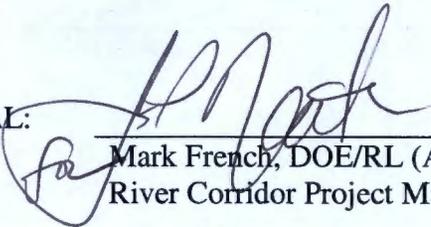
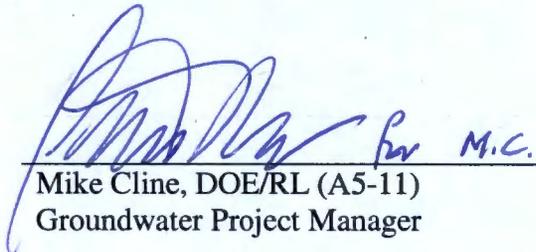


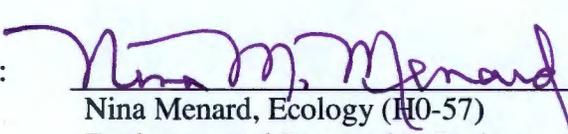
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100/300 AREA UNIT MANAGERS MEETING
APPROVAL OF MEETING MINUTES

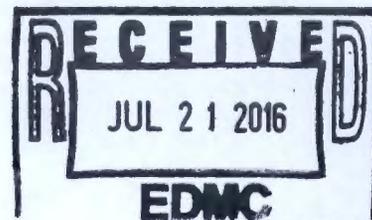
June 9, 2016

APPROVAL:  Date 7/14/16
Mark French, DOE/RL (A3-04)
River Corridor Project Manager

APPROVAL:  Date 7/14/16
Mike Cline, DOE/RL (A5-11)
Groundwater Project Manager

APPROVAL:  Date 7/14/16
Nina Menard, Ecology (H0-57)
Environmental Restoration Project
Manager

APPROVAL:  Date 7-18-16
Laura Buelow or Rod Lobos, EPA (A3-46)
100 Area Project Manager



Please distribute to the following:

100/300 AREA UNIT MANAGER MEETING ATTENDANCE AND DISTRIBUTION

NAME	E-MAIL ADDRESS	MSIN	COMP
Childers, Heather	Original +1 copy	H6-08	ADREC
Cline, Michael	Michael.Cline@rl.doe.gov	A5-11	DOE
French, Mark	Mark.French@rl.doe.gov	A3-04	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 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

June 9, 2016

ADMINISTRATIVE

- Next Unit Manager Meeting (UMM) – The next meeting will be held July 14, 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 May 12, 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 June 9, 2016, UMM.

100-H AREA RUM AQUIFER PUMP TEST

Kris Ivarson presented a status on the 100-H Area Ringold Formation upper mud unit (RUM) Aquifer Pump Test (Attachment 1).

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

Attachment 2 provides status and information for groundwater. Attachment 3 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 or action items were documented.

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

Attachment 2 provides status and information for groundwater. No issues were identified and no agreements or action items were documented.

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

Attachment 2 provides status and information for groundwater. Attachment 4 provides status and information for Washington Closure Hanford (WCH) Closure Operations activities at the 100 Areas, 618-10, and the 300 Area. Attachment 5 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 2 provides status and information for groundwater. Attachment 4 provides status and information for WCH Closure Operations activities at the 100 Areas, 618-10, and the 300 Area. Attachment 5 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 is DOE's and Ecology's signed Approval to Treat (APTT) for waste profile WP-100HR3WLSRV002.

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

Attachment 2 provides status and information for groundwater. Attachment 4 provides status and information for WCH Closure Operations activities at the 100 Areas, 618-10, and the 300 Area. Attachment 5 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.

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

Attachment 4 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 2 provides status and information for groundwater. Attachment 4 provides the 100 Areas, 618-10, and the 300 Area. Attachment 5 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.

ORCHARD LANDS

The RI Work Plan approval page was signed by DOE/EPA/Ecology. The work plan is in duplicating to distribute via letter.

CERCLA FIVE YEAR REVIEW

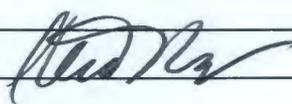
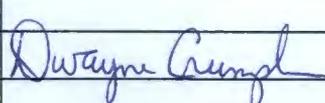
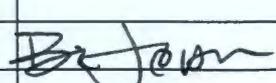
Still on schedule. A draft should be available for review in late August/early September.

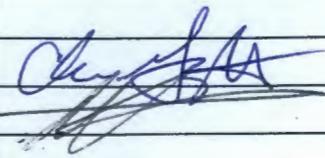
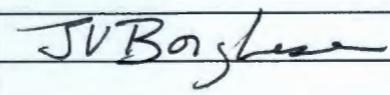
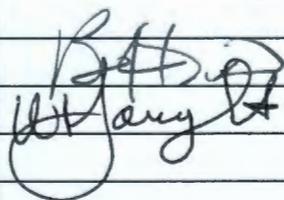
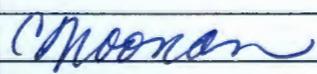
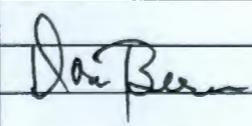
Attachment A

100/300 AREA UNIT MANAGER MEETING

ATTENDANCE

June 9, 2016

NAME	E-MAIL ADDRESS	MSIN	COMP	SIGNATURE
Abenth, Keelan R	keelan.abenth@rl.doe.gov	A5-16	DOE	
Balone, Steven N	steven.balone@rl.doe.gov	A3-04	DOE	
Clark, Clifford E	cliff.clark@rl.doe.gov	A5-19	DOE	
Cline, Michael	michael.cline@rl.doe.gov	A5-11	DOE	
Dagan, Ellen	ellen.dagan@rl.doe.gov	A3-04	DOE	
Foley, Bryan	bryan.foley@rl.doe.gov	A6-38	DOE	
French, Mark	mark.french@rl.doe.gov	A6-38	DOE	
Glossbrenner, Ellwood	ellwood.glossbrenner@rl.doe.gov	A3-04	DOE	
Guercia, Rudolph F	rudolph.guercia@rl.doe.gov	A3-04	DOE	
Hansen, James A	james.hansen@rl.doe.gov	A5-11	DOE	
Hanson, James P	James.Hanson@rl.doe.gov	A5-11	DOE	
Jaschke, Naomi M	Naomi.Jaschke@rl.doe.gov	A5-11	DOE	
Kamal, Mostafa	Mostafa.Kamal@rl.doe.gov	A5-11	DOE	
Louie, Catherine S	catherine.louie@rl.doe.gov	A3-04	DOE	
Neath, John P	john.neath@rl.doe.gov	A3-04	DOE	
Teynor, Thomas K	thomas.teynor@rl.doe.gov	A3-04	DOE	
Post, Thomas	thomas.post@rl.doe.gov	A3-04	DOE	
Quintero, Roger	roger.quintero@rl.doe.gov	A3-04	DOE	
Sands, John P	john.sands@rl.doe.gov	A5-11	DOE	
Sinton, Gregory L	gregory.sinton@rl.doe.gov	A6-38	DOE	
Smith, Chris	douglas.smith@rl.doe.gov	A3-04	DOE	
Vannah, Benjamin W	Benjamin.Vannah@rl.doe.gov	A5-11	DOE	
Zeisloft, Jamie	jamie.zeisloft@rl.doe.gov	A3-04	DOE	
Ayres, Jeffrey M	JAYR461@ECY.WA.GOV	H0-57	ECO	
Boyd, Alicia	ABOY461@ECY.WA.GOV	H0-57	ECO	
Crumpler, Dwayne	DCRU461@ECY.WA.GOV	H0-57	ECO	
Elliot, Wanda	WELL461@ECY.WA.GOV	H0-57	ECO	
Gent, Philip M	PGEN461@ECY.WA.GOV	H0-57	ECO	
Goswami, Dib	DGOS461@ECY.WA.GOV	H0-57	ECO	
Jackson-Maine, Zelma	ZJAC461@ECY.WA.GOV	H0-57	ECO	
Johnson, Brian	BRJ0461@ECY.WA.GOV	H0-57	ECO	
Menard, Nina	NMEN461@ECY.WA.GOV	H0-57	ECO	
Rochette, Elizabeth	BROC461@ECY.WA.GOV	H0-57	ECO	

Smith-Jackson, Noe'l	NSMI461@ECY.WA.GOV	H0-57	ECO	
Varljen, Robin	RVAR461@ECY.WA.GOV	H0-57	ECO	
Welsch, Kim	KIWE461@ECY.WA.GOV	H0-57	ECO	
Whalen, Cheryl	CWHA461@ECY.WA.GOV	H0-57	ECO	
Buelow, Laura	Buelow.laura.epa.gov	B1-46	EPA	
Guzzetti, Christopher	Guzzetti.christopher@epa.gov	B1-46	EPA	
Lobos, Rod	Lobs.rod@epa.gov	B1-46	EPA	
Simes, Benjamin	Simes.Benjamin@EPA.gov	--	EPA	
Barrett, Bill F	William_F_Barrett@rl.gov	R3-20	CH	
Borghese, Jane V	Jane_V_Borghese@rl.gov	H8-43	CH	
Bowles, Nathan A.	Nathan_Bowles@rl.gov		CH	
Burke, Philip A	Philip_A_Burke@rl.gov	R3-50	CH	
Clements, Lorin N	Lorin_Clements@rl.gov	R3-21	CH	
Davis, Mike	Mike_Davis@rl.gov	X4-01	CH	
Day, Roberta E	Roberta_E_Day@rl.gov	R3-50	CH	
Dittmer, Lorna M	Lorna_M_Dittmer@rl.gov	H8-45	CH	
Doornbos, Marty H	Martin_H_Doornbos@rl.gov	R3-50	CH	
Dixon, Brian J	Brian_J_Dixon@rl.gov	T4-09	CH	
Faught, William	William_R_Faught@rl.gov	R3-50	CH	
Ford, Bruce H	Bruce_H_Ford@rl.gov	H8-43	CH	
Hartman, Mary J	Mary_J_Hartman@rl.gov	R3-50	CH	
Lee, Art K	Art_K_Lee@rl.gov	R3-50	CH	
Stewart, Meghann	Meghann_K_stewart@rl.gov	H8-43	CH	
Toews, Michelle R	Michelle_R_Toews@rl.gov	R3-60	CH	
Moren, Rick	Rick_Moren@rl.gov	G3-55	MSA	
Noonan, Carolyn P	Carolyn_P_Noonan@rl.gov	A3-01	MSA	
Shoemake, Joy	Joy_Shoemake@rl.gov	G3-55	MSA	
Turner, Michael J	Michael_J_Turner@rl.gov	A3-01	MSA	
Cimon, Shelley	scimon@oregontrail.net	--	Oregon	
Beers, Dan	Danny.Beers@doh.wa.gov	B1-42	WDOH	
Danielson, Al	Al.danielson@doh.wa.gov	B1-42	WDOH	
Utley, Randy	Randell.Utley@doh.wa.gov	B1-42	WDOH	
Lilligren, Sandra	sandral@nezperce.org	--	TRIBES	
Vanni, Jean	jvynrwm@hotmail.com	--	TRIBES	
Buckmaster, Mark A	mark.buckmaster@wch-rcc.com	N2-05	WCH	
Carlson, Richard A	richard.carlson@wch-rcc.com	H4-22	WCH	

Capron, Jason	jason.capron@wch-rcc.com	H4-23	WCH	
Cearlock, Christopher S	christopher.cearlock@wch-rcc.com	H4-22	WCH	
Darby, John W	john.darby@wch-rcc.com	N2-02	WCH	
Hadley, Karl A	karl.hadley@wch-rcc.com	H4-21	WCH	<i>K. Hadley</i>
Lawrence, Barry L	barry.lawrence@wch-rcc.com	T2-03	WCH	
Lerch, Jeffrey A	jeffrey.lerch@wch-rcc.com	H4-22	WCH	
McCurley, Clay D	clay.mccurley@wch-rcc.com	H4-21	WCH	<i>Clay D. McCurley</i>
Parnell, Scott E	scott.parnell@wch-rcc.com	H4-21	WCH	
Mostafa Kamal	Mostafa.Kamal@ri.doe.gov	DOE-RL		<i>M. K. P.</i>
Ivarson, Kristine	Kristine-A-Ivarson@d.gar	PRC		<i>Kristine Ivarson</i>
Drawett, Mike	George-M-Drawett@d.gar	ARC		<i>George M. Drawett</i>
OWEN Robertson	Owen.Robertson,RL,Doc,Scr	DOE RL		<i>Owen Robertson</i>
BERLIN, GREG	gregory-t-berlin@rl.gov	MSA		<i>Gregory T. Berlin</i>
Deborah Singleton	deborah_g_singleton@ri.gov	PRC		<i>Deborah Singleton</i>

Attachment B

100/300 Area UMM

Action List

June 9, 2016

Open (O) Closed (X)	Action No.	Co.	Actionee	Project	Action Description	Status
O	100-203	RL	Greg Sinton	S&GW	Provide a status on SGW-59118, "Technical Basis for field-Filtering Groundwater Samples for Hexavalent Chromium Analysis," at the June 2016 Unit Managers Meeting	Open: 5/12/16; Action:
O	300-010	RL	John Sands	S&GW	Provide a presentation on sequestration at the July Unit Managers Meeting	Open: 5/12/16; Action:

Attachment C

100/300 Area Unit Manager Meeting
June 9, 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 (7/14/2016, Room C209)

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

- 100-H Area RUM Aquifer Pump Test (Steve Balone, Kris Ivarson)
- 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-H Area RUM Aquifer Pump Test

Kris A. Ivarson (CHPRC)



SGW-59983-VA, Rev. 0



100-H Area RUM Aquifer Pumping Tests

Background

- Hexavalent chromium (Cr[VI]) contamination is present in the first water bearing unit of the Ringold Formation upper mud unit (RUM)
- There are 8 wells in 100-H that are completed in the RUM
- HX extracts water from 3 wells in the RUM:
 - 199-H3-2C (HE09)
 - 199-H4-12C (HE10)
 - 199-H3-9 (HE13)

Well Flow Rates and Concentrations

Well Name	Typical Flow Rate (gpm)	Cr(VI) concentration ($\mu\text{g/L}$) 2016	Sample date
199-H3-2C	30	62	May 16, 2016
199-H4-12C	30	135	May 16, 2016
199-H3-9	11.9	70	May 16, 2016
199-H3-10	--	3.8	Feb. 9, 2016
199-H2-1	--	20	Feb. 8, 2016
199-H4-90	--	12	Mar. 16, 2016
199-H4-91	--	34	Mar. 16, 2016
199-H4-15CS	--	29	Oct. 23, 2015

Main Objectives

- Determine the radius of influence of pumping at each test well
- Determine the connectivity of the RUM aquifer across 100-H
- Determine if the RUM aquifer is leaky or confined.
- Determine if the RUM aquifer is connected to the Columbia River, and to what extent
- Determine the hydraulic parameters of the aquifer (transmissive sediments that make up the first water-bearing unit within the RUM)
- Determine the performance characteristics (e.g., specific capacity) of the test wells
- Confirm the CSM

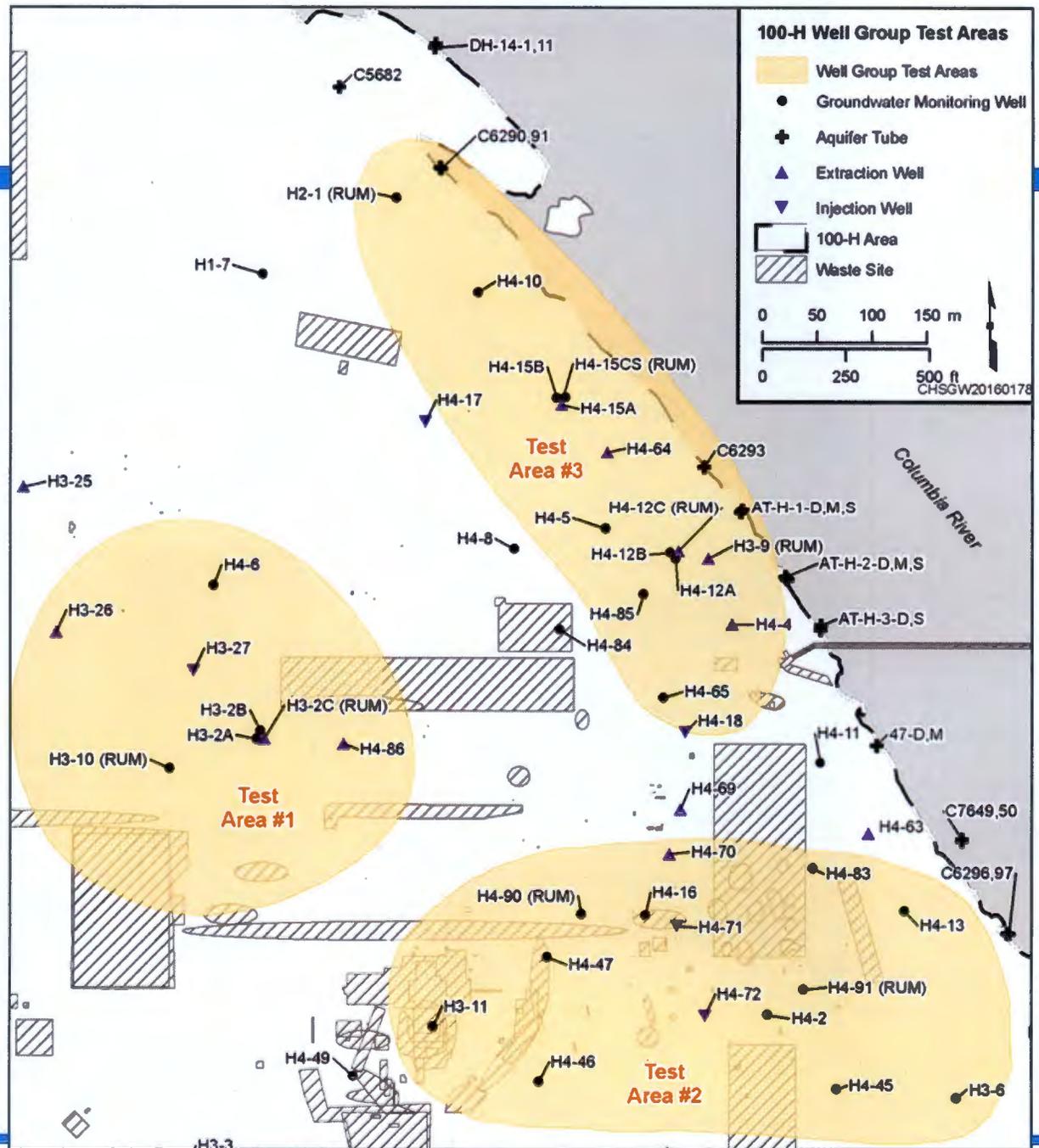
Test Areas

Pumping Wells by Test Area:

#1) 199-H3-2C and 199-H3-10

#2) 199-H3-9 and 199-H4-12C

#3) 199-H4-90



Testing

- Step Drawdown Test (includes recovery)
 - This type of test consists of a series of sequential, relatively short-duration constant rate pumping tests (steps)
 - Each step is of approximately equal duration and at a progressively higher pumping rate
 - Each step should be at least 2 hours in duration. The water level within the well should stabilize until the next higher pumping rate is initiated
- Data obtained during the step drawdown test can be used to derive the following characteristics:
 - Specific drawdown
 - Specific capacity
 - Qualitative assessment of well performance (yield-drawdown)
 - Pumping rate for the constant rate test

Testing

- Constant Rate Test (includes recovery)
 - Test is conducted on a single pumping well, with monitoring at observation wells
 - Groundwater is to be extracted from the pumping well at a constant uniform rate for 24 hours (usually sufficient for confined aquifers)
- Data obtained during the constant rate test results can be used to derive the following characteristics:
 - Aquifer transmissivity
 - Storage coefficient, assuming an observation well is available
 - Qualitative assessment of ability to maintain the planned yield
 - Radius of influence
 - Boundary condition effects, such as river influence and recharge areas
 - Whether the aquifer is confined or connected to another aquifer (leaky)



Questions?

