

Please distribute to the following:

100/300 AREA UNIT MANAGER MEETING ATTENDANCE AND DISTRIBUTION

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French, Mark	Mark.French@rl.doe.gov	A6-38	DOE
Menard, Nina	NMEN461@ECY.WA.GOV	H0-57	ECO
Faulk, Dennis	Faulk.Dennis@epa.gov	A3-46	EPA
Hadley, Karl A	karl.hadley@wch-rcc.com	H4-21	WCH

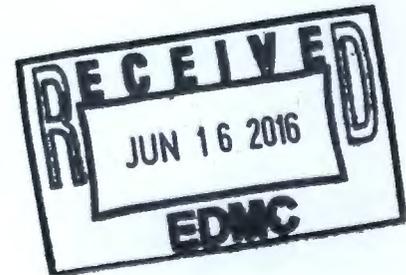
NOTE FOR ADMIN RECORD:

TPA Milestones

M-015-79
M-016-00C
M-016-143
M-016-173
M-016-175
M-016-176
M-016-177
M-016-178
M-016-181
M-016-186
M-093-27
M-093-28

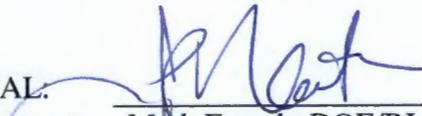
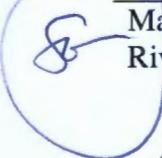
Operable Units

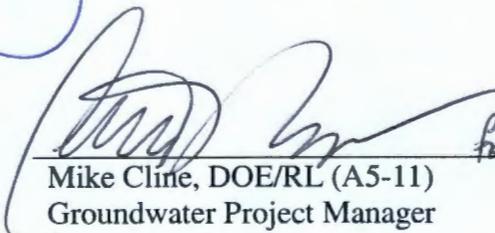
100-BC-1
100-BC-2
100-BC-5
100-FR-3
100-HR-3
100-IU-2
100-IU-6
100-KR-4
100-NR-2
300-FF-5

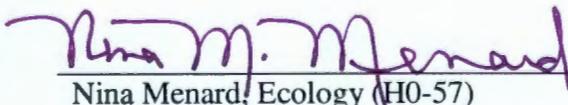


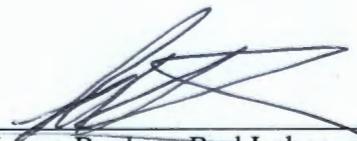
100/300 AREA UNIT MANAGERS MEETING
APPROVAL OF MEETING MINUTES

May 12, 2016

APPROVAL:  Date 6/13/16
 Mark French, DOE/RL (A6-38)
River Corridor Project Manager

APPROVAL:  for MC Date 6-9-16
Mike Clife, DOE/RL (A5-11)
Groundwater Project Manager

APPROVAL:  Date 6-9-16
Nina Menard, Ecology (H0-57)
Environmental Restoration Project
Manager

APPROVAL:  Date 6-9-16
Laura Buelow, Rod Lobos, or Christopher
Guzzetti, EPA (B1-46)
100 Area Project Manager

100 & 300 AREA UNIT MANAGER MEETING MINUTES

Groundwater and Source Operable Units; Facility Deactivation, Decontamination, Decommission, and Demolition (D4); Interim Safe Storage (ISS); Field Remediation (FR); Mission Completion; and 100-K Sludge Treatment Project and 100-K Facility Demolition and Soil Remediation Projects

May 12, 2016

ADMINISTRATIVE

- Next Unit Manager Meeting (UMM) – The next meeting will be held June 9, 2016, at the Washington Closure Hanford (WCH) Office Building, 2620 Fermi Avenue, Room C209.
- Attendees/Delegations – Attachment A is the list of attendees. Representatives from each agency were present to conduct the business of the UMM.
- Approval of Minutes – The April 14, 2016, meeting minutes were approved by the U.S. Environmental Protection Agency (EPA), Washington State Department of Ecology (Ecology), and U.S. Department of Energy, Richland Operations Office (RL).
- Action Item Status – The status of action items was reviewed and updates were provided (see Attachment B).
- Agenda – Attachment C is the Regular Session meeting agenda.

EXECUTIVE SESSION (Tri-Parties Only)

An Executive Session was not held by RL, EPA, and Ecology prior to the May 12, 2016, UMM.

100-K AREA (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides status and information for groundwater. Attachment 2 provides a status of the 100-K Sludge Treatment Project and the 100-K Facility Demolition and Soil Remediation projects. No issues were identified and no agreements were documented.

Action 1: Provide a status on SGW-59118, "Technical Basis for field-Filtering Groundwater Samples for Hexavalent Chromium Analysis," at the June 2016 Unit Managers Meeting.

100-B/C AREA (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides status and information for groundwater. Attachment 3 provides status and information for Washington Closure Hanford (WCH) Closure Operations activities at the 100 Areas, 618-10, and the 300 Area. Attachment 4 provides the Field Remediation schedule for the 100 Areas, 100-IU-2/6, and the 300 Area. No issues were identified and no agreements or action items were documented.

100-N AREA (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides status and information for groundwater. Attachment 3 provides status and information for WCH Closure Operations activities at the 100 Areas, 618-10, and the 300 Area. Attachment 4 provides the Field Remediation schedule for the 100 Areas, 100-IU-2/6, and the 300 Area. No issues were identified and no agreements or action items were documented.

100-D & 100-H AREAS (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides status and information for groundwater. Attachment 3 provides status and information for WCH Closure Operations activities at the 100 Areas, 618-10, and the 300 Area. Attachment 4 provides the Field Remediation schedule for the 100 Areas, 100-IU-2/6, and the 300 Area. No issues were identified and no action items were documented.

Agreement 1: Attachment 5 provides Ecology's concurrence that no backfill is required at the 600-385 waste site as its appearance follows the shape of a ravine typical in the area.

100-F & 100-IU-2/100-IU-6 AREAS (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides status and information for groundwater. Attachment 3 provides status and information for WCH Closure Operations activities at the 100 Areas, 618-10, and the 300 Area. Attachment 4 provides the Field Remediation schedule for the 100 Areas, 100-IU-2/6, and the 300 Area. No issues were identified and no action items were documented.

Agreement 1: Attachment 6 provides an EPA and DOE approved Tri-Party Agreement change notice TPA-CN-676 to update the *Sampling and Analysis Plan for Aquifer Sampling Tubes*, DOE/RL-2000-59, Revision 1, by changing Appendix A, Table A-1 and Table A-2 to remove aquifer tubes in the 100-FR-3 and 300-FF-5 Operable Units (OUs) because new OU-specific Sampling and Analysis Plans (DOE/RL-2014-42 and DOE/RL-2014-44-ADD2) supersede requirements for those aquifer tubes.

300 AREA – 618-10/11 (GROUNDWATER, SOILS)

Attachment 3 provides status and information for WCH Closure Operations activities at the 100 Areas, 618-10, and the 300 Area. No issues were identified and no agreements or action items were documented.

300 AREA - GENERAL (GROUNDWATER, SOILS, D4/ISS)

Attachment 1 provides status and information for groundwater. Attachment 3 provides the 100 Areas, 618-10, and the 300 Area. Attachment 4 provides the Field Remediation schedule for the 100 Areas, 100-IU-2/6, and the 300 Area. No issues were identified and no agreements were documented (however, see Attachment 6 documented above for an EPA and DOE approved Tri-Party Agreement change notice TPA-CN-676 to update the *Sampling and Analysis Plan for Aquifer Sampling Tubes*, DOE/RL-2000-59, Revision 1).

Action 1: Provide a presentation on sequestration at the July Unit Managers Meeting.

ORCHARD LANDS

John Sands reported that step out sampling started last Wednesday and that the work plan is ready for approval.

CERCLA FIVE YEAR REVIEW

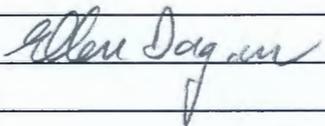
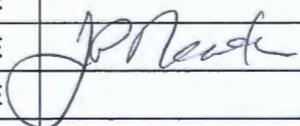
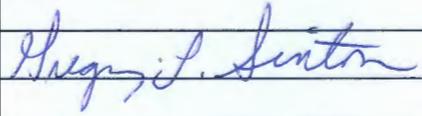
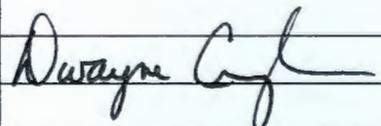
Still on schedule.

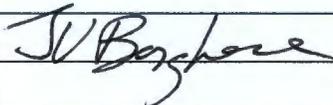
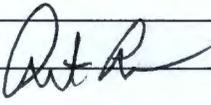
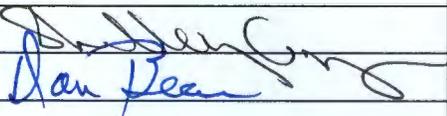
Attachment A

100/300 AREA UNIT MANAGER MEETING

ATTENDANCE

May 12, 2016

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Attachment B

100/300 Area UMM

Action List

May 12, 2016

Open (O)/ Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status

Attachment C

100/300 Area Unit Manager Meeting
May 12, 2016
Washington Closure Hanford Building
2620 Fermi Avenue, Richland, WA 99354
Room C209; 2:00 p.m.

Administrative:

- Approval and signing of previous meeting minutes
- Update to Action Items List
- Next UMM (6/9/2016, Room C209)

Open Session: Project Area Updates - Groundwater, Field Remediation, D4/ISS:

- 100-K Area (Steve Balone, Roger Quintero)
- 100-B/C Area (Greg Sinton)
- 100-N Area (Greg Sinton, John Neath)
- 100-D & 100-H Areas (Steve Balone, John Neath)
- 100-F & 100-IU-2/6 Areas (Greg Sinton, John Neath)
- 300 Area - 618-10/11 exclusively (Jamie Zeisloft)
- 300 Area (John Sands/Rudy Guercia)
- Orchard Lands (John Sands)

Special Topics/Other

- CERCLA Five Year Review

Adjourn

Attachment 1

100/300 Areas Unit Managers Meeting

May 12, 2016 (April data)

Summary Hanford Sampling Program

Hanford's overall Site groundwater monitoring program (managed by CHPRC for the River Corridor and Central Plateau) coordinates collection of groundwater samples from wells and aquifer tubes, as well as surface water samples from springs.

Sample trips are scheduled by target month and prioritized based on project needs. Target sample dates (months) are chosen to minimize the number of sample trips by aligning requests from multiple project activities for a single location into a single trip, where practical.

Sample Trip Status by Month Scheduled

For Fiscal Year 2016, Hanford's overall Site groundwater monitoring program has 2,815 sample trips scheduled for collection. DOE-RL has successfully completed 1,683 of 1,722 sample trips scheduled for October 2015 through April 2016.

Through April 2016 (FY2016, month seven) the program successfully completed 170 of the 190 groundwater sampling trips scheduled. Additionally 9 trips scheduled for February and March 2016 were collected in April and 24 trips scheduled for May were collected ahead of schedule in April bringing the total number of FY2016 trips to 1,707 of 2,815.

Sample Trip Status by Month Collected

During April 2016, 203 FY2016 sample trips were successfully collected of which 3 were scheduled for February, 6 were scheduled for March, 170 were scheduled for April, and 24 were scheduled for May.

The specific wells, aquifer tubes, and springs sampled in the river corridor areas during April 2016 are listed in Table 1.

Awaiting Sample Trips

Of the FY2015 and 2016 sample trips scheduled for April 2016 and prior, there are 44 that are awaiting collection. Of these, 14 require maintenance, 3 have access restrictions, 3 are not on the Well Access List, 5 are pump-and-treat wells that are not running, 1 is being reviewed for cancellation, 1 was unsuccessful, 3 were sampled but have data entry errors, and 14 are awaiting collection at month end.

Table 2 presents the sample trips for only the River Corridor that were not successfully completed in April. Sample trips in Table 2 are grouped by fiscal month scheduled and groundwater interest area. This table shows that the number of awaiting well trips decreases with time from the schedule date. Reasons for sample trips to be awaiting include; well maintenance, weather conditions, access restrictions, and resource limitations.

Upcoming Sample Trips

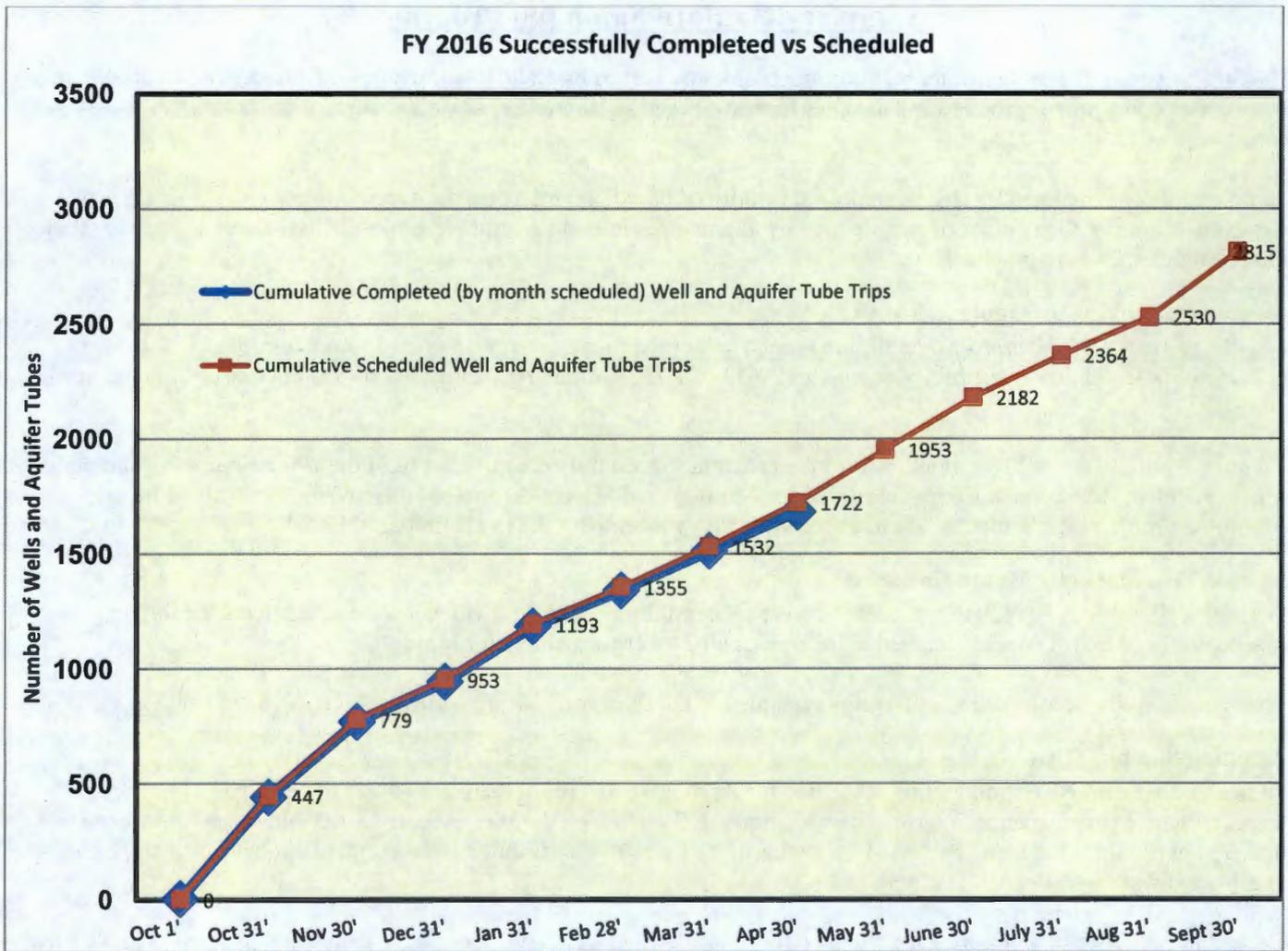
Sample trips for the River Corridor scheduled for collection in May 2016 are listed in Table 3.

Data Access

The sampling results are available in HEIS and can be accessed from the Environmental Dashboard Application which can be accessed from the HLAN at <https://ehs.chprc.rl.gov/eda/> or from the internet at <https://ehs.hanford.gov/eda/>.

