

100 & 300 AREA UNIT MANAGERS MEETING (UMM) JANUARY 20, 2022

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract 89303320DEM000030



**P.O. Box 1464
Richland, Washington 99352**

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R. E. Fox
CH2M HILL Plateau Remediation Company

Date Published
January 2022

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 **CPC** Co
Central Plateau
Cleanup Company
P.O. Box 1464
Richland, Washington 99352

APPROVED

By Janis Aardal at 8:03 am, Feb 22, 2022

Release Approval

Date

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100 & 300 AREA UNIT MANAGERS MEETING
JANUARY 20, 2022

FINAL MEETING MINUTES

Electronic Distribution to:

Meeting Attendees
Administrative Record
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**100/300 AREA UNIT MANAGERS MEETING
Attachments List
January 20, 2022**

Minutes of the 100/300 Area Unit Managers Meeting are attached. Minutes are comprised of the following:

Attachment 1	Agenda
Attachment 2	Attendance List
Attachment 3	Signature Approval Page
Attachment 4	100K Area Report
Attachment 5	300 Area River Corridor Soils Summary
Attachment 6	Groundwater Summary by O.U.
Attachment 7	Documents to the AR, Approved TPA CNs
Attachment 8	100-OL-1 Orchard Lands
Attachment 9	Action Items
Attachment 10	Appendix A - Hanford Groundwater Sampling Program: Missed, Deferred or Outstanding Sample Trips for CY2020

**100/300 Area Unit Managers Meeting
Agenda
January 20, 2022**

100 Area River Corridor Soils and Sludge & K Basin Summary (Deborah Singleton/K. Evans)

300 Area River Corridor Soils Summary (B. Vannah)

Groundwater Summary by O.U.

- 100-K Area Groundwater (Ellwood Glossbrenner)
- 100-BC Area Groundwater (John Sands)
- 100-N Area Groundwater (Ellwood Glossbrenner)
- 100-D/H Areas Groundwater (Ellwood Glossbrenner)
- 100-F Area Groundwater (John Sands)
- 300 Area Groundwater (John Sands)
- Documents for the Administrative Record and Approved TPA Change Notices

100-OL-1 – Orchard Lands (Johns Sands)

Action Items

Appendix A - Approved Groundwater Sample Event Disposition Concurrence Forms

Closing Comments

- Sign concurrence to “Groundwater Summary by O.U.” and “Action Item List” if applicable

**100/300 Area Unit Managers Meeting
Attendance List
Joined Via Microsoft Teams
January 20, 2022**

NAME	ORGANIZATION	EMAIL
ARMIJO, ROBERTO	EPA	ARMIJO.ROBERTO@EPA.GOV
BAILEY, KAYCEE	DOE	KAYCEE.BAILEY@RL.DOE.GOV
BOYD, ALICIA	ECY	ALICIA.BOYD@ECY.WA.GOV
BUELOW, LAURA	EPA	BUELOW.LAURA@EPA.GOV
CAMERON, CRAIG	EPA	CAMERON.CRAIG@EPA.GOV
CLINE, MIKE	DOE	MICHAEL.CLINE@RL.DOE.GOV
DAVIS, SCOTT	HMIS	SCOTT_W_DAVIS@RL.GOV
DAY, GARRETT	ECY	GARRETT.DAY@ECY.WA.GOV
EBERT, KELLY	DOE	KELLY.EBERT@RL.DOE.GOV
EVANS, KETRA	CPCC	KETRA_M_EVANS@RL.GOV
FOX, RANDAL	CPCC	RANDAL_E_FOX@RL.GOV
FRENCH, MARK	DOE	MARK.FRENCH@RL.DOE.GOV
GLOSSBRENNER, ELLWOOD	DOE	ELLWOOD.GLOSSBRENNER@RL.DOE.GOV
HIGGINS, KATHLEEN	DOE	KATHLEEN.HIGGINS@RL.DOE.GOV
JOHANSON, JULIE	CPCC	JULIE_A_JOHANSON@RL.GOV
JOHNSON, BRIAN	ECY	BRIAN.JOHNSON@ECY.WA.GOV
KRUZIC, MICHAEL	CPCC	MICHAEL_R_KRUZIC@RL.GOV
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QUINTERO, ROGER	CPCC	ROGER.QUINTERO@RL.DOE.GOV
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WIBORG, ANDERS	DOE	ANDERS.WIBORG@RL.DOE.GOV