Backup Slide - Schedule

- HX Well 199-H3-2C (HE09) – testing the week of May 16
- HX Well 199-H3-9 (HE13) – testing the week of May 23
- Monitoring Well 199-H3-10 – testing the week of May 31
- HX Well 199-H4-12C (HE10) – testing the week of June 6
- Monitoring Well 199-H4-90 – testing the week of June 13

Attachment 2

100/300 Areas Unit Managers Meeting
June 9, 2016 (May data)

Summary Hanford Sampling Program

Hanford's overall Site groundwater monitoring program (River Corridor and Central Plateau) coordinates collection of groundwater samples from wells, aquifer tubes, and 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 temporally aligning requests from multiple 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 2,982 sample trips scheduled for collection. DOE has successfully completed 1,914 of 1,979 sample trips scheduled for October 2015 through May 2016. Through May 2016, (FY 2016, month eight), the program successfully completed 221 of the 258 groundwater sampling trips scheduled for May 2016. Additionally, 3 trips scheduled for June were collected in May, ahead of schedule, which brings the total number of Fiscal Year 2016 trips to be collected to **1,917 of 2,982** scheduled.

Sample Trip Status by Month Collected

During May 2016, 207 Fiscal Year 2016 sample trips were successfully collected, of which 2 were scheduled for March, 5 were scheduled for April, 197 were scheduled for May, and 3 were scheduled for June.

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

Awaiting Sample Trips

Of the Fiscal Year 2015 and 2016 sample trips scheduled for May 2016 and prior, there are 71 that are awaiting collection. Of these, 11 require maintenance, 4 have access restrictions, 3 are not on the Well Access List, 2 pump-and-treat wells that are not running, 2 are being reviewed for cancelation, 2 were unsuccessful, 27 are associated with a special study, and 20 are awaiting collection at the month end.

Table 2 presents the sample trips for only the river corridor that were not successfully completed in May. Sample trips in Table 2 are grouped by fiscal month scheduled and groundwater interest area. This table clearly shows that the number of awaiting well trips decreases with time from the schedule date. Reasons for sample trips to be awaiting include but are not limited to issues such as well maintenance, weather conditions, access restrictions, and resource limitations.

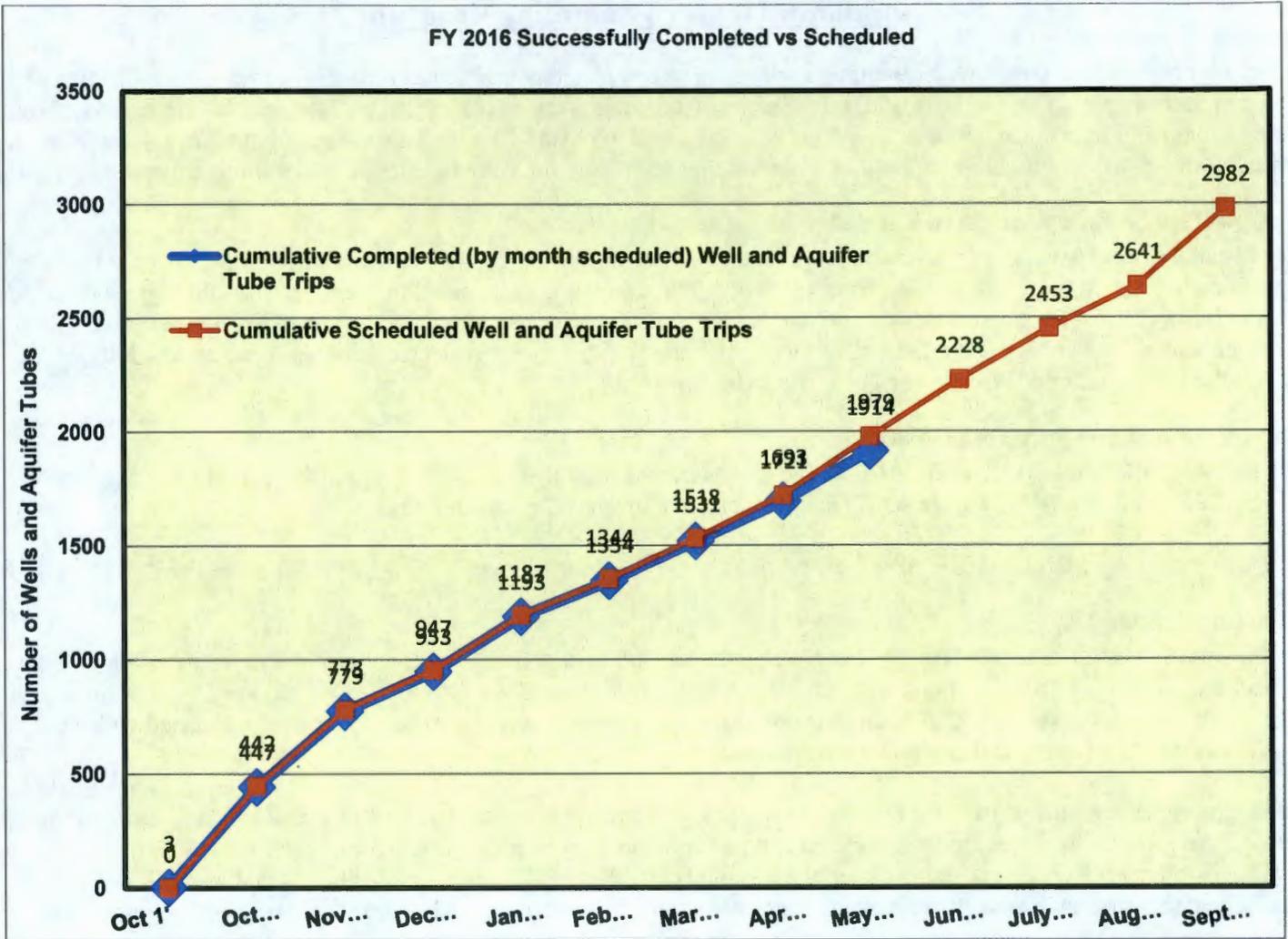
Upcoming Sample Trips

Sample trips for the river corridor only, scheduled for collection in June 2016 (and not collected before the target sample month) 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.ri.gov/eda/> or from the internet at <https://ehs.hanford.gov/eda/>.

100/300 Areas Unit Managers Meeting
June 9, 2016 (May data)



100/300 Areas Unit Managers Meeting
June 9, 2016 (May 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 to DOE-RL. Currently incorporating comments for resubmission to DOE-RL in early June.
 - ✓ The 100-KW rebound study sampling and analysis plan was approved and finalized in May and the KW pump and treat system was shut down on May 16, 2016. Extraction, injection, and monitoring wells are being reconfigured to support the rebound analysis monitoring activities. Reconfiguration includes removal of well internal components (e.g., pumps and pipes) to allow sample collection from selected depth intervals. Sample collection from wells in the central plume area down gradient of 183-KW Head House will begin the first week of June.
- 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 May 2016 are:
 - Treated 58.4 million gallons (65.1 in April)
 - Removal 2.7 kg of hexavalent chromium (3.2 kg in April)
 - ✓ The influent and effluent Cr(VI) concentrations (measured weekly) for the three K systems during April are presented in Table K-1. Note that the KW system was shut down to initiate the rebound study on May 16, 2016.

Table K-1. Monthly Summary of Influent and Effluent Concentrations at the 100-KR-4 P&T Systems

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	6, 7, 5, 6	6	0, 1, 1, 0	0.5
100-KW	11, 8	10	0, -2	-1
100-KX	19, 18, 17, 16	18	3, 1, 2, 0	2

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.

100/300 Areas Unit Managers Meeting
June 9, 2016 (May data)

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

<u>P&T System</u>	<u>Treated (mgal)</u>	<u>Removed (kg)</u>
KR-4	109.4	2.4
KW	107.2	5.5
KX	288.2	17.5
100-KR-4 OU TOTAL	504.8	25.4

- ✓ In May 2016, the 30-day average pumping rates were 298 gpm, 165 gpm, and 816 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 May with the exception of a facility shutdown caused by adverse weather conditions. The plant was off-line to make repairs and returned to full operation within a day. With the exception of 199-K-144, 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, the system operated at full capacity up to May 16, 2016, when the pump and treat system was shut down and the hexavalent chromium rebound study was initiated. Up through May 16, all extraction wells continued to exhibit hexavalent chromium concentrations less than 20 µg/L.
- At KX, the system operated at full capacity for the month of May with the exception of a facility shutdown caused by adverse weather conditions. The plant was off-line to make repairs and returned to full operation within a day. At the end of May, 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 May 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. A draft characterization report is in internal review.

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- ✓ 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.

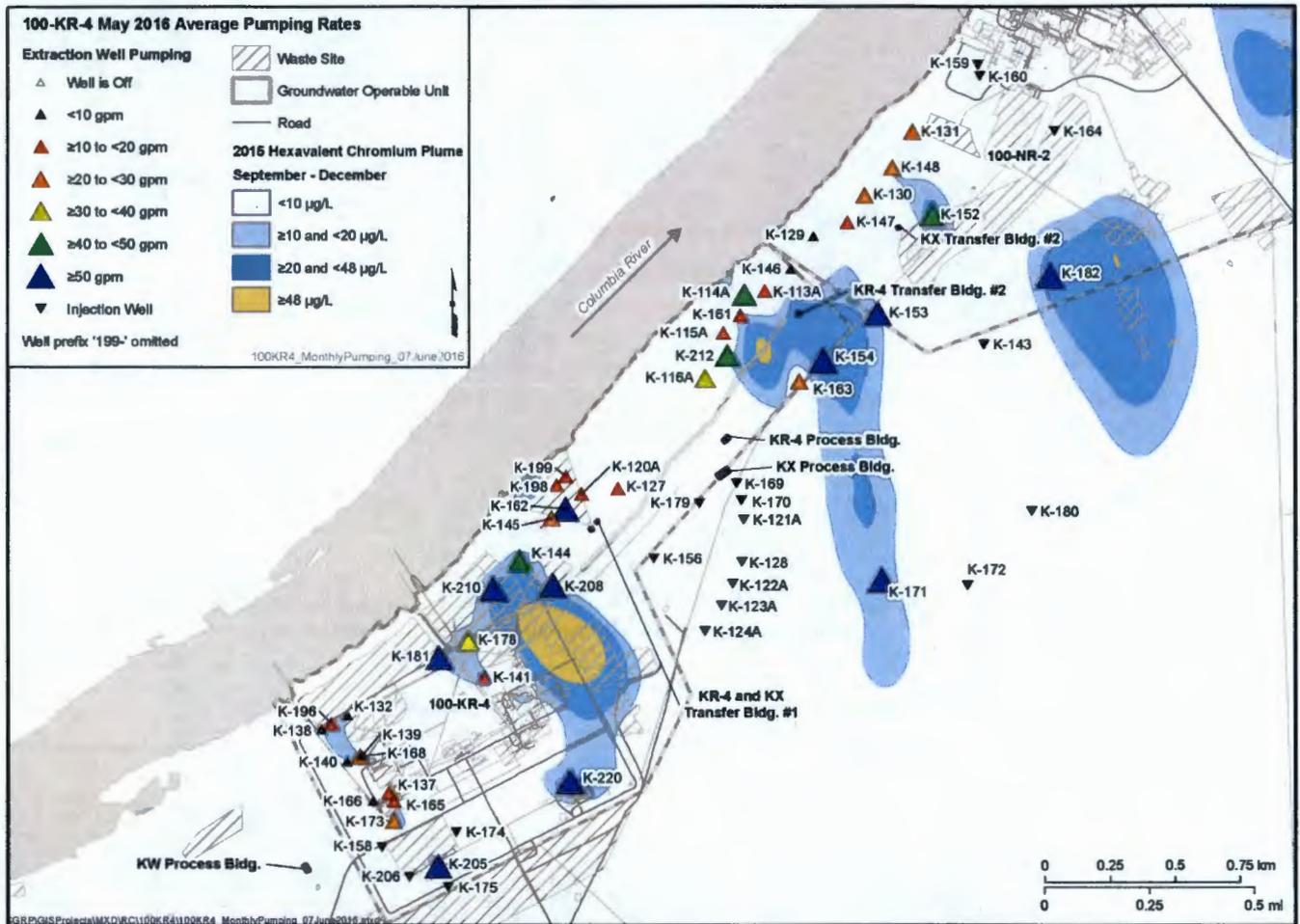


Figure K-1. May 2016 Average Pumping Rates for the 100-KR-4 P&T System

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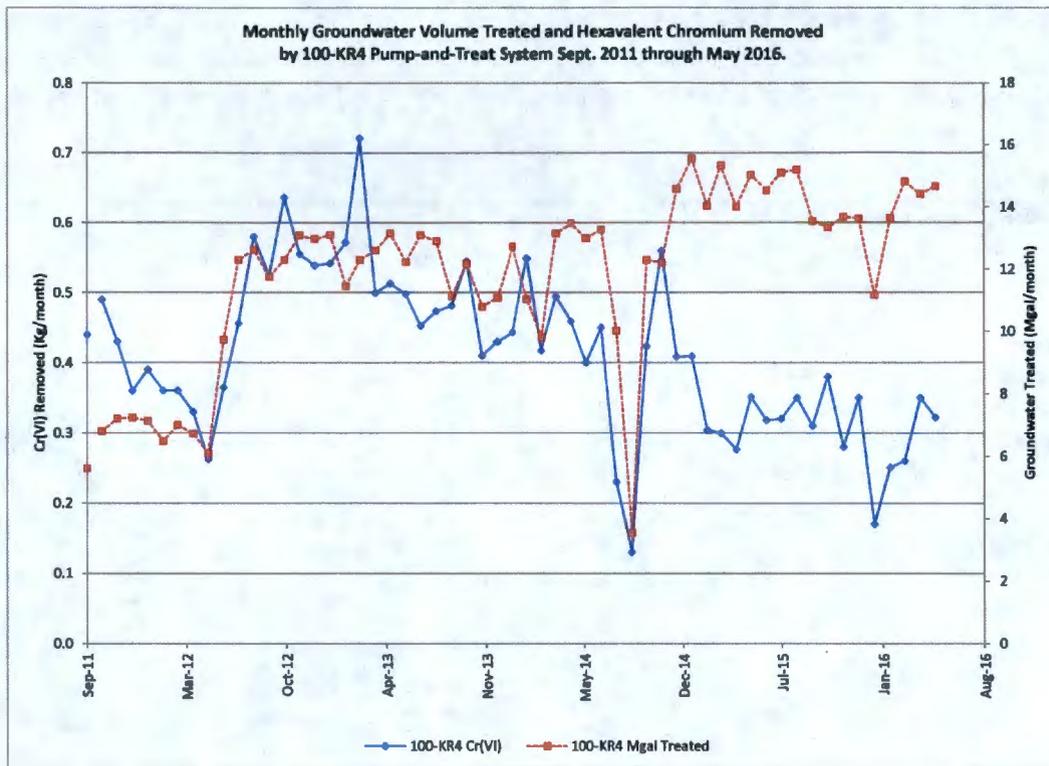


Figure K-2. Monthly Cr(VI) Removed and Groundwater Volume Treated by 100-KR-4 Pump-and-Treat, September 2011 through May 2016.

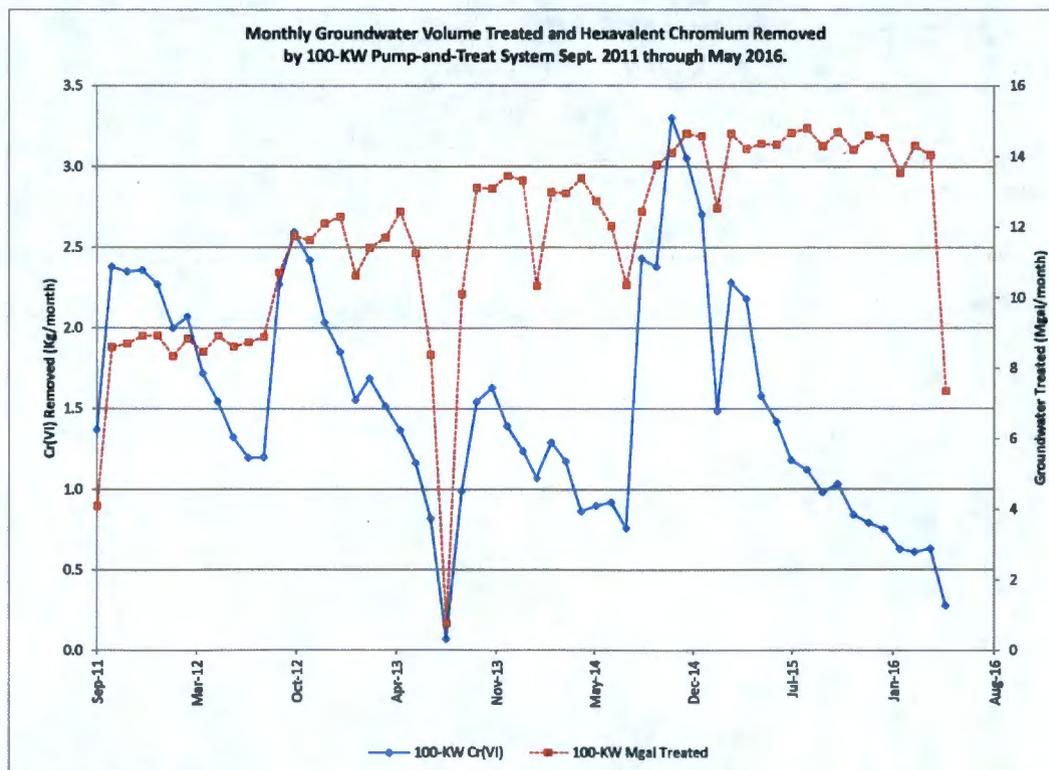


Figure K-3. Monthly Cr(VI) Removed and Groundwater Volume Treated by 100-KW Pump-and-Treat, September 2011 through May 2016.