100/300 Areas Unit Managers Meeting

May 12, 2016 (April data)



100/300 Areas Unit Managers Meeting

May 12, 2016 (April data)

Operable Unit Specifics

100-KR-4 Groundwater Operable Unit (Mike Drewett/Chuck Miller/Jason Hulstrom)

- CERCLA Process Implementation:
 - ✓ The RI/FS and PP documents are on hold pending 100-K East Reactor waste site characterization and modeling (based on data from new wells 199-K-221 and 199-K-222). Project staff are preparing the borehole characterization report.
 - ✓ Monitoring Plans: The Draft A Interim Groundwater Monitoring Plan, Draft B Interim O&M Plan and Draft A Interim RD/RAWP were submitted and are currently under review by DOE-RL and EPA.
 - ✓ As of January 2016, all wells associated with the 100-KW pump and treat system exhibited hexavalent chromium concentration below the 20 µg/L interim remedial action target. DOE-RL intends to shut down the KW system and implement a rebound monitoring study to evaluate the groundwater conditions in that area and assess the potential for continuing source contributions in May 2016. The draft rebound study sampling and analysis plan was provided to DOE-RL and discussed with EPA.
- Remedial Actions & System Modifications:
 - ✓ The volume of groundwater treated and mass of Cr(VI) removed for the 100-K P&T systems (KX, KR-4, and KW) during April 2016 are:
 - Treated 65.1 million gallons (66.2 in March)
 - Removal 3.2 kg of hexavalent chromium (3.1 kg in March)
 - ✓ The influent and effluent Cr(VI) concentrations (measured weekly) for the three K systems during April are presented in Table K-1.

System	Weekly Influent Concentrations ^a (µg/L)	Average Monthly Influent Concentration (µg/L)	Weekly Effluent Concentrations ^{ab} (µg/L)	Average Monthly Effluent Concentration ^b (µg/L)
100-KR4	7, 7, 7, 10	8	-1, 1, -2, 4	0.5
100-KW	12, 12, 13, 10	12	0, -1, 0, -2	-0.8
100-KX	18, 17, 16, 18	17	1, 1, 1, 2	1

a. Concentrations provided represent samples taken during the current month and loaded into HEIS as of the publication of the UMM.

b. Concentrations reported are below detection and represent the actual instrument reading on the sample(s). The detection limit is approximately 2 µg/L hexavalent chromium. The readings indicate that the measured concentration is indistinguishable from the blank.

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- ✓ FY 2016 (Oct. 2015 through Apr. 2016) P&T performance to date:

<u>P&T System</u>	<u>Treated (mgal)</u>	<u>Removed (kg)</u>
KR-4	94.7	2.0
KW	99.9	5.3
KX	251.8	15.4
100-KR-4 OU TOTAL	446.3	22.7

- ✓ In April 2016, the 30-day average pumping rates were 334 gpm, 325 gpm, and 848 gpm for the KR-4, KW, and KX systems, respectively. A summary of the number of extraction and injection wells in the three systems is shown in Table K-2. Figure K-1 illustrates the monthly average pumping rates for operating extraction wells across all 3 systems at 100-KR-4.

Table K-2. Summary of the Number of Extraction and Injection Wells in the Three Systems

Wells	KR4		KX		KW		TOTAL	
	2015	2016	2015	2016	2015	2016	2016	Current
Number of extraction wells	12	12	19	19	11	11	42	42
Number of injection wells	5	5	9	9	4	4	18	18

- At KR-4, the system operated at full capacity for the month of March. Hexavalent chromium concentration in extracted ground water continued to be below site cleanup requirements and the cumulative hexavalent chromium removal continues to decline. The system remains in service to provide hydraulic capture of inland groundwater.
- At KW, except for sampling, system wells 199-K-132, 199-K-139, and 199-K-166 remain off-line to allow increased pumping along the central axis of the plume. Based on current field and laboratory measurements in April 2016, all extraction wells exhibited hexavalent chromium concentrations less than 20 µg/L.
- At KX, extraction well 199-K-146, was off-line briefly to troubleshoot a level transducer at the beginning of April. At the end of April, 4 of 19 extraction wells exhibited hexavalent chromium concentrations that exceed 20 µg/L. These include wells 199-K-152, 199-K-154, 199-K-182, and 199-K-210.
- ✓ Figures K-2 through K-4 present the March groundwater treatment rates and hexavalent chromium removal information. As indicated in the curves below, Cr(VI) monthly mass removal at KR-4, KW, and KX have generally decreased in recent months due to continued optimization efforts.
- ✓ Assessment of soil and groundwater characterization data from boreholes in the vicinity of 105-KE Reactor continues.

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May 12, 2016 (April data)

- ✓ Soil remediation (i.e., remove-treat-dispose, or RTD) in vicinity of 183-KE Head House is continuing. The waste sites being remediated include the foundations of former cooling water treatment chemical storage tanks and associated conveyance pipes, and underlying contaminated soil to a depth of about 10 feet below plant grade.

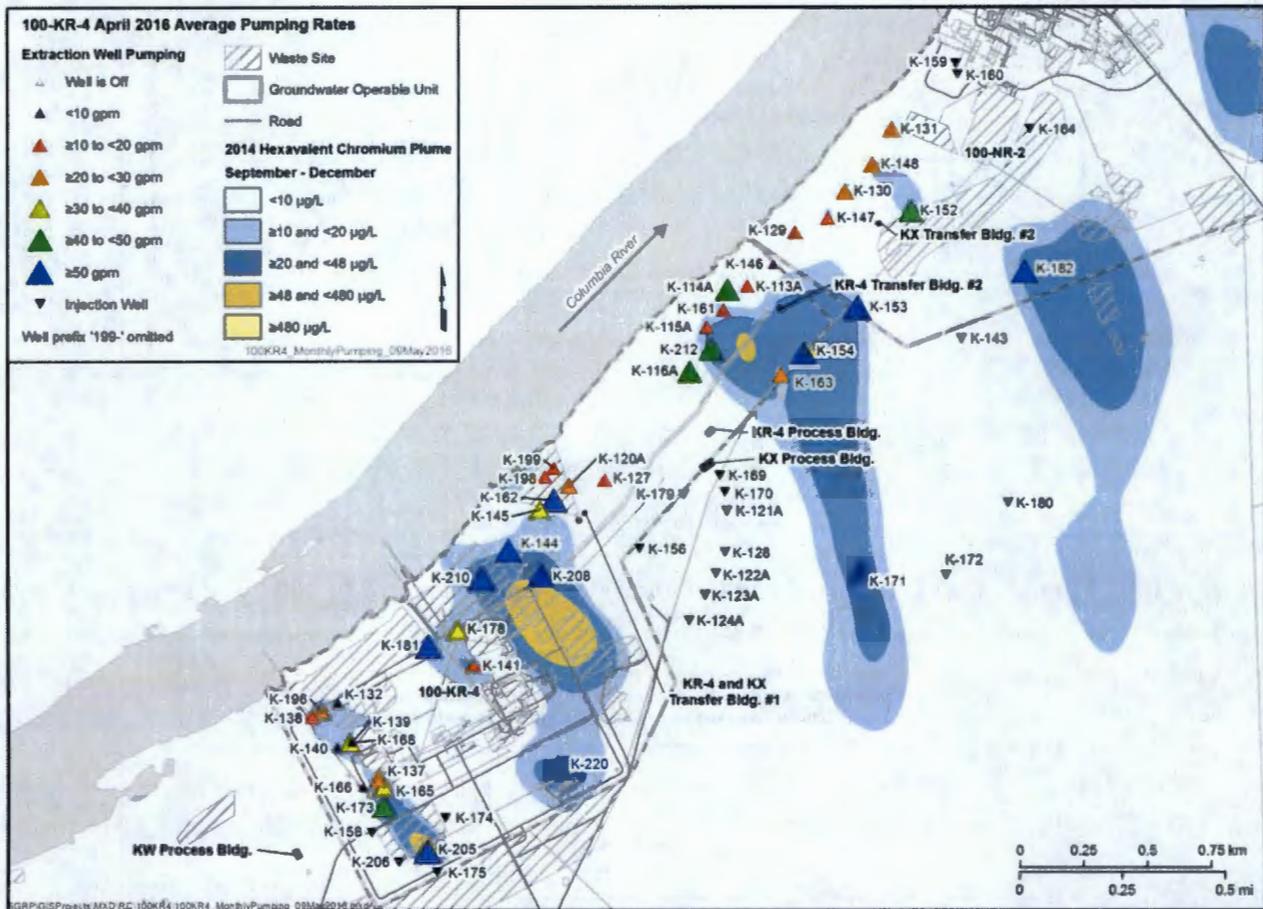


Figure K-1. April 2016 Average Pumping Rates for the 100-KR-4 P&T Systems

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May 12, 2016 (April data)

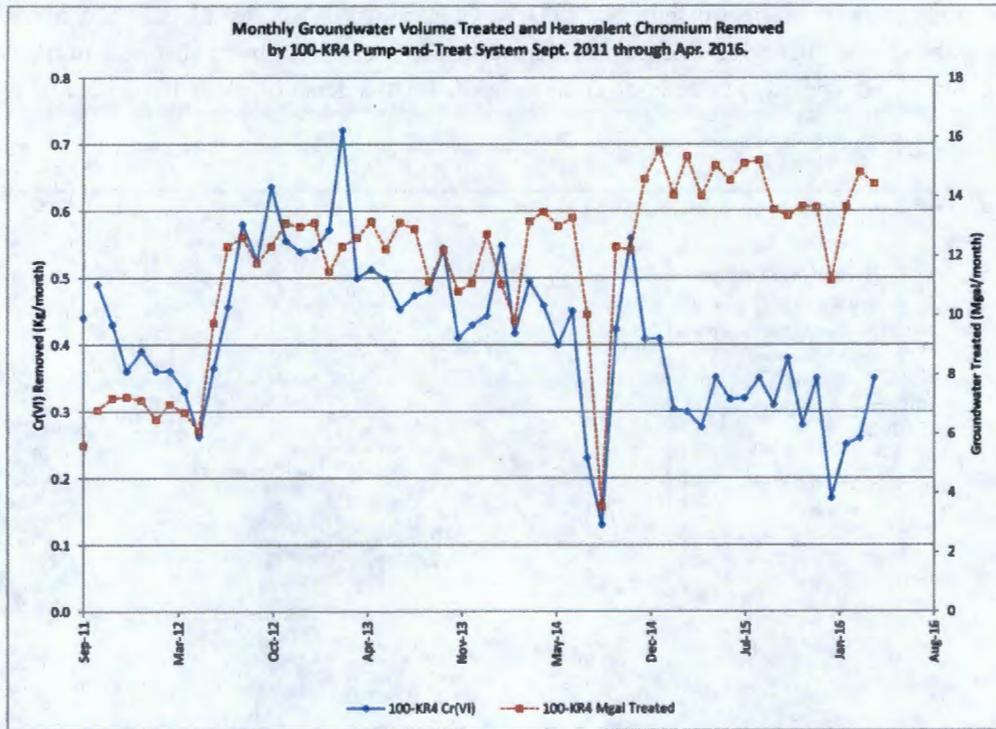


Figure K-2. Monthly Cr(VI) Removed and Groundwater Volume Treated by 100-KR-4 Pump-and-Treat, September 2011 through April 2016.

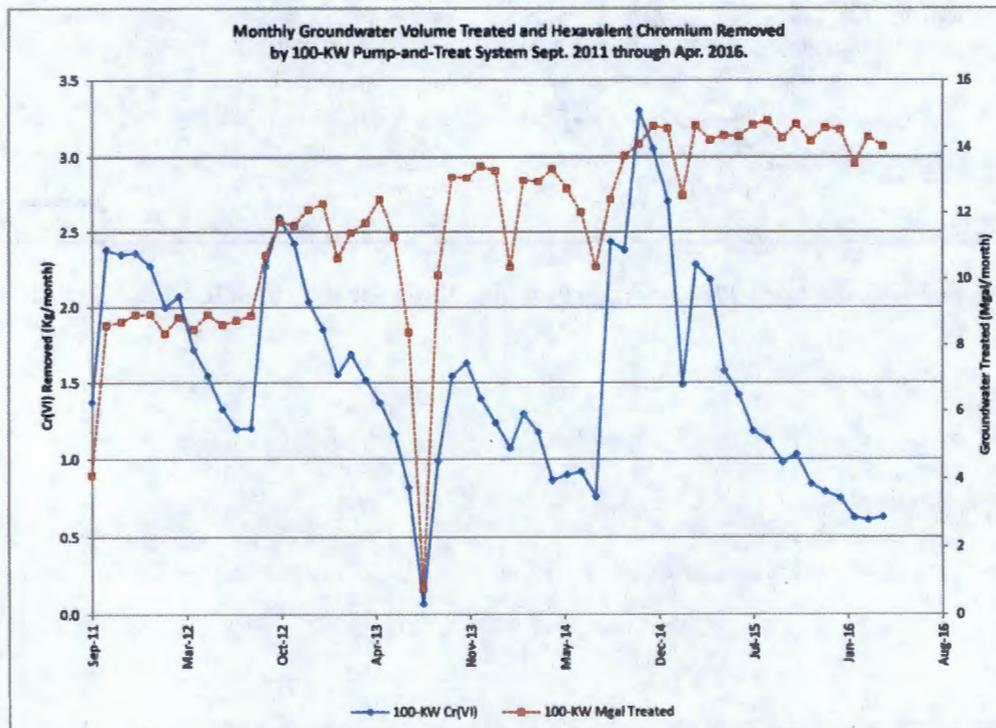


Figure K-3. Monthly Cr(VI) Removed and Groundwater Volume Treated by 100-KW Pump-and-Treat, September 2011 through April 2016.

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May 12, 2016 (April data)

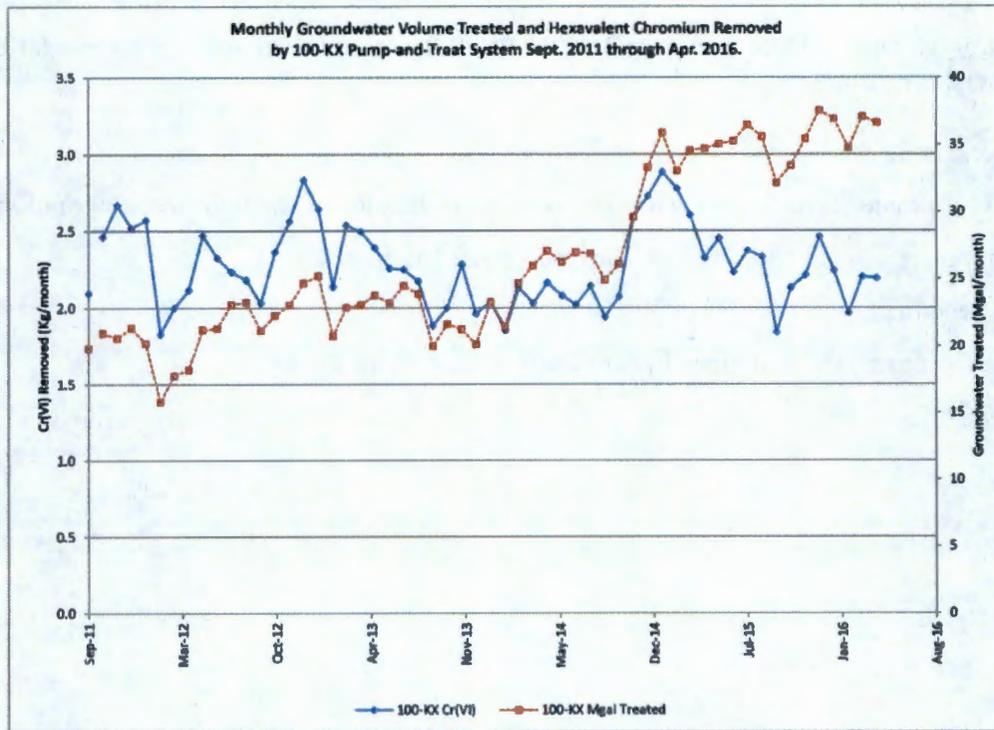


Figure K-4. Monthly Cr(VI) removed and groundwater volume treated by 100-KX pump-and-treat, September 2011 through April 2016.

100/300 Areas Unit Managers Meeting

May 12, 2016 (April data)

100-BC-5 Groundwater Operable Unit – Robert Evans/Mary Hartman

- Milestone M-015-79: Due 12/15/2016 for the CERCLA RI/FS Report and Proposed Plan for the 100-BC-1, 100-BC-2 and 100-BC-5 Operable Units
- CERCLA Process Implementation:
 - ✓ Completed senior internal review of preliminary Decisional Draft RI/FS report to meet above milestone.
 - ✓ Comments from review were resolved and the report revised as necessary.
- Monitoring & Reporting:
 - ✓ Nothing new to report. The next groundwater sampling is scheduled for June.

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100-NR-1/100-NR-2 Operable Unit – Bill Faught/Virginia Rohay/Art Lee

- CERCLA Process Implementation

- ✓ The revised RI sections/chapters of the RI/FS Report are being submitted to DOE-RL for their draft final review. There are several unresolved comments in the document (Chapter 4, 5, 6 and 7) that will continue to be addressed by Ecology and DOE-RL over the coming months while the revised chapters are being reviewed.
- ✓ The project extension for comment response was reissued on March 31, 2016, for 6 months.
- ✓ The RFP for installation of 6 monitoring wells was released and proposals received. CHPRC decided, after review of the responses, to revise the RFP and reissue it since the responses were viewed as not technically acceptable. Proposals received in April for the re-issued RFP and contract award in process. Drilling is expected to start in the June/July timeframe.
- ✓ Completed construction of access roads and well pads required for the installation of six new monitoring wells.
- ✓ The Cultural Resource Review and MOA for removal of the 100-NR-2 Pump and Treat system has been approved. Planning of the work has started. The field work is expected to occur over the coming 6 to 9 months.
- ✓ A meeting was held on March 21, 2016, with DOE-RL and Ecology to discuss remaining comments to the 100-NR-2 Groundwater OU SAP (Appendix A of DOE/RL-2001-27, Rev 2, Draft A). Comment responses have been updated and an updated version of the SAP was emailed to Ecology for checking on April 7, 2016 incorporated and Revision 2 will be routed for approval and release.

