

DISTRIBUTION
PROJECT MANAGERS' MEETING,
200 AREA GROUNDWATER SOURCE OPERABLE UNITS
February 17, 2011

DOE/RL

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B1-46

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Nina Menard

H0-57

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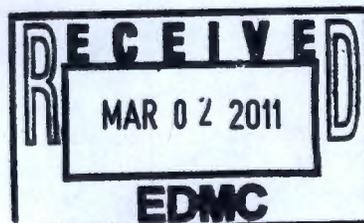
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Administrative Record (2)

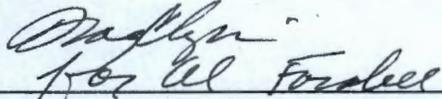
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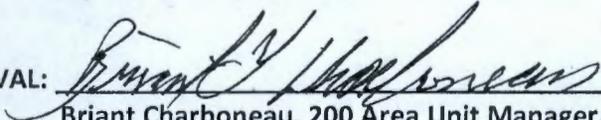
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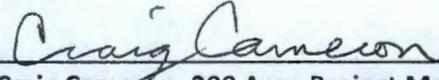
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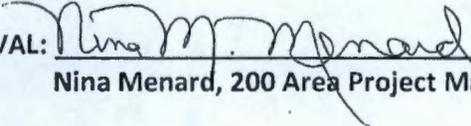


Meeting Minutes Transmittal/Approval
Project Managers' Meeting
200 Area Groundwater and Source Operable Units
February 17, 2011

APPROVAL:  DATE: 02/17/11
Al Farabee, 200 Area Project Manager, DOE/RL

APPROVAL:  DATE: 2-17-11
Briant Charboneau, 200 Area Unit Manager, DOE/RL

APPROVAL:  DATE: 2/17/11
Craig Cameron, 200 Area Project Manager, EPA

APPROVAL:  DATE: 2/17/11
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 17, 2011 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	Approval of the Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System Monitoring and Operating Plan for CY 2011

200 Area Project Managers' Status Meeting
February 17, 2011

Please print clearly and use black ink

PRINTED NAME	ORGANIZATION	O.U. ROLE	TELEPHONE
NINA MENARD	Ecology	Proj. Man.	
Zelma Jackson	"	Hydrogeol.	
CURT WALKER	AHPRE		
STEWY CIMON	ODOE		
JOHN CULMER	WDOCS		
Frank Reddy	DOE	AMCP	372-0945
JOHN MORSE	DOE	DOE	376-0057
Margo Dodd	DOE	PM	376-8325
Arlene Tortoso	DOE	OU Lead	373-9631
Emy Laija	EPA		
Nathy Louie	DOE		376-8334
Craig Cameron	EPA		376-8665
Brian Charbonneau	DOE	Pm	373-6137
RITA Hebraval	DOE-RL		373-9626
Doug Chipin	DOE-RL	Pm	373-9396
NAOMI BLAND	DOE-RL		376-5527

**200 Area Project Managers' Meeting
Agreements and Issues List
February 17, 2011**

Agreement: Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System Monitoring and Operating Plan for CY 2011 was approved and signed (Attachment 5)

Issue: None

Delegations for February 17, 2011 PMM meeting:

Doug Chapin for Al Farabee (RL-40)

200 Area Project Managers' Meeting
February 17, 2011

CHPRC-1100641
Attachment 3

OPEN ACTION ITEM TRACKING

Action #	Action/Subject	Assigned To	Owed To	Assigned Date	Original Due Date	Adjusted Due Date	Status
133	Set up meeting between DOE, Ecology, and EPA to discuss pipelines	D. Hildebrand	Ecology/EPA	2/17/11			

200 AREA PROJECT MANAGERS MEETING
PROJECT STATUS UPDATES

February 17, 2011
AGENDA

CENTRAL PLATEAU INNER AREA

200-WA-1
200-EA-1 CMS & FS / CAD & PP
200-PW-1/3/6
SVE
200-CW-5

Inner Area: Central Plateau Burial Grounds

200-SW-2

Inner Area: Central Plateau Canyons & Facilities

U Plant Canyon
B Plant Canyon/Waste Sites

Inner Area: Central Plateau Deep Vadose Zone

200-DV-1 RI/FS
200-DV-1 Uranium
200-DV-1 Tc-99 Desiccation Test

BOTH INNER & OUTER AREAS

200-IS-1CMS & FS / CAD & PP

RCRA Units

Hexone TSD Closure
Other TSD Closures

CENTRAL PLATEAU OUTER AREA

200-OA-1, 200-CW-1, and 200-CW-3 FS/PP
200-SW-1

Field Work

Rail Car Disposition
200-MG-1
200-CW-3
200-BC Control Area
West Lake
Multi-Increment Sampling

Risk Assessment

Central Plateau Ecological Risk

CENTRAL PLATEAU GROUNDWATER

200-ZP-1 Interim Action

200 West P&T

200-UP-1 RI/FS

S/SX Interim Action

200-BP-5 and 200-PO-1 FS

200-BP-5 TTP

Groundwater Plumes – Final Remedy

Well Decommissioning

FUTURE SCOPE (out-year TPA milestones)

PUREX Canyon/Waste Sites

REDOX Canyon/Waste Sites

224B Concentration Facility

224T Transuranic Storage and Assay Facility

EE/CA Report(s)

200 AREA PROJECT MANAGERS MEETING PROJECT STATUS UPDATES

February 17, 2011

CENTRAL PLATEAU INNER AREA

200-WA-1 and BC-1 EPA Lead (RL- Arlene Tortoso, CHPRC – Phil Burke)

M-015-91A, Submit a RI/FS work plan for the 200-WA-1 OU (200 West Inner Area) to EPA, 12/31/2011

M-015-91B, Submit FS Report(s) and PP(s) for the 200-BC-1/200-WA-1 OU (200 West Inner Area) to EPA, 6/30/2013

- Work on the data development for the RI/FS Report and work on the baseline risk assessment has been deferred until FY12 due to lack of funding.
- Work on the 200-WA-1 and BC-1 OU Work Plan continued and the team has completed a due diligence of wastes sites within the 200-West Geographic Area, data has been assembled for the TPA Appendix C waste sites and an evaluation of initial data needs has been completed. A meeting with EPA to review the data will be scheduled in early March.
- Field preparation activities continued for the boreholes associated with the U-8 crib. Field preparation for the characterization boreholes and drive points associated with the Supplemental RI/FS Work Plan (DOE/RL-2007-02, Rev 0) continued. Borehole drilling is anticipated to start second quarter calendar 2011.
- A Decisional Draft document which details the analytical and numerical modeling approach that derive soil cleanup levels protective of groundwater is under development and scheduled for completion Summer 2011.