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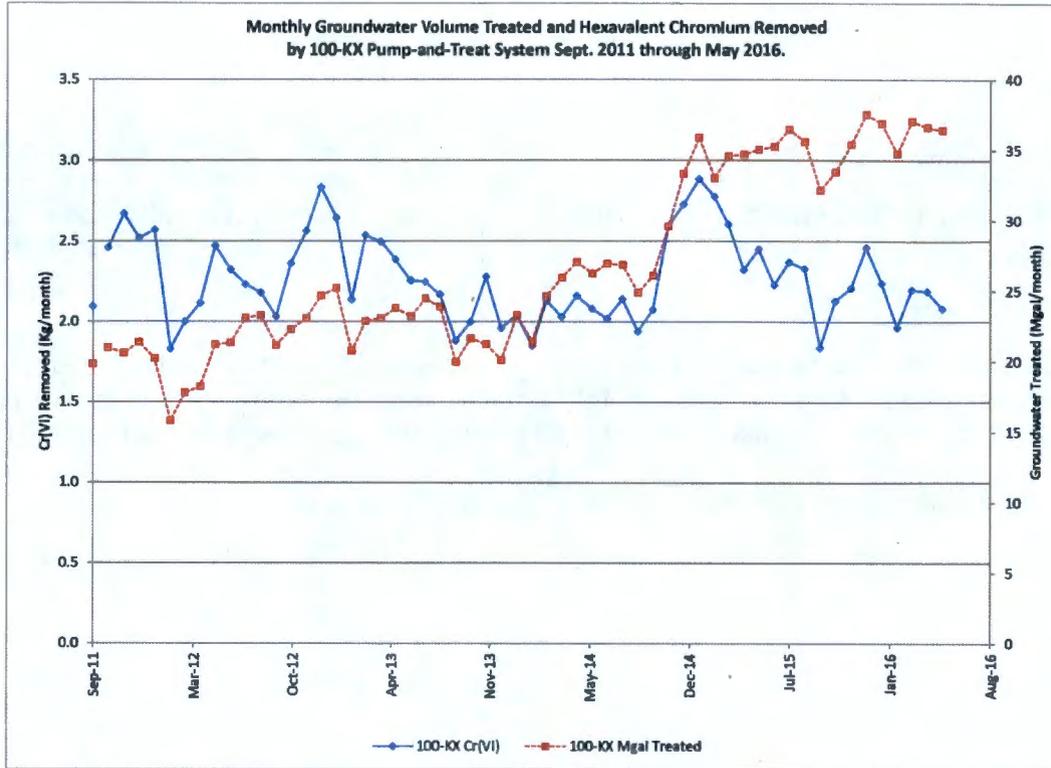


Figure K-4. Monthly Cr(VI) removed and groundwater volume treated by 100-KX pump-and-treat, September 2011 through May 2016.

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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 Decisional Draft RI/FS report to meet above milestone. Report will be submitted to RL for review on June 6, 2016
- **Monitoring & Reporting:**
 - ✓ Staff began working on a TPA change notice for the groundwater SAP (DOE/RL-2003-38, Rev. 2), to add chloroform and trichloroethene to the analyte list for wells screened in the lower part of the unconfined aquifer, beginning with the fall 2016 sampling event. The RI recently identified these VOCs as COPCs in three of the deep wells.
 - ✓ The next groundwater sampling (semiannual wells) 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.
- ✓ Drilling started on the first well behind the N-Reactor (199-N-371) on May 23. As of June 1, drill depth is at 86 ft bgs, total depth is expected at 120 ft. bgs. The four planned soil sample intervals were collected and water table measured at 62.9 ft. bgs. Two groundwater samples have been collected. Samples results are pending.
- ✓ 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.
- ✓ Comment responses to the SAP have been incorporated into Revision 2 of DOE/RL-2001-27 and the document is being routed for approval.

• 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 May 26, 2016. Vapor samples indicate continued TPH bioremediation occurring at the vicinity of well 199-N-171, but not at well 199-N-169.
- ✓ Draft of the annual bioventing performance report covering the time period from March 2015 through February 2016 is being reviewed by DOE-RL. The draft report includes results from the semi-annual respirometry tests conducted during this period
- ✓ The high river respirometry test for 2016 is scheduled to start June 20, 2016.

Product Recovery –

- ✓ Change out of the sponge assembly in well 199-N-18 is scheduled for the week of June 6. The sponge assembly was installed following the respirometry test on February 23, 2016. This longer period between sponge change out will evaluate if additional product can be removed with longer absorption time.

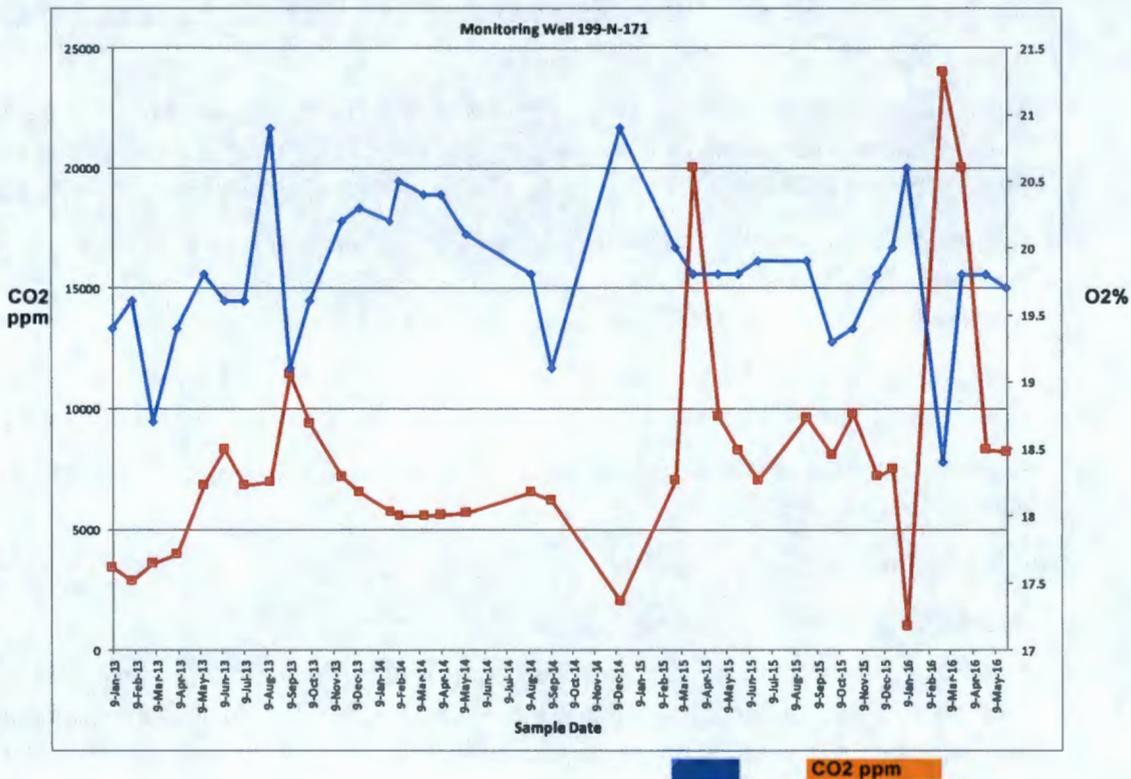
Aquifer Tubes –

- ✓ 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, April 26, 2016, and May 23, 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 31, 2016, completion of the laboratory analysis for the April and May samples for the aquifer tubes are still pending for loading into HEIS.

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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	19.6	2840
	6-Mar-13	18.7	3570
	8-Apr-13	19.4	3960
	15-May-13	19.8	6820
	12-Jun-13	19.6	8290
	10-Jul-13	19.6	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	19.8	9650
	26-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
	28-Apr-16	19.8	8290
	26-May-16	19.7	8220



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	800
	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
	28-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	460
	22-Dec-15	20.9	490
	11-Jan-16	20.9	0
	29-Feb-16	20.9	520
	25-Mar-16	20.9	15.6
	26-Apr-16	20.9	520
	26-May-16	20.9	550

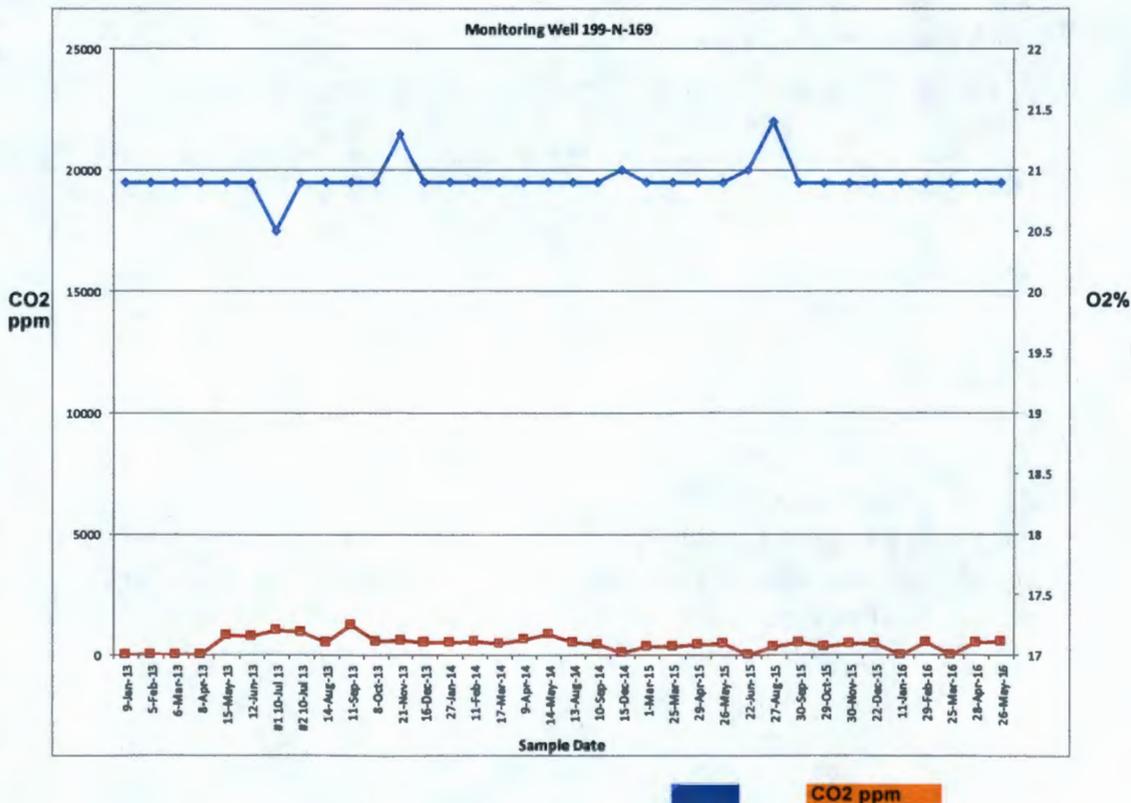


Figure NR-1. Bioventing Wells 199-N-169 and 199-N-171 Monthly Sampling Results.

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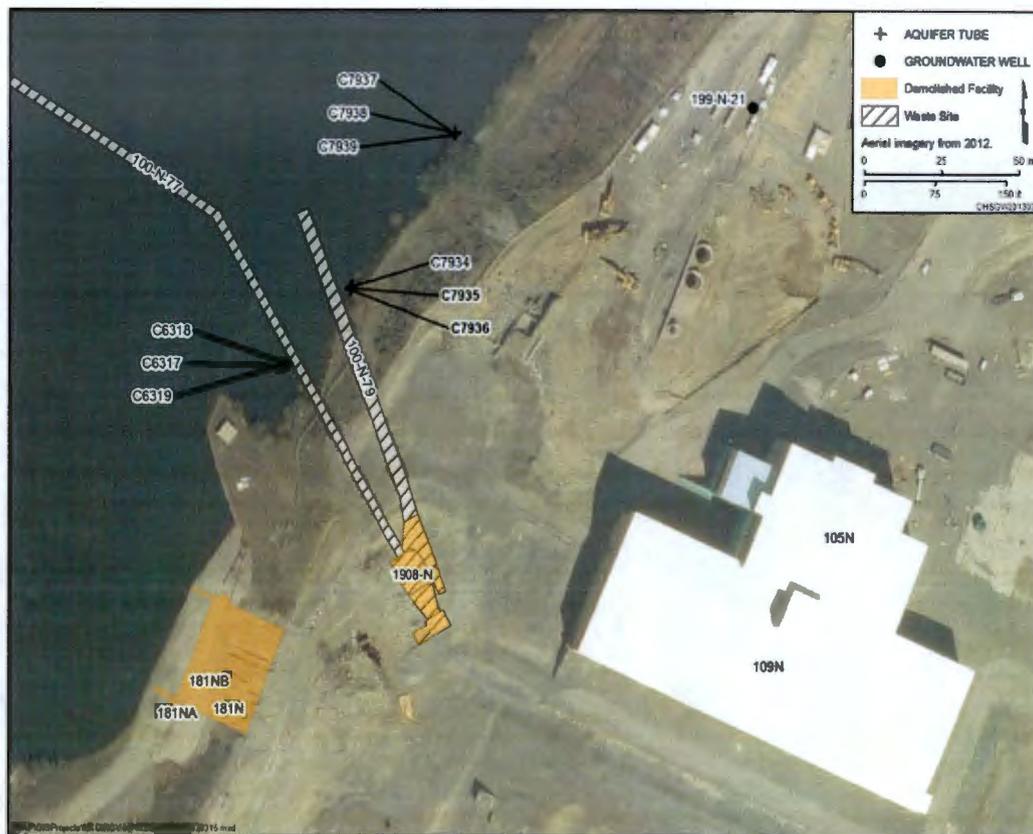


Figure NR-2. Locations of Aquifer Tubes C7934, C7935, and C7936.

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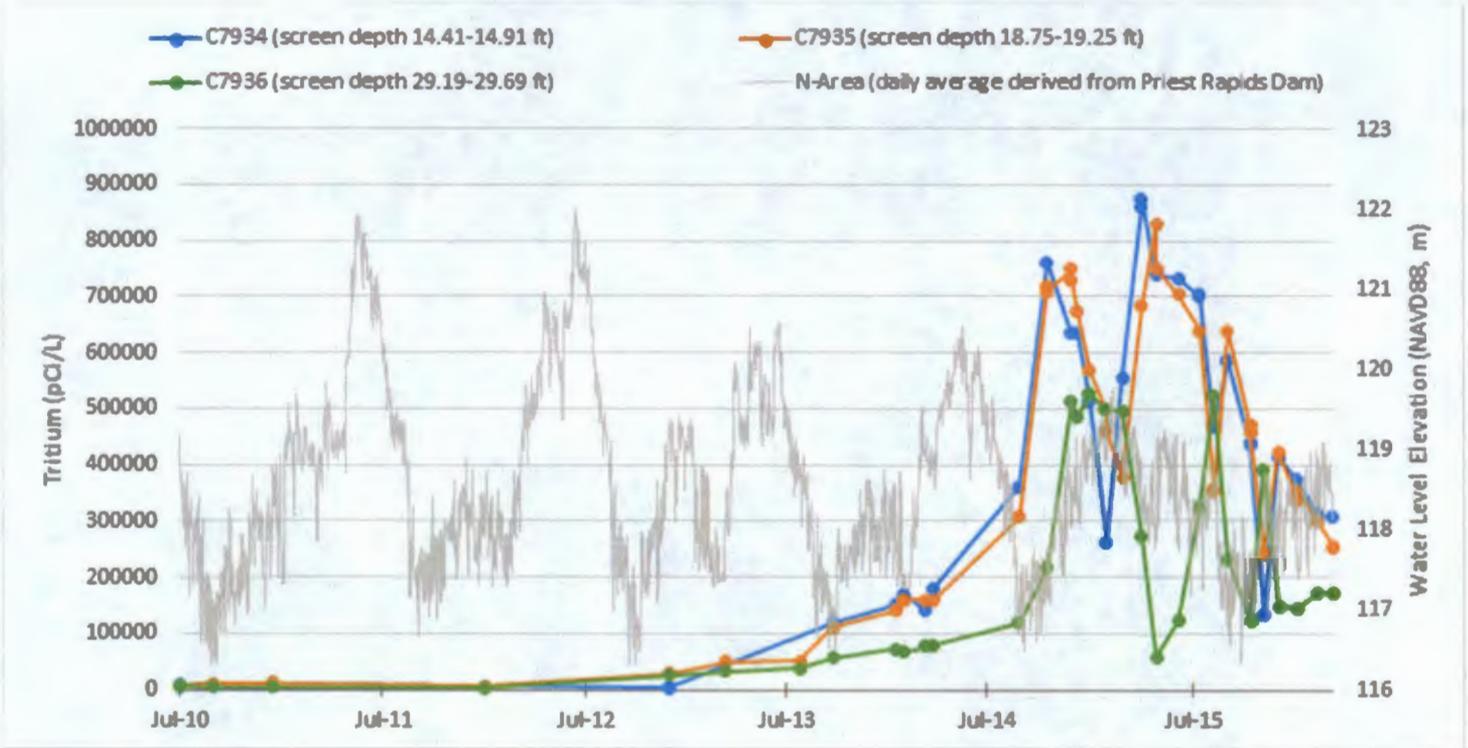


Figure NR-3. Tritium Trends through March 2016 at Aquifer Tubes C7934, C7935, and C7936.