- Remedial Actions

100-NR-1 Bioventing –

- ✓ Figure NR-1 presents bioventing well gas sample results for monitoring wells 199-N-171 and 199-N-169. Monthly vapor sample measurements were collected on April 28, 2016. Vapor samples indicate continued TPH bioremediation occurring at the vicinity of well 199-N-171, but not at well 199-N-169. However, gas measurement data from the recent respirometry test conducted from January 11 through February 22, 2016, indicate higher oxygen utilization rates at wells 199-N-169 and 199-N-171 than the other respirometry test monitoring wells.
- ✓ The respirometry test report is has been drafted for inclusion in the annual bioventing performance report. The draft report is being reviewed internally and will be completed by the end of May for DOE-RL review.

Product Recovery –

- ✓ A new sponge assembly was installed following the respirometry test on February 23, 2016, and will be changed-out May 2016 to evaluate if additional product can be removed with longer absorption time.

Aquifer Tubes –

- ✓ Tubes C7934, C7935, and C7936 are located adjacent to one another (Figure NR-2), with screens at depths of 14.41 ft. (C7934), 18.75 ft. (C7935), and 29.19 ft. (C7936). All three aquifer tubes were sampled on March 22, 2016 and April 26, 2016. Tritium and strontium-90 concentration trends for all three aquifer tubes through March 22, 2016, are shown in Figures NR-3 and NR-4, respectively. As of May 3, 2016, the April 2016 data for all three aquifer tubes are not available in HEIS.

100/300 Areas Unit Managers Meeting

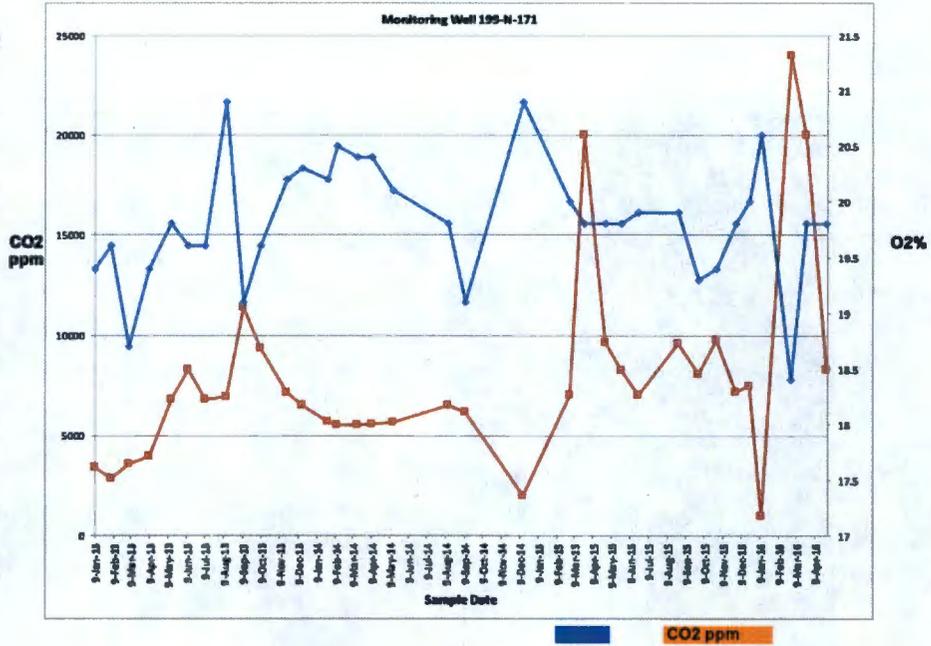
May 12, 2016 (April data)

- ✓ The RCRA monitoring wells scheduled for March 2016 were sampled March 8- 10, 2016. Specific conductance measurements exceeded the critical mean comparison values in samples collected from the 1325-N and 1324-N/NA downgradient monitoring wells. Sample results did not exceed critical mean values for the remaining indicator parameters. The specific conductance exceedance is a continuation of previously assessed exceedance attribute to the nonregulated constituent sulfate. Verification samples were collected on April 26, 2016 for laboratory analysis.

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Well 199-N-171

Well #	Date	O2%	CO2 ppm
199-N-171	9-Jan-13	19.4	3400
	5-Feb-13	19.8	2840
	6-Mar-13	18.7	3570
	8-Apr-13	19.4	3860
	15-May-13	19.8	6820
	12-Jun-13	19.8	8290
	10-Jul-13	19.8	6800
	14-Aug-13	20.9	6940
	11-Sep-13	19.1	11400
	8-Oct-13	19.6	9380
	21-Nov-13	20.2	7160
	16-Dec-13	20.3	6520
	27-Jan-14	20.2	5720
	11-Feb-14	20.5	5520
	17-Mar-14	20.4	5520
	9-Apr-14	20.4	5560
	14-May-14	20.1	5670
	13-Aug-14	19.8	6520
	10-Sep-14	19.1	6180
	15-Dec-14	20.9	2000
	1-Mar-15	20	7020
	25-Mar-15	19.8	20000
	29-Apr-15	19.6	9650
	28-May-15	19.8	8260
	22-Jun-15	19.9	7000
	27-Aug-15	19.9	9620
	30-Sep-15	19.3	8070
	29-Oct-15	19.4	9770
	30-Nov-15	19.8	7200
	22-Dec-15	20	7510
	11-Jan-16	20.6	1000
	29-Feb-16	18.4	24000
	25-Mar-16	19.8	20000
	26-Apr-16	19.8	8290



Well 199-N-169

Well #	Date	O2%	CO2 ppm
199-N-169	9-Jan-13	20.9	0
	5-Feb-13	20.9	0
	6-Mar-13	20.9	0
	8-Apr-13	20.9	0
	15-May-13	20.9	600
	12-Jun-13	20.9	780
	#1 10-Jul-13	20.5	1020
	#2 10-Jul-13	20.9	920
	14-Aug-13	20.9	530
	11-Sep-13	20.9	1250
	8-Oct-13	20.9	550
	21-Nov-13	21.3	600
	16-Dec-13	20.9	530
	27-Jan-14	20.9	500
	11-Feb-14	20.9	550
	17-Mar-14	20.9	470
	9-Apr-14	20.9	660
	14-May-14	20.9	840
	13-Aug-14	20.9	520
	10-Sep-14	20.9	410
	15-Dec-14	21	100
	1-Mar-15	20.9	360
	25-Mar-15	20.9	325
	29-Apr-15	20.9	410
	29-May-15	20.9	460
	22-Jun-15	21	0
	27-Aug-15	21.4	330
	30-Sep-15	20.9	530
	29-Oct-15	20.9	360
	30-Nov-15	20.9	480
	22-Dec-15	20.9	490
	11-Jan-16	20.9	0
	29-Feb-16	20.9	520
	25-Mar-16	20.9	16.8
	26-Apr-16	20.9	520

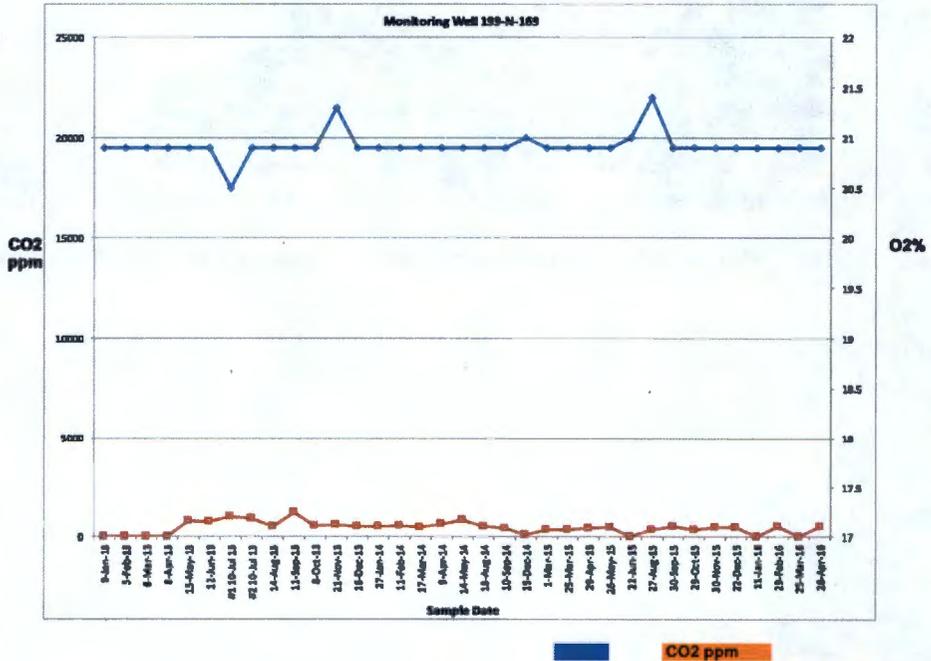


Figure NR-1. Bioventing Wells 199-N-169 and 199-N-171 Monthly Sampling Results.

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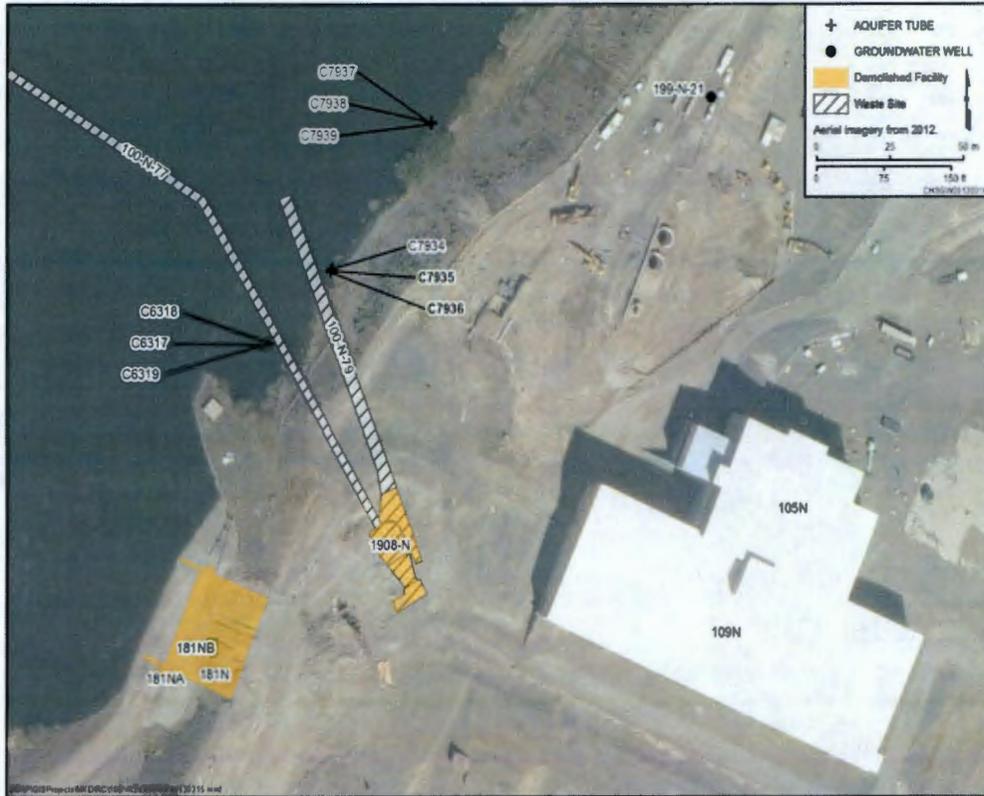


Figure NR-2. Locations of Aquifer Tubes C7934, C7935, and C7936.

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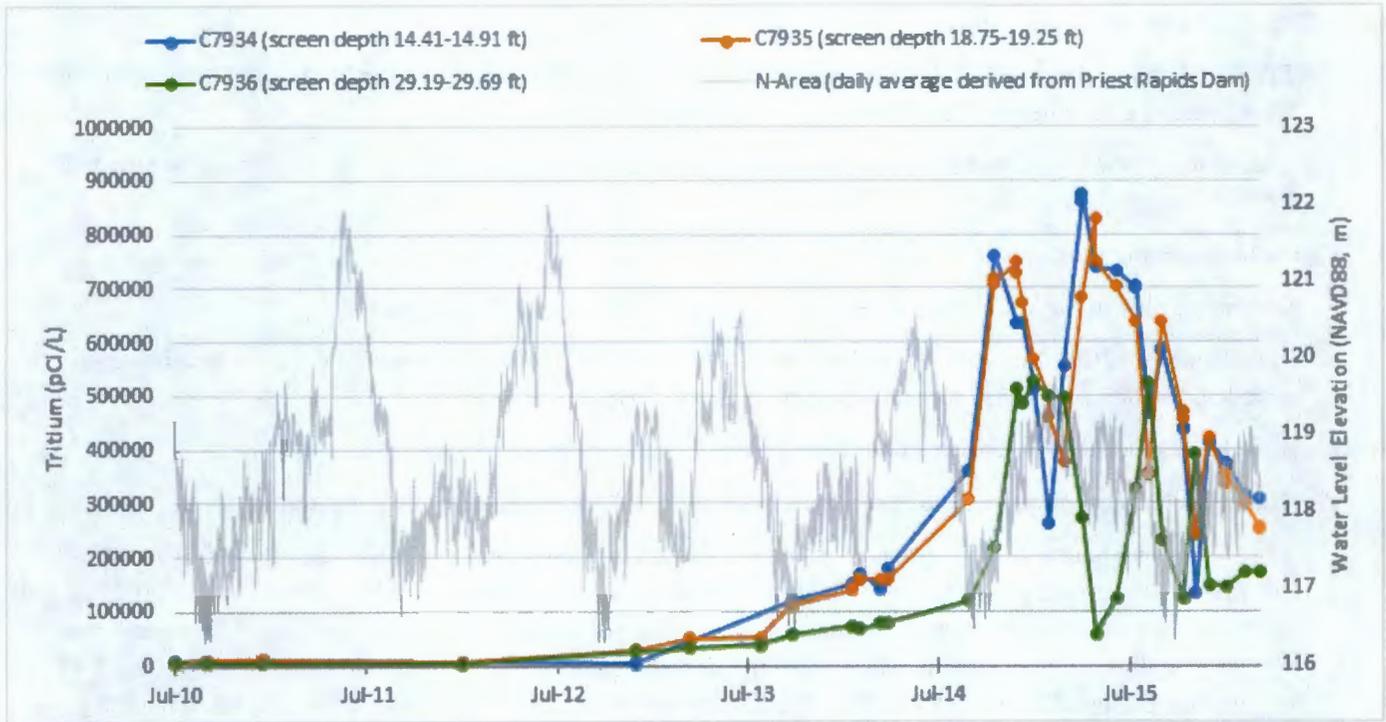


Figure NR-3. Tritium Trends through March 2016 at Aquifer Tubes C7934, C7935, and C7936.