Schedule Status: On Schedule

Regulatory Agency Comments:

200-EA-1 Ecology Lead (RL- Doug Hildebrand, CHPRC – Phil Burke)

M-015-92A, Submit a RFI/CMS & RI/FS work plan for the 200-EA-1 OU (200 East Inner Area) to Ecology, 12/31/2012

- Activities associated with 241-CX-72 (Semi Works) Characterization and the preliminary assessment of waste sites to be included in the 200-EA-1 RI/FS WP have been stopped due to lack of funding.

Schedule Status: On schedule

Regulatory Agency Comments:

200-PW-1/3/6 EPA Lead (RL- Arlene Tortoso, CHPRC – Phil Burke)

- The Draft C Feasibility study was transmitted to EPA on January 11, 2011. Comments are due within 45 days.
- Draft A of the Proposed Plan for combined CW-5 and PW-1/3/6 was submitted to EPA on January 11, 2011. Comments are due within 45 days.

Soil Vapor Extraction System (SVE): (RL- Arlene Tortoso, CHPRC –Mark Byrnes)

- The soil vapor extraction units (PW-1 and PW-2) were shutdown on November 1, 2010. The system is scheduled to be offline until March when soil vapor extraction will resume.
- The SVE System Monitoring Plan has been reviewed by DOE and EPA. Attached is a copy of the SVE Operating Monitoring Plan for CY2011 that needs signatures to allow March 1, 2011 startup.

Schedule Status: On schedule

Regulatory Agency Comments:

200-CW-5 EPA Lead (RL- Greg Sinton, CHPRC – Phil Burke)

- Final redlines to incorporate EPA comments on the FS Draft C Reissue have been provided to EPA for their review. EPA is preparing requested revisions for the discussion of how this OU fits in with the Central Plateau Cleanup Strategy, and reviewing the redlines for the rest of the document. Following resolution of comments on the redlines, the Rev 0 FS will be produced.
- Draft A of the combined CW-5 and PW-1/3/6 Proposed Plan was submitted to EPA on January 11, 2011. The scheduled comment period is 45 calendar days.

Schedule Status: On schedule

Regulatory Agency Comments:

Inner Area: Central Plateau Burial Grounds

200-SW-2 Ecology Lead (RL – Doug Hildebrand, CHPRC – Phil Burke)

**M-015-93A, Submit Revised RFI/CMS & RI/FS work plan for the 200-SW-2
OU to Ecology, 12/31/2011**

**M-015-93B, Submit RFI/CMS & RI/FS Report & Proposed CA Decision/PP for
200-SW-2 to Ecology, 12/31/2016**

- An Internal workshop was held to evaluate potential remedial investigation techniques for application to landfill characterization.
- Attended HAB Meeting to discuss draft recommend HAB Advice for landfill characterization and remediation.
- Technology experts are being consulted concerning geophysical and radiological survey approaches including data evaluation.
- Prepared and submitted draft Unused Areas Report and conducted follow up meeting with Ecology on December 9, 2010 to discuss comments and to develop a path forward for further limited site investigations and report finalization. Further review of an anomaly in 218-W-4C and another in 218-E-10 was performed via shallow hand-excavation on January 19, 2011; minor amounts of metallic debris were located.
- Activities related to the preparation of the revised Work Plan continued, including submittal of a draft annotated outline and initiated preparation of a Data Gap Analysis needed to support Work Plan.
- A meeting is scheduled with Ecology to review project status and to obtain Ecology's input on the results of the public meetings and characterization priorities.

Schedule Status: On Schedule

Regulatory Agency Comments:

Inner Area: Central Plateau Canyons and Facilities

U Plant Canyon EPA Lead (RL – Wade Woolery, CHPRC – Dottie Norman)

M-016-200A, Complete U Plant Canyon (221-U) demolition in accordance with the RD/RAWP, 9/30/2017

M-016-200B, Complete U Plant Canyon (221-U) barrier construction in accordance with the RD/RAWP, 9/30/2021

Regulatory Documents EPA Lead (RL- Wade Woolery, CHPRC – Dottie Norman / Curt Walker)

- A comment resolution meeting was held with EPA and PNNL on January 25, 2011 for the decisional draft combined 30%/60% design package for grout. All comments were accepted. The Revision 0 design package is in transmittal.
- The 90% decisional draft design package for grout is being drafted by CHPRC.
- The 90% draft design package for TK-D-10 was signed by RL on January 20, 2011. EPA provided comments on February 8, 2011.

Schedule Status: On schedule

Regulatory Agency Comments: EPA asked when the 90% designs for grouting, demolition and the cap are going to be available for the HAB RAP.

B Plant Canyon/Waste Sites Ecology Lead (RL – Naomi Bland, CHPRC – Mike Hickey)

M-85-10A, Submit RI/FS work plan for the 200-CB-10U (B Plant Canyon/associated past practice waste sites) to Ecology, 12/31/2011

- DQO discussions were held in January.
- Initiated 200-CB-1 work plan with story board session.
- Initiated data gap analysis for work plan and SAP for 200-CB-1.

Schedule Status: On schedule

Regulatory Agency Comments:

Inner Area: Central Plateau Deep Vadose Zone

200-DV-1 Ecology Lead (RL – John Morse, CHPRC – Marty Doornbos)

M-015-110A, Submit RFI/CMS & RI/FS work plan for the 200-DV-1 OU to Ecology. The work plan shall include technology screening that identifies technologies applicable for characterization, treatment, and monitoring of deep vadose zone contaminants, 9/30/2012

M-015-110B, Submit CMS & FS and PP/Proposed CA Decision for the 200-DV-1 OU to Ecology, 9/30/2015

- Completed the fourth scoping session on January 31, 2011 dealing with the Deep Vadose Zone Technology Screening.
- Began planning for the Public Information Exchange on Deep Vadose Zone Technologies.
- Completed the fifth scoping session on February 16, 2011 dealing with the preliminary Conceptual Site Model and historical waste site release information.
- Scheduled a field trip for the 200-DV-1 OU waste sites with the Agencies and others for mid-March.

Schedule Status: Submittal of the RFI/CMS & RI/FS Work Plan is on schedule.

Regulatory Agency Comments:

200-DV-1 Ecology Lead (RL – John Morse, CHPRC – Glen Chronister)

M-015-110C, Submit uranium treatment technology field test plan as an element of the RFI and RI for the 200-DV-1 OU to Ecology, 12/31/2010

Uranium Sequestration Pilot Test:

- The Uranium Sequestration Field Test Plan and Sample Analysis Plan was submitted on December 2, 2010, and then retransmitted to Ecology on December 14, 2010.

Schedule Status: Comments received on the document

Regulatory Agency Comments:

200-BC-1 EPA Lead (RL – John Morse, CHPRC – Glen Chronister)

M-015-110D, Submit technetium-99 pilot scale treatability study test report(s) as an element of the RI for the 200-BC-1/200-WA-1 OUs to EPA 6/30/2012

Desiccation Test

- The Desiccation Pilot Test was initiated on November 8, 2010 and will continue field work for the next six months. The data collection from this field work will be used to write the report that will be used to complete the objectives in milestone M-015-110D.

