and the Z-9 slant well (299-W15-48), which was installed beneath Z-9 in FY 2006, also will be prioritized for use in FY 2010.

Sampling at Extraction Wells

The initial extraction intervals will be sampled on the first day of operations for the parameters listed in Table 4. During continued operations, all on-line wells will be sampled each week. The sampling data for on-line wells will be used to help evaluate whether the mix of on-line wells should be modified. At the request of the 200-PW-1 OU technical lead, off-line wells will be sampled for the same parameters, if possible. The sampling data for off-line wells will be used to help evaluate those wells for potential addition to the mix of on-line wells.

Data Management and Reporting

The 200-PW-1 OU technical lead organizes and maintains spreadsheets of the sampling data on a desktop computer. The sampling data are included in the annual performance evaluation report (e.g., SGW-404561, *Performance Evaluation Report for Soil Vapor Extraction Operations at the 200-PW-1 Operable Unit Carbon Tetrachloride Site, Fiscal Year 2008*).

VADOSE ZONE MONITORING PLAN FOR SOIL VAPOR EXTRACTION SITES

Summary

This plan describes non-operational monitoring and passive soil vapor extraction monitoring to be conducted during March through October 2010 for the 200 West Area Carbon Tetrachloride Expedited Response Action (200-PW-1 Operable Unit). Non-operational monitoring will be conducted at both the 216-Z-9 (Z-9) and the 216-Z-1A/Z-18/Z-12 (Z-1A) sites from March through October 2010. Passive soil vapor extraction monitoring will be conducted at the Z-1A site from March through October 2010.

Purpose and Objectives

The purpose of non-operational monitoring is to measure carbon tetrachloride concentrations in the vadose zone using wells and soil vapor probes that are not on-line for use with the SVE systems.

The objectives of monitoring the non-operational wells and soil vapor probes are (1) to measure carbon tetrachloride concentrations and trends near the vadose-atmosphere and vadose-groundwater interfaces to evaluate whether non-operation of the SVE system is negatively impacting the atmosphere or groundwater; and (2) to be cognizant of carbon tetrachloride concentrations and trends near the lower permeability Cold Creek unit to provide an indication of concentrations that can be expected during restart of SVE operations and to support selection of on-line wells.

The objectives of monitoring the passive soil vapor extraction system wells, which are all open near the vadose-groundwater interface, are: (1) to measure carbon tetrachloride concentrations and trends near the vadose-groundwater interface; and (2) to quantify the mass of carbon tetrachloride removed using this technology.

Scope and Methods

Carbon tetrachloride soil vapor concentrations will be monitored at selected soil vapor probes and wells that are not on-line for use with the soil vapor extraction (SVE) system (Table 5 and Table 6). At any particular time, all of the probes and some of the wells will be “non-operational,” i.e., they will not be connected to the SVE system.

Eight of the non-operational wells have a passive soil vapor extraction system installed at the wellhead. Passive extraction wells will vent through aboveground canisters containing granular activated carbon (GAC). The carbon tetrachloride vapor concentration will be monitored both upstream and downstream of the GAC.

For monitoring the non-operational soil vapor probes and wells and the passive extraction wells, the components of this scope are:

- Collect soil vapor samples in Tedlar bags for field screening
- Analyze soil vapor samples for carbon tetrachloride using a field screening instrument (the Bruel and Kjaer 1302 multi-gas analyzer)
- Evaluate concentration trends and report anomalous results to 200-PW-1 Operable Unit Project Managers
- Include results in annual reports

Duration

Non-operational monitoring and passive soil vapor extraction monitoring will be conducted from March 2010 through October 2010 during FY 2010.

Monitoring Frequency

Monitoring will be conducted monthly.

Monitoring Locations

Locations were selected to focus carbon tetrachloride monitoring near the vadose-atmosphere and vadose-groundwater interfaces and near the Cold Creek unit (Table 5). These monitoring locations may be revised by the 200-PW-1 OU technical lead based on developing trends, accessibility, and/or recommendations of the sampler. The 200-PW-1 Operable Unit Project Managers will be advised of any changes to the monitoring locations. Monitoring locations are shown on Figure 2.