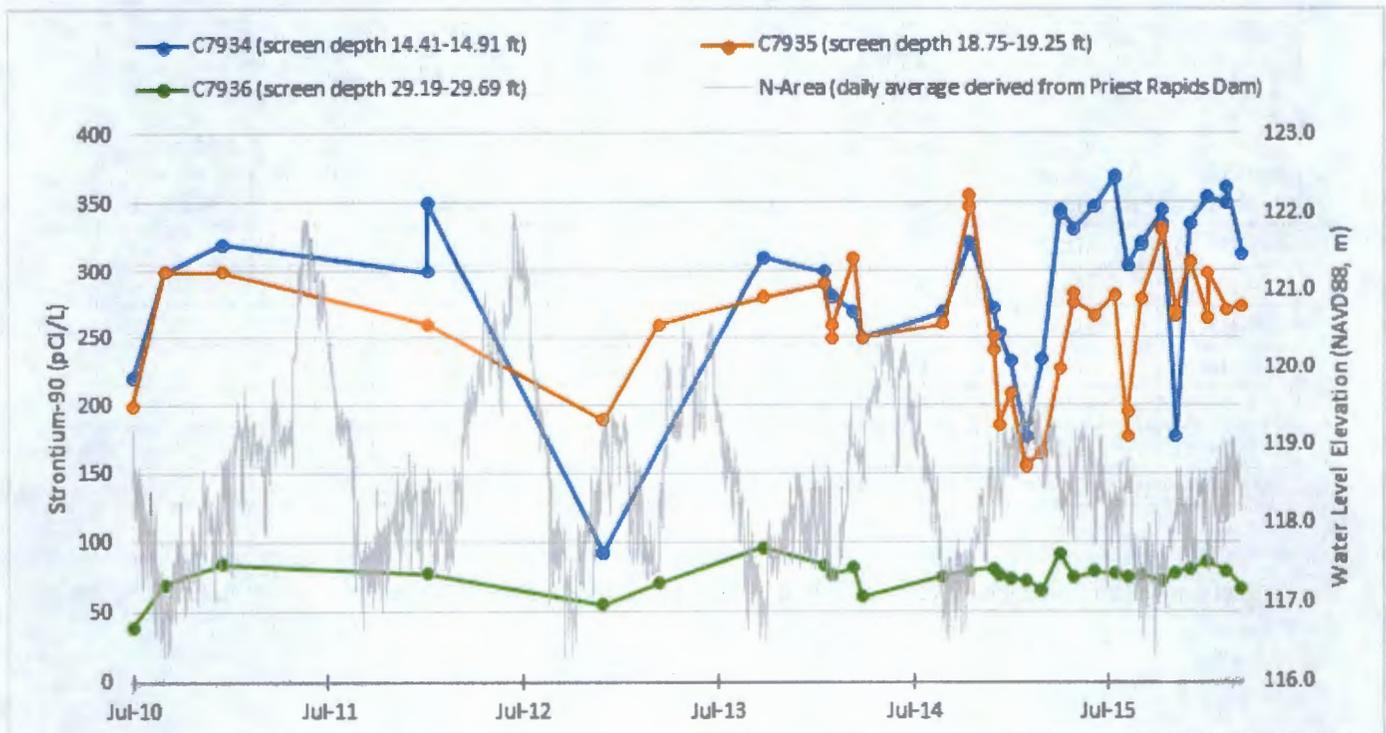


Figure NR-4. Strontium-90 Trends through March 2016 at Aquifer Tubes C7934, C7935, and C7936.

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100-HR-3 Groundwater Operable Unit – Mike Drewett/Kris Ivarson

- CERCLA Process Implementation:
 - ✓ EPA and Ecology resolving EPA legal comments on the Proposed Plan, with an expected completion date of mid-May 2016. The document is planned to be issued to the public later in 2016.
 - ✓ Interim RD/RAWP, Interim Monitoring Plan, and Interim O&M Plan, Rev 0 are being routed for submittal to DOE-RL by May 16, 2016.
- FY16 Drilling Progress
 - ✓ Completed all 7 of the WCH replacement wells. Waiting for the final laboratory results.
 - ✓ The planned FY2016 drilling activities have received final cultural review clearance and the contract has been awarded. Drilling is expected to start the week of May 9, 2016.
- Ringold Upper Mud (RUM) Aquifer Pump Test
 - ✓ Water level and conductance data baseline data was collected prior to starting the pump testing.
 - ✓ The aquifer pumping tests will be conducted on HX system extraction wells: 199-H4-12C, 199-H3-9, and 199-H3-2C. In addition, aquifer pumping tests will be conducted on monitoring wells 199-H3-10 and 199-H4-90. Each well will undergo a step drawdown test consisting of up to 6 steps of about 2 hours each, and a 24 hour constant rate test, with aquifer recovery periods prior to starting the testing and after each pumping period. Each of the RUM extraction wells listed above will be off for the duration of the testing, unless they are the designated pumping well.
 - ✓ Injection wells to be off during testing are presented in Table H-1, below:

Table H-1. Unconfined Aquifer Injection Well Flow Rates

Well Name	Plant Identification	Typical High River Flow (gpm)	Flow Rate during Pumping Tests (gpm) and Recovery Periods by Area				
			Test Area 1		Test Area 2	Test Area 3	
			HE09 199-H3-2C	199-H3-10	199-H4-90	HE13 199-H3-9	HE10 199-H4-12C
199-H4-73	HJ02	35	0	0	0	0	0
199-H4-72	HJ03	50	0	0	0	0	0
199-H4-71	HJ04	45	0	0	0	0	0
199-H4-18	HJ05	15	0	0	0	0	0
199-H3-27	HJ06	60	0	0	0	0	0
199-H4-17	HJ14	10	0	0	0	0	0

Note: High river rates are based on 2014 averages.

- ✓ Extraction wells in the unconfined aquifer will be monitored and flows will be held at a steady state during testing. Flow rates during testing are presented in Table H-2:

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Table H-2: Unconfined Aquifer Extraction Well Flow Rates

Well Name	Plant Identification	Flow Rate during Pumping Tests (gpm) and Recovery Periods by Area				
		Test Area 1		Test Area 2	Test Area 3	
		HE09 199-H3-2C	199-H3-10	199-H4-90	HE13 199-H3-9	HE10 199-H4-12C
199-H4-15A	HE02	20	20	20	0	0
199-H4-69	HE03	15	15	0	15	15
199-H4-70	HE04	10	10	0	10	10
199-H4-4	HE06	10	10	10	0	0
199-H4-63	HE07	15	15	0	15	15
199-H4-64	HE08	20	20	20	0	0
199-H3-26	HE37	0	0	30	30	30
199-H4-86	HE44	0	0	30	30	30
Total Flow Rate (gpm)		110	110	110	140	140

Blue shading indicates wells with zero flow during the test period.

Rates may be adjusted based on plant flow through needs and discussions with the Technical Lead.

- ✓ The duration of testing for each well includes 24 hours for pre-test recovery, approximately 12 hours for the step drawdown testing, 24 hours of post-step test recovery, 24 hours of constant rate pump testing, and 24 hours of post-constant rate test recovery time. Providing for adjustments in timing during testing, the pumping tests for each well are scheduled for a one week period. Complete testing of all planned wells is anticipated to be 5 to 6 weeks duration. Following completion, the HX system will be returned to normal operating conditions. Testing is planned to start in mid-May, 2016 and complete prior to July 2016.

The Test Areas are presented in Figure H-1. The order of testing will be based on the availability of staff and operations at the HX facility.

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- Remedial Actions & System Modifications

- ✓ The volume of groundwater treated and mass of Cr(VI) removed from the 100-HR-3 P&T systems during April 2016 are:
 - Treated: 54 million gallons (55.8 in March)
 - Removed: 6.9 kg of Cr(VI) (7.7 in March)
- ✓ The influent and effluent Cr(VI) concentrations (measured weekly) for the 100-HR-3 systems during April are presented in Table H-3.

System	Weekly Influent Concentrations ^a (µg/L)	Average Monthly Influent Concentration (µg/L)	Weekly Effluent Concentrations ^{ab} (µg/L)	Average Monthly Effluent Concentration (µg/L)
100-DX	40, 40, 34, 31, 33, 33, 30, 34	34	-4, 0, -1, 1.5, 1.5, -6, -5, -3	-2
100-HX	22, 21, 20	21	1, 0, 0	0

- a. Concentrations provided represent samples taken during the current month and loaded into HEIS as of the publication of the UMM.
- b. Concentrations reported are below detection and represent the actual instrument reading on the sample(s). The detection limit is approximately 2 µg/L hexavalent chromium. The readings indicate that the measured concentration is indistinguishable from the blank.

- ✓ FY 2016 (Oct. through Apr.) P&T performance to date:

P&T System	Treated (mgal)	Removed (kg)
DX	229	43.0
HX	142	14.8
100-HR-3 OU	371	57.8
TOTAL		

- ✓ A summary of the number of extraction and injection wells in the DX and HX P&T systems is shown in Table H-4. Figure H-2 illustrates the monthly average pumping rates for operating extraction wells across the DX and HX P&T systems. River levels are increasing, and therefore pumping rates have also increased. In addition, Cr(VI) concentrations are increasing in extraction wells 199-H3-4, 199-H4-74, and 199-H1-45, along the eastern edge of the Horn area plume.

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Table H-4. Summary of the Number of Extraction and Injection Wells in the 100-HR-3 Systems

Wells	DX		HX		Total
	2014	2015	2014	2015	Current
Number of extraction wells	44	46	31	34	80
Number of injection wells	14	11	14	16	27

Notes:
 The FY16 well realignments are pending cultural review and completion of design drawings. There has been no change to the number of operational wells in 2016.

- ✓ The resin at DX is being reconditioned with pH values being lowered in isolated vessels. Two trains are off-line while the resin is being soaked. Additional sampling is being conducted to determine the effect of the reconditioning on effluent concentrations.
- ✓ Hexavalent chromium concentrations in groundwater at 100-HR-3 are now below 300 µg/L across the operable unit, and below 200 µg/L in all but a few wells.
- ✓ Summaries of the volume of groundwater treated and Cr(VI) removed for the 100-DX and 100-HX pump and treat systems are shown in figures H-3 and H-4, respectively.
- ✓ A general reduction in Cr(VI) mass removal over time, a function of progress of remediation with associated reduction in groundwater contaminant concentration, is exhibited at both DX and HX. The drop in concentrations is more pronounced at DX, where concentrations were previously at very high levels. Influent concentrations at DX continue to decline as remediation progresses.

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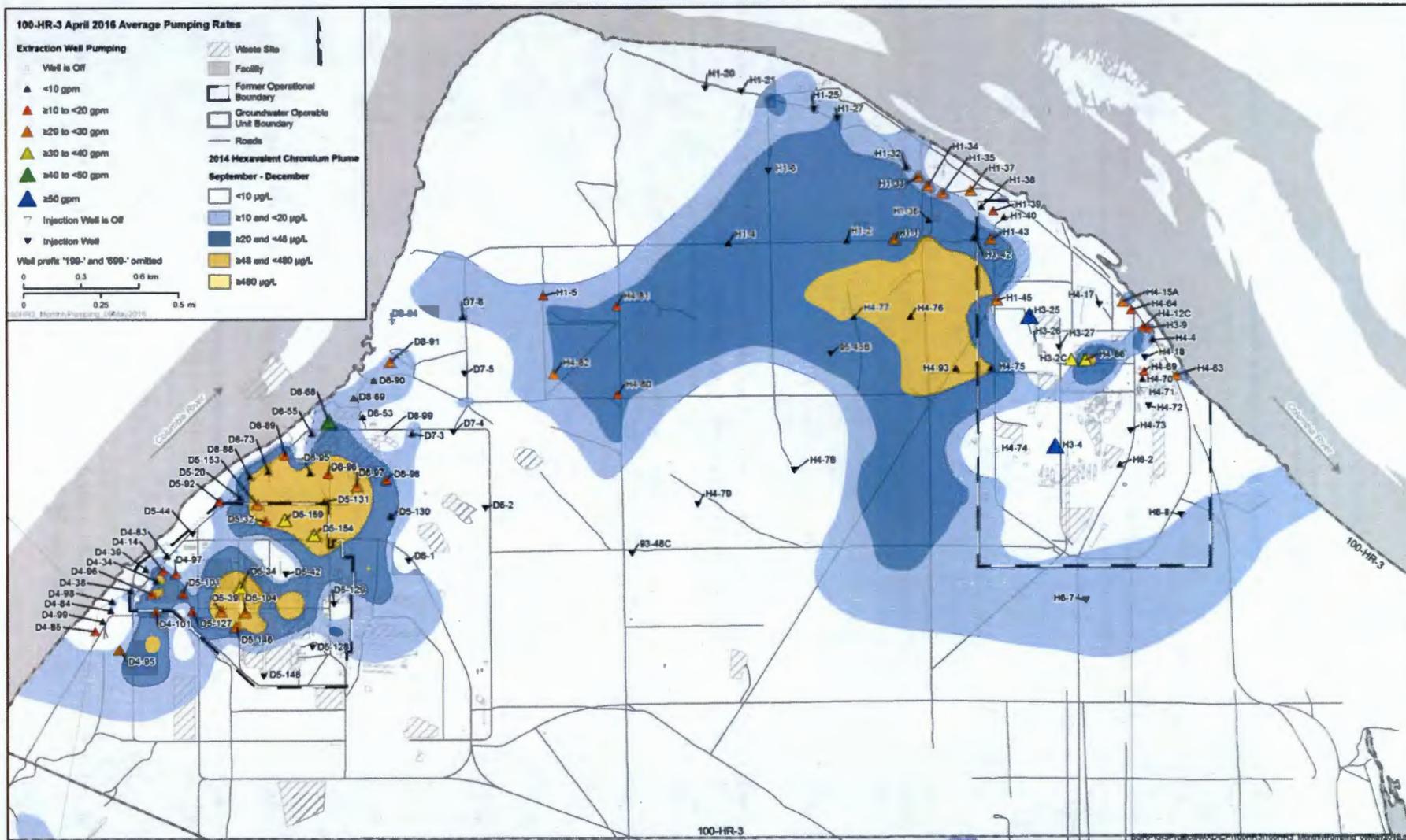


Figure H-2. April 2016 Average Pumping Rates for the 100-HR-3 P&T Systems

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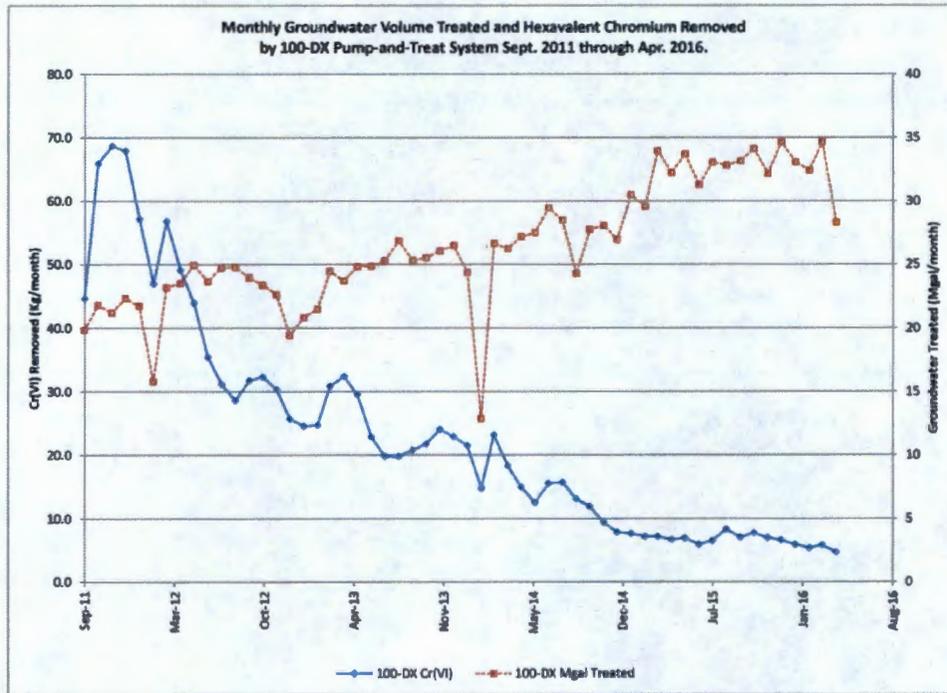


Figure H-3. Monthly Cr(VI) Removed and Groundwater Volume Treated by 100-DX Pump-and-Treat, September 2011 through April 2016.

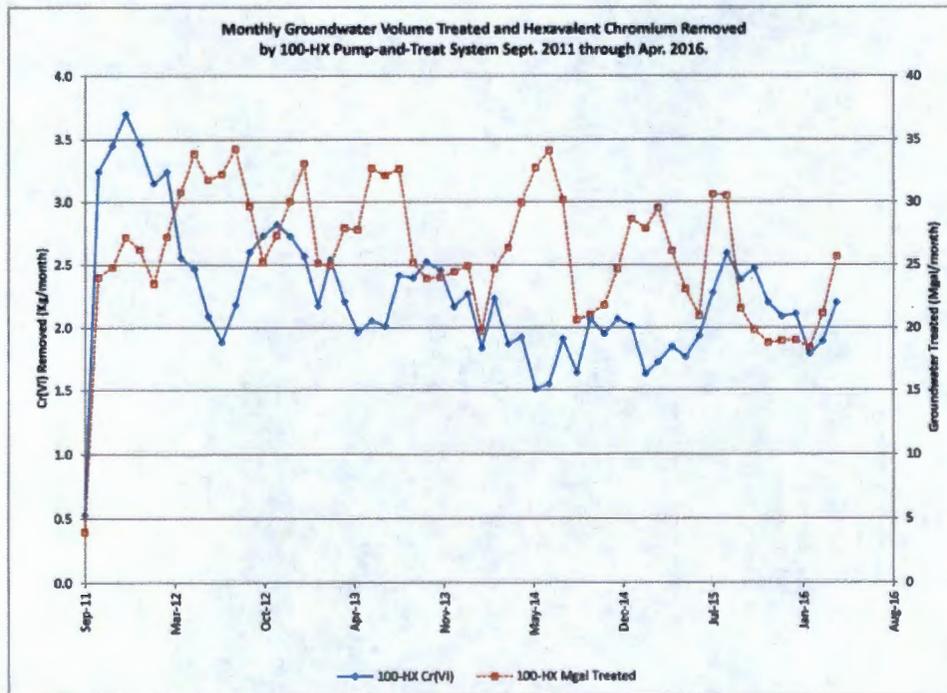


Figure H-4. Monthly Cr(VI) Removed and Groundwater Volume Treated by 100-HX Pump-and-Treat, September 2011 through April 2016.