Schedule Status: On schedule

Regulatory Agency Comments:

BOTH INNER & OUTER AREAS

200-IS-1 Ecology Lead (RL- Doug Hildebrand, CHPRC – Phil Burke)

M-015-90, Submit Revised RFI/CMS & RI/FS work plan for 200-IS-1 to Ecology, 6/30/2011

200-EA-1 & 200-IS-1 Ecology Lead (RL- Doug Hildebrand, CHPRC – Phil Burke)

M-015-92B, Submit CMS & FS Report(s) & Proposed CA Decision(s)/PP(s) for the 200-EA-1 and 200- IS-1 OUs (Central Plateau 200 East Inner Area) to Ecology, 6/30/2014

- Developed through coordination with ORP, the rationale for defining TSD components to be addressed as part of 200-IS-1 and completed an allocation of pipelines between past practice and TSD for 200-WA-1, 200-EA-1 and Outer Area. Process is based upon identifying components that are currently listed in the SST Part A.
- Presented and reached consensus on the allocation of pipelines with ORP.
- Reached consensus on presenting the approach to the West Area Baseline Risk Assessment in the Work Plan and how the IS-1 components will be integrated.
- Met with Ecology to discuss proposed criteria for the distribution of pipelines into past practice and TSD categories along with the CERCLA/RCRA path forward for IS-1.
- Continued building comprehensive data set that includes 200-IS-1 pipelines and component physical characteristics.

- Began review of life-cycle cost assumptions and alternatives being used by MSA for IS-1 baseline estimating.
- Prepared the internal drafts of chapters 1, 2, 3, 4, 5 and Appendices A and B of the Work Plan. Activities related to the preparation of the Work Plan continued.

Schedule Status: On schedule

Regulatory Agency Comments:

RCRA Units

Hexone TSD Closure Ecology Lead (RL- Kevin Leary, CHPRC – Phil Burke)

M-037-01, Submit Revised Closure Plan to support TSD closure of the Hexone Storage and Treatment Facility (276-S-141/142) TSD unit, 12/30/2010

- The Hexone Storage and Treatment Facility Closure Plan and SAP were transmitted to Ecology for review on July 16, 2010. Comments were received from Ecology on October 15, 2010. Comment resolution has been granted via e-mail by Ecology to March 11, 2011. Based on a follow-up meeting with Ecology the LDR variance is being withdrawn and the document rewritten to consider the tanks and ancillary equipment as debris (per Ecology's e-mail of 1/26/2011).

Schedule Status: Ahead of schedule.

Regulatory Agency Comments:

Other TSD Closures

M-037-02, submit Revised Closure Plans to support TSD closure for five (5) TSD Units: 207-A South Retention Basin, 216-A-29 Ditch, 216-A-36B Crib, 216-A-37-1 Crib, and 216-B-63 Trench, 06/30/2014

M-037-03, Submit Revised Closure Plans to support TSD closure for two (2) TSD Units: 216-B-3 Main Pond system, and 216-S-10 Pond and Ditch, 4/30/2012

M-037-10, Complete Unit-Specific Closure Requirements According To The Closure Plan(s) For seven (7) TSD Units: 207-A South Retention Basin, 216-A-29 Ditch, 216-A-36B Crib, 216-A-37-1 Crib, 216-B-63 Trench, Hexone Storage and Treatment Facility (276-S-141/142), and 241-CX Tank System (241-CX-70/71/72), 9/30/2020

M-037-11, Complete unit-specific closure requirements for two (2) TSD Units; 216-B-3 Main and Pond system and 216-S-10 Pond and Ditch, 9/30/2016

CENTRAL PLATEAU OUTER AREA

200-CW-1, 200-CW-3, 200-OA-1 EPA Lead (RL – Margo Voogd, CHPRC – Mike Hickey)

M-015-38B, Submit a revised FS Report and revised PP(s) for 200-CW-1, 200-CW-3, and 200-OA-1 OUs for Waste Sites in the Outer Area of the Central Plateau to EPA, 4/30/2012

- Initiated field preparation for anticipated sampling (associated with the SAP(s)) later in the summer 2011.

Schedule Status: On schedule

Regulatory Agency Comments:

200-SW-1 Ecology Lead (RL: Kevin Leary, CHPRC – Mike Hickey)

- Ecology had reviewed the revised EA and comments incorporation is underway.
- The EA is tentatively planned to be re-issued to public in mid to late March time frame.

Schedule Status: As above.

Regulatory Agency Comments:

Field Work**Railcars Disposition EPA Lead (RL: Frank Roddy, CHPRC – Dottie Norman)**

- Revision 0 of the Removal Action Work Plan and Sampling and Analysis Plan were approved on January 27, 2011.

*The 16 railcars consist of two diesel locomotives, 11 fuel cask railcars, two tank railcars, and one flat railcar. The DOE has decided to move the 2 locomotives, the tall cask car and one 3-well cask car to the B Reactor Museum for display purposes with the understanding that it will be cost-neutral to ship to B Reactor.

Schedule Status: On schedule

Regulatory Agency Comments:**200-MG-1 EPA/Ecology Lead (RL: Frank Roddy, CHPRC – Curt Walker)**

- The SAP Rev 1 was approved by EPA and Ecology on January 10, 2011.
- Field work continues on waste sites in the Outer Area (including 216-S-19, 600-40, 600-275, 600-282, 200-W-147-PL-A, 600-65, 600-38 and 600-222).
- 600-262 Waste Site: The RAR (DOE/RL-2010-66) and WIDS Reclassification Form, with Ecology comments incorporated, will be submitted for EPA review in February 2011.
- 600-38 and 600-222 Waste Sites: The backfill concurrence forms for the waste sites were signed by EPA and the holes backfilled.
- 600-51 Waste Site: EPA has signed the Response Action Report and WIDS Reclassification Form since this site was not RTD so backfill and revegetation were not required.
- On January 20, 2011, EPA was provided the RAR (DOE/RL-2010-77) and WIDS Reclassification Form for the 600-37 Waste Site for review. Comments received from EPA on January 21, 2011. Comment resolution version of RAR anticipated to be returned in February.
- EPA went on a tour of many of the MG-1 and CW-3 waste sites on February 3.