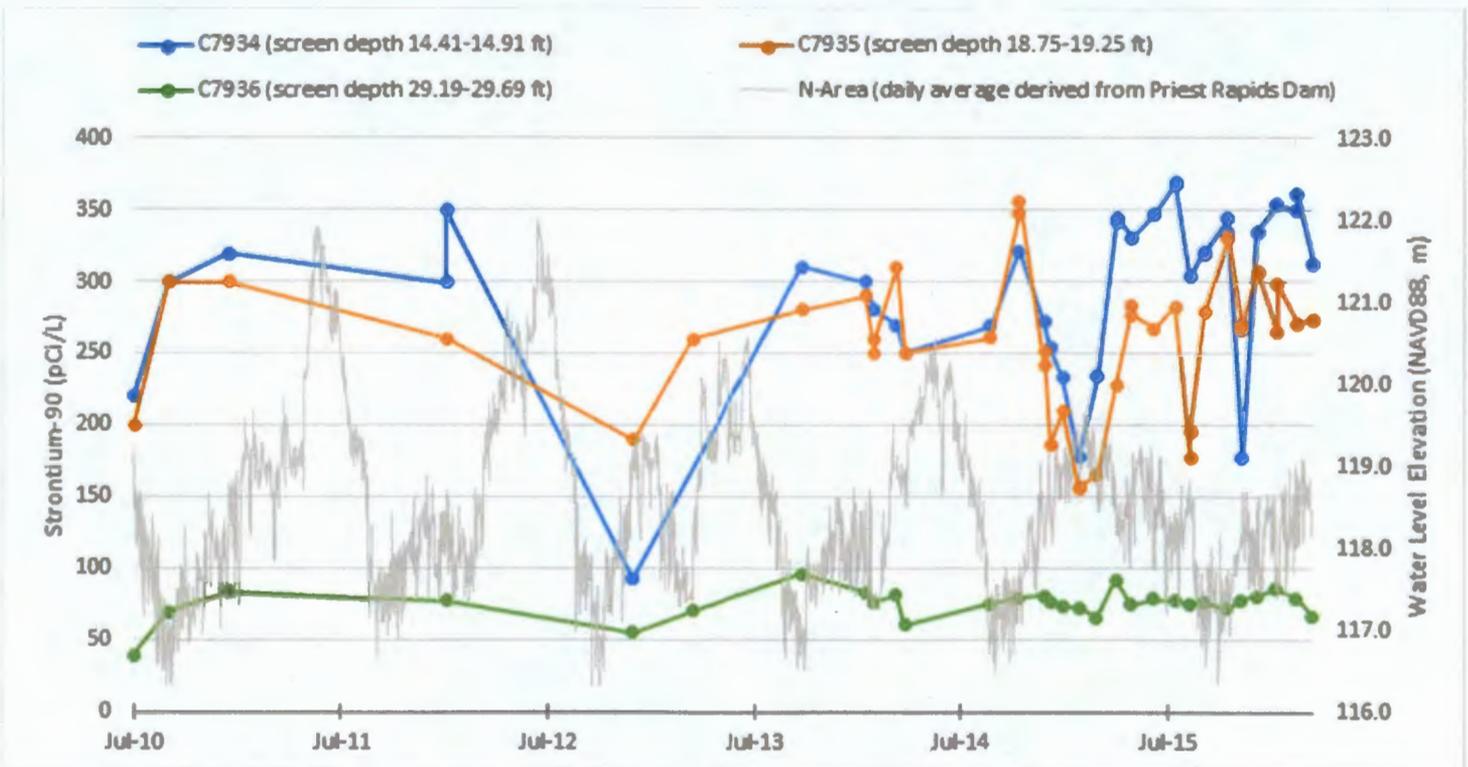


Figure NR-4. Strontium-90 Trends through March 2016 at Aquifer Tubes C7934, C7935, and C7936.

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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-June 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 plan signatures completed on May 31, 2016.
- FY16 Drilling Progress
 - ✓ The WCH replacement well laboratory results have been received. A result of 75 µg/L, with a duplicate result of 54 µg/L, was identified in well 199-D5-151. Results in the remaining wells were all below 15 µg/L in 100-D Area. Results in 100-H replacement wells were below 10 µg/L.
 - ✓ Three wells have been completed and construction is being conducted, along with well development. Well 199-D8-102 is anticipated to be at final depth in early June 2016.
- Ringold Upper Mud (RUM) Aquifer Pump Test
 - ✓ Step and constant rate tests have been conducted at wells 199-H3-2C (extraction well), and 199-H3-9 (extraction well). Initial evaluation indicates that there may be a connection between well 199-H3-2C and 199-H3-10, located about 100 meters to the west. Data also indicates that well 199-H3-9 is connected hydraulically to well 199-H4-12C. Further evaluation is underway.
 - ✓ 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. 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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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.

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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 May 2016 are:
 - Treated: 64.4 million gallons (54 in April)
 - Removed: 8 kg of Cr(VI) (6.9 in April)
- ✓ The influent and effluent Cr(VI) concentrations (measured weekly) for the 100-HR-3 systems during April are presented in Table H-3.

Table H-3. Monthly Summary of Influent and Effluent Concentrations at the 100-HR-3 P&T Systems

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	43, 44, 33, 34, 42, 36	39	6, -2, 1, 1.5, 1.5, -1	1
100-HX	21, 18, 19, 15	18	1, 0, 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 May.) P&T performance to date:

P&T System	Treated (mgal)	Removed (kg)
DX	264	48.9
HX	172	16.8
Total 100-HR-3	436	65.7

- ✓ 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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- ✓ DOE, RL and Ecology signed the Approval to Treat (APTT) for waste profile WP-100HR3WLSRV002. Signed copy of the APTT is attached for inclusion in meeting minutes.



APTT_WP-100HR3W
LSRV002.pdf

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.

- ✓ Resin reconditioning activities at DX were completed and the plant is operating at full capacity.
- ✓ Hexavalent chromium concentrations in groundwater HR-3 are now below 200 µg/L across the operable unit, and below 100 µg/L in all but a few wells in the 100-D Area. The highest Cr(VI) concentrations in the 100-HR-3 OU as of mid-May 2016 are found in well 199-D5-34 and 199-D8-95 (both at 147 µg/L), and in the RUM wells 199-H4-12C, 199-H3-2C and 199-H3-9 (at 135, 62, and 70 µg/L, respectively).
- ✓ 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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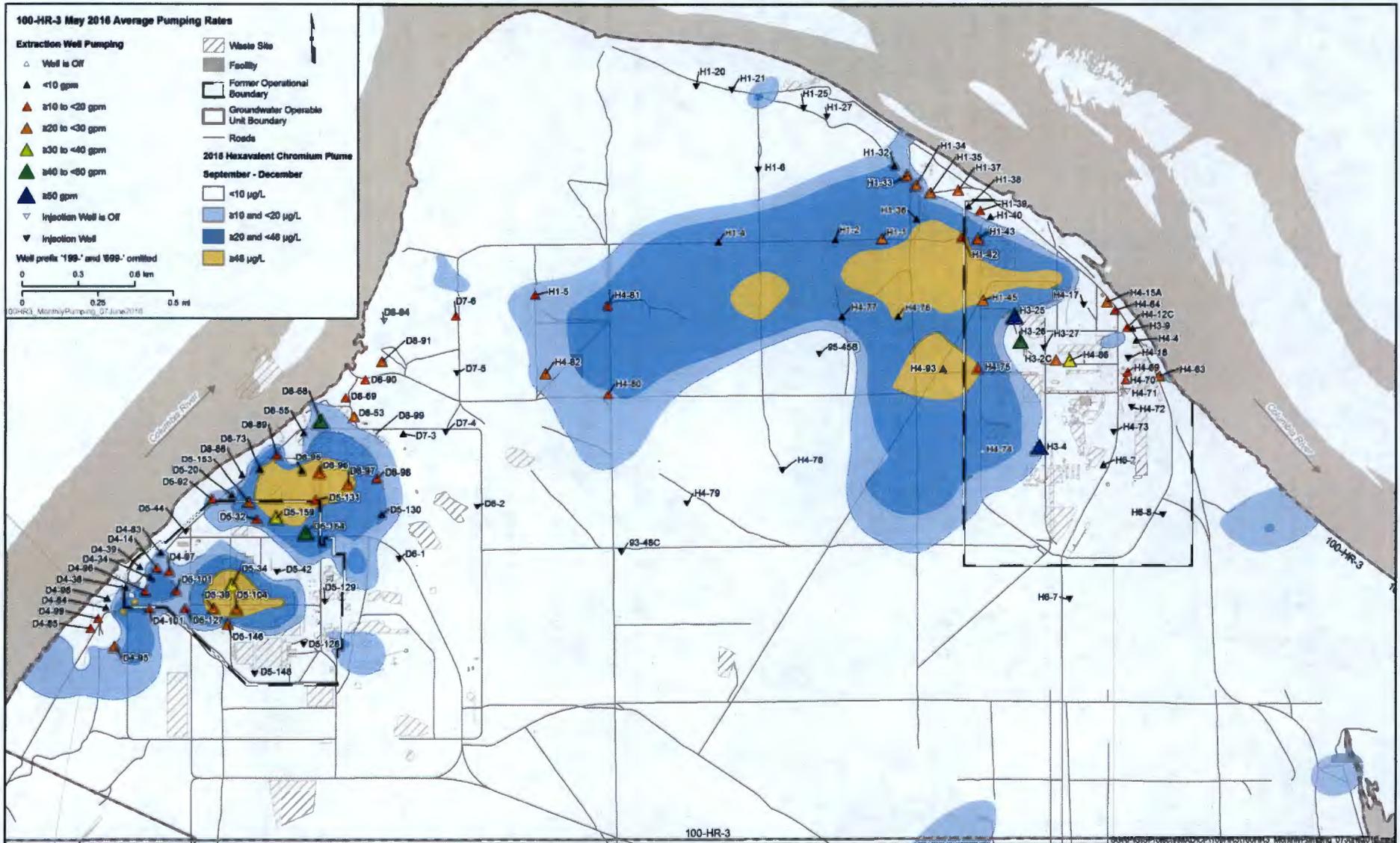


Figure H-2. May 2016 Average Pumping Rates for the 100-HR-3 P&T System.

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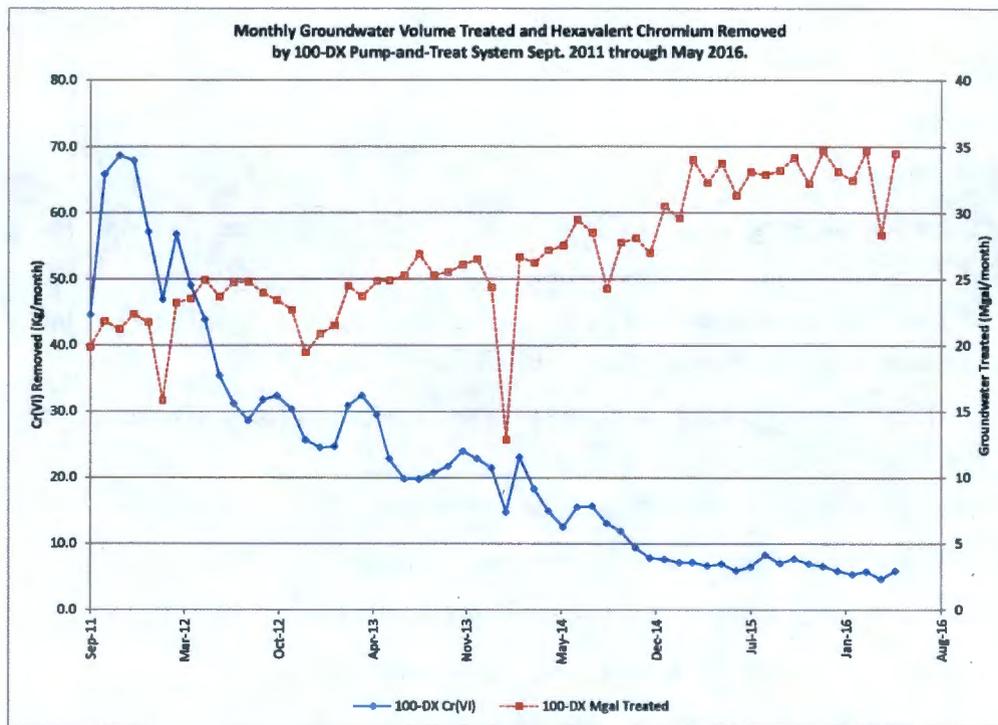


Figure H-3. Monthly Cr(VI) Removed and Groundwater Volume Treated by 100-DX Pump-and-Treat, September 2011 through May 2016.

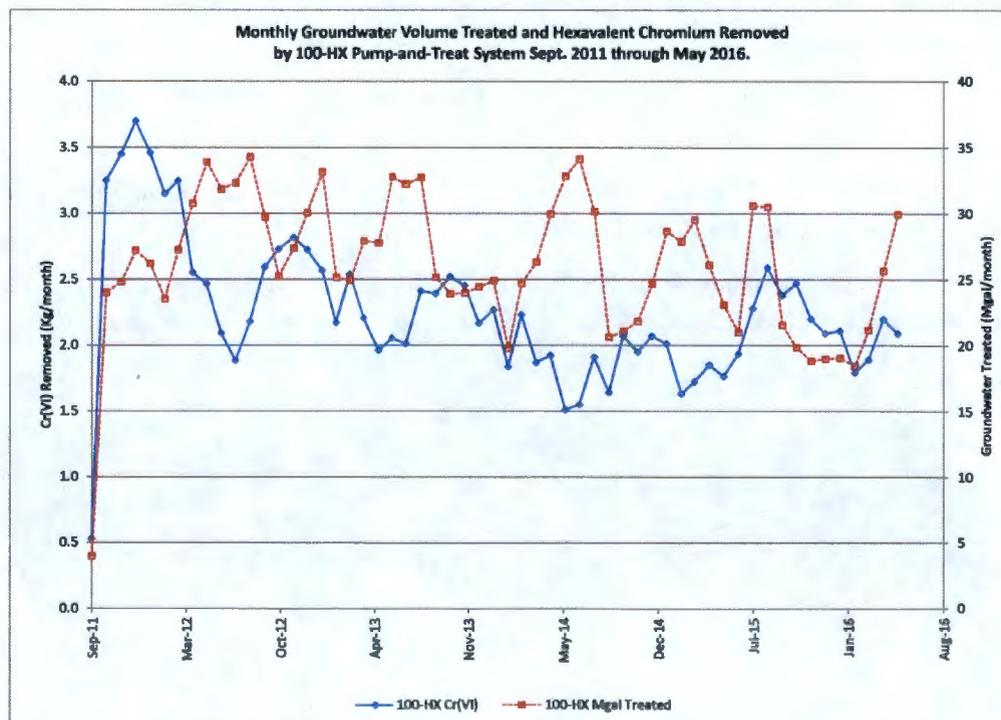


Figure H-4. Monthly Cr(VI) Removed and Groundwater Volume Treated by 100-HX Pump-and-Treat, September 2011 through May 2016.

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

- CERCLA Process Implementation:
 - ✓ Nothing to report
- Monitoring & Reporting:
 - ✓ Drilling of the new monitoring wells continued in May. Figure F-1 illustrates locations. The status of drilling as of June 1 was as follows:
 - C9472: Drilled; aquifer 9.6 ft. thick. Well was constructed with its screen 3 feet higher than designed and will be decommissioned and replaced with C9628.
 - C9474: Drilled; aquifer 0.3 ft. thick and too thin to monitor; decommissioned as described in last month's UMM
 - C9475: Drilled; aquifer 5.4 ft. thick; to be constructed.
 - C9476: Drilled; aquifer 2 ft. thick; constructed as designed.
 - C9477: Drilled; aquifer 9.3 ft. thick; constructed as designed.
 - C9478: Drilled; aquifer 3.4 ft. thick; under construction 6/1/2016.
 - C9479: Drilled 10 ft. into RUM; no water; will decommission.
 - C9480: Drilled; aquifer 2.8 ft. thick; constructed as designed.
 - ✓ The lack of a well at the location of C9474 leaves a gap in the monitoring network between the nitrate plume and the Columbia River. Aquifer tubes located east of C9474 will be added back to the monitoring network to aid in nitrate plume interpretations.
 - ✓ The lack of a well at the location of C9479 is not critical because there are wells west, east, and south of the location.
 - ✓ After updating interpretations of the RUM surface and water table, and evaluating sampling results from completed wells, we will propose locations for Phase 2 wells.
 - ✓ The next sampling event for existing wells is scheduled for June 2016 (5 semiannual wells). The new wells will be sampled after they are accepted; tentatively scheduled for August. They will be sampled quarterly for the first year.