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100-FR-3 Groundwater Operable Unit – Robert Evans/Mary Hartman

- CERCLA Process Implementation:
 - ✓ Nothing to report
- Monitoring & Reporting:
 - ✓ Drilling for the new monitoring wells began May 3, 2016. The first borehole, C9474, encountered the RUM unit at about the same level as the water table and upon agreement from DOE and EPA, was decommissioned. Borehole C9480 encountered about 1 m of unconfined aquifer and was completed as a monitoring well.
 - ✓ Completed installation of 12 automated water level monitoring (AWLN) units at existing wells. All units have been functionally tested and are transmitting data. .
 - ✓ The next sampling event for existing wells is scheduled for June 2016 (5 semiannual wells).

300-FE-5 Groundwater Operable Unit – Patrick Baynes/Virginia Rohay/Farah Elloy

- CERCLA Process Implementation:
 - ✓ Nothing new to report
- Remedial Action:
 - ✓ Stage A summary of preliminary, short-term observations regarding Stage A uranium sequestration:
 - Preliminary data from the Stage A post-treatment leachability analyses has been received and is currently being evaluated.
- Monitoring & Reporting:
 - ✓ 300 Area Industrial Complex: One well was sampled as scheduled on March 16, 2016. The next sampling event is scheduled for June 2016.
 - ✓ 618-10 Burial Ground/316-4 Crib: The next sampling event is scheduled for December 2016.
 - ✓ 618-11 Burial Ground: The next sampling event is scheduled for October 2016.
 - ✓ 300 Area Process Trenches (316-5) RCRA Monitoring: The next sampling event is scheduled for June 2016.

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Figure FF-1. Location of the Stage A Enhanced Attenuation Area

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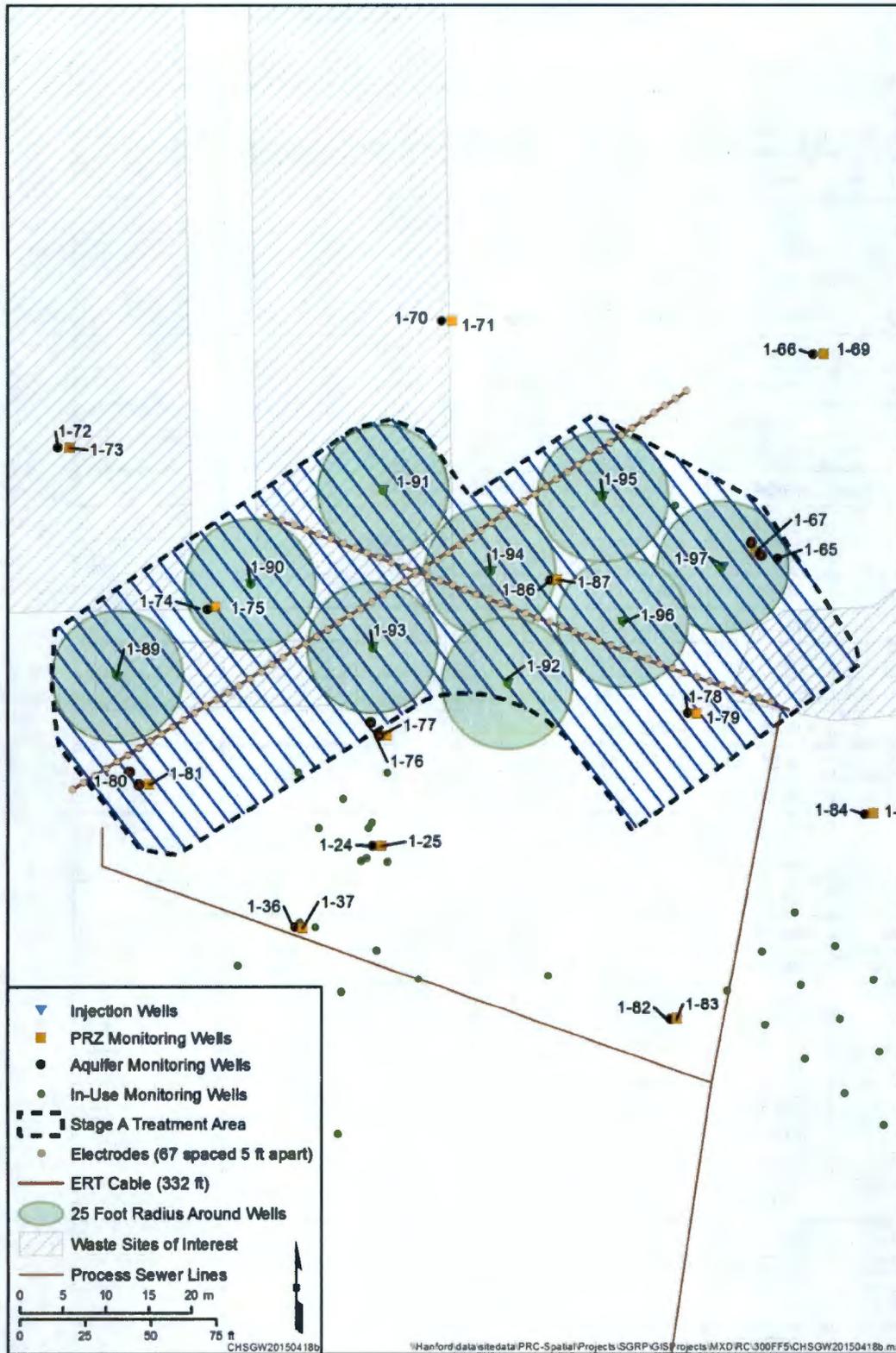


Figure FF-2. Location of the Stage A Enhanced Attenuation Area Injection and Monitoring Wells and Infiltration Lines.

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Hanford Sampling Program Information

Table 1 Wells, Aquifer Tubes, and springs in the River Corridor Areas Successfully Sampled in April 2016.

100-BC	100-FR	100-HR-D	100-HR-H	100-KR	100-NR	1100-EM	300-FF
	699-87-42A	199-D4-19	199-H1-39	199-K-106A	199-K-151		699-S29-E16C
		199-D4-26	199-H1-40	199-K-107A	199-N-165		
		199-D4-55	199-H3-2C	199-K-108A	199-N-41		
		199-D4-65	199-H4-6	199-K-117A	199-N-72		
		199-D4-77	199-H4-76	199-K-126	199-N-73		
		199-D4-86	199-H4-92	199-K-130	199-N-77		
		199-D4-92	199-H4-93	199-K-132	199-N-81		
		199-D4-93	199-H5-16	199-K-137	C7934		
		199-D4-95	699-100-43B	199-K-138	C7935		
		199-D4-96	699-101-45	199-K-139	C7936		
		199-D4-97	699-88-41	199-K-140			
		199-D4-99	699-89-35	199-K-152			
		199-D5-101	699-90-37B	199-K-165			
		199-D5-103	699-97-43C	199-K-166			
		199-D5-127	699-97-45B	199-K-168			
		199-D5-13	699-97-47B	199-K-173			
		199-D5-130	699-97-60	199-K-18			
		199-D5-131	699-99-44	199-K-184			
		199-D5-14		199-K-185			
		199-D5-145		199-K-187			
		199-D5-159		199-K-19			
		199-D5-20		199-K-191			
		199-D5-32		199-K-193			
		199-D5-33		199-K-194			
		199-D5-36		199-K-196			
		199-D5-37		199-K-197			
		199-D7-6		199-K-20			
		199-D8-101		199-K-202			
		199-D8-4		199-K-204			
		199-D8-73		199-K-205			
		199-D8-89		199-K-207			
		199-D8-90		199-K-209			
		199-D8-91		199-K-21			
		199-D8-95		199-K-221			
		199-D8-96		199-K-222			
		199-D8-97		199-K-34			
		199-D8-98		699-73-61			

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100-BC	100-FR	100-HR-D	100-HR-H	100-KR	100-NR	1100-EM	300-FF
		699-97-48C					
		699-97-61					

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Table 2 FY2015 and 2016 Sample Trips in the River Corridor Areas awaiting at the end of April 2016

Qtr Sched	GWIA	SAMP_SITE TYPE	SITE_NAME	SCHEDULE DATE	Frequency	Months Remain	Status	Comment
FY 2015 Q4	100-NR	AQUIFER TUBE	C6331	9/1/2015	Annual	4		
FY 2016 Q1	100-HR-D	AQUIFER TUBE	36-M	11/1/2015	Annual	6		Unsuccessful 12-8-2015
	100-KR	SPRING	100-K SPRING 68-1	10/1/2015	Annual	5		
		WELL	199-K-23	11/1/2015	Biannual	0	Late	Sampled 2/9/2016
		WELL	199-K-36	11/1/2015	Biannual	0	Late	Sampled 2/25/2016
		AQUIFER TUBE	AT-K-4-M	10/1/2015	Annual	5		
	100-NR	SPRING	River water adjacent to C6317/18/19	10/1/2015	Annual	5		
		SPRING	River water adjacent to C7934/35/36	10/1/2015	Annual	5		
SPRING		River water adjacent to C7937/38/39	10/1/2015	Annual	5			
FY 2016 Q2	100-HR-D	WELL	199-D4-39	2/1/2016	Quarterly	0	Late	P&T well not running
	100-NR	AQUIFER TUBE	C6135	1/11/2016	Biannual	2		
		AQUIFER TUBE	N116mArray-10A	3/1/2016	Quarterly	1		
	300-FF	WELL	699-12-4D	3/1/2016	Annual	10		Maintenance Required, Unsuccessful 3-17-2016
FY 2016 Q3	100-HR-D	WELL	199-D4-98	4/1/2016	Quarterly	2		P&T well not running, Unsuccessful 4/14/2016
		WELL	199-D7-3	4/1/2016	Quarterly	2		P&T well not running, Unsuccessful 4/14/2016
	100-HR-H	WELL	199-H4-15CQ	4/1/2016	Biannual	5		Maintenance Required
	100-KR	AQUIFER TUBE	C7641	4/1/2016	Quarterly	2		
		AQUIFER TUBE	C7642	4/1/2016	Quarterly	2		
		AQUIFER TUBE	C7643	4/1/2016	Quarterly	2		

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Table 3 Groundwater Sampling Locations in the River Corridor Scheduled to be sampled in May 2016

100-BC	100-FR	100-HR-D	100-HR-H	100-KR	100-NR	1100-EM	300-FF
		199-D2-11	199-H1-32	199-K-11	199-K-131		
		199-D2-6	199-H1-33	199-K-110A	199-K-149		
		199-D3-5	199-H1-35	199-K-111A	C7934		
		199-D4-39	199-H1-37	199-K-113A	C7935		
		199-D5-103	199-H1-38	199-K-114A	C7936		
		199-D5-104	199-H1-40	199-K-115A			
		199-D5-106	199-H1-7	199-K-116A			
		199-D5-132	199-H2-1	199-K-119A			
		199-D5-133	199-H3-10	199-K-120A			
		199-D5-142	199-H3-11	199-K-124A			
		199-D5-143	199-H3-2C	199-K-125A			
		199-D5-145	199-H3-3	199-K-127			
		199-D5-146	199-H3-4	199-K-129			
		199-D5-147	199-H3-5	199-K-13			
		199-D5-149	199-H3-6	199-K-133			
		199-D5-150	199-H3-7	199-K-136			
		199-D5-151	199-H3-9	199-K-141			
		199-D5-152	199-H4-11	199-K-142			
		199-D5-18	199-H4-12A	199-K-144			
		199-D5-34	199-H4-12C	199-K-145			
		199-D5-39	199-H4-15A	199-K-146			
		199-D5-40	199-H4-16	199-K-147			
		199-D5-41	199-H4-4	199-K-148			
		199-D5-92	199-H4-46	199-K-153			
		199-D5-97	199-H4-47	199-K-154			
		199-D6-3	199-H4-49	199-K-157			
		199-D8-71	199-H4-65	199-K-161			
		699-93-48A	199-H4-8	199-K-162			
		699-95-48	199-H4-84	199-K-163			
		699-95-51	199-H4-85	199-K-171			
		699-96-52B	199-H4-86	199-K-178			
		699-97-51A	199-H4-87	199-K-181			
		699-98-49A	199-H4-88	199-K-182			
		699-98-51	199-H4-89	199-K-186			
		C6266	199-H5-1A	199-K-188			
		C6267	199-H6-1	199-K-189			
		C6268	199-H6-3	199-K-190			
		C6269	199-H6-4	199-K-192			
		C6270	699-94-41	199-K-198			

100/300 Areas Unit Managers Meeting

May 12, 2016 (April data)

100-BC	100-FR	100-HR-D	100-HR-H	100-KR	100-NR	1100-EM	300-FF
		C6271	699-94-43	199-K-199			
		DD-39-1	699-95-45	199-K-200			
		DD-41-1	699-97-41	199-K-201			
		DD-41-2	699-98-46	199-K-208			
		DD-41-3	699-99-41	199-K-210			
		DD-42-2		199-K-212			
		DD-42-3		199-K-22			
		DD-42-4		199-K-220			
		DD-43-2		199-K-23			
		DD-43-3		199-K-32A			
		DD-44-3		199-K-36			
		DD-44-4		199-K-37			
		Redox-1-3.3		699-78-62			
		Redox-1-6.0					
		Redox-2-6.0					
		Redox-3-3.3					
		Redox-3-4.6					
		Redox-4-3.0					
		Redox-4-6.0					

Documents for AR Submission

Number	Title	Referencing Doc/Driver
ECF-100BC5-15-0121, R0	HYDRAULIC GRADIENTS IN 100-BC-5 OPERABLE UNIT 2010 THROUGH 2015	cleared April 2016
ECF-100BC5-15-0123, R0	Estimating Chromium Migration Rate by Correlating Concentration Peaks	cleared April 2016
ECF-Hanford-16-0015, R0	Calculation of Critical Means for Calendar Year 2016 RCRA Groundwater Monitoring	cleared April 2016
DOE/RL-97-01, Rev. 6	Interim Action Waste Management Plan for the 100-HR-3 and 100-KR-4 AR-4 Operable Units	cleared February
SGW-59118, Rev. 0	Technical Basis for Field-Filtering Groundwater Samples for Hexavalent Chromium Analysis	cleared April 2016
BNWL-B-360, 1974	Selected Water Table Contour Maps and Well Hydrographs for the Hanford Preservation, 1944-1973	referenced in new RCRA SAP (in progress) DOE/RL-2010-93 Draft Rev 2
HW-53599, 1957	Functions of Hanford Water Levels	referenced in new RCRA SAP (in progress) DOE/RL-2010-93 Draft Rev 2
HW-51277, 1957	Changes in the Hanford Water Table, 1944-1957	referenced in new RCRA SAP (in progress) DOE/RL-2010-93 Draft Rev 2

Attachment 2

100K Area Report
100/300 Area Unit Manager Meeting
May 12, 2016

RL-0012 Sludge Treatment Project

TPA Milestone **M-016-177**, *Complete 105-KW sludge transfer equipment installation.*
(9/30/17) – On Schedule

• **Equipment Procurement/Fabrication**

- Received 1st Article STSC Assembly with Appurtenances and completed assembly, functional testing, and helium leak testing of the STSC appurtenances/instrumentation.
- Received all equipment required for Maintenance & Storage Facility (MASF) Pre-operational Acceptance Testing (MPAT). Includes:
 - XAGO Retrieval Tool & XAGO Pump Skid,
 - HydroLance Deployment Beam,
 - Retrieval System Hoses,
 - Booster Pump Skid,
 - In-Basin Rupture Disk Skid,
 - Ingress/Egress Assembly,
 - Transfer Line Service Box,
 - Safety Control Panels,
 - 1st Article STSC Assembly with Instrumentation and Overfill Recovery Tool, and
 - Oxygen Analyzer

• **MASF Preoperational Acceptance Testing (MPAT)**

- Completed installation of equipment in support of start of MPAT (initiated early April 2016).
- All MPAT test specifications were approved by the STP Joint Test Group (JTG).
- Prepared/approved MPAT test procedure.
- Completed Sand Filter media removal testing.

• **Construction**

- **Annex**
 - Completed Annex Facility CATs and Construction Turnover.
 - Issued Request for Proposal (RFP) for preventative maintenance contract for the Annex building mechanical systems (i.e. compressor/HVAC).
- **In-Basin Construction**
 - Completed performance measure PM-12-4-16 *Remove Sample Equipment from KW Basin Engineered Containers (EC), Remove Top Two Sections, Install Divider Plate to EC-230 and Install New Lids on the ECs.*
 - Completed PM-12-5-16 *Add Segregated Settler Material to EC-220.*
 - Removed the flocculant skid and HVAC register.
 - Conducted Enhanced Work Planning (EWP) for Hazard Review Board (HRB) work package to install NE corner equipment (Ingress/Egress, IXM, etc.).
 - Issued RFP for the ECRTS basin equipment installation.
 - IXM removed, size reduced and moved over to the transfer bay for removal from facility.