Schedule Status: On schedule

Regulatory Agency Comments:

200-CW-3 EPA Lead (RL: Frank Roddy, CHPRC – Curt Walker)

- RTD of 216-N-1 Pond is complete. Remaining Sites Verification Package (DOE/RL-2010-64) for the 216-N-1 waste site was signed by EPA.
- Excavations of 216-N-4 Pond and 216-N-6 Pond are complete.
- On December 21, 2010, RL provided EPA with the RSVP (DOE/RL-2010-108) and WIDS Reclassification Form for the 216-N-4 Waste Site for review. EPA comments were received on January 3, 2011. Comment resolution version is anticipated to be returned in February.
- On December 27, 2010, EPA was provided with the RSVP (DOE/RL-2010-111) and WIDS Reclassification Form for the 216-N-6 Waste Site for review. EPA comments were received on January 3, 2011. Comment resolution version is anticipated to be returned in February.
- Fieldwork at the 600-286 and 600-287 pipelines was completed, and a Notification of Additional Action Taken was reviewed and approved by the EPA on December 31, 2010.

Schedule Status: On schedule

Regulatory Agency Comments:

200-BC Control Area (BCCA) EPA Lead (RL – Doug Chapin, CHPRC – Bo Wier)

- BCCA North Zone A (~ 140 acres):
 - The RTD cleanup of contaminated soil in Zone A was continued. As of the week of February 14, 2011, ~334,000 tons over ~140 cumulative acres excavated (100% acres complete) have been disposed of at ERDF. Zone A CERCLA post-soil removal verification measurements using a large crystal sodium iodide detector mounted on a Kubota utility vehicle were continued. Survey measurements have been completed for approximately 75% of the area.
 - On January 28, 2011, the selected revegetation vendor began performing the interim stabilization/reseeding according to the revegetation plan of the remediated portion of Zone A. Revegetation of approximately 75 acres have been completed to date. The work is being aligned with the Hanford site-wide guidance plan on re-vegetation, pending its issuance.
- BCCA North Zone B (~3,660 acres): Approximately 10,000 tons (over ~8 acres, cumulative) of ~19,500 tons (~15 acres) of excavated hot spots (RTD) of contaminated soil have been disposed of at ERDF to date. Approximately 1,683 acres, cumulative, have been radiologically downposted to date. CHPRC has suspended their work in Zone B due to the additional extent of hot spot contamination potentially to be cleaned up and funding issues to be resolved with RL.
- BCCA South Zone C: Radiological contamination has been characterized, an ecological survey has been completed, and a cultural survey has been

- completed to conclude preparation activities prior to the performing the potential cleanup of Zone C. However, discussion between RL, the regulators, and CHPRC on the proposed regulatory approach to do this cleanup, along with any additional CERCLA and other regulatory documents that would be required, remains on hold until additional funding becomes available.
- BCCA SAP, Post-Removal Action Verification Sampling for BCCA North "Hot Spot (Discontinuation)" Contamination Areas: Planning discussion was continued between RL and CHPRC to revise the proposed SAP text and incorporate it as an appendix to the current draft SAP for the supplemental characterization of selected 200-CW-1, 200-CW-3, and 200-OA-1 OU Waste Sites. This draft SAP is currently in internal CHPRC review with a decisional draft planned for submittal to RL for review in late February 2011. This reflects that BCCA (Waste Site UPR-200-E-83) was moved from the 200-UR-1 OU (no longer exists) to the 200-OA-1 (Outer Area) OU, per TPA Change No. C-09-07, approved in late March 2010. Consequently, the draft TPA-CN-386, currently under regulator review, for an earlier approach of including the subject SAP under the former 200-UR-1 OU, will be withdrawn since it is no longer needed.

Schedule Status: On schedule

Regulatory Agency Comments:

Multi-Increment Sampling Ecology Lead (RL – Frank Roddy, CHPRC –)

- The first site of MIS verification sampling is complete. All samples have been delivered to Ecology. Discussion of a second site (heterogeneous) is continuing.

Regulatory Agency Comments:

Risk Assessment

Central Plateau Ecological Risk Assessment EPA/Ecology Lead (RL – Jim Hansen, CHPRC – John Lowe)

- SAP and sampling design for collection of ecological data for site-wide PRG development (with a focus on supporting the schedule for River Corridor RI/FSs) is being completed. SAP development was discussed with Tri-Parties during February 2, 2011 SEC Ecological PRG Workgroup Meeting.
- Met with Tri-Parties at the February 2, 2011 Ecological PRG Workgroup Meeting to discuss comments on the draft bioinvasion report (CHPRC-00651), and to discuss how bioinvasion needs to be addressed in the context of the RI/FS process.
- Coordinated with WCH on development of literature-based PRGs for plants and soil invertebrates both for incorporation into the RCBRA and for site-wide use.

Schedule Status:

Regulatory Agency Comments:

CENTRAL PLATEAU GROUNDWATER

200-ZP-1 Interim Action and 200-PW-1 SVE EPA Lead (RL – Arlene Tortoso, CHPRC – Mark Byrnes)

- Twelve of fourteen groundwater extraction wells are online pumping water at 418 gpm. Extraction well #5 is being kept offline due to low flow. Extraction well 4 is offline due to a small leak that needs to be repaired.
- Extraction wells 299-W11-45 and 299-W11-46 are online pumping water to ETF at a pumping rate of approximately 40 gpm.

Schedule Status: On schedule.

Regulatory Agency Comments:

200 West Area GW Treatment Facility EPA Lead (RL – Arlene Tortoso, CHPRC – Mark Byrnes)

M-016-124, Submit 200-ZP-1 Remedial Design Report, 8/31/2010

M-016-122, Begin Phase 1 Operation of 200W Pump and Treat System, 12/31/2011

- Project milestone this week: All slab on grade pours complete February 10, 2011. Approximately 8,900 cubic yards. Concrete total continues to rise with pours initiated for equipment pads bringing the project to date to total to approximately 9,294 cubic yards have been placed.

- Process piping rough in and translucent panel installation continues in both of the main buildings (Radiological and Bio Process Building).
- Installation of the fire protection well and dry systems continue in the Bio Process Building. Chemical room concrete/masonry (CMU) wall installation initiated.
- Wall sheeting and insulation approximately 50% complete on the Bio Process Building.

Schedule Status: On schedule.

Regulatory Agency Comments: EPA tours the construction site regularly to observe progress.

200-UP-1 EPA Lead (RL – Naomi Bland, CHPRC – Curt Wittreich)

M-015-17A, Submit a 200-UP-1 RI and FS Report and PP to EPA, 9/30/2010

- The Draft A 200-UP-1 OU RI and FS Report and Proposed Plan was transmitted to the regulators on September 27, 2010 meeting TPA Milestone M-15-17A. Comments on the RI and FS Report and Proposed Plan were received from EPA on December 7, 2010 and January 20, 2011, respectively. A meeting was held with EPA on January 28, 2011 to resolve regulator comments, which are being incorporated into the documents.
- The existing pump in Well 299-W19-36 (1 of 2 wells in the U Plant P&T extraction system) failed. Well productivity for both extraction wells has diminished (2 to 4 gpm each), although a substantial amount of effort has recently been expended to try to rehabilitate the wells. An evaluation of the interim remedy is underway.