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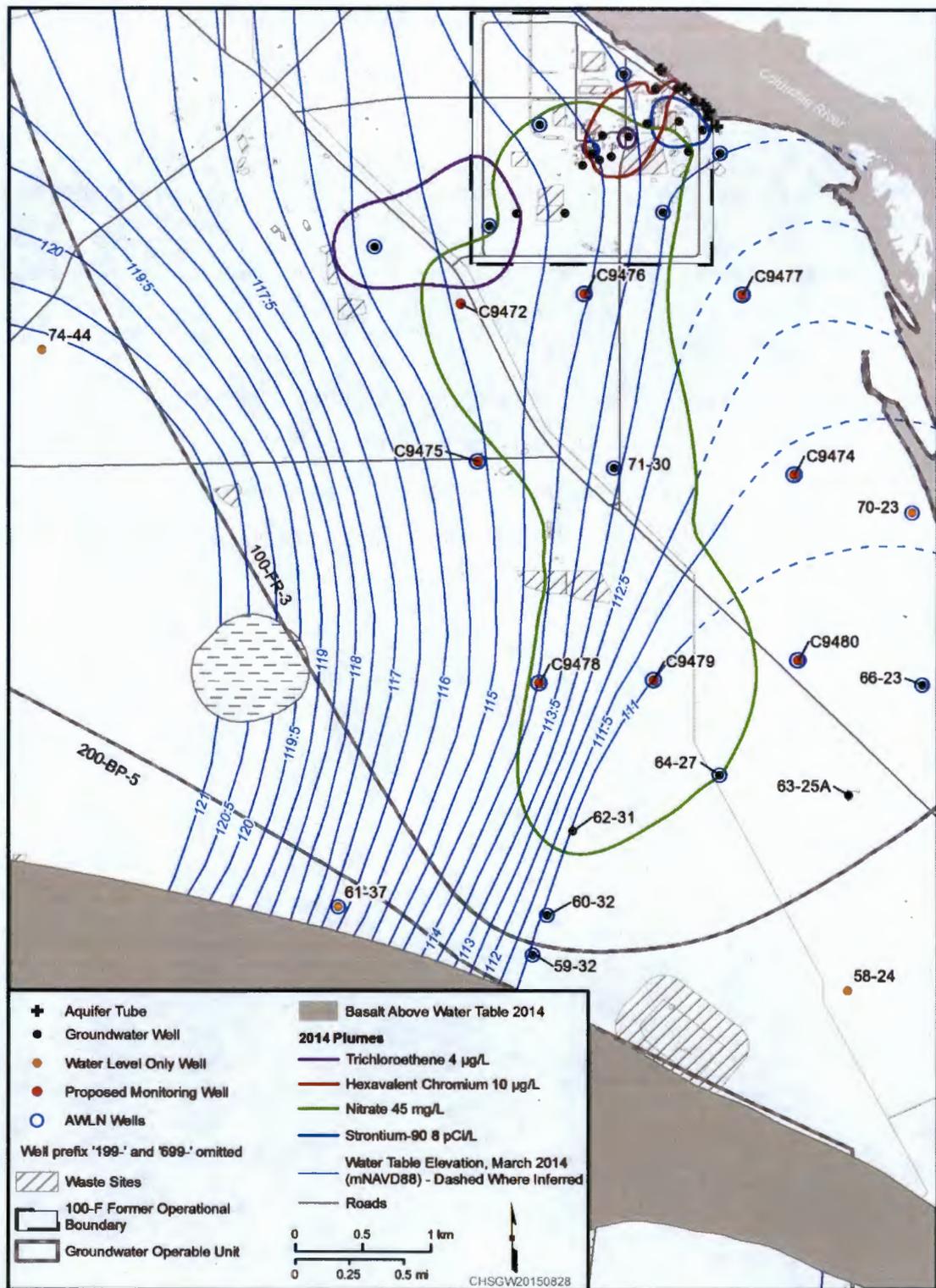


Figure F-1. Well Locations at 100-F

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

- CERCLA Process Implementation:
 - ✓ Nothing new to report
- Remedial Actions:
 - ✓ Summary of preliminary, short-term observations regarding Stage A uranium sequestration (Figures FF-1 and FF-2):
 - The Stage A post-treatment leachability analyses report has been received and is currently being evaluated.
- Monitoring & Reporting:
 - ✓ 300 Area Industrial Complex: 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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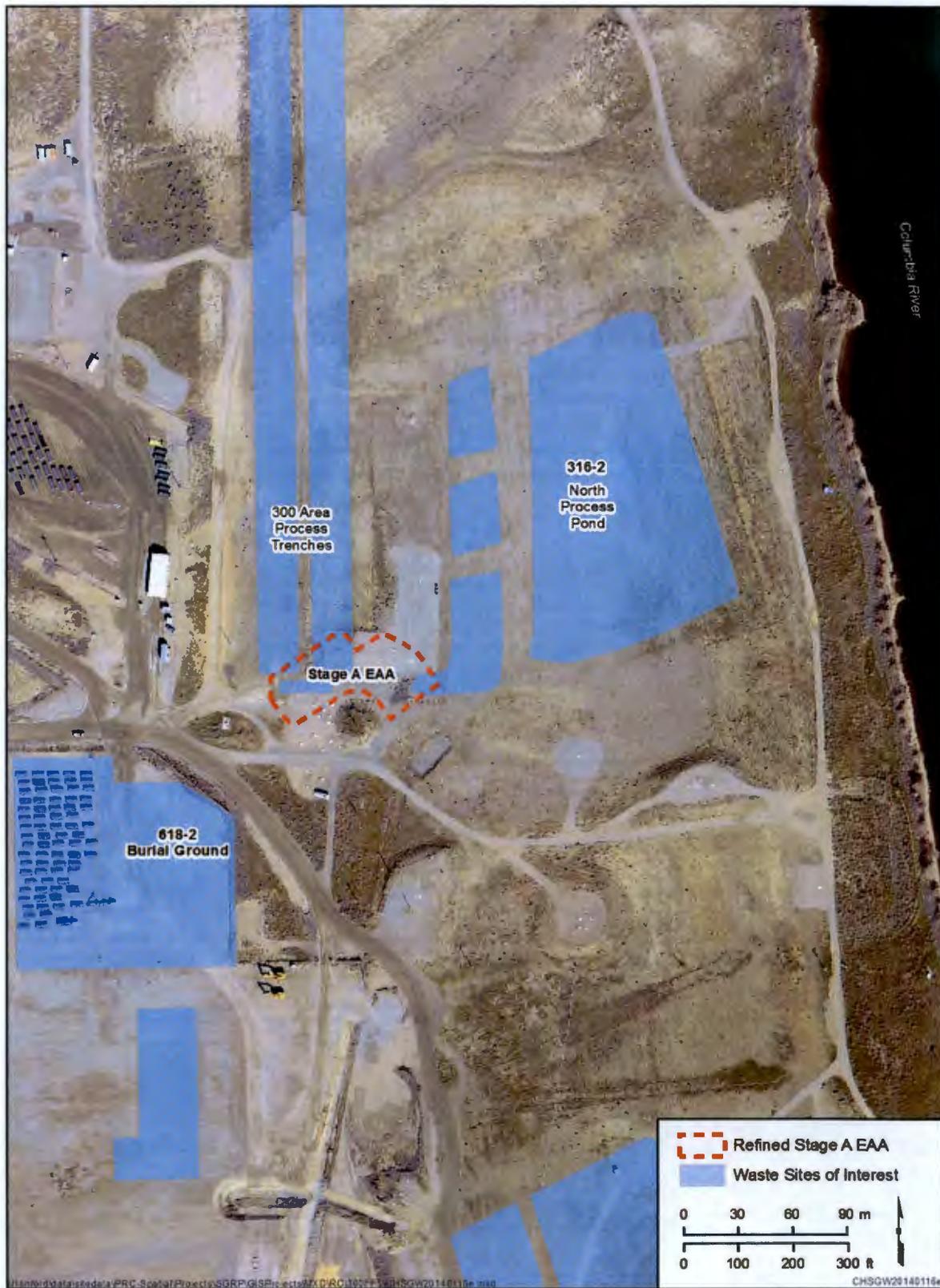


Figure FF-1. Location of the Stage A Enhanced Attenuation Area

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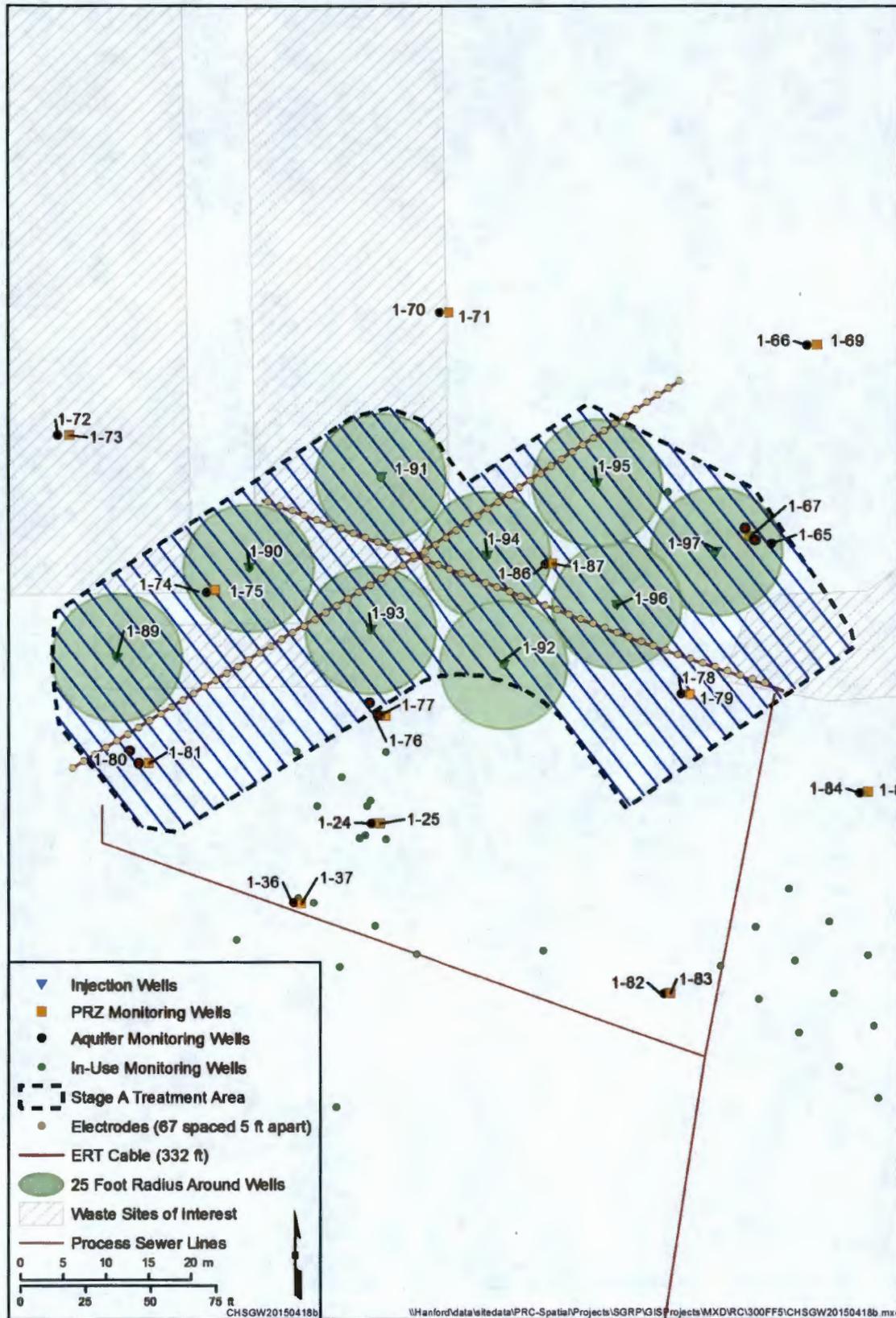


Figure FF-2. Location of the Stage A Enhanced Attenuation Area Injection and Monitoring Wells and Infiltration Lines.

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Hanford Sampling Program Information

Table 1. Wells, Aquifer Tubes, and springs in the River Corridor Areas Successfully Sampled In 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		699-12-4D
		199-D2-6	199-H1-33	199-K-110A	199-K-149		
		199-D3-5	199-H1-35	199-K-111A	C6132		
		199-D4-39	199-H1-37	199-K-113A	C7934		
		199-D4-98	199-H1-38	199-K-114A	C7935		
		199-D5-103	199-H1-40	199-K-115A	C7936		
		199-D5-104	199-H1-7	199-K-116A	N116mArray-2A		
		199-D5-106	199-H2-1	199-K-119A	N116mArray-3A		
		199-D5-132	199-H3-10	199-K-120A			
		199-D5-133	199-H3-11	199-K-125A			
		199-D5-142	199-H3-2C	199-K-127			
		199-D5-143	199-H3-3	199-K-129			
		199-D5-145	199-H3-4	199-K-13			
		199-D5-146	199-H3-5	199-K-133			
		199-D5-147	199-H3-6	199-K-136			
		199-D5-149	199-H3-7	199-K-141			
		199-D5-150	199-H3-9	199-K-142			
		199-D5-151	199-H4-11	199-K-144			
		199-D5-152	199-H4-12A	199-K-145			
		199-D5-18	199-H4-12C	199-K-146			
		199-D5-34	199-H4-15A	199-K-147			
		199-D5-39	199-H4-16	199-K-148			
		199-D5-40	199-H4-4	199-K-153			
		199-D5-41	199-H4-46	199-K-154			
		199-D5-92	199-H4-47	199-K-157			
		199-D5-97	199-H4-49	199-K-161			
		199-D6-3	199-H4-65	199-K-162			
		199-D7-3	199-H4-8	199-K-163			
		199-D8-71	199-H4-84	199-K-171			
		699-93-48A	199-H4-85	199-K-178			
		699-95-48	199-H4-86	199-K-181			
		699-95-51	199-H5-1A	199-K-182			
		699-96-52B	199-H6-1	199-K-186			
		699-98-51	199-H6-3	199-K-189			
		C6266	199-H6-4	199-K-190			
		C6267	699-94-41	199-K-192			
		C6268	699-94-43	199-K-198			
		C6269	699-95-45	199-K-199			
		C6270	699-97-41	199-K-200			

100/300 Areas Unit Managers Meeting
June 9, 2016 (May data)

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

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

100/300 Areas Unit Managers Meeting
June 9, 2016 (May data)

Table 2. Fiscal Year 2015 and 2016 Sample Trips in the River Corridor Areas awaiting at the end of May 2016

Quarter Scheduled	GWIA	Sample Site	Site Name	Schedule Date	Frequency	Months Remain	Status	Comment
FY 2015 Q4	100-NR	AQUIFER TUBE	C6331	9/1/2015	Annual	3		
FY 2016 Q1	100-HR-D	AQUIFER TUBE	36-M	11/1/2015	Annual	5		Unsuccessful 12-8-2015
	100-KR	SPRING	100-K SPRING 68-1	10/1/2015	Annual	4		
		AQUIFER TUBE	AT-K-4-M	10/1/2015	Annual	4		
	100-NR	SPRING	River water adjacent to C6317/18/19	10/1/2015	Annual	4		
		SPRING	River water adjacent to C7934/35/36	10/1/2015	Annual	4		
		SPRING	River water adjacent to C7937/38/39	10/1/2015	Annual	4		
FY 2016 Q2	100-NR	AQUIFER TUBE	C6135	1/11/2016	Biannual	1		
		AQUIFER TUBE	N116mArray-10A	3/1/2016	Quarterly	0	Late	
FY 2016 Q3	100-HR-D	WELL	699-97-51A	5/1/2016	Annual	10		Access Restricted
		WELL	699-98-49A	5/1/2016	Quarterly	2		
	100-HR-H	WELL	199-H4-15CQ	4/1/2016	Biannual	4		Maintenance Required
		WELL	199-H4-87	5/1/2016	Quarterly	2		
		WELL	199-H4-88	5/1/2016	Monthly	0	Late	
		WELL	199-H4-89	5/1/2016	Annual	11		
	100-KR	WELL	199-K-106A	5/31/2016	Monthly	0	Late	Special Study
		WELL	199-K-107A	5/31/2016	Monthly	0	Late	Special Study
		WELL	199-K-108A	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-132	5/31/2016	Monthly	0	Late	Special Study
		WELL	199-K-137	5/31/2016	Monthly	0	Late	Special Study
		WELL	199-K-138	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-139	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-140	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-158	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-165	5/31/2016	Monthly	0	Late	Special Study
		WELL	199-K-166	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-168	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-173	5/31/2016	Monthly	0	Late	Special Study
		WELL	199-K-174	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-175	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-184	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-185	5/31/2016	Monthly	0	Late	Special Study
		WELL	199-K-188	5/1/2016	Quarterly	2		
		WELL	199-K-196	5/31/2016	Bimonthly	1		Special Study
		WELL	199-K-204	5/31/2016	Monthly	0	Late	Special Study
	WELL	199-K-205	5/31/2016	Monthly	0	Late	Special Study	
	WELL	199-K-206	5/31/2016	Bimonthly	1		Special Study	
	WELL	199-K-34	5/31/2016	Monthly	0	Late	Special Study	
	WELL	199-K-36	5/1/2016	Biannual	5			

100/300 Areas Unit Managers Meeting
June 9, 2016 (May data)

Table 2. Fiscal Year 2015 and 2016 Sample Trips in the River Corridor Areas awaiting at the end of May 2016

Quarter Scheduled	GWIA	Sample Site	Site Name	Schedule Date	Frequency	Months Remain	Status	Comment
		AQUIFER TUBE	AT-K-1-D	5/31/2016	Other	3		Special Study
		AQUIFER TUBE	AT-K-1-M	5/31/2016	Other	3		Special Study
		AQUIFER TUBE	AT-K-1-S	5/31/2016	Other	3		Special Study
		AQUIFER TUBE	C7641	4/1/2016	Quarterly	1		
		AQUIFER TUBE	C7642	4/1/2016	Quarterly	1		
		AQUIFER TUBE	C7643	4/1/2016	Quarterly	1		

100/300 Areas Unit Managers Meeting
June 9, 2016 (May data)

Table 3. Groundwater Sampling Locations in the River Corridor Areas Scheduled to be sampled in June 2016

100-BC	100-FR	100-HR-D	100-HR-H	100-KR	100-NR	1100-EM	300-FF
199-B2-16	199-F5-1	199-D3-2	199-H1-1	199-K-106A	199-K-150		399-1-10A
199-B3-1	199-F5-4	199-D4-14	199-H1-2	199-K-106A	199-N-122		399-1-10B
199-B3-46	199-F5-46	199-D4-22	199-H1-34	199-K-107A	199-N-123		399-1-16A
199-B3-47	199-F5-55	199-D4-23	199-H1-36	199-K-107A	199-N-14		399-1-16B
199-B3-52	199-F5-6	199-D4-25	199-H1-39	199-K-132	199-N-146		399-1-17A
199-B4-14		199-D4-38	199-H1-4	199-K-132	199-N-147		399-1-17B
199-B5-2		199-D4-62	199-H1-42	199-K-137	199-N-165		399-1-18A
199-B5-6		199-D5-103	199-H1-43	199-K-137	199-N-173		399-1-18B
		199-D5-123	199-H1-45	199-K-165	199-N-28		399-1-55
		199-D5-125	199-H1-46	199-K-165	199-N-346		399-1-7
		199-D5-126	199-H3-2A	199-K-173	199-N-347		399-2-1
		199-D5-145	199-H3-2C	199-K-173	199-N-348		399-2-2
		199-D5-15	199-H3-9	199-K-185	199-N-349		399-4-14
		199-D5-151	199-H4-10	199-K-203	199-N-350		
		199-D5-152	199-H4-12C	199-K-204	199-N-351		
		199-D5-16	199-H4-13	199-K-204	199-N-352		
		199-D5-38	199-H4-45	199-K-205	199-N-353		
		199-D5-43	199-H4-5	199-K-205	199-N-354		
		199-D8-5	199-H4-63	199-K-223	199-N-355		
		199-D8-53	199-H4-64	199-K-224	199-N-356		
		199-D8-54A	199-H4-69	199-K-34	199-N-357		
		199-D8-54B	199-H4-70	199-K-34	199-N-358		
		199-D8-68	199-H4-75		199-N-359		
		199-D8-69	199-H4-76		199-N-360		
		199-D8-70	199-H4-77		199-N-361		
		199-D8-72	199-H4-83		199-N-362		
		199-D8-73	199-H4-88		199-N-363		
		199-D8-88	199-H4-90		199-N-364		
		199-H1-5	199-H4-91		199-N-365		
		199-H4-80			199-N-366		
		199-H4-81			199-N-367		
		199-H4-82			199-N-46		
					199-N-67		
					199-N-71		
					199-N-75		
					199-N-76		
					199-N-92A		
					199-N-96A		
					APT1		
					APT5		