Data Management

The field screening data obtained from non-operational wells and soil vapor probes and passive extraction wells are entered into a controlled field logbook, which is maintained by Lockheed Martin Services, Inc. (LMSI) Records Information Management (RIM) department. The 200-PW-1 OU technical lead organizes and maintains spreadsheets of the field screening data on a desktop computer. The field screening data are entered into the Hanford Environmental Information System (HEIS) database.

Data Reporting

All of the field screening data, and associated quality control data, are included in the annual performance evaluation report for soil vapor extraction operations (e.g., SGW-40456, *Performance Evaluation Report for Soil Vapor Extraction Operations at the 200-PW-1 Operable Unit Carbon Tetrachloride Site, Fiscal Year 2008*). The 200-PW-1 Operable Unit Project Managers will be advised of any anomalous results or new trends, based on comparison with results of previous carbon tetrachloride monitoring and evaluation, by the 200-PW-1 OU technical lead.

Quality Assurance/Quality Control

Quality assurance/quality control requirements for sampling and analysis will be conducted at a level appropriate to field screening for volatile organic compounds, in accordance with the environmental quality assurance plan internal to the CH2M HILL Plateau Remediation Company. At a minimum, one field duplicate sample will be collected for every 20 vapor samples collected. A carbon tetrachloride standard and a blank sample will be analyzed at the beginning of the analysis of the vapor samples.

WASTE MANAGEMENT

All waste generated during routine operations of the SVE systems and vadose zone monitoring will be managed in accordance with DOE/RL-2000-40, *Waste Management Plan for the Expedited Response Action for 200 West Area Carbon Tetrachloride Plume and the 200-ZP-1 and 200-PW-1 Operable Units*.

REFERENCES

- BHI-00089, 1995, *Safety Analysis for the 200 West Area Expedited Response Action for Remediation of Carbon Tetrachloride*, Rev. 02, Bechtel Hanford, Inc., Richland, Washington.
- BHI-00395, 1996, *Design, Operations, and Maintenance of the Soil Vapor Extraction Systems for the 200 West Area Carbon Tetrachloride Expedited Response Action*, Rev. 0, Bechtel Hanford, Inc., Richland, Washington.
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, 42 U.S.C. 9601, et seq.
- DOE/RL-91-32, 1991, *Expedited Response Action Proposal (EE/CA & EA) for 200 West Area Carbon Tetrachloride Plume*, Draft B, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE/RL-2000-40, 2008, *Waste Management Plan for the Expedited Response Action for 200 West Area Carbon Tetrachloride Plume and the 200-ZP-1 and 200-PW-1 Operable Units*, Rev. 8, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Ecology, EPA, and DOE, 1989, *Hanford Federal Facility Agreement and Consent Order*, 2 vols., Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington, as amended.
- EPA and Ecology, 1992, *Action Memorandum: Expedited Response Action Proposal for 200 West Area Carbon Tetrachloride Plume*, CCN 9200423, letter to R. D. Izatt (U.S. Department of Energy, Richland Operations Office), dated January 21, 1992, from R. F. Smith, U.S. Environmental Protection Agency (Region 10) and R. Stanley, Washington State Department of Ecology, Olympia, Washington.
- SGW-40456, *Performance Evaluation Report for Soil Vapor Extraction Operations at the 200-PW-1 Operable Unit Carbon Tetrachloride Site, Fiscal Year 2008*, Rev. 0, CH2M HILL Plateau Remediation Company, Richland, Washington.

Table 1. Wells Available for Soil Vapor Extraction System Operations at the 216-Z-1A/Z-18/Z-12 Site, March through October 2010

Potential On-Line Wells	Reason	Initial Wells
299-W18-6U	Mass removal	
299-W18-89	Mass removal	
299-W18-93	Mass removal	
299-W18-94	Mass removal	
299-W18-96	Mass removal	
299-W18-97	Mass removal	
299-W18-98	Mass removal	
299-W18-99	Mass removal	
299-W18-150	Mass removal	
299-W18-152	Mass removal	
299-W18-153	Mass removal	
299-W18-157	Mass removal	
299-W18-158L	Mass removal	
299-W18-159	Mass removal	
299-W18-163L	Mass removal	
299-W18-165	Mass removal	X
299-W18-166	Mass removal	X
299-W18-167	Mass removal	X
299-W18-168	Mass removal	X
299-W18-169	Mass removal	
299-W18-171L	Mass removal	
299-W18-174	Mass removal	X
299-W18-175	Mass removal	
299-W18-246U	Mass removal	
299-W18-247U	Mass removal	
299-W18-248	Mass removal	
299-W18-249	Mass removal	
299-W18-252U	Mass removal	
299-W18-253	Mass removal	