Schedule Status: M-015-17A completed

Regulatory Agency Comments:

S/SX Tank Farm Interim Action EPA/Ecology Lead (RL – John Morse, CHPRC – Curt Wittreich)

M-016-120, GW Treatment System <50 gpm for Tc-99 Plume at S/SX Tank Farm, 12/31/2011

- Construction of the WMA S-SX extraction system continued.
- Completed the regulator review of the Sampling and Analysis Plan (SAP) for S-SX extraction and monitoring wells. EPA comments received were incorporated into the Rev.0 SAP, which is currently undergoing final approvals.

Schedule Status: Construction of the extraction system is currently ahead of schedule.

Regulatory Agency Comments:

200-BP-5, PO-1 Ecology Lead (RL – John Morse, CHPRC – Curt Wittreich)
M-015-21A, Submit a 200-BP-5 and 200-PO-1 OU FS Report and PP(s) to Ecology, 12/31/2012

- Preparing the 200-BP-5 RI Report.
- The Draft A 200-PO-1 RI Report was transmitted to the Regulators on June 10, 2010 for review. No comments have been received to date. A meeting was held November 22, 2010 for Ecology to discuss general comments/concerns, at which time, Ecology provided a draft comment set. Final Ecology comments are pending.

Schedule Status: 200-BP-5 and 200-PO-1 FS Report and PP are on schedule.

Regulator Comments

200-BP-5 Ecology Lead (RL – John Morse, CHPRC – Curt Wittreich)

M-015-82A, Submit Treatability Test Plan as Amendment of 200-BP-5 WP, 12/31/2010

M-015-82B, Initiate 200-BP-5 Aquifer Tests Within 6 months of TTP Approval, approval of TPP + 6 months

- The final 200-BP-5 Treatability Test Plan was approved by Ecology on January 20, 2011.
- Initiated design of the 200-BP-5 extraction system, and the procurement process for the planned extraction well and monitoring well.

Schedule Status: M-015-82A completed.

Regulatory Agency Comments:

Well Decommissioning EPA/Ecology Lead (RL – Frank Roddy)

	January		Cumulative	
	Planned	Completed	Planned	Completed
Decommissioning Total	13	2	226	188

Schedule Status: Continuing with plans to decommission another 175 wells with ARRA funding for a total of 350 wells, although the ARRA commitment is 280.

Regulatory Agency Comments:

FUTURE SCOPE (out-year TPA milestones)

PUREX Canyon/Waste Sites *Ecology Lead* (RL – Frank Roddy, CHPRC – Mike Hickey)

M-85-20A, Submit RI/FS Work Plan for 200-CP-1 OU (PUREX Canyon/associated past practice waste sites) to Ecology, 9/30/2015

REDOX Canyon/waste sites *EPA Lead* (RL – Naomi Bland, CHPRC – Mike Hickey)

M-85-30A, Submit RI/FS Work Plan for 200-CR-1 OU (REDOX Canyon/associate past practice waste sites) to EPA, 12/31/2017

224B Concentration Facility *EPA Lead* (RL- Kevin Leary, CHPRC – Curt Walker)

M-085-50, Submit revised removal action work plan for the 224B Concentration Facility in accordance with the Action Memorandum for the Non-Time Critical Removal Action for the 224-B Plutonium Concentration Facility (DOE/RL-2004-36). A change package with a completion milestone will accompany the submittal of the work plan. 12/31/2015

224T Transuranic Storage and Assay Facility *Ecology Lead* (RL- Kevin Leary, CHPRC – Curt Walker)

M-085-51, Submit removal action work plan for the 224T Transuranic Storage and Assay Facility in accordance with the Action Memorandum for the Non-Time-Critical Removal Action for the 224-T Plutonium Concentration Facility (DOE/RL-2004-68). A change package with a completion milestone will accompany the submittal of the work plan. 12/31/2025

EE/CA Report(s) *EPA & Ecology Lead* (RL – Doug Chapin, CHPRC, Dottie Norman)

M-85-60, Complete EE/CA report(s) for all Tier 2 facilities listed in Appendix J, 3/31/2018

- 200 East Area Tier 2 Facilities EE/CA:
 - The Action Memo (Draft A) was provided to the regulators for their review on February 03, 2011. Disposition of comments on the document were completed. Action Memo was approved February 17, 2011.
 - Decisional drafts of the 209-E RAWP and 209-E SAP documents are being prepared to support the beginning of joint review between RL, the regulators, and CHPRC, by the end of week of February 14, 2011.
- 200 West Area Tier 2 Facilities EE/CA: Planning continues with schedule details to follow.

GW Plumes EPA/Ecology Lead (RL – John Morse)

**M-016-119-T01, Remedy in Place to Contain GW Plumes in 200 NPL Area,
12/31/2020**

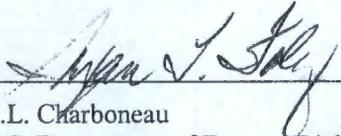
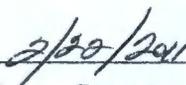
- Draft Annual Report provided to EPA and Ecology.

Schedule Status: TBD

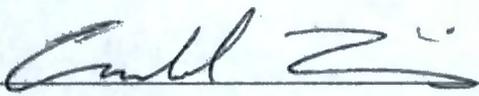
Regulatory Agency Comments:

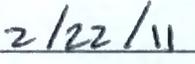
APPROVAL OF CARBON TETRACHLORIDE EXPEDITED RESPONSE
ACTION SOIL VAPOR EXTRACTION SYSTEM MONITORING AND
OPERATING PLAN FOR CY 2011

The project managers for the Carbon Tetrachloride Expedited Response Action
(200-PW-1 Operable Unit) approve the attached calendar year 2011 soil vapor extraction system
monitoring and operating plan.