100/300 Areas Unit Managers Meeting
June 9, 2016 (May data)

Table 3. Groundwater Sampling Locations in the River Corridor Areas Scheduled to be sampled in June 2016

100-BC	100-FR	100-HR-D	100-HR-H	100-KR	100-NR	1100-EM	300-FF
					C6323		
					C6324		
					C7881		
					C7934		
					C7935		
					C7936		
					C7937		
					C7938		
					C7939		
					C9586		
					C9587		
					C9588		
					C9589		
					C9590		
					N116mArray-0A		
					N116mArray-10A		
					N116mArray-11A		
					N116mArray-15A		
					N116mArray-1A		
					N116mArray-4A		
					N116mArray-6A		
					N116mArray-8A		
					N116mArray-9A		
					NVP1-1		
					NVP1-2		
					NVP1-3		
					NVP1-4		
					NVP1-5		
					NVP2-115.1		
					NVP2-115.4		
					NVP2-115.7		
					NVP2-116.0		
					NVP2-116.3		

100/300 Areas Unit Managers Meeting
June 9, 2016 (May data)

Documents for AR Submission

Number	Title	Referencing Doc/Driver
DOE/RL-2013-30, DB, 2014	Sampling and Analysis Plan for the 100-HR-3 Groundwater Operable Unit	needed for operating the interim remedy at HR-3
DOE/RL-2013-31, DA, 2014	Remedial Design/Remedial Action Work Plan for the 100-HR- 3 Groundwater Operable Unit	needed for operating the interim remedy at HR-3
DOE/RL-2013-49, DA, 2014	100-HR-3 Pump and Treat System Operations and Maintenance Plan	needed for operating the interim remedy at HR-3

Attachment 3

100K Area Report
100/300 Area Unit Manager Meeting
June 9, 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 Auxiliary Ventilation System Nitrogen Supply & Purge Panels.
 - Received Transfer System Process PIGS. These devices are foam cylinders that are pushed through the transfer line to remove residual radioactive particles from the line and reduce worker radiation exposure.
 - Completed Final Source Inspection on Sludge Transport and Storage Container numbers 2 through 5 with delivery to the Hanford Site scheduled for mid-June.
 - Awarded a contract to procure the Ventilation Stack Monitoring System for the 105K West Basin Annex.
- **MASF Preoperational Acceptance Testing (MPAT)**
 - Test is ~40% complete with final completion forecast in early August
 - Completed Final Equipment Configurations
 - Completed Water Baselines
 - Completed Main Instrument Loop Checks
 - Completed Several Engineering Feature Demonstrations
 - Began Interlock Testing
- **Construction**
 - **Annex**
 - Completed installation of telecommunications system in the facility
 - Awarded contract for preventative/corrective maintenance (PM/CM) of the Annex building mechanical systems (i.e. compressor/HVAC).
 - Began performing periodic PMs and CM when required
 - Began excavation for exterior concrete and asphalt placement
 - **In-Basin Construction**
 - Awarded a contract for ECRTS basin equipment installation.
 - Installed Ingress/Egress Assembly
 - Installed IXM Pipe Rack and supporting hoses
 - Installed Hose-In-Hose Shielded Doghouse Assembly
 - Installed Transfer System Rupture Disk Skid
 - Completed fabrication of Booster Pump installation rails
 - Worked on development of work packages for installation of ECRTS hardware

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

- DOE RL Approved the STP Safety Design Strategy (SDS)

- Project personnel completed preparation of the draft KW Basin Documented Safety Analysis and Technical Safety Requirement documents and began reviewing these documents with DOE RL. These documents combine the ECRTS PDSA R2 and the current KW Basin safety basis documents into an integrated safety basis set. Formal submittal to DOE-RL is forecast for August, 2016.
- Training development of Lesson Guides and Exam Banks has picked up the pace and is now also being supported via bi-weekly meetings to ensure the SME's are heavily involved in the process.
- Continued to develop ECRTS operations and maintenance procedures with a robust review/feedback process and bi-weekly meetings with Nuclear Chemical Operators, support staff and management.
- Advanced 100K Area Readiness Activities
 - Completed development the Activity Readiness Plan(ARP) and Readiness Self-Assessments (RSAs)
 - ARP and RSA now in review and comment resolution cycle
 - Started Development of the Plan of Action (POA)
- Completed fabrication and delivery of sludge storage equipment on 5/25/16 satisfying PM-12-8-16, *Complete Fabrication of the T Plant Equipment for Cell Storage*
- Finalized the Explanation of Significant Differences for the K Basins Record of Decision to allow longer term storage of sludge at T Plant. A Fact sheet was also initiated in preparation for a public comment period planned to begin on June 13, 2016.
- Commenced removal of North Loadout Pit equipment at T Plant.
- Advanced T Plant Readiness Activities
 - Started ARP and RSAs development work for T-Plant RA-2

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 design work continues. The preliminary design is expected to be completed by the end of fiscal year 2016.
 - Skimmer system sand filter media removal system design work is on hold awaiting funding.
 - 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 for the East bay of K West Basin is undergoing peer review.

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

- DOE/RL-2011-15, *Remedial Design/ Remedial Action Work Plan for the K Basins Interim Remedial Action: Treatment and Packaging of K Basins Sludge* is being revised to include specific provisions for the safe storage of sludge at T-Plant. The document will be issued after the ESD public comment period.

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

(9/30/23) – On Schedule

- Preparation of a relative order of magnitude cost estimate and schedule to complete the deactivation and demolition of 105-KW Fuel Storage basin is in-progress.

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 Waste Sites. A Verification Sampling Instruction (VSI) is in development 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-1, 120-KE-2, 120-KE-4, 120-KE-5, have been excavated to 20 feet and in-process samples were taken with analytical results pending. An equipment failure on a parked fuel tanker truck supporting the AB waste sites work resulted in a spill of about 400 gallons of diesel fuel. The soil impacted by the spill has been removed and disposed. Samples to confirm that cleanup levels for petroleum were met were collected and results are being evaluated.

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. Continue setting up Negative Pressure Enclosure (NPE) in the boiler room. Continue installing glove bags on TSI piping, also working glove bag removal on TSI piping in the upper boiler room.

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 4

June 9, 2016 Unit Manager's Meeting Closure Operations Status

100 Area

- 100-N-83 is complete. Currently working on draft RSVP.
- 600-385 - Remediation and removal of road mats complete. WSRF submitted to Ecology for review on 05/26/2016.

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 of all retrieved drums is complete. Seven (7) drums of chips in oil are scheduled to be delivered to Perma-Fix this month and six (6) drums are scheduled to be delivered to the CWC next month.
- Radiological surveys of the SCAs around the trench have been scheduled for this month.

VPU Remediation

- Approximately 60 VPUs total have been augered to date in rows 2, 3, 4 and 6.
- Waste from 8 VPUs has been successfully retrieved and grouted.
- A second waste retrieval crew mobilized to the field and began retrieving VPU waste last month
- The 618-10 Air Monitoring Plan was updated to account for the steel VPUs and submitted to DOE and EPA last month.

300 Area

300-288:2

- Radiological surveying using GPERS is being conducted concurrent with remediation. Verification Work Instruction has been revised to include both sides (east and west) and has been approved by DOE and EPA. Excavation activities approximately 88% complete and scheduled for completion next week.

Attachment 5

Activity ID	Activity Name	RD	% Cmpl	Start	Finish	FY2016				FY2017	
						JUN-2016	JUL-2016	AUG-2016	SEP-2016	O	NOV-2016
Dan Elkins											
100 N											
100-N-83											
NB5B2D05	Prepare Closure Doc - 100-N-83	16	40%	18-May-16 A	30-Jun-16						
NB5B2D06	RL/Reg Review Draft A Closure Doc for 100-N-83	16	0%	05-Jul-16	01-Aug-16						
NB5B2D06A	Resolve RL/Reg Comments Draft A Closure Doc for 100-N-83	4	0%	02-Aug-16	08-Aug-16						
NB5B2D07	RL/Reg Sign Rev. 0 Closure Doc for 100-N-83	4	0%	09-Aug-16	15-Aug-16						
NB5B2D07A	Prepare and Issue Rev. 0 Closure Doc for 100-N-83	6	0%	16-Aug-16	24-Aug-16						
IU-2/6											
600-385											
R-6385-125	600-385 Permit Survey to do post ex survey and dwg	4	75%	18-May-16 A	09-Jun-16						
C-6385-020	600-385 update archaeological sites (MOA 7a, 7b)	16	40%	18-May-16 A	30-Jun-16						
C-6385-025	600-385 Report Summarizing and Integrating Cultural Use of /	16	40%	18-May-16 A	30-Jun-16						
C-6385-040	RL/Reg Review of Draft A WSRF 600-385	13	20%	31-May-16 A	27-Jun-16						
C-6385-060	Resolve RL/Reg Comments Draft A WSRF 600-385	4	0%	28-Jun-16	05-Jul-16						
C-6385-070	RL/Reg Signature Rev.0 WSRF 600-385	4	0%	06-Jul-16	12-Jul-16						
C-6385-080	Prepare/Issue Rev.0 WSRF 600-385	6	0%	13-Jul-16	21-Jul-16						
300 Area											
300-288:2 (Pit 6)											
R-32882-025	300-288:2 West (Ph 2) - Remediate 137,201 BCMs (255,577 tons)	7	95%	07-Dec-15 A	15-Jun-16						
C-32882-310	300-288:2 Downpost Survey (Ph 2)	4	75%	02-May-16 A	22-Jun-16						
C-32882-300	300-288:2 GEPRs (Ph 2) including CTA	4	75%	03-May-16 A	22-Jun-16						
D-CTA-0110	Remove 300-288:2 CTA	12	0%	16-Jun-16	07-Jul-16						
C-32882-220	300-288:2 West - Take Samples (closeout)	2	0%	16-Jun-16	20-Jun-16						
C-32882-350	300-288:2 Obtain Sample Analysis West	7	0%	22-Jun-16	05-Jul-16						
C-32882-330	300-288:2 Perform Civil Survey (Ph 2)	2	0%	22-Jun-16	23-Jun-16						
C-32882-320	300-288:2 Cleanup Hot Spots (if required) (Ph 2)	2	0%	23-Jun-16	27-Jun-16						
C-32882-340	300-288:2 Prepare Post-Ex Drawings (Ph 2)	8	0%	27-Jun-16	11-Jul-16						
C-32882-150	300-288:2 Prepare Draft A CVP	30	0%	06-Jul-16	25-Aug-16						
C-32882-160	300-288:2 RL/Reg Review Draft A CVP	8	0%	29-Aug-16	12-Sep-16						
C-32882-170	300-288:2 Resolve Comments/Incorp Chgs Draft A CVP	4	0%	13-Sep-16	19-Sep-16						
C-32882-180	300-288:2 RL/Reg Sign Rev 0 CVP	4	0%	20-Sep-16	26-Sep-16						
C-32882-190	300-288:2 Prepare and Issue Rev 0 CVP	6	0%	27-Sep-16	05-Oct-16						
North Empty CTA											
3MISC-520	Remove miscellaneous items at Cypress CTA	4	0%	21-Jun-16	27-Jun-16						
3MISC-500	Remove miscellaneous items at North Empty CTA (parking lot)	3	0%	21-Jun-16	23-Jun-16						
3MISC-440	Run GPERS at North Empty CTA (parking lot)	6	0%	27-Jun-16	06-Jul-16						
3MISC-530	Close off Cypress CTA with temp fencing	2	0%	28-Jun-16	29-Jun-16						
Jeff Lerch											

18,426 tons to go (6/5)
(150 cans/day planned)

◆ Milestone ■ % Complete

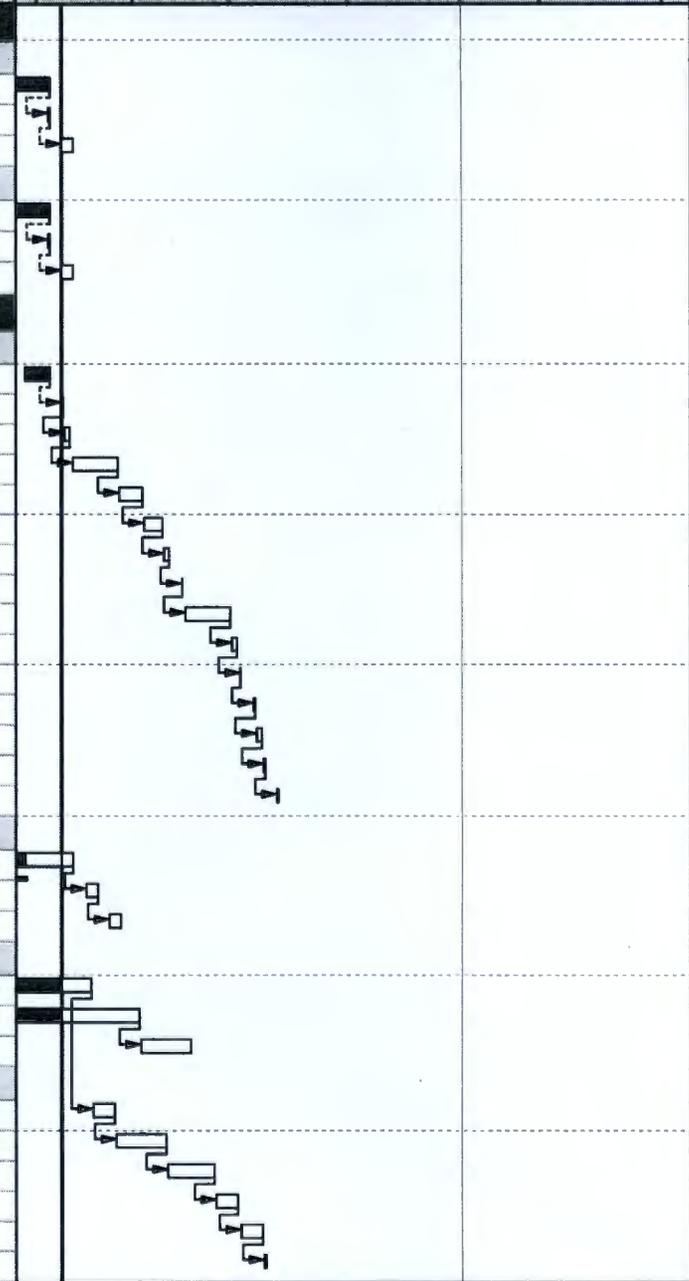
▭ Actual Work ▭ Remaining Work

▬ Actual Critical ▬ Critical Remaining Work

UMM Schedule
1 of 3

Print date: 08-Jun-16. Data date: 06-Jun-16. TASK filters: POW
Format, UMM.

Activity ID	Activity Name	RD	% Cmpl	Start	Finish	FY2016				FY2017	
						JUN-2016	JUL-2016	AUG-2016	SEP-2016	O	NOV-2016
100 N											
100-N MR CRR HCRC #2011-100-104											
MR100NMR170	WCH Addresses Additional Comments	0	100%	25-Apr-16 A	02-Jun-16 A						
MR100NMR180	WCH Re-Transmits Revised Monitoring Report	0	100%	02-Jun-16 A	02-Jun-16 A						
MR100NMR190	DOE Transmits Revised Monitoring Report	4	0%	06-Jun-16	09-Jun-16						
100-N Exit Items HCRC# 2012-100-017 (Inc. 100-N-83)											
100N83MR170	WCH Addresses Additional Comments	0	100%	25-Apr-16 A	02-Jun-16 A						
100N83MR180	WCH Re-Transmits Revised Monitoring Report	0	100%	02-Jun-16 A	02-Jun-16 A						
100N83MR190	DOE Transmits Revised Monitoring Report	4	0%	06-Jun-16	09-Jun-16						
IU-2/6											
600-385 Restoration Plan											
6385R170	WCH Revise Plant List	0	100%	26-May-16 A	02-Jun-16 A						
6385R180	WCH Transmits Revised Plant List	1	0%	06-Jun-16	06-Jun-16						
6385R190	DOE Transmits Plant List	2	0%	07-Jun-16	08-Jun-16						
6385R200	Tribes provide feedback on Revised Plant List	8	0%	09-Jun-16	22-Jun-16						
6385R210	WCH Revise Restoration Plan per Tribal Input	4	0%	23-Jun-16	29-Jun-16						
6385R060	Tech Edit	2	0%	30-Jun-16	05-Jul-16						
6385R050	Internal Review / Inc. Comments	2	0%	06-Jul-16	07-Jul-16						
6385R070	WCH Transmit Draft Plan to DOE/MSA	1	0%	11-Jul-16	11-Jul-16						
6385R080	DOE/MSA Review of Plan	8	0%	12-Jul-16	25-Jul-16						
6385R090	Inc. DOE/MSA Comments	2	0%	26-Jul-16	27-Jul-16						
6385R100	WCH Transmit Revised Plan to DOE	1	0%	28-Jul-16	28-Jul-16						
6385R102	Received Additional Comments from DOE	1	0%	01-Aug-16	01-Aug-16						
6385R104	WCH Addressing Additional Comments from DOE	2	0%	02-Aug-16	03-Aug-16						
6385R106	WCH Transmits Final Plan to DOE	1	0%	04-Aug-16	04-Aug-16						
6385R150	DOE Transmit Final Restoration Plan (MOA 8a & 8b)	1	0%	08-Aug-16	08-Aug-16						
Gable Mountain FCS Sites Monitoring Report											
6000051247	SHPO Provides Site Numbers	4	50%	12-May-16 A	09-Jun-16						
6000051250	WCH Addresses Comments & Re-Transmits Monitoring Report	4	0%	13-Jun-16	16-Jun-16						
6000051235	DOE Transmits to Consulting Parties	4	0%	20-Jun-16	23-Jun-16						
600-349 Geo-Physics											
C-6349-061	600-349 Geophysical Surveys	6	80%	05-May-16 A	14-Jun-16						
C-6349-062	600-349 Geophysical Data Interpretation & Processing	14	70%	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						
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						



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

UMM Schedule
 2 of 3

Print date: 08-Jun-16. Data date: 06-Jun-16. TASK filters: POW
 Format, UMM.

Activity ID	Activity Name	RD	% Cmpl	Start	Finish	FY2016				FY2017	
						JUN-2016	JUL-2016	AUG-2016	SEP-2016	O	NOV-2016
D & H Horn 600-385 Monitoring Report											
600385MR100	Prepare Draft Monitoring Report	4	0%	06-Jun-16	09-Jun-16						
600385MR110	Tech Edit Monitoring Report	8	0%	13-Jun-16	23-Jun-16						
600385MR120	Incorporate Tech Edit Comments	8	0%	27-Jun-16	11-Jul-16						
600385MR130	MSA Internal Review of Monitoring Report	4	0%	12-Jul-16	18-Jul-16						
600385MR140	Incorporate MSA Comments	4	0%	19-Jul-16	25-Jul-16						
600385MR150	Submit Final Monitoring Report to DOE	1	0%	26-Jul-16	26-Jul-16						

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

UMM Schedule
 3 of 3

Print date: 08-Jun-16. Data date: 06-Jun-16. TASK filters: POW
 Format, UMM.