TPA Milestone **M-016-175**, *Begin sludge removal from 105-KW Fuel Storage Basin*
(9/30/18) – On Schedule

- Submitted Safety Design Strategy (SDS) to DOE RL for approval
- With receipt of the Safety Evaluation Report for the Preliminary Documented Safety Analysis (PDSA), Rev. 2, project personnel worked on preparation of the draft KW Basin Documented Safety Analysis and Technical Safety Requirement documents. These documents will combine the ECRTS PDSA and the current KW Basin safety basis documents into an integrated safety basis set. Submittal to DOE-RL is forecast for August, 2016.
- Advanced 100K Area Readiness Activities
 - DOE approved the Startup Notification Report level of review for ECRTS as an Operational Readiness Review (ORR) (DOE Sec/Delegate as Startup Approval Authority (SAA).
 - Initiated Activity Readiness Plan and associated Readiness Self-Assessment Affidavits
 - Worked with DOE-RL on ORR scoping expectations for the Plan of Action (POA)
- Continued development of ECRTS Systems Training Lesson Guides and Exam Bank.
- Continued development of ECRTS Operations and Maintenance Procedures
- Continued fabrication of sludge storage equipment and preparations for removal of North Loadout Pit equipment at T Plant.
- Advanced T Plant Readiness Activities
 - DOE approved the Startup Notification Report level of review for T-Plant as a RA-2 with the President of CHPRC as the Startup Authorization Authority.

TPA Milestone **M-016-176**, *Complete sludge removal from 105-KW Fuel Storage Basin*
(12/31/19) – On Schedule

- Initiation of this milestone follows completion of Milestone M-016-175.

TPA Milestone **M-016-178**, *Initiate deactivation of 105-KW Fuel Storage Basin.*
(12/31/19) – On Schedule

- The following pre-deactivation actions are underway:
 - Integrated Water Treatment System garnet filter media removal system design work continues.
 - Dose to curie modeling of below-water debris in the center and West bays of K West Basin continues. A formal below-water debris activity calculation has begun for the East bay of K West Basin.

TPA Milestone **M-016-173**, *Select K Basin sludge treatment and packaging technology and propose new interim sludge treatment and packaging milestones.*

(9/30/22) – On Schedule

- The preliminary treatment and packaging site evaluation report and the remedial design/remedial action work plan (DOE/RL-2011-15) for sludge treatment and packaging have been issued.

TPA Milestone **M-016-181**, *Complete deactivation, demolition and removal of 105-KW Fuel Storage Basin*

(9/30/23) – On Schedule

TPA Milestone **M-016-186**, *Initiate soil remediation under the 105-KW Fuel Storage Basin.*
(12/31/23) – On Schedule

RL-0041 K Facility Demolition and Soil Remediation

TPA Milestone **M-016-143**, *Complete the interim response actions for 100 K Area within the perimeter boundary and to the Columbia River for Phase 2 actions. Phase 2 is defined in the 100 K Area RD/RA Work Plans.*

(9/30/24) – On Schedule

AB Wastes Sites. Excavation of the 100-K-101 site is continuing. Plans are underway to develop the Verification Sampling Instruction (VSI) to perform confirmation sampling for closure of four of the waste sites in the AB area (1607-K-2, 126-KE-2, 100-K-14, 100-K-50). Waste sites 120-KE-2, 120-KE-4, 120-KE-5, and 100-K-27 have been excavated to 15 feet and in-process samples were taken with analytical results pending.

165-KE Asbestos Project. The 165-KE water tunnel asbestos abatement was completed using glove bags. Cement asbestos board (CAB) removal is about 95% complete. Two walls in the basement battery room still need to be completed. The arc chute removal in the Motor Control Center (MCC) room is about 50% complete. Work in the boiler room is being done using glove bags but a negative pressure enclosure will be set up to in the near future to do gross abatement.

TPA Milestone **M-093-28**, *Submit a change package for proposed interim milestones for 105-KE and 105-KW Reactor Interim Safe Storage*
(12/31/19) - On Schedule

TPA Milestone **M-093-27**, *Complete 105-KE and 105-KW Reactor Interim Safe Storage in Accordance with the Removal Action Work Plan.*
(9/30/2024) - On Schedule

TPA Milestone **M-016-00C**, *Complete all response actions for the 100 K Area*
(9/30/24) - On Schedule

Attachment 3

May 12, 2016 Unit Manager's Meeting Closure Operations Status

100 Area

- 100-N-83 is complete. Work Instruction approved by Ecology last month. Sample collection complete. Currently waiting on results of samples for radiological analyses.
- 600-385 - Remediation almost complete. Disassembly of road mats could possibly begin as early as next week.
- 600-349 - Currently performing additional geophysical survey of site. WSRF has been approved and site has been reclassified as closed out.

618-10

Trench Remediation

- Excavation and retrieval of drums that have been identified buried near the VPU field is still on hold so that augering and waste retrieval can be completed in the VPUs nearest the trench in rows 2, 3, 4 and 6.
- Drum processing operations are nearing completion. Most of the drums high in strontium have now been processed and only a few drums remain to be delivered to Perma-Fix and CWC.

VPU Remediation

- Approximately 50 VPUs total have been augered to date in rows 2, 3, 4 and 6.
- Waste from 4 VPUs has been successfully retrieved and grouted.
- A second waste retrieval crew is expected to mobilize to the field next week and begin retrieval the following week.
- A video of waste being retrieved from VPU #18 was provided to EPA and WDOH last month and a meeting was held last week to address WDOH questions.

300 Area

324 Building

- Contract transition with CHPRC was completed last month.

300-288:2

- Radiological survey using GPERS currently being scheduled for west side. Verification Work Instruction has been revised to include both sides (east and west) and has been approved by DOE and EPA. Remediation of west side approximately 67% complete.

RDR/RAWP for 300-FF-2 Soils

- Completed this week.

Attachment 4

Activity ID	Activity Name	RD	% Cmpl	Start	Finish	FY2016					FY2017	
						MAY-2016	JUN-2016	JUL-2016	AUG-2016	SEP-2016	O	N-2016
Dan Elkins												
100 N												
100-N-83												
NB5B2D04	Closure Sampling Analysis - 100-N-83	1	90%	29-Apr-16 A	09-May-16							
NB5B2D05	Prepare Closure Doc - 100-N-83	30	0%	10-May-16	30-Jun-16							
NB5B2D06	RL/Reg Review Draft A Closure Doc for 100-N-83	26	0%	05-Jul-16	17-Aug-16							
NB5B2D06A	Resolve RL/Reg Comments Draft A Closure Doc for 100-N-83	16	0%	18-Aug-16	15-Sep-16							
NB5B2D07	RL/Reg Sign Rev. 0 Closure Doc for 100-N-83	8	0%	19-Sep-16	29-Sep-16							
NB5B2D07A	Prepare and Issue Rev. 0 Closure Doc for 100-N-83	6	0%	03-Oct-16	11-Oct-16							
IU-2/6												
600-385												
R-6385-150	600-385 in-process monitoring (MOA 1d, 1h, 1i, 1j, 2a, 2b, 2c,	4	89%	28-Mar-16 A	12-May-16							
R-6385-130	Loadout 600-385 (4,480 tons) (10 cans/day)	4	89%	12-Apr-16 A	12-May-16							
R-6385-140	Disassemble road mats to 600-385 and ship to ERDF	4	0%	16-May-16	19-May-16							
R-6385-125	600-385 Permit Survey to do post ex survey and dwg	10	0%	16-May-16	01-Jun-16							
C-6385-010	Prepare competent person asbestos evaluation 600-385 (MOA	1	0%	16-May-16	16-May-16							
C-6385-020	600-385 update archaeological sites (MOA 7a, 7b)	16	0%	16-May-16	13-Jun-16							
C-6385-025	600-385 Report Summarizing and Integrating Cultural Use of /	32	0%	16-May-16	12-Jul-16							
C-6385-030	Prepare WSRF 600-385	8	0%	17-May-16	31-May-16							
C-6385-040	RL/Reg Review of Draft A WSRF 600-385	26	0%	01-Jun-16	18-Jul-16							
BF-6385-010	Backfill 600-385 (45 BCMs)	1	0%	08-Jun-16	08-Jun-16							
R-6385-160	600-385 Permit Survey to do post backfill survey and dwg	10	0%	09-Jun-16	27-Jun-16							
C-6385-060	Resolve RL/Reg Comments Draft A WSRF 600-385	16	0%	19-Jul-16	15-Aug-16							
C-6385-070	RL/Reg Signature Rev.0 WSRF 600-385	8	0%	16-Aug-16	29-Aug-16							
C-6385-080	Prepare/Issue Rev.0 WSRF 600-385	6	0%	30-Aug-16	08-Sep-16							
Misc. Restoration												
M513DF011	Seg 4-D/H MR Removal (Near 600-385) (MOA 1f, 1g)	0	100%	30-Mar-16 A	03-May-16 A							
300 Area												
300-288:2 (Pit 6)												
R-32882-025	300-288:2 West (Ph 2) - Remediate 137,201 BCMs (301,842 tons)	25	67%	07-Dec-15 A	21-Jun-16							
D-CTA-0110	Remove 300-288:2 CTA	12	0%	22-Jun-16	13-Jul-16							
C-32882-300	300-288:2 GEPRs (Ph 2)	4	0%	22-Jun-16	28-Jun-16							
C-32882-310	300-288:2 Downpost Survey (Ph 2)	4	0%	29-Jun-16	06-Jul-16							
C-32882-320	300-288:2 Cleanup Hot Spots (if required) (Ph 2)	2	0%	07-Jul-16	11-Jul-16							
C-32882-330	300-288:2 Perform Civil Survey (Ph 2)	2	0%	12-Jul-16	13-Jul-16							

overall 110% of design. ~800 tons to go

100,836 tons to go (5/8) (190 cans/day)

- ◆ Milestone
- % Complete
- ▭ Actual Work
- ▭ Remaining Work
- ▭ Actual Critical
- ▭ Critical Remaining Work

UMM Schedule
1 of 4

Print date: 10-May-16. Data date: 09-May-16. TASK filters: POW Format, UMM.

Activity ID	Activity Name	RD	% Cmpl	Start	Finish	FY2016					FY2017	
						MAY-2016	JUN-2016	JUL-2016	AUG-2016	SEP-2016	O	N-2016
C-32882-220	300-288:2 West - Take Samples (closeout)	2	0%	13-Jul-16	14-Jul-16							
C-32882-340	300-288:2 Prepare Post-Ex Drawings (Ph 2)	8	0%	14-Jul-16	27-Jul-16							
C-32882-350	300-288:2 Obtain Sample Analysis West	7	0%	19-Jul-16	28-Jul-16							
C-32882-150	300-288:2 Prepare Draft A CVP	30	0%	01-Aug-16	21-Sep-16							
C-32882-160	300-288:2 RL/Reg Review Draft A CVP	8	0%	22-Sep-16	05-Oct-16							
C-32882-170	300-288:2 Resolve Comments/Incorp Chgs Draft A CVP	8	0%	06-Oct-16	19-Oct-16							
C-32882-180	300-288:2 RL/Reg Sign Rev 0 CVP	4	0%	20-Oct-16	26-Oct-16							
C-32882-190	300-288:2 Prepare and Issue Rev 0 CVP	4	0%	27-Oct-16	02-Nov-16							
North Empty CTA												
3MISC-500	Remove miscellaneous items at North Empty CTA (parking lot)	4	0%	15-Jun-16	21-Jun-16							
3MISC-440	Run GPERS at North Empty CTA (parking lot)	6	0%	22-Jun-16	30-Jun-16							
300 Area Interim Stabilization Plan												
RDR0031	EPA/DOE Review/Approve RDR	4	50%	26-Apr-16 A	12-May-16							
RDR0041	Issue Retrieval Data Report (RDR)	4	0%	16-May-16	19-May-16							
Jeff Lerch												
100 N												
N Area Restoration Plan												
NRP1120	DOE/MSA Review of Plan	0	100%	28-Apr-16 A	03-May-16 A							
NRP1060	DOE Transmits Plant List	0	100%	28-Apr-16 A	04-May-16 A							
NRP1150	DOE Transmits Final Restoration Plan (MOA II1)	0	100%	04-May-16 A	04-May-16 A							
100-N MR CRR HCRC #2011-100-104												
MR100NMR170	WCH Addresses Additional Comments	3	75%	25-Apr-16 A	11-May-16							
MR100NMR180	WCH Re-Transmits Revised Monitoring Report	1	0%	11-May-16	11-May-16							
MR100NMR190	DOE Transmits Revised Monitoring Report	4	0%	12-May-16	18-May-16							
100-N Exit Items HCRC# 2012-100-017 (Inc. 100-N-83)												
100N83MR170	WCH Addresses Additional Comments	3	75%	25-Apr-16 A	11-May-16							
100N83MR180	WCH Re-Transmits Revised Monitoring Report	1	0%	11-May-16	11-May-16							
100N83MR190	DOE Transmits Revised Monitoring Report	4	0%	12-May-16	18-May-16							
IU-2/6												
600-385 Restoration Plan												
6385R215	WCH Re-Schedule 2nd Walkdown	4	50%	07-Apr-16 A	12-May-16							
6385R220	Perform 2nd Site Walkdown	1	0%	16-May-16	16-May-16							
6385R170	WCH Revise Plant List	4	0%	17-May-16	23-May-16							
6385R180	WCH Transmits Revised Plant List	1	0%	24-May-16	24-May-16							
6385R190	DOE Transmits Plant List	2	0%	25-May-16	26-May-16							
6385R200	Tribes provide feedback on Revised Plant List	8	0%	31-May-16	13-Jun-16							
6385R210	WCH Revise Restoration Plan per Tribal Input	4	0%	14-Jun-16	20-Jun-16							
6385R060	Tech Edit	2	0%	21-Jun-16	22-Jun-16							

◆ Milestone ■ % Complete
 □ Actual Work □ Remaining Work
 ■ Actual Critical ■ Critical Remaining Work

UMM Schedule
 2 of 4

Print date: 10-May-16. Data date: 09-May-16. TASK filters: POW
 Format, UMM.

Activity ID	Activity Name	RD	% Cmpl	Start	Finish	FY2016					FY2017	
						MAY-2016	JUN-2016	JUL-2016	AUG-2016	SEP-2016	O	✓-2016
6385R050	Internal Review / Inc. Comments	2	0%	23-Jun-16	27-Jun-16							
6385R070	WCH Transmit Draft Plan to DOE/MSA	1	0%	28-Jun-16	28-Jun-16							
6385R080	DOE/MSA Review of Plan	8	0%	29-Jun-16	13-Jul-16							
6385R090	Inc. DOE/MSA Comments	2	0%	14-Jul-16	18-Jul-16							
6385R100	WCH Transmit Revised Plan to DOE	1	0%	19-Jul-16	19-Jul-16							
6385R102	Received Additional Comments from DOE	1	0%	20-Jul-16	20-Jul-16							
6385R104	WCH Addressing Additional Comments from DOE	2	0%	21-Jul-16	25-Jul-16							
6385R106	WCH Transmits Final Plan to DOE	1	0%	26-Jul-16	26-Jul-16							
6385R150	DOE Transmit Final Restoration Plan (MOA 8a & 8b)	1	0%	27-Jul-16	27-Jul-16							
Gable Mountain FCS Sites Monitoring Report												
6000051245	DOE Provides Additional Comments	0	100%	05-May-16 A	05-May-16 A							
6000051250	WCH Addresses Comments & Re-Transmits Monitoring Report	4	0%	09-May-16	12-May-16							
6000051235	DOE Transmits to Consulting Parties	4	0%	16-May-16	19-May-16							
D & H Horn 600-385 (Sensitive) RTD & MR HCRC #2011-100-083												
100DHMR2050	600-385 Weekly to Consulting Parties #6 (MOA 7e)	0	100%	28-Apr-16 A	02-May-16 A							
100DHMR2060	600-385 Weekly to Consulting Parties #7 (MOA 7e)	3	0%	05-May-16 A	11-May-16							
100DHMR2070	600-385 Weekly to Consulting Parties #8 (MOA 7e)	4	0%	12-May-16	18-May-16							
100DHMR2080	600-385 Weekly to Consulting Parties #9 (MOA 7e)	4	0%	19-May-16	25-May-16							
100DHMR2090	600-385 Weekly to Consulting Parties #10 (MOA 7e)	4	0%	26-May-16	02-Jun-16							
100DHMR2100	600-385 Weekly to Consulting Parties #11 (MOA 7e)	4	0%	06-Jun-16	09-Jun-16							
100DHMR2110	600-385 Weekly to Consulting Parties #12 (MOA 7e)	3	0%	13-Jun-16	15-Jun-16							
100DHMR2120	600-385 Weekly to Consulting Parties #13 (MOA 7e)	4	0%	16-Jun-16	22-Jun-16							
100DHMR2130	600-385 Weekly to Consulting Parties #14 (MOA 7e)	4	0%	23-Jun-16	29-Jun-16							
100DHMR2140	600-385 Weekly to Consulting Parties #15 (MOA 7e)	4	0%	30-Jun-16	07-Jul-16							
100DHMR2150	600-385 Weekly to Consulting Parties #16 (MOA 7e)	4	0%	11-Jul-16	14-Jul-16							
100DHMR2160	600-385 Weekly to Consulting Parties #17 (MOA 7e)	3	0%	18-Jul-16	20-Jul-16							
100DHMR2170	600-385 Weekly to Consulting Parties #18 (MOA 7e)	4	0%	21-Jul-16	27-Jul-16							
600-349 Sampling												
600349MR100	Prepare Draft Monitoring Report	4	0%	15-Jun-16	21-Jun-16							
600349MR110	Tech Edit Monitoring Report	8	0%	22-Jun-16	06-Jul-16							
600349MR120	Incorporate Tech Edit Comments	8	0%	07-Jul-16	20-Jul-16							
600349MR130	MSA Internal Review of Monitoring Report	4	0%	21-Jul-16	27-Jul-16							
600349MR140	Incorporate MSA Comments	4	0%	28-Jul-16	03-Aug-16							
600349MR150	Submit Final Monitoring Report to DOE	1	0%	04-Aug-16	04-Aug-16							
D & H Horn 600-385 Monitoring Report												
600385MR100	Prepare Draft Monitoring Report	4	0%	23-May-16	26-May-16							
600385MR110	Tech Edit Monitoring Report	8	0%	31-May-16	13-Jun-16							
600385MR120	Incorporate Tech Edit Comments	8	0%	14-Jun-16	27-Jun-16							

◆ Milestone % Complete
 [White Box] Actual Work [White Box] Remaining Work
 [Red Box] Actual Critical [Red Box] Critical Remaining Work

UMM Schedule
 3 of 4

Print date: 10-May-16. Data date: 09-May-16. TASK filters: POW
 Format, UMM.