 *acting for RL-30 PPD* 

B.L. Charboneau
U.S. Department of Energy, Richland Operations Office
Date



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

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

Contents

1	Summary	1
2	Soil Vapor Extraction System Configuration	2
3	Soil Vapor Extraction Operating Plan	4
	3.1 Scope.....	4
	3.2 216-Z-1A Extraction Wells.....	7
	3.3 216-Z-9 Extraction Wells.....	8
	3.4 Sampling at Extraction Wells.....	8
	3.5 Data Management and Reporting.....	8
4	Vadose Zone Monitoring Plan	10
	4.1 Summary.....	10
	4.2 Purpose and Objectives.....	10
	4.3 Scope and Methods.....	11
	4.4 Data Management.....	15
	4.5 Data Reporting.....	16
	4.6 Quality Assurance/Quality Control.....	16
5	Waste Management	16
6	References	18

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

Figures

Figure 1. Location of SVE and Monitoring Wells at the 216-Z-1A/Z-18/Z-12 and 216-Z-9 Sites 9
Figure 2. Location of Wells and Probes Selected for Nonoperational Monitoring and Passive
SVE Monitoring 17

Tables

Table 1. Differences Between SVE System Supporting Documentation and Current
Configuration 3
Table 2. Wells Available for SVE System Operations at the 216-Z-1A/Z-18/Z-12 Site, March
Through September 2011 5
Table 3. Wells Available for SVE System Operations at the 216-Z-9 Site, March Through
September 2011 6
Table 4. Passive SVE Wells at the 216-Z-1A/Z-18/Z-12 Site, CY 2011 7
Table 5. Sampling Data to Be Collected During SVE System Operations, March Through
September 2011 10
Table 6. Wells and Probes Selected for Nonoperational Monitoring and Passive
SVE Monitoring 11
Table 7a. Nonoperational Wells and Soil Vapor Probes Selected for Monitoring at the
216-Z-9 Site During SVE System Operations, March Through September 2011 12
Table 7b. Nonoperational Wells and Soil Vapor Probes Selected for Monitoring at the
216-Z-1A/Z-18/Z-12 Site During SVE System Operations, March Through
September 2011 13
Table 8. Distribution of Selected Monitoring Locations at the 216-Z-1A/Z-18/Z-12 and 216-Z-
9 Sites During Temporary Suspension of SVE System Operations, November 2010
Through February 2011 15
Table 9. Distribution of Selected Monitoring Locations at the 216-Z-1A/Z-18/Z-12 and 216-Z-
9 Sites During SVE Operations, March Through September 2011 16

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

1 Summary

Soil vapor extraction (SVE) will be used at the 200-PW-1 Operable Unit (OU) from March through September 2011 to remove carbon tetrachloride from the vadose zone. The primary objectives for this remediation are protection of the groundwater and mass removal. Two 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 startup at each site based on vapor monitoring, previous concentration trends, and location. The SVE operating plan for both sites is 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 combination of on-line wells may be reconfigured during operations to optimize removal. These adjustments to the combination of on-line wells will not be submitted to the project managers for approval prior to implementation but rather will be reported in the annual Hanford Site groundwater monitoring report.

Ongoing passive SVE will be maintained at the Z-1A wells. Passive SVE 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 to the subsurface. The passive SVE 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 in this operating plan for approval prior to implementation. Anomalies in the monitoring results will be reported to the project managers. 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 determine the appropriate response to mitigate the problem (e.g., relocating the vapor extraction system to address the issue).

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

- **March 1,2011 through September 30,2011:** Operate one SVE system at the Z-1A site and one SVE system at the Z-9 site.
- **November 1,2010 through December 31,2011:** Monitor soil vapor concentrations at the Z-1A and Z-9 site.

The fiscal year (FY) 2010 SVE operating plan included operations and monitoring through October 2010. The monitoring and operating plan for 2011 will include monitoring during November and December 2010. Subsequent monitoring and operating plans will cover the CY period of January through December.

The SVE operations may be initiated as early as March 1,2011 to ensure that both systems are able to maintain full-time operations to begin in March 2011.

The SVE system(s) will be re-tasked at the Z-9 site during the months of July through September to support field testing of characterization methods proposed by a technical working group funded by the U.S. Department of Energy (DOE) Headquarters' 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 describing the testing activities was approved by the DOE Richland Operations Office (RL) and the U.S. Environmental Protection

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

Agency (EPA) in September 2010 (DOE/RL-2010-79, *Treatability Test Plan for Characterization of Vadose Zone Carbon Tetrachloride Source Strength Using Tomographic Methods at the 216-Z-9 Site*). The SVE system at the Z-9 site will operate normally from March 1 through June 30. On July 5, all extraction wells to be used in the treatability test will be connected to sweep the unsaturated interval beneath the site. The treatability test will begin on August 15, and individual wells will be alternatively connected to the extraction unit as the surrounding wells are monitored. The treatability test will continue through mid-September, after which time the system will return to normal operations until shutdown for the calendar year (CY) at the end of September. The SVE system at the Z-1A site will operate normally.

The SVE system is being used to remediate carbon tetrachloride in the vadose zone in accordance with the *Action Memorandum: Expedited Response Action Proposal for 200 West Area Carbon Tetrachloride Plume* (EPA and Ecology, 1992), issued by EPA and the Washington State Department of Ecology (Ecology) in January 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 OU project managers, consistent with *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) Change Control Form Number M-15-97-01, "Revised 200-ZP-2 Rebound Study Restart" (Ecology and DOE-RL, 1997)

2 Soil Vapor Extraction System Configuration

Two 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 in the 200 West Area. The extraction wells are located near waste sites in the 200-PW-1 OU 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, such as follows.

- Each filter skid includes a filter, valves, and manifolds for connection to process lines.
- Each process trailer is divided into two sections that are separated by a dividing wall. The rear section (approximately three-quarters 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 and an operator interface computer for control, monitoring, and data logging; a gas chromatograph analyzer for measuring VOC concentrations in soil vapor; and electrical distribution equipment. The SVE control and monitoring system also includes local instrumentation, distributed controls, and interlocks to monitor and control system parameters.
- Two GAC canisters are located outside the process trailer and are connected to it by flexible hoses with quick-disconnect fittings. The GAC in each canister adsorbs the VOCs from the extracted soil vapor.

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

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 is then exhausted out of the stack.

Table 1 summarizes the configuration differences between the SVE system(s) as described in supporting documentation and as configured for CY 2011 operations.

Table 1. Differences Between 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. Sample filter paper will 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), which is important to eliminate any decomposition of carbon tetrachloride.	Current interlock shuts down blower if temperature exceeds 275°F. Undesirable byproducts are formed at 400°F. Current 275°F set point provides an adequate margin of safety and will be maintained.

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

Table 1. Differences Between SVE System Supporting Documentation and Current Configuration

Affected Components	Reference	Supporting Documentation Requirements	Current Status and Justification
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 ~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.
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.

^a BHI-00395, *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, *Safety Analysis for the 200 West Area Expedited Response Action for Remediation of Carbon Tetrachloride* (May 1995).

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

3 Soil Vapor Extraction Operating Plan

3.1 Scope

Twenty-nine wells at the 216-Z-1A, 216-Z-18, and 216-Z-12 site (Z-1A site) are identified for potential SVE (Table 2). Twenty-nine wells at the 216-Z-9 site (Z-9 site) are identified for potential vapor extraction (Table 3). Selected wells will be prepared to be connected to the SVE system in late February 2011 to support full-time SVE operations from March through September 2011.

The last nonoperational soil vapor monitoring prior to SVE restart will take place in mid- to late February 2011. At that time, any sampling tubes will be removed from potential on-line wells. The current wellhead assemblies (configured for nonoperational soil vapor monitoring) will not be disturbed until monitoring has been completed and the tubing has been removed.