Attachment 6

APPROVAL TO TREAT (APTT)

Waste Profile*: WP- 100HR3WLSRV002

This Approval to Treat authorizes ERDF to treat hazardous debris described in the referenced profile(s) by immobilization technologies as described in WCH-546, *ERDF Debris Treatment Plan*.

The following hazardous debris immobilization technologies, as described in Section 5.3 of WCH-546, are approved for this waste stream (insert all that are applicable):

5.3.2 Grout/Cement Macroencapsulation (treatment outside the ERDF trench)
Waste Codes: D007

NINA M. MENARO *Nina M. Menard* 6/1/16
Lead Regulatory Agency Name (Print and Sign) Date

Check applicable agency: ~~U.S. Environmental Protection Agency~~ **WA STATE DEPT. OF ECOLOGY??**
 Department of Ecology, Washington

Allen B. Dagan
Allen B. Dagan (NER-3) 5/16/16
U.S. Department of Energy Name (Print and Sign) Date

*List additional profiles below:

--

WASTE PROFILE ROUTING

WP-100HR3WLSRV002
REV. 2

Each person on this routing list should forward this package in the following order.

1. Originator/ Scott Bisping *SB* T2-05
2. Area Project Engineer/ Paul Fernandez R3-20
3. JM Curnutt *JMC* T2-07
4. WA Borlaug T2-03
5. Document and Records Management H4-11

WASTE PROFILE DISTRIBUTION

WA Borlaug	T2-03	w/o
JM Curnutt	T2-07	w/o
MA Casbon	T2-03	w/o
Document and Records Management	H4-11	w/a
<input type="checkbox"/> Area Project Engineer <u>Paul Fernandez</u>	R3-20	w/a
<input type="checkbox"/> Shipper <u>John Hasson</u>	X4-01	w/o

Waste Form Matrix: 90% Debris Miscellaneous Solid Waste (MSW), 6% Concrete, 2% Steel, and 2% Soil.

Revision 2

Profile revision addresses the ERDF Waste Acceptance Criteria (WAC) - WCH-191 REV 3 (UCM# 2118545) revising the radiological isotope limits from Ci/m³ to pCi/g. Constituent list revised for addition of laboratory reagents. Radionuclide concentrations revised to incorporate sampling and analysis data.

There were no other changes made to the profile.

The waste is nonwastewater waste that is subject to land disposal restrictions (LDR). Characteristic waste number D007 requires treatment and this waste will be treated using Alternative Treatment Standards For Hazardous Debris, 40CFR268.45, Immobilization Technology, Macroencapsulation.

Environmental Restoration Disposal Facility Waste Profile Datasheet

Profile #: 100HR3WLSRV002

Rev: 2

1. Preparer's Name: Scott Bisping SB
2. Organization Name: Washington Closure Hanford - Waste Services 
3. Project Engineer: Richard Willson
4. Source Waste ID: 100-HR-3 and 100-KR-4 OU Pump and Treat Spent Resin
5. Waste Forms: 2 % soil 6 % concrete 2 % steel 90 % other
Describe other: Debris: Paper, plastic, rubber, cloth, metal, wood, glass, leather, PPE, submersible pumps, wire, etc.

6. Waste Characterized by: Process Knowledge (see below) Sampling: _____
SWTS designation and HEIS data (04/26/2011 report)

7. a) Does this waste designate as "hazardous" (40 CFR Part 261)? Yes No
If yes, list the appropriate Hazardous Waste Numbers:

- b) Does this waste designate as "dangerous" (WAC 173-303-070 through -100)? Yes No
If yes, list the appropriate Dangerous Waste Numbers not listed in 7a:
D007

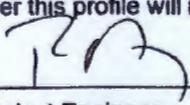
8. Is this waste radioactive? Yes No
9. Is this waste subject to land disposal restrictions (LDRs)? Yes No
If yes, indicate which LDRs apply in LDR section and attach any applicable information or waivers.

10. Packaging: 10 % bulk _____ % bags 90 % drums or waste boxes

Note: Total for packaging must equal 100%

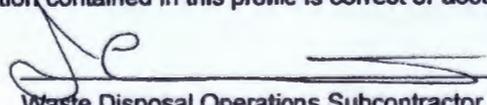
11. Estimated volume of profiled waste from this site: 2 m³ (2.6 yd³)

12. All relevant information regarding known or suspected hazards in the possession of the project has been disclosed. I certify that to the best of my knowledge, the information contained within this profile and any attached documentation accurately describes or bounds the waste stream and that all shipments of waste transported under this profile will meet the ERDF Waste Acceptance Criterion specified in WCH-191.


Project Engineer

4/27/16
Date

13. I have reviewed this profile in accordance with the Waste Acceptance Procedure 5-18. I concur using only the information supplied that this waste stream meets the requirements of the ERDF Waste Acceptance Criteria contained in WCH-191. WAI Stoller Disposal Operations does not validate or verify that any information contained in this profile is correct or accurate.

Concurrence: 

Waste Disposal Operations Subcontractor

5/2/16
Date

14. I agree that the waste has been approved through the current approval process and is acceptable at ERDF.

Approval to ship: _____

ERDF Project Engineer

_____ Date

Environmental Restoration Disposal Facility Waste Profile Datasheet

Profile #: 100HR3WLSRV002

Rev: 2

LAND DISPOSAL RESTRICTIONS (LDRs):

This waste is subject to the LDRs.

EPA Hazardous Waste Numbers: D007

EPA Manifest Number: N/A

Constituents of Concern:

Chromium (D007)

Underlying Hazardous Constituents: None

Wastewater or Nonwastewater: Nonwastewater

Treatment/Regulatory Subcategory:

D007 (Chromium) - Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for chromium based on the toxicity leaching procedure (TCLP) in SW846.

Treatment Standards:

D007 - chromium (Total): 6.0 mg/L TCLP and meet 268.48 standards

Waste Analysis Data (Sample Numbers): HEIS Data report 04/26/2011 Worst Case GW Results for 100-HR-3 Operable Unit Wells (see attached)

For Hazardous Debris: Contaminants subject to treatment to comply with 40 CFR 268.45.

Revision 0-6 : NO CHANGE**PROCESS KNOWLEDGE:**

Rev 0

- 1) Profile Request signed by Justin Bolles (06/08/2011) requesting a new profile for Well Services Miscellaneous Solid Waste from 100-HR-3 Operable Unit.
- 2) *Well Services Miscellaneous Solid Waste Characterization Methodology* provided by the generator detailing methodology used for waste characterization
- 3) Hanford Environmental Information System (HEIS) data for "Worst Case Groundwater for 100-HR-3 Wells." (04/26/2011) provides data used for SWITS designation (included) and profiled constituents.
- 4) SWITS Designation # H0047825 (100-HR-3 OU GW) completed by Justin Bolles (06/08/2011).
- 5) MSDS's provided by the generator for non-hazardous absorbents that may be part of this profile.

MSDS #035629 - Haz-Mat PIG Absorbent

MSDS #058424 - Water Works SP-400 Absorbent

JML
5/2/16

Environmental Restoration Disposal Facility Waste Profile Datasheet

Profile #: 100HR3WLSRV002

Rev: 2

6) *Interim Action Waste Management Plan for the 100-HR-3 and 100-KR-4 Operable Units*, DOE/RL-97-01 Revision 5 (June 2005). Provides authorization to dispose of waste stream to ERDF.

7) *Declaration of the Record of Decision for USDOE Hanford 100 Area including 100-HR-3 Operable Unit* (March 1996). Provides selected final remedial and interim remedial actions.

8) *Waste Management Data Quality Objective Summary Report for the 100-HR-3 Pump and Treat Systems*, SGW-45957 Revision 1 (November 2010).

9) E-mail from Justin Bolles to M. Clark, 11/10/2011 - Subject: "Re: WP-100HR3WLSRV002 Rev 0 - For your review": Includes comments from review and attached updates of chemical and isotopic data. Changes have been incorporated in the profile and in WMIS database.

Attachments: Chemical and Isotope Update list #WP-100HR3WLSRV002 Rev. 0; Additional Chemicals and Isotopes CIN 3s: 0069305 and 0079316; TCLP Page edit (updated in profile)

Revision 1

1) E-mail from R. Hogaboam to ^WCH Profiles dated 9/20/2012, subject: "RE: 100HR3WLSRV002 Profile Revision Request."

Attachment: Profile Request Form signed and dated on 9/20/2012 by R. Hogaboam. Request for addition of 10% bulk waste. No other changes to the profile.

Revision 2

1) E-mail from B. Hynes to ^WCH Profiles dated 3/02/2016, subject: "New Profile Request for 100HR-3."

Attachments:

- a. 100HR-3 ChromaVer Reagent_Profile Request Form.
- a. Waste Designation for MSDS# 051117
- a. MSDS# 051117 ChromaVer3 Chromium Reagent

*Note for future
references to DOE/RL-97-01,
Rev. 6 has been issued.*

*JMC
5/2/16*

Prepared by: [Signature]
Approved: [Signature] 4/21/16

Waste Stream Name: 100-HR-3 Operable Unit Well Services Waste (MSW Debris)
Generating Facility: 100-HR-3 OU Wells
Profile Number: 100HR3WLSRV002 Rev. 2
Prepared By: Scott Bisping

This waste designation has been performed in accordance with WAC 173-303 and 40 CFR 261 and 268 and is believed to be complete and accurate in accordance with all applicable rules and regulations in effect at the time it was prepared.

Methodology:

This designation is based on information provided by the generator which includes: Groundwater data from the Hanford Environmental Information System (HEIS) database - Worst Case GW Results for 100-HR-3 Wells (04/26/2011); Well Services Miscellaneous Solid Waste Characterization Methodology provided by the generator detailing methodology used for waste characterization; SWITS Designation #H0047825 completed by J. Bolles (06/08/2011); DOE/RL-97-01, Revision 5 "Interim Action Waste Management Plan for the 100-HR-3 and 100-KR-4 Operable Units" June 2005; Document # PB96-964603 EPA/ROD/R10-96/134 "EPA Superfund Record of Decision: Hanford 100 Area (USDOE), O.U. 100-HR-3 and 100-KR-4, Hanford Site, Benton County, WA (March 26, 1996)"; SGW-45957, Revision 1 "Waste Management Data Quality Objectives Summary Report for the 100-HR-3 Pump and Treat Systems" November 2010.

Also, two MSDS's provided by the generator for non-hazardous absorbents that may be part of this waste stream:
MSDS #035629 - Haz-Mat PIG Absorbent
MSDS #058424 - Water Works SP-400 Absorbent

Revision 1

Per the generator, this revision adds bulk waste at 10% to the packaging description (Boxes/Drum: are now at 90%). There were no other changes made to the profile.

Revision 2

Profile revision also addresses the ERDF Waste Acceptance Criteria (WAC) - WCH-191 REV 3 (UCM# 2118545) revising the radiological isotope limits from Ci/m3 to pCi/g. Profile data is entered on the current version of the Profile Designation spread sheet - Rev. 35.

MSDS# 051117 ChromaVer3 laboratory reagent indicator for chromium has been identified in the waste stream. The constituent list has been revised to reflect an estimated 0.1 weight percent for components in the waste stream.

JMC
5/2/16

Summary:

Assigned Waste numbers: D007, (TSCA)
Land Disposal Restrictions: Yes - Non-Wastewater. Does not meet land disposal restrictions. May be treated (macroencapsulation) per Alternative Treatment Standards for Hazardous Debris 40 CFR 268.45 - See LDR Section.
Radioactive Status: Low Level Waste, NRC Class A

Prepared by: [Signature]
Approved: [Signature]

Applicability & Description:

Revision 0

Waste Form: 2% Soil, 6% Concrete, 2% Steel, and 90% Other (Paper, plastic, PPE, drained submersible pumps, wire, trash, etc.).

Waste disposed under this profile is limited to miscellaneous solid waste (MSW) generated from 100-HR-3 and 100-KR-4 Operable Units. This waste consists of solid debris-like materials which includes but not limited to paper, plastic, rubber, cloth, metal, wood, glass, leather, and PPE which have contacted groundwater. Small quantities of bentonite clay, sand, soil, and other waste from well maintenance activities and sampling may also be generated. Submersible well pumps may be included with this waste. The motor and capacitor portion of old submersible pumps may contain PCBs >500 ppm and will be TSCA regulated waste.

This waste is Comprehensive Environmental Response, Compensation, and Liability ACT (CERCLA) investigation derived waste (IDW) and is authorized for disposal at the Environmental Restoration Disposal Facility (ERDF) under DOE/RL-97-01, Revision 5 "Interim Action Waste Management Plan for the 100-HR-3 and 100-KR-4 Operable Units."

Revision 1 (No change)

Revision 2

MSDS# 051117 ChromaVer3 laboratory reagent indicator for chromium has been identified in the waste stream. The constituent list has been revised to reflect an estimated 0.1 weight percent for components in the waste stream.

Characteristics:

Ignitability:

This material is a matrix of debris and soil and does not meet the definition of a DOT oxidizer or is believed to support combustion. Therefore hazardous waste number D001 is not applied.

Revision 1-2 (No change)

Corrosive:

Revision 2

As a solid the waste cannot be a D002 waste, and there is no other data or process knowledge to support a corrosive solid classification, therefore, hazardous waste number D002 is not applied. The Washington State Dangerous Waste Number WSC2 is not applicable due to the assignment of the federal waste number.

Reactivity:

The waste is in a stable matrix, and exhibits no signs of any dangerous reactions (i.e., spontaneous changes). As this material is a matrix of miscellaneous debris consisting of paper, plastic, rubber, wood, metal, cloth and PPE with no known cyanide or sulfide contamination, hazardous waste number D003 is not applied.

Revision 1-2 (No change)

JMC
5/2/11

Prepared by: Scott Bisping
Approved: [Signature]

Toxicity:

Analytical results of Metals, VOA, SVOA, Herbicide, and Pesticides identifies the presence of toxic characteristic constituents present in the waste. The toxic characteristic waste number D007 will be applied to this waste stream for chromium based on sample results from the HEIS database (Worst Case GW Results for the 100-HR-3 Wells - 04/26/2011). Therefore, only hazardous waste number D007 is applied.

Revision 1 (No change)

Revision 2

The ion exchange resin collects chromium. Per Sampling and Analysis Instruction for Waste Designation of Spent Resin from 100-HR-3 and 100-KR-4 Groundwater Operable Units, BHI-01530, Rev. 0 (UCM #364553), chromium is the only toxicity characteristic constituent with the potential to accumulate in the resins. No other hazardous waste number is applicable.

Toxic Dangerous Waste:

The toxic dangerous waste calculations were not performed due to the attachment of Federal waste numbers. A constituent list is provided.

Revision 1-2 (No change)

Persistent Dangerous Waste:

Persistent dangerous waste calculations were not performed due to the attachment of Federal waste numbers.

Revision 1-2 (No change)

JMC
5/2/16

Listings:

F Listing:

There is no analytical data, or known process knowledge indicating contamination by any F listed chemicals. Therefore, F listed waste numbers are not applicable.

Revision 1-2 (No change)

K Listing:

The waste generated by well maintenance activities and sampling in the 100-HR-3 OU is not associated with any K listed process. Therefore, K-waste numbers are not applicable.

Revision 1-2 (No change)

P/U Listing:

There is no analytical data, or process knowledge to support a P or U listed waste.

Revision 1 (No change)

Revision 2

The waste is ion exchange resin used to treat groundwater in the 100-HR-3 and 100-KR-4 Operable Units. Portions of the OU groundwater carried P-listed and U-listed waste numbers associated with the 183 Solar Evaporation Basin (i.e. P029, P030, P098, P106, P120, and U123). However, the Washington State Dept. of Ecology granted a "contained-in determination" for the affected groundwater effectively removing the listed waste numbers from the groundwater and any other waste items (i.e. resins) contacted by the groundwater. The resin from the 100K Pump and Treat is not a P or U listed waste. Therefore, the P-listed or U-listed waste numbers are not applied.

Prepared by: [Signature]
 Approved: [Signature]

PCBs:

This waste stream may contain old drained submersible well pumps. The motor and capacitor portion of some submersible pumps may contain PCBs greater than 500 ppm and is TSCA regulated.. Non-liquid TSCA regulated material with PCB concentrations greater than 500 ppm are acceptable for ERDF disposal (WCH-191, Section 4.3.4).

Revision 1-2 (No change)

Radiological:

The waste does not meet the definition of a TRU, High Level, 11e.(2) waste, spent nuclear fuel, or special nuclear material, and is therefore classified as a low level waste. NRC Class A

Revision 1 No change.

Revision 2

Profile revision addresses the ERDF Waste Acceptance Criteria (WAC) - WCH-191 REV 3 (UCM# 2118545) revising the radiological isotope limits from Ci/m3 to pCi/g

Radionuclide concentration have been revised to incorporate sampling and analysis from the groundwater project. Radiological source term is consistent with profile WPHR3RESIN002 Revision 6.

Concentrations for U-234, U-235 and U238 were increased based on data from sample #B2XNP6. Values from the duplicate analysis were used because they are slightly higher. Data is attached.

JMC
5/21

Note: In the event radiological contamination based on radiological surveys and/or sample analysis increase the concentration greater than the current bounding limits of the profile, a profile revision will be required.

Land Disposal Restrictions:

NOTE: Waste will be treated using Alternative Treatment Standards For Hazardous Debris, 40 CFR 268.45, Immobilization Technology, Macroencapsulation.

The waste is nonwastewater waste that is subject to land disposal restrictions (LDR). Characteristic waste number D007 requires treatment and this waste will be treated using Alternative Treatment Standards For Hazardous Debris, 40CFR268.45, Immobilization Technology, Macroencapsulation.

Waste Code	Waste description and treatment/regulatory subcategory	Regulated Hazardous Constituent	Treatment Standard mg/kg	Highest reported value or detection limit for ND (not detected) mg/kg	Sample Number
D007	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for chromium based on the toxicity leaching procedure (TCLP) in SW846.	Chromium	6 mg/L TCLP	61.1	B23T24

Underlying Hazardous Constituents

UHCs were evaluated and are below the LDR requirements.