Activity ID	Activity Name	RD	% Cmpl	Start	Finish	FY2016					FY2017	
						MAY-2016	JUN-2016	JUL-2016	AUG-2016	SEP-2016	O	N-2016
600385MR130	MSA Internal Review of Monitoring Report	4	0%	28-Jun-16	05-Jul-16							
600385MR140	Incorporate MSA Comments	4	0%	06-Jul-16	12-Jul-16							
600385MR150	Submit Final Monitoring Report to DOE	1	0%	13-Jul-16	13-Jul-16							
Megan Proctor												
IU-2/6												
600-349 Sampling												
C-6349-036	RL/Reg Review of Draft A RSVP 600-349	0	100%	26-Apr-16 A	02-May-16 A							
C-6349-040	Resolve RL/Reg Comments Draft A RSVP 600-349	1	80%	03-May-16 A	09-May-16							
C-6349-045	RL/Reg Signature Rev.0 RSVP 600-349	4	0%	10-May-16	16-May-16							
C-6349-050	Prepare/Issue Rev.0 RSVP 600-349	5	0%	17-May-16	24-May-16							
600-349 Geo-Physics												
C-6349-060	600-349 Geophysical Planning & Mobilization	0	100%	02-May-16 A	04-May-16 A							
C-6349-061	600-349 Geophysical Surveys	21	10%	05-May-16 A	14-Jun-16							
C-6349-062	600-349 Geophysical Data Interpretation & Processing	29	10%	05-May-16 A	28-Jun-16							
C-6349-063	600-349 Geophysical Final Report & RL Briefings	8	0%	29-Jun-16	13-Jul-16							

- ◆ Milestone
- % Complete
- ▭ Actual Work
- ▭ Remaining Work
- ▭ Actual Critical
- ▭ Critical Remaining Work

UMM Schedule
4 of 4

Print date: 10-May-16. Data date: 09-May-16. TASK filters: POW
Format, UMM.

Attachment 5

^WCH Document Control

From: McCurley, Clay D
Sent: Thursday, May 12, 2016 10:47 AM
To: ^WCH Document Control
Subject: Request to Skip Backfill of Waste Site 600-385

Folks. Please chron this email as a regulatory approval applicable to the 600-385 waste site. Let me know which number has been assigned. Thanks. Clay

From: Neath, John P [<mailto:john.neath@rl.doe.gov>]
Sent: Thursday, May 12, 2016 10:41 AM
To: Yokel, Jerel; McCurley, Clay D
Cc: Elliott, Wanda
Subject: RE: Request to Skip Backfill of Waste Site 600-385

Mark and I looked at the site yesterday. I agree that no backfill is needed as it's appearance follows the shape of a ravine typical in the area.

Thank you,

John Neath,

River Corridor Division
USDOE - Richland Operations Office
(509)372-0649

From: Yokel, Jerry (ECY) [<mailto:JYOK461@ECY.WA.GOV>]
Sent: Wednesday, May 11, 2016 8:27 AM
To: Neath, John P <john.neath@rl.doe.gov>; McCurley, Clay D <Clay.McCurley@wch-rcc.com>
Cc: Elliott, Wanda (ECY) <well461@ECY.WA.GOV>
Subject: RE: Request to Skip Backfill of Waste Site 600-385

I concur. The site looks good and what I believe originally looked like.

From: Neath, John P [<mailto:john.neath@rl.doe.gov>]
Sent: Wednesday, May 11, 2016 8:26 AM
To: McCurley, Clay D
Cc: Elliott, Wanda (ECY); Yokel, Jerry (ECY)
Subject: RE: Request to Skip Backfill of Waste Site 600-385

I'll be visiting the site today about noon.

John

From: McCurley, Clay D [<mailto:Clay.McCurley@wch-rcc.com>]
Sent: Wednesday, May 11, 2016 6:33 AM
To: Neath, John P <john.neath@rl.doe.gov>; Elliott, Wanda <WELL461@ECY.WA.GOV>; Yokel, Jerel W

<jyok461@ecy.wa.gov>

Subject: Request to Skip Backfill of Waste Site 600-385

Folks. We (WCH) are getting close to being finished with debris excavation/removal at the 600-385 waste site and we are recommending no backfilling. I believe you've all been out there recently and seen how it looks so, if you concur, please respond to this email. If needed, I'll be happy to arrange a trip to view the site today, tomorrow, or early next week. Just let me know when you would like to go. Call me if you have any questions.

Clay

Attachment 6

TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 676	TPA CHANGE NOTICE FORM	Date: 2/16/16
Document Number, Title, and Revision: DOE/RL-2000-59, Sampling and Analysis Plan for Aquifer Sampling Tubes, Rev. 1		Date Document Last Issued: February 2009
Previous Change Notices Against this Document: TPA-CN-327, TPA-CN-353, TPA-CN-556 and TPA-CN-612		
Originator: M.K. Stewart		Phone: 373-5818

Description of Change:

Change to Appendix A, Table A-1 and Table A-2 of DOE/RL-2000-59, *Sampling and Analysis Plan for Aquifer Sampling Tubes*.

M.W. Cline DOE and N.M Menard, C. J. Guzzetti Lead Regulatory Agency agree that the proposed change modifies an approved workplan/document and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, *Documentation and Records*, and not Chapter 12.0, *Changes to the Agreement*.

Aquifer tubes in the 100-FR-3 and 300-FF-5 OUs are removed from this SAP because new OU-specific SAPs (DOE/RL-2014-42 and DOE/RL-2014-44-ADD2) supersede requirements for those aquifer tubes.

Replace pages A-17 through A-21 and A-34 through A-40 with the attached pages. Deleted text is identified by ~~Double Strikethrough~~, due to original published document including single strikethrough.

Justification and Impacts of Change:

Groundwater sampling and analysis plans (SAPs) for the River Corridor operable units (OU) are being revised. The data quality objectives process is applied to determine appropriate sampling programs. If this process determines that aquifer tube data are needed, the aquifer tubes are incorporated into the revised SAP for the individual groundwater OU. As the SAPs are revised, the aquifer tube requirements of DOE/RL-2000-59 are being superseded. New SAPs are already in place for 100-FR-3 (DOE/RL-2014-44-ADD2) and 300-FF-5 (DOE/RL-2014-42) OUs, so those aquifer tubes are deleted from Tables A-1 and A-2 immediately. As other SAPs are implemented, they will supersede requirements of DOE/RL-2000-59 and additional change notices will be prepared.

For information purposes, the bullets below list the actual or planned date for conversion of aquifer tube requirements into OU-specific SAPs:

- 100-BC-5: planned for fall 2016
- 100-KR-4: planned for fall 2016
- 100-NR-2: planned for spring 2016
- 100-HR-3: planned for spring 2016
- 100-FR-3: implemented fall 2015 (DOE/RL-2014-44-ADD2)
- 200-PO-1: planned for fall 2016
- 300-FF-5: implemented fall 2015 (DOE/RL-2014-42)

Approvals:

<u>M.W. Cline</u> DOE Project Manager	<u>2/17/2016</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
<u>[Signature]</u> EPA Project Manager	<u>2/17/16</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved
<u>N.M. Menard</u> Ecology Project Manager	<u>2/15/16</u> Date	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved

Table A-1. Aquifer Tube Sampling Sites and Analyses Proposed for Fiscal Year 2009. (19 sheets)

Tube Name	Note for Tubes Installed 2007 or 2008	Scheduled Collection Month	Frequency	Field Parameters	Anions	Hexavalent Chromium	Metals (Unfiltered)	Metals (Filtered)	Alkalinity	Arsenic	Tritium	Gross Alpha/Beta	Gross Beta	Carbon-14	Gamma Scan	Iodine-129	Strontium-90	Technetium-99	Total Uranium	VOA	TPH	TOC
62-M		Q#	A	+	+	+	+	+	+													
66303*	S	Q#	A	+	+	+																
66303*	M	Q#	A	+	+	+																
64-S*		Q#	A	+	+	+																
64-M*		Q#	A	+	+	+																
64-D*		Q#	A	+	+	+																
66306*	S	Q#	A	+	+	+																
66306*	M	Q#	A	+	+	+																
66304*	D	Q#	A	+	+	+																
66308*	S	Q#	A	+	+	+																
66309*	M	Q#	A	+	+	+																
66311*	S	Q#	A	+	+	+																
66313*	M	Q#	A	+	+	+																
66314*	S	Q#	A	+	+	+																
66315*	M	Q#	A	+	+	+																
66316*	D	Q#	A	+	+	+																
ATF1S*		Q#	A	+	+	+																
ATF1M*		Q#	A	+	+	+																
ATF1D*		Q#	A	+	+	+																
66-8			A	+	+	+																

Table A-1. Aquifer Tube Sampling Sites and Analyses Proposed for Fiscal Year 2009. (19 sheets)

Tube Name	Note for Tubes Installed 2007 or 2008	Scheduled Collection Month	Frequency	Field Parameters	Anions	Hexavalent Chromium	Metals (Unfiltered)	Metals (Filtered)	Alkalinity	Arsenic	Tritium	Gross Alpha/Beta	Gross Beta	Carbon-14	Gamma Scan	Iodine-129	Strontium-90	Technetium-99	Total Uranium	VOA	TPH	TOC	
66-M		Oct	A	+																			
66-D		Oct	A	+	+	+	+	+	+														
67-S		Oct	A	+																			
67-M			A	+	+	+	+	+	+														
68-S		Oct	A	+																			
68-M		Oct	A	+																			
68-D		Oct	A	+	+	+	+	+	+		+												
ATF 2-M		Oct	A	+	+	+	+	+	+		+												
74-D		Oct	A	+	+	+																	
75-D		Oct	A	+	+	+					+												
76-D		Oct	A	+	+	+																	
77-D		Oct	A	+	+	+																	
200-PO-1 Segment																							
85-D		Dec	A	1	1						1	1				1		1					
86-D		Dec	A	1	1						1	1				1		1					
C6383	S	Dec	A	1																			
C6384	M	Dec	A	1	1	1					1	1				1		1					
C6353	S	Dec	A	1	1	1					1	1				1		1					
C6356	S	Dec	A	1	1	1					1	1				1		1					
C6359	S	Dec	A	1	1	1					1	1				1		1					
C6362	S	Dec	A	1	1	1					1	1				1		1					
C6365	S	Dec	A	1	1	1					1	1				1		1					

Table A-1. Aquifer Tube Sampling Sites and Analyses Proposed for Fiscal Year 2009. (19 sheets)

Tube Name	Note for Tubes Installed 2007 or 2008	Scheduled Collection Month	Frequency	Field Parameters	Anions	Hexavalent Chromium	Metals (Unfiltered)	Metals (Filtered)	Alkalinity	Arsenic	Tritium	Gross Alpha/Beta	Gross Beta	Carbon-14	Gamma Scan	Iodine-129	Strontium-90	Technetium-99	Total Uranium	VOA	TPH	TOC	
C6368	S	Dec	A	1	1	1					1	1				1		1					
C6371	S	Dec	A	1	1	1					1	1				1		1					
C6374	S	Dec	A	1																			
C6375	M	Dec	A	1	1	1					1	1				1		1					
C6378	S	Dec	A	1	1	1					1	1				1		1					
C6380	S	Dec	A	1	1	1					1	1				1		1					
300-FF-6-Segment																							
AT-3-1-S		Dec	A	+			+	+				+							+	+			
AT-3-1-M		Dec	A	+	+		+	+			+	+							+	+			
AT-3-1-D(1)		Dec	A	+															+				
AT-3-2-S		Dec	A	+															+	+			
AT-3-2-M		Dec	A	+	+		+	+			+	+							+	+			
G6341	S	Dec	A	+															+	+			
G6342	M	Dec	A	+	+		+	+			+	+							+	+			
G6343	D	Dec	A	+															+	+			
AT-3-3-S		Dec	A	+	+		+	+			+	+							+	+			
AT-3-3-M		Dec	A	+															+	+			
AT-3-3-D		Dec	A	+															+	+			
G6344	S	Dec	A	+	+		+	+			+	+							+	+			
AT-3-4-S		Dec	A	+	+		+	+			+	+							+	+			
AT-3-4-M		Dec	A	+	+		+	+			+	+							+	+			
AT-3-4-D		Dec	A	+															+	+			

Table A-1. Aquifer Tube Sampling Sites and Analyses Proposed for Fiscal Year 2009. (19 sheets)

Tube Name	Note for Tubes Installed 2007 or 2008	Scheduled Collection Month	Frequency	Field Parameters	Anions	Hexavalent Chromium	Metals (Unfiltered)	Metals (Filtered)	Alkalinity	Arsenic	Tritium	Gross Alpha/Beta	Gross Beta	Carbon-14	Gamma Scan	Iodine-129	Strontium-90	Technetium-99	Total Uranium	VOA	TPH	TOC
G6347	S	Dec	A	+															+	+		
G6348	M	Dec	A	+	+		+	+	+		+	+							+	+		
AT35S		Dec	A	+	+		+	+	+			+							+			
G6350	S	Dec	A	+															+	+		
G6351	M	Dec	A	+	+		+	+	+		+	+							+	+		
AT36S		Dec	A	+	+		+	+	+			+							+			
AT36M		Dec	A	+															+			
AT36D		Dec	A	+															+	+		
AT37S		Dec	A	+															+			
AT37M		Dec	A	+	+		+	+	+			+							+			
AT37D		Dec	A	+															+	+		
AT38S		Dec	A	+	+		+	+	+			+							+			
AT38M		Dec	A	+															+			

^a Sampled by apatite project staff (DOE/RL-2005-95, April 2008 addendum). Included in this sampling and analysis plan for information.

^b Horn area sampling and analysis instruction (SGW-33224) specifies frequency of quarterly for one year (last quarter will be November 2008), then review data and determine frequency. Will schedule annually for FY09 (i.e., November). Can add more if Horn area evaluation warrants.

^c Sample regardless of specific conductance.

NOTES:

Choice of tube depths to sample for full suite of constituents may vary depending on field conditions. See Table A-2 for recommendations of tube depths to sample.

Notes for tubes installed 2007 or 2008: Horn area tubes in accordance with SGW-33224; others in accordance with SGW-36398. "S," "M," and "D" indicate relative depths of tubes.

Frequency: A = annual; S = semi-annual; Q = quarterly

Q/A = quarterly for key constituents; annually (during low river stage) for full suite

Numerals in the constituent columns indicate number of samples to be collected during FY09 (e.g., 1 = annual, 4 = quarterly).