Table 2. Wells Available for Soil Vapor Extraction System Operations at the 216-Z-9 Site, March through October 2010

Potential On-Line Wells	Reason	Initial Wells
299-W15-6U	Mass removal	
299-W15-6L	Groundwater Protection	
299-W15-8U	Mass removal	
299-W15-8L	Groundwater Protection	
299-W15-9U	Mass removal	X
299-W15-9L	Groundwater Protection	X
299-W15-32	Groundwater Protection	
299-W15-48	Mass Removal	
299-W15-82	Mass removal	X
299-W15-84U	Mass removal	
299-W15-84L	Mass removal	
299-W15-85	Mass removal	
299-W15-86	Mass removal	
299-W15-95U	Mass removal	
299-W15-95L	Mass removal	
299-W15-216U	Mass removal	
299-W15-216L	Groundwater Protection	
299-W15-217	Mass removal	X
299-W15-218U	Mass removal	
299-W15-218L	Groundwater Protection	
299-W15-219U	Mass removal	
299-W15-219L	Groundwater Protection	
299-W15-220U	Mass removal	
299-W15-220L	Groundwater Protection	
299-W15-223	Mass removal	
C4937 (P66D)	Mass removal	
C4938 (P69C)	Mass removal	
C5340 (P68C)	Mass removal	
CPT-21	Mass removal	

Table 3. Passive Soil Vapor Extraction Wells at the 216-Z-1A/Z-18/Z-12 Site, FY 2010

Passive Soil Vapor Extraction Wells	Reason
299-W18-6L	Groundwater Protection
299-W18-7	Groundwater Protection
299-W18-10L	Groundwater Protection
299-W18-11L	Groundwater Protection
299-W18-12	Groundwater Protection
299-W18-246L	Groundwater Protection
299-W18-247L	Groundwater Protection
299-W18-252L	Groundwater Protection

Table 4. Sampling Data to be Collected During Soil Vapor Extraction System Operations, March through October 2010

Date	Time		Well/ Interval	Vacuum at Wellhead (in H ₂ O)	Flow (cfm)	CCl ₄	CHCl ₃	CH ₂ Cl ₂	MEK
	SVE Start	Sample Measurement				carbon tetrachloride	chloroform	methylene chloride	methyl ethyl ketone
						(ppmv)	(ppmv)	(ppmv)	(ppmv)
Fax copy of sampling records to 200-PW-1 OU Technical Lead by close of day following sampling.									

Table 5. Distribution of Selected Monitoring Locations at the 216-Z-1A/Z-18/Z-12 and 216-Z-9 Sites During Soil Vapor Extraction System Operations, March through October 2010

Target Zone	Number of Monitoring Locations		
	Z-1A	Z-9	Total
Near-surface (3-25 m below ground surface)	12	9	21
Cold Creek (25-45 m below ground surface)	0	3	3
Groundwater (50-65 m below ground surface)	8 ^a	0	8
Total	20	12	32

^a Eight available monitoring locations near the vadose/groundwater interface in the Z-1A area are being monitored as part of the passive soil vapor extraction system network.

Table 6a. Non-Operational Wells and Soil Vapor Probes Selected for Monitoring at the 216-Z-9 Site During Soil Vapor Extraction System Operations, March through October 2010

Target Zone	216-Z-9 Site	Depth (m)	Comment
near-surface	CPT-17 10 ft (blue)	3	southwest of Z-9
near-surface	CPT-16 25 ft (blue)	8	east of Z-9
near-surface	CPT-27 33 ft (red)	10	southeast of Z-9
near-surface	CPT-18 35 ft (blue)	11	northwest of Z-9
near-surface	CPT-28 40 ft (blue)	12	farfield south of Z-9
near-surface	CPT-9A 60 ft (blue)	18	farfield north of Z-9
near-surface	CPT-16 65 ft (red)	20	east of Z-9
near-surface	CPT-21A 65 ft (green)	20	south of Z-9
near-surface	CPT-18 75 ft (red)	23	northwest of Z-9
Cold Creek unit	CPT-21A 86 ft (red)	26	south of Z-9
Cold Creek unit	CPT-28 87 ft (red)	27	farfield south of Z-9
Cold Creek unit	CPT-24 118 ft (red)	36	northwest of Z-9

Note: Colors refer to the color coding on the soil vapor probe tubing.