Constituent List		Concentration
CAS#	Constituent	(ppm)
106-46-7	1,4-Dichlorobenzene	0.00030
107-06-2	1,2-Dichloroethane	0.00067
108-88-3	Toluene	0.02800
11097-69-1	Aroclor 1254	0.00830
115-96-8	Tris-2-chloroethyl phosphate	0.00400
117-81-7	Bis(2-ethylhexyl) phthalate	0.05500
117-84-0	Di-n-octylphthalate	0.00290
123-91-1	1,4-Dioxane	0.01300
126-73-8	Tributyl Phosphate (TBP)	0.00170
127-18-4	Tetrachloroethene	0.00020
1330-20-7	Xylenes (total)	0.00046
1336-36-3	Polychlorinated Biphenyls	501
14265-44-2	Phosphate	1.8
14797-55-8	Nitrate	1300
14797-65-0	Nitrite	9.92
14798-03-9	Ammonium ion	0.33
14808-79-8	Sulfate	1600
16887-00-6	Chloride	83.00000
16984-48-8	Fluoride	2.3
18496-25-8	Sulfide	1.84
18540-29-9	Hexavalent Chromium (D007)	69.70
20589-85-9	1,2,3,3-Tetrachloro-propene	0.00390
2088-07-5	2-Methyl-1-Penten-3-OL	0.00600
24959-67-9	Bromide	3
314-40-9	Bromacil (CAN)	0.00840
51-28-5	2,4-Dinitrophenol	0.00120
534-52-1	4,6-Dinitro-2-methylphenol	0.00220
56-23-5	Carbon tetrachloride	0.00270
57-12-5	Cyanide	0.00170
593-45-3	Octadecane	0.00890
59473-04-0	Total organic halides	0.05820
67-64-1	Acetone	0.02
67-66-3	Chloroform	0.08300
71-43-2	Benzene	0.00200
71-52-3	Bicarbonate	140
72-55-9	4,4'-DDE (Dichlorodiphenyldichloroethylene)	0.00020
7421-93-4	Endrin Aldehyde	0.00013
7429-90-5	Aluminum	6.31
7439-89-6	Iron	58
7439-92-1	Lead	0.02400
7439-93-2	Lithium	0.13300
7439-95-4	Magnesium	111
7439-96-5	Manganese	11.70
7439-97-6	Mercury	0.00062
7439-98-7	Molybdenum	0.03920
7440-02-0	Nickel	0.76
7440-09-7	Potassium	8490
7440-21-3	Silicon	29.20
7440-22-4	Silver	0.13400

JML
5/2/16

Constituent List		Concentration
CAS#	Constituent	(ppm)
7440-23-5	Sodium	1780
7440-24-6	Strontium	1.71
7440-28-0	Thallium	0.10500
7440-31-5	Tin	0.11000
7440-32-6	Titanium	0.10600
7440-36-0	Antimony	0.1
7440-38-2	Arsenic	0.08
7440-39-3	Barium	0.33800
7440-41-7	Beryllium	0.00270
7440-42-8	Boron	0.10200
7440-43-9	Cadmium	0.01
7440-44-0	Total inorganic/organic carbon (TIC/TOC)	61.6
7440-47-3	Chromium (D007)	61.1
7440-48-4	Cobalt	0.30100
7440-50-8	Copper	0.50200
7440-61-1	Uranium	0.11900
7440-62-2	Vanadium	0.10500
7440-66-6	Zinc	1.34
7440-69-9	Bismuth	0.03780
7440-70-2	Calcium	239
74-82-8	Methane	27
74-83-9	Bromomethane	0.00058
74-87-3	Chloromethane	0.00063
75-09-2	Methylene chloride	0.01100
75-15-0	Carbon disulfide	0.00030
75-25-2	Tribromomethane	0.00058
75-27-4	Bromochloromethane	0.00068
75-68-3	Difluoroethane	0.05600
76-02-8	Trichloroacetyl chloride	0.00150
7631-86-9	Silicon Dioxide (Silica)	28.2
7632-00-0	Sodium Nitrite	0.04700
7664-41-7	Ammonia	0.75
7704-34-9	Sulfur	2720
7723-14-0	Phosphorus (not elemental/reactive)	0.14600
7775-14-6	Sodium Dithionite	104000
7782-49-2	Selenium	0.02210
78-93-3	2-Butanone (MEK)	0.01
79-01-6	Trichloroethylene	0.00044
791-28-6	Triphenylphosphine Oxide	0.02700
84-66-2	Diethylphthalate	0.00400
84-69-5	Diisobutyl Phthalate	0.00880
84-74-2	Di-n-butylphthalate	0.00330
84-76-4	Di-n-nonyl phthalate	0.02400
85-01-8	Phenanthrene	0.00007
85-68-7	Butylbenzylphthalate	0.00140
88-85-7	Dinoseb	0.00140
95-95-4	2,4,5-Trichlorophenol	0.00230
*GCN056	Inert Non-Hazardous Material	880522
10034-99-8	Magnesium Sulfate, 7-hydrate	2270

VMC
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Constituent List		Concentration (ppm)
CAS#	Constituent	
140-22-7	Diphenylcarbazine, 5,1-	9
7790-62-7	Potassium Pyrosulfate	7721

MSDS # 058424 WaterWorks SP-400

MSDS # 058424 WaterWorks SP-400 (Rev. May/2 OBV #44R-1387) will be utilized as an absorbant and has been identified as non regulated and non hazardous.

0

MSDS # 035629 Haz-Mat PIG Mat

**9003-07-0 Polypropylene

50000

* Generic constituents are carried over from the SWITS database as components of the waste stream and are not traditional ERDF
 **Polypropylene will be present in the waste stream but at no greater than 5% of the waste volume.

*Tml
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TCLP Calculation

Number of hits: 1

CAS#	Constituent	TCLP result (ppm)	Total Result (ppm)	Converted total to TCLP	Limit (mg/L)	Waste Code	
Metals:							
7440-38-2	Arsenic	0.0801		0	5.00	D004	FALSE
7440-39-3	Barium	0.338		0	100.00	D005	FALSE
7440-43-9	Cadmium	0.01		0	1.00	D006	FALSE
7440-47-3	Chromium	69.7		0	5.00	D007	hit
7439-92-1	Lead	0.024		0	5.00	D008	FALSE
7439-97-6	Mercury	0.0062		0	0.20	D009	FALSE
7782-49-2	Selenium	0.0221		0	1.00	D010	FALSE
7440-22-4	Silver	0.0337		0	5.00	D011	FALSE
Pest/Herb							
57-74-9	Chlordane			0	0.03	D020	FALSE
94-75-7	2,4-D			0	10.00	D016	FALSE
72-20-8	Endrin			0	0.02	D012	FALSE
76-44-8	Heptachlor & Epoxide			0	0.008	D031	FALSE
58-89-9	Lindane			0	0.40	D013	FALSE
72-43-5	Methoxychlor			0	10.00	D014	FALSE
93-72-1	2,4,5,-TP (Silvex)			0	1.00	D017	FALSE
8001-35-2	Toxaphene			0	0.50	D015	FALSE
Organics							
71-43-2	Benzene	0.002		0	0.50	D018	FALSE
56-23-5	Carbon Tetrachloride	0.0027		0	0.50	D019	FALSE
108-90-7	Chlorobenzene			0	100.00	D021	FALSE
67-66-3	Chloroform	0.053		0	6.00	D022	FALSE
95-48-7	o-Cresol			0	200.00	D023	FALSE
108-39-4	m-Cresol			0	200.00	D024	FALSE
106-44-5	p-Cresol			0	200.00	D025	FALSE
1319-77-3	total-Cresol			0	200.00	D026	FALSE
106-46-7	1,4-Dichlorobenzene	0.0003		0	7.50	D027	FALSE
107-06-2	1,2-Dichloroethane	0.00067		0	0.50	D028	FALSE
75-35-4	1,1-Dichloroethylene			0	0.70	D029	FALSE
121-14-2	2,4-Dinitrotoluene			0	0.13	D030	FALSE
118-74-1	Hexachlorobenzene			0	0.13	D032	FALSE
87-68-3	Hexachlorobutadiene			0	0.50	D033	FALSE
67-72-1	Hexachloroethane			0	3.00	D034	FALSE
78-93-3	Methyl Ethyl Ketone	0.01		0	200.00	D035	FALSE
98-95-3	Nitrobenzene			0	2.00	D036	FALSE
87-86-5	Pentachlorophenol			0	100.00	D037	FALSE
110-86-1	Pyridine			0	5.00	D038	FALSE
127-18-4	Tetrachloroethylene	0.0002		0	0.70	D039	FALSE
79-01-6	Trichloroethylene	0.00044		0	0.50	D040	FALSE
95-95-4	2,4,5 Trichlorophenol	0.0023		0	400.00	D041	FALSE
88-06-2	2,4,6 Trichlorophenol			0	2.00	D042	FALSE
75-01-4	Vinyl chloride			0	0.20	D043	FALSE

VMC
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Isotope	Limit (pCi/g)	Max Conc. (pCi/g)	Max Conc. (Ci/m ³)	Avg. Conc. (pCi/g)	Avg. Conc. (Ci/m ³)	Ratio to Limit	Ratio x 1	Max Conc. x 1	FVR Fraction x 1
Ac-227	2.83E+03		0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ag-108m	6.99E+04				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Am-241	8.25E+04				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Am-242m	Unlimited				N/A	N/A	0.00E+00		
Am-243	6.49E+04				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ba-133	Unlimited				N/A	N/A	0.00E+00		
Bi-207	Unlimited				N/A	N/A	0.00E+00		
C-14	2.43E+05				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
C-14 act. Metal	2.43E+05				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ca-41	Unlimited				N/A	N/A	0.00E+00		
Cf-249	Unlimited				N/A	N/A	0.00E+00		
Cf-252	Unlimited				N/A	N/A	0.00E+00		
Cd-113m	1.00E+06				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Cs-134	Unlimited				N/A	N/A	0.00E+00		
Cs-135	Unlimited				N/A	N/A	0.00E+00		
Cs-137	8.47E+05				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Cl-36	4.32E+03				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Co-60	7.18E+09				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Cm-242	Unlimited				N/A	N/A	0.00E+00		
Cm-243	8.98E+05				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Cm-244	4.76E+06				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Cm-245	Unlimited				N/A	N/A	0.00E+00		
Cm-246	Unlimited				N/A	N/A	0.00E+00		
Cm-247	Unlimited				N/A	N/A	0.00E+00		
Cm-248	Unlimited				N/A	N/A	0.00E+00		
Eu-150	Unlimited				N/A	N/A	0.00E+00		
Eu-152	1.23E+07				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Eu-154	1.75E+08				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Eu-155	Unlimited				N/A	N/A	0.00E+00		
Fe-55	Unlimited				N/A	N/A	0.00E+00		
H-3	2.34E+11	3.86E+01	4.63E-05		1.65E-10	1.65E-10	3.86E+01		
I-129	3.63E+04				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Pb-210	Unlimited				N/A	N/A	0.00E+00		
Mo-93	3.35E+05				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Np-237	3.00E+04				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ni-59	2.48E+07				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ni-59 act. Metal	2.48E+07				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ni-63	1.97E+07				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Ni-63 act. Metal	1.97E+07				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Nb-93m	2.82E+09				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Nb-94	5.90E+04				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Nb-94 act. Metal	5.90E+04				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Pd-107	Unlimited				N/A	N/A	0.00E+00		
Pm-147	Unlimited				N/A	N/A	0.00E+00		
Pu-238	1.41E+05				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Pu-239	5.87E+04				0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-240	5.92E+04				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Pu-241	3.65E+08				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Pu-242	6.15E+04				0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Pu-244	Unlimited				N/A	N/A	0.00E+00		
Po-209	Unlimited				N/A	N/A	0.00E+00		
K-40	Unlimited				N/A	N/A	0.00E+00		

JMC
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Isotope	Limit (pCi/g)	Max Conc. (pCi/g)	Max Conc. (Ci/m ³)	Avg. Conc. (pCi/g)	Avg. Conc. (Ci/m ³)	Ratio to Limit	Ratio x 1	Max Conc. x 1	FVR Fraction x 1
Pa-231	2.29E+03					0.00E+00	0.00E+00	0.00E+00	
Ra-226	5.04E+03					0.00E+00	0.00E+00	0.00E+00	
Ra-228	1.60E+03					0.00E+00	0.00E+00	0.00E+00	
Re-187	Unlimited					N/A	N/A	0.00E+00	
Na-22	Unlimited					N/A	N/A	0.00E+00	
Sb-125	Unlimited					N/A	N/A	0.00E+00	
Sm-147	Unlimited					N/A	N/A	0.00E+00	
Sm-151	2.49E+08					0.00E+00	0.00E+00	0.00E+00	
Se-79	2.19E+05					0.00E+00	0.00E+00	0.00E+00	
Sr-90	1.05E+05					0.00E+00	0.00E+00	0.00E+00	
Tc-99	2.38E+04	2.39E+03	2.87E-03			1.00E-01	1.00E-01	2.39E+03	
Th-228	Unlimited					N/A	N/A	0.00E+00	
Th-229	5.13E+03					0.00E+00	0.00E+00	0.00E+00	
Th-230	3.94E+04					0.00E+00	0.00E+00	0.00E+00	
Th-232	2.26E+04					0.00E+00	0.00E+00	0.00E+00	
Sn-121m	3.16E+06					0.00E+00	0.00E+00	0.00E+00	
Sn-126	2.59E+04					0.00E+00	0.00E+00	0.00E+00	
Ti-44	Unlimited					N/A	N/A	0.00E+00	
U-232	Unlimited					N/A	N/A	0.00E+00	
U-233	2.64E+05	7.20E+01	8.64E-05			2.73E-04	2.73E-04	7.20E+01	2.00E-03
U-234	2.73E+05	4.23E+02	5.08E-04			1.55E-03	1.55E-03	4.23E+02	
U-235	2.10E+05	1.30E+01	1.56E-05			6.19E-05	6.19E-05	1.30E+01	1.00E-02
U-236	2.90E+05	9.05E+00	1.09E-05			3.12E-05	3.12E-05	9.05E+00	
U-238	2.87E+05	3.41E+02	4.09E-04			1.19E-03	1.19E-03	3.41E+02	
Zr-93	1.97E+07					0.00E+00	0.00E+00	0.00E+00	
Totals:		3.29E+03	3.94E-03			1.04E-01	1.04E-01		

JML
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FVR x 1 Exceeded? No
 Pu-239 x 1 Exceeded? No
 U-233 x 1 Exceeded? No
 U-235 x 1 Exceeded? No

NRC Classification x 1: Class A
 Density: 1200 kg/m³
 Limit Multiplier: 1
 U-235 Enrichment: 0.59%

Other isotopes present:

Radiological considerations:

The following radionuclides are present in this waste stream but fall into one or more of the following categories and are therefore not reported: are at concentrations < 1 pCi/g, have a half-life of < 2 years, are in secular equilibrium with a parent radionuclide, or are naturally occurring at an activity level consistent with levels determined in Hanford Site Background: Part 2, Soil Background for Radionuclides (DOE/RL-96-12) (UCM #150966): Am-241, Sb-125, Be-7, C-14, Co-144, Cs-134, Cs-137, Co-60, Eu-154, Eu-155, I-129, Pu-238, Pu-239, Pu-240, K-40, Ra-226, Ru-106, Sr-90, Th-228, Th-230, Th-232, Zr-95, and Nb-95/Zr-95.

PROFILE REQUEST FORM

SECTION 1			
Company: CHPRC		Facility: Soil and Groundwater Remediation Project	
Contact: Paul Fernandez		Project Engineer: Paul Fernandez	
Shipper: John Hasson		Date Needed by: May, 2016	
Waste Description: New profile to manage spent ChromaVer 3 chromium reagent ampoules that have contacted groundwater. This will be 100HR3WLSRV002, rev. 2.			
References: DQO/SAP: SGW-45957 Rev 1, "Waste Management DQO Summary Report for the 100-HR-3 Pump and Treat Systems"			
ROD Documentation: EPA/ROD/R10-96/134, Record of Decision for the 100-HR-3 and 100-KR-4 Operable Units			
CERCLA Record of Decision: NA			
Plug In Approach Documentation: NA			
DQO/SAP Exception Authorization: NA			
Waste Control Plan: DOE/RL-97-01, Interim Action Waste Management Plan for 100-HR-3 and 100-KR-4 Operable Unit			
Sample Results Documentation (list sample #s): NA			
Chemical: 100HR3WLSRV002, rev. 1.		Radiological: 100HR3WLSRV002, rev. 1	
Other Applicable Documentation:			
<input checked="" type="checkbox"/> New Profile		<input type="checkbox"/> Profile Revision	
Original Profile #: NA			
Process Knowledge: Hazardous: <input checked="" type="checkbox"/> Dangerous: <input type="checkbox"/> Radiological: <input type="checkbox"/>			
Basis for Process Knowledge Determination: This is spent ChromaVer 3 chromium reagent ampoules that have contacted groundwater			
Soil? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Debris? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Treatment Required? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		TSCA? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
If Yes, Explain: This waste is a nonwastewater waste that is subject to the land disposal restrictions (LDR). The contaminated debris requires treatment prior to disposal for: Chromium (D007).			
Waste Density: 1300 kg/cubic meter			
Known Dangerous Waste Numbers: D007			
Waste Forms:		0 % Soil	0 % Concrete
		0 % Steel	
% Other (explain) 85% glass, 4% plastic, 1% ChromaVer 3 chromium reagent (constituents listed below)			
Packaging:		0 % Bulk	0 % Bags
		100 % Boxes/Drums (must equal 100%)	
Total volume to be disposed under this profile: 2 m ³ <input checked="" type="checkbox"/> yd ³ <input type="checkbox"/>			

PROFILE REQUEST FORM

Radiological Data			
Provide activity, pCi/gm or Ci/m ³			
Radionuclide	Activity (Ci)	pCi/gm	Ci/m ³
H-3		3.86E1	3.09E-5
Tc-99		2.39E3	191E-3
U-233		7.20E1	5.76E-5
U-234		4.23E2	3.38E-4
U-235		1.30E1	1.04E-5
U-236		9.05E0	7.24E-6
U-238		3.41E2	2.73E-4
Hazardous Waste Data			
Constituent	MSDS and CAS #	Concentration (ppm)	
See 100HR3WLSRV002, rev. 1			
Chromium	CAS# 7440-47-3	61.1	
Chromaver3 Reagent	MSDS# 051117		
The information provided herein is accurate and is supported by documentation and/or sample results referenced in this Profile Request Form.			
Name (print/sign): <u>Paul Fernandez</u> PA			
Title: <u>Waste Management Representative</u>		Date: <u>3/1/16</u>	