FY = fiscal year

TOC = total organic carbon

TPH = total petroleum hydrocarbon

Table A-1. Aquifer Tube Sampling Sites and Analyses Proposed for Fiscal Year 2009. (19 sheets)

Tube Name	Note for Tubes Installed 2007 or 2008	Scheduled Collection Month	Frequency	Field Parameters	Anions	Hexavalent Chromium	Metals (Unfiltered)	Metals (Filtered)	Alkalinity	Arsenic	Tritium	Gross Alpha/Beta	Gross Beta	Carbon-14	Gamma Scan	Iodine-129	Strontium-90	Technetium-99	Total Uranium	VOA	TPH	TOC
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VOA = volatile organic analysis

Field parameters include the following:

Dissolved oxygen	Specific conductance
Oxidation-reduction potential	Temperature
pH	Turbidity

Metals analysis includes the following:

Barium	Molybdenum
Beryllium	Nickel
Bismuth	Potassium
Boron	Silicon
Cadmium	Silver
Calcium	Sodium
Chromium	Strontium
Cobalt	Tin
Copper	Titanium
Iron	Vanadium
Lithium	Zinc
Magnesium	Zirconium
Manganese	

Anions analysis includes the following:

Nitrate	Phosphate
Sulfate	Bromide
Fluoride	Nitrite
Chloride	

Table A-2. Sampling Recommendations Based on Evaluation of Aquifer Tube Historical Data. (19 sheets)

Shore Segment	Well ID	Tube Name	SAP	Hanford River Mile	Screen Depth (ft Below Land Surface)	Status	Plumes or Monitoring Purpose	Recommendation*
HR3H	B8321	57-S		17.10	7.0	Not currently in use	None; located downstream of 100-H	Do not need
HR3H	B8320	57-M		17.10	18.0	Not currently in use		
HR3H	B8319	57-D		17.10	29.0	Not currently in use		
HR3H	B8324	58-S		17.16	11.0	Not currently in use	None; located downstream of 100-H	Do not need
HR3H	B8323	58-M		17.16	19.5	Not currently in use		
HR3H	B8322	58-D		17.16	26.5	Not currently in use		
HR3H	B8327	59-S		17.38	11.0	Not currently in use	None; located downstream of 100-H	Do not need
HR3H	B8326	59-M		17.38	16.5	Not currently in use		
HR3H	B8325	59-D		17.38	23.0	Not currently in use		
HR3H	B8330	60-S		17.74	8.5	Not currently in use	None; located northwest of 100-F	Do not need
HR3H	B8329	60-M		17.74	17.5	Not currently in use		
HR3H	B8328	60-D		17.74	26.5	Not currently in use		
FR3	B8333	61-S		18.10	8.5	Not currently in use	None; located northwest of 100-F	Do not need
FR3	B8332	61-M		18.10	15.5	Not currently in use		
FR3	B8331	61-D		18.10	24.0	Not currently in use		
FR3	B8336	62-S	e	18.40	8.0	Active	NO ₃ > 20 mg/L; located upstream of 100-F	Sample M
FR3	B8335	62-M	e	18.40	18.0	Active		
FR3	B8334	62-D		18.40	28.0	No yield		
FR3	B8339	63-S	e	18.81	10.0	Active	None	Do not need; redundant with new tubes
FR3	B8338	63-M		18.81	16.0	No yield		
FR3	B8337	63-D		18.81	23.0	No yield		
FR3	B8343	64-S		18.94	7.5	1 data point	Sr 90 < 8 pCi/L; Cr < 10 µg/L	Sample all for Sr 90; D for full suite
FR3	B8344	64-M*	e	18.94	17.0	Few data		
FR3	B8340	64-D*	e	18.94	27.0	Active		

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Table A-2. Sampling Recommendations Based on Evaluation of Aquifer Tube Historical Data. (19 sheets)

Shore Segment	Well ID	Tube Name	SAP	Hanford River Mile	Screen Depth (ft Below Land Surface)	Status	Plumes or Monitoring Purpose	Recommendation ^a
FR3	B8345	65-S	•	19.10	8.5	Destroyed	N/A	N/A
FR3	B8344	65-M	•	19.10	16.0			
FR3	B8343	65-D	•	19.10	27.0			
FR3	G4391	ATF1S*	•	19.22	10.3	Active	Sr-90 < 8 pCi/L; Cr < 10 µg/L	Sample all for Sr-90; D for full suite
FR3	G4390	ATF1M*	•	19.22	18.1	Active		
FR3	G4389	ATF1D*	•	19.22	26.1	Active		
FR3	B8348	66-S*	•	19.27	10.0	Active	None; Sr-90 undetected; Cr < 10 µg/L	Sample highest SG
FR3	B8347	66-M*	•	19.27	19.2	Active		
FR3	B8346	66-D*	•	19.27	28.1	Active		
FR3	B8351	67-S	•	19.58	10.0	Active	None; samples all very dilute and dominated by river water	Sample highest SG
FR3	B8350	67-M	•	19.58	20.0	Active		
FR3	B8349	67-D		19.58	20.0	No yield		
FR3	B8354	68-S	•	19.76	10.5	Not currently in use	None; samples all very dilute and dominated by river water	Sample highest SG
FR3	B8353	68-M	•	19.76	18.3	Not currently in use		
FR3	B8352	68-D	•	19.76	25.0	Active		
FR3	B8356	69-M		19.80	15.0	Not currently in use	None; samples all very dilute	Do not need
FR3	B8355	69-D		19.80	31.0	Not currently in use		
FR3	B8360	70-S		19.95	17.0	Destroyed	N/A	N/A
FR3	B8359	70-M		19.95	24.0			
FR3	B8358	70-D		19.95	21.0			
FR3	G4394	ATF2S	•	20.11	7.5	No data	None; located downstream of 100-F	Sample highest SG
FR3	G4393	ATF2M	•	20.11	13.6	Active		
FR3	G4392	ATF2D	•	20.11	19.2	Few data		
FR3	B8361	71-D		20.26	7.5	Destroyed	N/A	N/A

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Table A-2. Sampling Recommendations Based on Evaluation of Aquifer Tube Historical Data. (19 sheets)

Shore Segment	Well ID	Tube Name	SAP	Hanford River Mile	Screen Depth (ft Below Land Surface)	Status	Plumes or Monitoring Purpose	Recommendation ^a
FR3	G4385	ATF3-S	o	20.42	6.0	Few data	None, located downstream of 100-F	Do not need
FR3	G4384	ATF3-M	o	20.42	10.8	Few data		
FR3	G4383	ATF3-D	o	20.42	14.1	Active		
FR3	B8366	72-S	o	20.67	9.5	Not found	None, located downstream of 100-F	Do not need
FR3	B8365	72-M	o	20.67	18.0	Active		
FR3	B8364	72-D	o	20.67	28.0	Low yield		
FR3	B8360	72-S	o	20.81	10.5	Not found	N/A	N/A
FR3	B8368	72-M	o	20.81	19.0			
FR3	B8367	72-D	o	20.81	27.0			
FR3	G4388	ATF4-S	o	21.00	7.2	No data	None, located downstream of 100-F	Don't need
FR3	G4387	ATF4-M	o	21.00	18.0	No data		
FR3	G4386	ATF4-D	o	21.00	32.2	Active		
FR3	B8372	74-S	o	21.16	11.0	No yield	NO ₃ occasionally >10 mg/L; located downstream of 100-F	Sample D — best record
FR3	B8371	74-M	o	21.16	17.0	Few data		
FR3	B8370	74-D	o	21.16	29.0	Active		
FR3	B8375	75-S	o	21.49	11.0	One data point	NO ₃ >45 mg/L; located downstream of 100-F	Sample M or D
FR3	B8374	75-M	o	21.49	19.0	Active		
FR3	B8373	75-D	o	21.49	27.0	Active		
FR3	B8378	76-S	o	21.68	11.0	Few data	NO ₃ once >20 mg/L; located downstream of 100-F	Sample D — best record
FR3	B8377	76-M	o	21.68	19.0	Few data		
FR3	B8376	76-D	o	21.68	25.0	Active		
FR3	B8381	77-S	o	21.86	8.5	Few data	NO ₃ >20 mg/L; located downstream of 100-F	Sample D — best record
FR3	B8380	77-M	o	21.86	16.5	Few data		
FR3	B8379	77-D	o	21.86	24.5	Active		

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Table A-2. Sampling Recommendations Based on Evaluation of Aquifer Tube Historical Data. (19 sheets)

Shore Segment	Well ID	Tube Name	SAP	Hanford River Mile	Screen Depth (ft Below Land Surface)	Status	Plumes or Monitoring Purpose	Recommendation*
FR3	B8384	78-S	e	22.30	8.0	Not found	N/A	N/A
FR3	B8383	78-M	e	22.30	16.0			
FR3	B8382	78-D	e	22.30	24.0			
FR3	B8390	80-S		22.10	5.0	No data	None; located between 100 E and Hanford townsite	Do not need
FR3	B8389	80-M	e	22.10	15.5	Not found		
FR3	B8388	80-D	e	22.10	25.5	Active		
PO1	B8393	81-S	f	25.12	8.5	Not found	N/A	N/A
PO1	B8392	81-M	f	25.12	16.5			
PO1	B8391	81-D	f	25.12	24.5			
PO1	B8396	82-S	f	25.72	8.5	1 data point	Tritium undetected; located at Hanford townsite	Do not need
PO1	B8395	82-M	f	25.72	14.5	Low yield		
PO1	B8397	83-D	f	26.23	20.0	Not found	N/A	N/A
PO1	B8402	84-S	f	26.64	8.0	No data	Tritium mostly undetected; located at Hanford townsite	Do not need; doesn't help define plumes
PO1	B8401	84-M	f	26.64	14.0	No data		
PO1	B8400	84-D	f	26.64	22.0	Active		
PO1	B8405	85-S	f	27.13	8.0	No data	Tritium near detection limit; located at Hanford townsite	Sample highest SC; help bound plumes
PO1	B8404	85-M	f	27.13	17.0	1 data point		
PO1	B8403	85-D	f	27.13	26.0	1 data point		
PO1	B8408	86-S	f	27.39	7.0	1 data point	Tritium >2,000 pCi/L; located at Hanford townsite	Sample D - best record
PO1	B8407	86-M	f	27.39	10.0	Active		
PO1	B8406	86-D	f	27.39	26.0	Active; best record		

Table A-2. Sampling Recommendations Based on Evaluation of Aquifer Tube Historical Data. (19 sheets)

Shore Segment	Well ID	Tube Name	SAP	Hanford River Mile	Screen Depth (ft Below Land Surface)	Status	Plumes or Monitoring Purpose	Recommendation ^a
3FF5	G4347	AT 3-1-S	g	42.08	11.6	Active	U > 30 µg/L; tritium > 2,000 pCi/L	No recommendation—defer to SAP.
3FF5	G4346	AT 3-1-M	g	42.08	16.8	Active		
3FF5	G4345	AT 3-1-D(1)	g	42.08	21.1	Active		
3FF5	G4348	AT 3-1-D(2)		42.08	21.0	No data		
3FF5	G4350	AT 3-2-S	g	42.24	10.8	Active	U > 30 µg/L, same in both; tritium > 2,000 pCi/L	
3FF5	G4349	AT 3-2-M	g	42.24	16.6	Active		
3FF5	G5277	103m Array US125		42.313	2.7	Active	U < 30 µg/L; SC low	
3FF5	G5276	103m Array US100		42.333	6.0	Active	U < 30 µg/L; SC low	
3FF5	G5275	103m Array US75		42.350	6.2	Active	U > 30 µg/L; tritium > 2,000 pCi/L	
3FF5	G4642	300SPR0A-10cm		42.365	0.6	Active	U > 30 µg/L; tritium > 2,000 pCi/L; NO3 > 20 mg/L; highest in 142cm	
3FF5	G4643	300SPR0A-86cm		42.365	2.8	Active		
3FF5	G4644	300SPR0A-142cm		42.365	4.7	Active		
3FF5	G5274	103m Array US50		42.367	6.1	Active	U > 30 µg/L; tritium > 2,000 pCi/L	
3FF5	G5273	103m Array US25		42.377	5.6	Active	U > 30 µg/L; tritium > 2,000 pCi/L	
3FF5	none	300-3-3B-120cm		42.389	3.9	No data	Tube 376cm: U > 30 µg/L; tritium > 2,000 pCi/L; NO3 sometimes > 20 mg/L	
3FF5	G4646	300-3-3B-376cm		42.389	12.3	Active		
3FF5	G4740	300-3-3B-518cm		42.389	17.0	1 data-point		
3FF5	G4741	300-3-3C-409cm		42.390	13.4	Active		
3FF5	G4742	300-3-3C-589cm		42.390	19.3	Few data	Tube 409cm: U > 30 µg/L	
3FF5	none	300-3-3-80cm		42.391	2.6	No data	N/A	

Table A-2. Sampling Recommendations Based on Evaluation of Aquifer Tube Historical Data. (19 sheets)

Shore Segment	Well ID	Tube Name	SAP	Hanford River Mile	Screen Depth (ft Below Land Surface)	Status	Plumes or Monitoring Purpose	Recommendation*
3FF5	G4690	300-3-3A-124cm		42.391	4.1	Active	U > 20 µg/L; tritium > 2,000 pCi/L; NO3 sometimes > 20 mg/L	
3FF5	G4645	300-3-3A-410cm		42.391	13.5	Active		
3FF5	G4739	300-3-3A-579cm		42.391	19.0	Few data		
3FF5	G5272	103m Array-AT3A		42.391	6.9	Active	U > 30 µg/L; tritium > 2,000 pCi/L	
3FF5	G4353	AT-3-3-S	g	42.39	6.9	Active	U > 30 µg/L; TCE > 100 µg/L in D; tritium > 2,000 pCi/L in S and M	
3FF5	G4352	AT-3-3-M	g	42.39	15.1	Active		
3FF5	G4351	AT-3-3-D	g	42.39	29.1	Low yield		
3FF5	G5278	103m Array-DS25		42.404	5.6	Active	U > 30 µg/L; tritium > 2,000 pCi/L	
3FF5	G5279	103m Array-DS50		42.412	5.2	Active	U > 30 µg/L; tritium > 2,000 pCi/L	
3FF5	G5280	103m Array-DS75		42.424	6.6	Active	U > 30 µg/L; tritium > 2,000 pCi/L	
3FF5	G4356	AT-3-4-S	g	42.49	7.0	Active	U > 30 µg/L; TCE > 5 µg/L in M and D; tritium > 2,000 pCi/L in S	
3FF5	G4355	AT-3-4-M	g	42.49	9.2	Low yield		
3FF5	G4354	AT-3-4-D	g	42.49	12.0	Low yield		
3FF5	G4358	AT-3-5-S	g	42.61	7.7	Active	U > 30 µg/L; TCE < 1 µg/L; tritium > 2,000 pCi/L	
3FF5	G4357	AT-3-5-M		42.61	12.2	No yield		
3FF5	G4361	AT-3-6-S	g	42.72	9.6	Active	U > 30 µg/L in S&M; TCE < 1 µg/L; tritium > 2,000 pCi/L	
3FF5	G4360	AT-3-6-M	g	42.72	21.8	Active		
3FF5	G4359	AT-3-6-D	g	42.72	28.6	Active		
3FF5	G4364	AT-3-7-S	g	42.82	8.6	Active	U < 30 µg/L; TCE < 1 µg/L; NO3 > 20 mg/L in M	
3FF5	G4363	AT-3-7-M	g	42.82	20.8	Active		
3FF5	G4362	AT-3-7-D	g	42.82	27.2	Active		

Table A-2. Sampling Recommendations Based on Evaluation of Aquifer Tube Historical Data. (19 sheets)

Shore Segment	Well ID	Tube Name	SAP	Hanford River Mile	Screen Depth (ft Below Land Surface)	Status	Plumes or Monitoring Purpose	Recommendation ^a
3FF5	G4367	AT 3-8-S	g	42.94	8.0	Active	U < 30 µg/L; TCE < 1 µg/L; NO3 > 20 mg/L	•
3FF5	G4366	AT 3-8-M	g	42.94	14.0	Active		
3FF5	G4365	AT 3-8-D	g	42.94	20.1	No yield		

NOTE: Tubes shown with strike-out text are out of service or do not consistently yield water.

^a Subject to approval by regulatory agencies.

^b TPA-CN-182, dated September 6, 2007.

^c PNNL-15798, 100-N Shoreline Groundwater Monitoring Plan.

^d DOE/RL-2005-95, Removal Action Work Plan #2 for the 324/327 Buildings and Ancillary Facilities, Addendum (dated April 2008).

^e DOE/RL-2003-49, 100-FR-3 Operable Unit Sampling and Analysis Plan.

^f DOE/RL-2003-04, Sampling and Analysis Plan for the 200-PO-1 Groundwater Operable Unit.

^g DOE/RL-2002-11, 300-FF-5 Operable Unit Sampling and Analysis Plan.

^h Sampling and analysis plan specifies these tubes to be sampled regardless of specific conductance.

DWS = drinking water standard

FY = fiscal year

ISRM = In Situ Redox Manipulation

N/A = not applicable

S&M = surveillance and maintenance

SAP = sampling and analysis plan

SC = specific conductance

TCE = trichloroethene

WT = water table