Table 6b. Non-Operational Wells and Soil Vapor Probes Selected for Monitoring at the 216-Z-1A/Z-18/Z-12 Site During Soil Vapor Extraction System Operations, March through October 2010

Target Zone	216-Z-1A Site	Depth (m)	Comment
near-surface	CPT-4E 25 ft (white)	8	north central in Z-1A/Z-18/Z-12 field
near-surface	CPT-32 25 ft (green)	8	west of Z-1A
near-surface	CPT-13A 30 ft (blue)	10	southeast of Z-1A
near-surface	CPT-7A 32 ft (yellow)	10	farfield northeast of Z-1A
near-surface	CPT-1A 35 ft (black)	11	west of Z-12
near-surface	CPT-34 40 ft (green)	12	west of Z-18
near-surface	CPT-30 48 ft (blue)	15	middle of Z-1A/Z-18/Z-12 field
near-surface	CPT-C3872 62.5 ft	19	east side of Z-1A
near-surface	CPT-1A 68 ft (yellow)	21	west of Z-12
near-surface	CPT-32 70 ft (red)	21	west of Z-1A
near-surface	CPT-1A 91 ft (red)	28	west of Z-12
Cold Creek unit	CPT-4F 109 ft (red)	33	north-central in Z-1A/Z-18/Z-12 field
groundwater	299-W18-247L*	51	southeast of Z-18
groundwater	299-W18-246L*	52	west of Z-1A
groundwater	299-W18-252L*	53	middle of Z-1A/Z-18/Z-12 field
groundwater	299-W18-10L*	55	east side of Z-18
groundwater	299-W18-7*	60	east side of Z-1A
groundwater	299-W18-11L*	60	within Z-18
groundwater	299-W18-12*	60	within Z-18
groundwater	299-W18-6L*	63	west side of Z-1A

* Passive soil vapor extraction wells

Note: Colors refer to the color coding on the soil vapor probe tubing.

Appendix A

SVE Extended Operation Evaluation Plan

1.0 Background

The 200-PW-1 SVE equipment currently operates from April through September. DOE has requested that the feasibility and cost of operating the system for additional months be evaluated. A meeting was held on September 30, 2009 with personnel from DOE, EPA, and CHPRC to discuss the issue. It was decided that CHPRC would develop a plan to operate the SVE equipment during the months of March and October 2010 in addition to the normal April through September operation as part of an evaluation to determine the feasibility of extending normal operation through these months. CHPRC would prepare a plan to determine the feasibility and cost/benefit of the extended operation.

2.0 Purpose

The purpose of this document is to provide a plan to gather the data needed to evaluate the extended operation of the SVE units. The data to be gathered falls into two areas:

- 1) Physical and procedural modifications to expand operational window
- 2) Data needed to perform a cost/benefit analysis for extended operation

3.0 Process and Equipment Description

The two 200-PW-1 Soil Vapor Extraction (SVE) System units are used to remove volatile organic compounds (VOCs) from soil gases and vapors from numerous extraction wells located to the south of the Plutonium Finishing Plant (PFP) in the 200 West Area.

The primary VOCs extracted from the soil vapor stream are carbon tetrachloride (CCl₄), methyl ethyl ketone (MEK), methylene chloride (CH₂Cl₂), and chloroform (CHCl₃). The VOCs are adsorbed on granulated activated carbon (GAC).

Treated process air is discharged directly to the atmosphere.

Each SVE unit consists of a process trailer, a filter skid, and GAC canisters.

- Each filter skid includes a filter, piping, and quick-disconnect fittings for connection of process hoses.
- Each process trailer is divided into two sections separated by a dividing wall. The rear section (~3/4 of the trailer) contains process equipment and the front section is a control room.