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

**Table 2. Wells Available for SVE System Operations
at the 216-Z-1A/Z-18/Z-12 Site, March Through September 2011**

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	

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

**Table 2. Wells Available for SVE System Operations
at the 216-Z-1A/Z-18/Z-12 Site, March Through September 2011**

Potential On-Line Wells	Reason	Initial Wells
299-W18-252U	Mass removal	
299-W18-253	Mass removal	

**Table 3. Wells Available for SVE System Operations
at the 216-Z-9 Site, March Through September 2011**

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	

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

Table 3. Wells Available for SVE System Operations at the 216-Z-9 Site, March Through September 2011

Potential On-Line Wells	Reason	Initial Wells
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	

3.2 216-Z-1A Extraction Wells

Passive SVE is being conducted at the following Z-1A site 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 4).

Table 4. Passive SVE Wells at the 216-Z-1A/Z-18/Z-12 Site, CY 2011

Passive SVE 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

For initial startup operations at the Z-1A site, extraction will be implemented at five planned intervals in the 216-Z-1A Tile Field: 299-W18-165, 299-W18-166, 299-W18-167, 299-W18-168, and 299-W18-174 (Table 2) (Figure 1). Startup operations in FYs 2001, 2002, 2003, 2004, 2005, 2008, 2009, and 2010 were also initiated using these five extraction intervals (a sixth interval selected in FY 2001 produced virtually no flow). In FY 2006 and FY 2007, startup operations were initiated using three of these wells.

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

Selecting the same set of initial wells will allow the rebound in CY 2011 to be compared to the rebound in previous years.

The combination 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 located closer to the primary carbon tetrachloride source (the 216-Z-1A Tile Field), and wells added later will expand operations away from this source.

3.3 216-Z-9 Extraction Wells

For initial startup operations at the Z-9 site, extraction will be implemented at four planned intervals: 299-W15-9U, 299-W15-9L, 299-W15-82, and 299-W15-217 (Table 3) (Figure 1). Startup operations at the Z-9 site in FYs 1998, 1999, 2001, 2002, 2004, 2006, 2007, 2009, and 2010 were also 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 CY 2011 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 combination 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 located closer to the carbon tetrachloride source (216-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 in FY 2008 and will be prioritized for use in CY 2011. Three narrow-diameter wells (C4937, C4938, and C5340), which were installed south of the Z-9 site in FY 2007, and the Z-9 slant well (299-W15-48), which was installed beneath the Z-9 site in FY 2006, will also be prioritized for use in CY 2011.

3.4 Sampling at Extraction Wells

The initial extraction intervals will be sampled on the first day of operations for the parameters listed in Table 5. 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 combination of on-line wells should be modified. At the request of the 200-PW-1 OU SVE technical lead, the 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 combination of on-line wells.

3.5 Data Management and Reporting

The 200-PW-1 OU SVE technical lead organizes and maintains spreadsheets of the sampling data using a desktop computer. The sampling data will be summarized in the Hanford Site annual groundwater report.

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

Table 5. Sampling Data to Be Collected During SVE System Operations, March Through September 2011

Date	Time		Well/ Interval	Vacuum at Wellhead (in water)	Flow (cfm)	CCl ₄ , carbon tetrachloride (ppmv)	CHCl ₃ , chloroform (ppmv)	CH ₂ Cl ₂ , methylene chloride (ppmv)	MEK, methyl ethyl ketone (ppmv)
	SVE Start	Sample Measurement							

Note: Fax copy of sampling records to 200-PW-1 OU technical lead by the end of the day following sampling.

4 Vadose Zone Monitoring Plan

4.1 Summary

This plan describes nonoperational monitoring and passive SVE monitoring to be conducted during the period from November 2010 through December 2011 for the 200 West Area carbon tetrachloride expedited response action for the 200-PW-1 OU. Nonoperational monitoring will be conducted at both the 216-Z-9 (Z-9) and the 216-Z-1A/Z-18/Z-12 (Z-1A) sites; passive SVE monitoring will be conducted at the Z-1A site.

4.2 Purpose and Objectives

The purpose of nonoperational 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 (i.e., are nonoperational).

The objectives for monitoring the nonoperational wells and soil vapor probes are as follows:

- Measure carbon tetrachloride concentrations and trends near the vadose/atmosphere and vadose/groundwater interfaces to evaluate whether nonoperation of the SVE system is negatively impacting the atmosphere or groundwater.
- Remain 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.

If carbon tetrachloride vapor concentrations increase such that the carbon tetrachloride contamination may impact human health or the environment (including groundwater), the unit managers will be notified and will determine the appropriate response to mitigate the problem (e.g., relocating the SVE systems to address the issue).

The objectives of monitoring the passive SVE system wells, which are all open near the vadose/groundwater interface, are as follows:

- Measure carbon tetrachloride concentrations and trends near the vadose/groundwater interface.
- Quantify the mass of carbon tetrachloride removed using this technology.

Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011

4.3 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 SVE system. The wells and probes selected for monitoring from November 2010 through February 2011 (while SVE operations are temporarily suspended) are shown in Table 6. The wells and probes selected for monitoring from March 2011 through December 2011 (while the SVE systems are operating) are shown in Table 7a for the Z-9 site and in Table 7b for the Z-1A site.

Table 6. Wells and Probes Selected for Nonoperational Monitoring and Passive SVE Monitoring

Target Zone	Z-9 ^a	Depth (m)	Comment	Z-1A ^a	Depth (m)	Comment
Near surface	CPT-17 10 ft (blue)	3	Southwest of Z-9	CPT-32 25 ft (green)	8	West of Z-1A
Near surface	CPT-16 25 ft (blue)	8	East of Z-9	CPT-13A 30 ft (blue)	10	Southeast of Z-1A
Near surface	CPT-27 33 ft (red)	10	Southeast of Z-9	CPT-7A 32 ft (yellow)	10	Far field northeast of Z-1A
Near surface	CPT-18 35 ft (blue)	11	Northwest of Z-9	CPT-1A 35 ft (black)	11	West of Z-12
Near surface	CPT-9A 60 ft (blue)	18	Far field north of Z-9	CPT-30 48 ft (blue)	15	North of Z-18 (middle of Z-1A/ Z-18/Z-12 field)
Near surface	CPT-21A 65 ft (green)	20	South of Z-9	CPT-C3872	19	East side of Z-1A
Near surface	C4937	20	South of Z-9	---	---	---
Near surface	C4938	20	South of Z-9	---	---	---
Near surface	C5340	20	South of Z-9	---	---	---
Cold Creek	W15-82	25	East side of Z-9	W18-165	33	Within Z-1A
Cold Creek	CPT-21A 86 ft (red)	26	South of Z-9	W18-152	34	Northwest corner of Z-12
Cold Creek	CPT-28 87 ft (red)	27	Far field south of Z-9	W18-167	37	Within Z-1A
Cold Creek	W15-8U	31	South of Z-9	W18-249	41	Northeast corner of Z-18
Cold Creek	W15-217	35	Southwest corner of Z-9	W18-248	41	East side of Z-1A

Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011

Table 6. Wells and Probes Selected for Nonoperational Monitoring and Passive SVE Monitoring

Target Zone	Z-9 ^a	Depth (m)	Comment	Z-1A ^a	Depth (m)	Comment
Cold Creek	W15-95L	44	North side of Z-9	---	---	---
Ground-water	W15-8L	55	South of Z-9	W18-247L ^b	51	Southeast of Z-18
Ground-water	W15-9L	57	North of Z-9, 11 m from W15-32 extraction well	W18-246L ^b	52	West of Z-1A
Ground-water	---	---	---	W18-252L ^b	53	West of Z-1A (middle of Z-1A/Z-18/Z-12 field)
Ground-water	---	---	---	W18-10L ^b	55	East side of Z-18
Ground-water	---	---	---	W18-7 ^b	57	East side of Z-1A
Ground-water	---	---	---	W18-6L ^b	60	West side of Z-1A
Ground-water	---	---	---	W18-11L ^b	60	Z-18
Ground-water	---	---	---	W18-12 ^b	60	Z-18

- a. Colors noted refer to color coding on the soil vapor probe tubing.
b. Passive SVE wells.

Table 7a. Nonoperational Wells and Soil Vapor Probes Selected for Monitoring at the 216-Z-9 Site During SVE System Operations, March Through September 2011

Target Zone	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	Far field south of Z-9

Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011

Table 7a. Nonoperational Wells and Soil Vapor Probes Selected for Monitoring at the 216-Z-9 Site During SVE System Operations, March Through September 2011

Target Zone	Z-9 Site*	Depth (m)	Comment
Near surface	CPT-9A 60 ft (blue)	18	Far field 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	Far field south of Z-9
Cold Creek unit	CPT-24 118 ft (red)	36	Northwest of Z-9

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

Table 7b. Nonoperational Wells and Soil Vapor Probes Selected for Monitoring at the 216-Z-1A/Z-18/Z-12 Site During SVE System Operations, March Through September 2011

Target Zone	Z-1A Site ^a	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	Far field 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-C387 62.5 ft	19	East side of Z-1A

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

Table 7b. Nonoperational Wells and Soil Vapor Probes Selected for Monitoring at the 216-Z-1A/Z-18/Z-12 Site During SVE System Operations, March Through September 2011

Target Zone	Z-1A Site ^a	Depth (m)	Comment
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 ^b	51	Southeast of Z-18
Groundwater	299-W18-246L ^b	52	West of Z-1A
Groundwater	299-W18-252L ^b	53	Middle of Z-1A/Z-18/Z-12 field
Groundwater	299-W18-10L ^b	55	East side of Z-18
Groundwater	299-W18-7 ^b	60	East side of Z-1A
Groundwater	299-W18-11L ^b	60	Within Z-18
Groundwater	299-W18-12 ^b	60	Within Z-18
Groundwater	299-W18-6L ^b	63	West side of Z-1A

a. Colors noted refer to color coding on the soil vapor probe tubing.

b. Passive SVE wells.

Eight of the nonoperational wells have a passive SVE system installed at the wellhead. Passive extraction wells will vent through above-ground canisters containing GAC. The carbon tetrachloride vapor concentration will be monitored both upstream and downstream of the GAC.

For monitoring the nonoperational soil vapor probes and wells and the passive extraction wells, the components of this scope are as follows:

- Collect soil vapor samples in Tedlar[®] bags for field screening.
- Analyze soil vapor samples for carbon tetrachloride using a field screening instrument (Brüel & Kjaer)[™] 1302 multi-gas analyzer).
- Evaluate concentration trends and report anomalous results to 200-PW-1 OU project managers.
- Include the results in annual reports.

Tedlar[®] is a registered trademark of E.I. du Pont de Nemours and Company, Wilmington, Delaware.
Brüel & Kjaer[™] is a trademark of Brüel & Kjaer, S&V, Nærum, Denmark.

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

4.3.1 Duration

Nonoperational monitoring and passive SVE monitoring will be conducted from November 2010 through December 2011 during CY 2011. (The FY 2010 SVE operating plan included monitoring through October 2010.)

4.3.2 Monitoring Frequency

Monitoring will be conducted monthly.

4.3.3 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 6, and Tables 7a and 7b). These monitoring locations may be revised by the 200-PW-1 OU SVE technical lead based on developing trends, accessibility, and/or recommendations of the sampler. The 200-PW-1 OU project managers will be advised of any changes to monitoring locations. The distribution of selected monitoring locations is summarized in Tables 8 and 9. The monitoring locations are shown in Figures 1 and 2.

4.4 Data Management

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

Table 8. Distribution of Selected Monitoring Locations at the 216-Z-1A/Z-18/Z-12 and 216-Z-9 Sites During Temporary Suspension of SVE System Operations, November 2010 Through February 2011

Target Zone	Number of Monitoring Locations		
	Z-1A	Z-9	Total
Near surface (3 to 25 m bgs)	6	9	15
Cold Creek unit (25 to 45 m bgs)	5	6	11
Groundwater (50 to 65 m bgs)	8*	2	10
Total	19	17	36

* Eight available monitoring locations near the vadose/groundwater interface in the 216-Z-1A area are monitored as part of the passive SVE system network.

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

**Table 9. Distribution of Selected Monitoring Locations at the 216-Z-1A/Z-18/Z-12
and 216-Z-9 Sites During SVE Operations, March Through September 2011**

Target Zone	Number of Monitoring Locations		
	Z-1A	Z-9	Total
Near surface (3 to 25 m bgs)	12	9	21
Cold Creek unit (25 to 45 m bgs)	0	3	3
Groundwater (50 to 65 m bgs)	8*	0	8
Total	20	12	32

* Eight available monitoring locations near the vadose/groundwater interface in the 216-Z-1A area are monitored as part of the passive SVE system network.

4.5 Data Reporting

All field screening data and associated quality control data are maintained by the project scientist in electronic files. The 200-PW-1 OU project managers will be advised of any anomalous results or new trends, which are based on comparison with the results of previous carbon tetrachloride monitoring and evaluation by the 200-PW-1 OU technical lead.

4.6 Quality Assurance/Quality Control

Quality assurance/quality control requirements for sampling and analysis will be conducted at a level appropriate to field screening for VOCs in accordance with the environmental quality assurance plan internal to 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 for the vapor samples.

5 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*.

*Carbon Tetrachloride Expedited Response Action Soil Vapor Extraction System
Monitoring and Operating Plan for CY 2011*

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