- The process section of each trailer includes a primary water separator, a positive displacement air blower, an air-to-air heat exchanger vapor cooler, a secondary water separator, and an exhaust stack.
- The process control and monitoring system is located in a control room at the front of the process trailer and includes a programmable logic controller (PLC), human machine interface computer (HMI) for control, monitoring and data logging, and a gas chromatograph for measurement of process air VOC concentration. Electrical distribution equipment is also located in the control rooms.
- The SVE control and monitoring system includes local instrumentation, distributed controls, and interlocks for monitoring and control of system parameters.
- GAC canisters are located outside the trailer and are connected to it by flexible hoses with quick-disconnect fittings.

Flexible hoses are connected from the extraction wells to manifolds installed inside each process trailer. Soil vapor from the wells is drawn through the manifold and a demister into the primary water separator (dropout tank). From the primary separator, the vapor passes out of the trailer through a filter and then back into the trailer to the suction side of the positive displacement blower. The vapor stream leaving the blower passes through the air-to-air cooler and then out of the trailer through a flexible hose to the primary GAC canister. From the primary GAC canister the vapor line loops back into the trailer through a sample point and then back out to the two polishing GAC canisters. The vapor stream leaving the polishing GAC canisters goes back into the trailer through a sample point and then is exhausted out of the stack.

Space Heating

The process section of each trailer has a 3.5 kW, 230 volt electric heater. The vapor cooler draws 10,500 scfm of outside air through the process section of the trailer when it is operating. The process section of the trailers is not insulated.

The control room of each trailer has a 1.6 kw, 120 volt AC/heater. The control room has R-19 insulation in the ceiling and R-10 insulation in the walls.

4.0 Methodology

A work package will be used to gather data and control work not in the normal operating procedure.

1. Physical/Procedural Changes Needed

a. Data needed:

- Temperature inside both the control room and processing sections of the SVE trailers during March and October to determine if insulation, heat

tracing, or additional heaters are needed. The temperature is presently being recorded.

- Ambient temperature during March and October – available from weather station.
- Equipment/instrumentation limitations due to colder weather.
- Determine if SVE units can be operated without vapor coolers in cold weather. Heat added to process section of trailers by blower (if vapor cooler is not operated), will help keep the trailer warm.
- Based on the above, determine if additional space heating or heat tracing is required.

b. Operational/Procedural Changes

- Operate without vapor cooler when outside temperature is less than 40° F. Monitor temperature in trailers during these periods. The blower will be operated for a short period during February 2010 to determine the effect on the trailer temperature.
- During March and October shorten vapor extraction lines as much as possible by connecting to wells close to the SVE units if CCl₄ concentration is reasonable.
- Arrange vapor extraction hoses so they slope to a minimum number of low spots.
- Data to be gathered in work package to include:
 - 1) Draining vapor lines when needed and tracking amount of liquid removed
 - 2) Draining condensate lines when needed
 - 3) Operating without vapor cooler in cold weather
 - 4) Taking humidity readings
 - 5) Draining filters on sample lines
 - 6) Monitor for ice build-up in vapor lines

c. Equipment Needed for October and March Operation

- Replace water transfer line from primary water separator with a new line inside trailer. The new line should have a tee and drain valve at low point(s).
- Install tees and drain valves in condensate lines between water separator tanks and transfer pumps
- Humidity detector/recorder for vapor upstream of GAC canisters
- Seal all penetrations around pipes
- Install cam lock tees with drain valves in low spots of vapor lines

2. Cost/ Benefit Analysis Data Needed

a. Data needed:

- CCl₄ removed – determined from flow rate and CCl₄ concentration measured by gas chromatograph

- GAC usage – measured by cubic feet of vapor processed and kg of CCl₄ removed before CCl₄ break through
- Labor – track operations and maintenance labors hours for 200-PW-1 from time cards. Additional labor is expected to drain condensate from lines, change GAC canisters more frequently and perform additional surveillance to prevent freezing.
- Down times – track and determine if weather related
- Cost of equipment modifications needed for March, October operation
- Inlet soil vapor humidity
- Difference in CCl₄ rebound with March through October operation
- Review past operating data to determine baseline

b. Potential problems to be evaluated

- CCl₄ concentration in the soil vapor will not be constant. It will decrease with time during each operating period and from year to year.
- Starting operation in March will decrease the amount of CCl₄ that will be removed in April.
- The colder temperatures may have an impact on the volatility of CCl₄ causing decreases in concentrations.

5.0 Evaluation

A document will be provided summarizing the data gathered and comparing the cost and benefits of expanding the operation of the SVE units to March and October of each year.