**100/300 Area Unit Managers Meeting
Meeting Minutes Approval
Groundwater Summary by O.U.
January 20, 2022**

SIGNATURES:

In accordance with the Tri-Party Agreement Section 4.1, Project Manager Role, any agreements and commitments resulting from the meeting will be prepared and signed by all parties as soon as possible after the meeting. The undersigned indicate by their signatures (or their delegate's signature) that these meeting minutes reflect the actual discussion during this meeting. Signatures denote concurrence with the agreements and commitments resulting from this meeting and do not imply agreement with statements made during this meeting. Attachments to these meeting minutes are provided for informational purposes only.

APPROVAL: MARK FRENCH Digitally signed by MARK FRENCH
Date: 2022.01.26 13:29:15 -08'00' **DATE:** _____
River Corridor Project Manager, DOE/RL

APPROVAL: MICHAEL CLINE Digitally signed by MICHAEL CLINE
Date: 2022.01.25 11:42:26 -08'00' **DATE:** _____
Groundwater Project Manager, DOE/RL

APPROVAL:  Digitally signed by Welsch, Kim (ECY)
Date: 2022.02.03 10:28:05 -08'00' **DATE:** _____
Environmental Restoration Acting Project Manager, Ecology

APPROVAL: LAURA BUELOW Digitally signed by LAURA BUELOW
Date: 2022.02.03 09:01:50 -08'00' **DATE:** _____
100 Area Project Manager, EPA

100/300 Area Unit Manager Meeting
100K Area Report
January 20, 2022

RL-0041 100K Closure Project – (Manny Lopez-Lopez, Kat Thompson)

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)** – At Risk – DOE RL is negotiating with EPA on development of a revised milestone due date.

Remediation and Waste Site Closure:

- 100-K-55:2, 100-K-56:3, 100-K-96
 - Continued demolishing concrete structures, shearing and size reducing steel pipelines, and loading out contaminated soil and waste debris for disposal at the ERDF.
 - Collected verification soil samples on the overburden pile. Received laboratory results and initiated paperwork to support using overburden for fill material in new container transfer area (CTA).



100-K-55:2, 100-K-56:3, 100-K-96 Pipeline and Concrete Demolition

- 100-K-47:2/100-K-60:1 - Completed draft remaining sites verification package (RSVP) and submitted to DOE for review.
- 100-K-79:7 - Completed draft RSVP. Document sent for formatting and technical editing.
- 100-K-79:8 - Completed post-excavation topography survey in support of verification sampling instruction (VSI) preparation.

100/300 Area Unit Manager Meeting
100K Area Report
January 20, 2022

- 100-K-99 - Completed post-excavation radiological survey and topography survey in support of VSI preparation.
- 100-K-47:3/100-K-79:6 - Completed remediation design, excavation permit, and work package in support of waste site remediation.

Ancillary Facility Deactivation and Demolition (D&D):

- Continued load-out of large piping from 165KE powerhouse demolition.
- Completed 167K Cross-Tie Tunnel Bat Habitat drawing review and approval with HMIS biologists and continued work package planning.
- Continued demolition of 165KW powerhouse.
- Placed contract for removal of legacy fuel from the 166KW fuel storage bunker and began planning for mobilization.



165KW Demolition Stack Removal Progress

**100/300 Area Unit Manager Meeting
100K Area Report
January 20, 2022**



165KW Demolition Progress from November to January

100/300 Area Unit Manager Meeting
100K Area Report
January 20, 2022

TPA Milestone M-093-27, *Complete 105-KE and 105-KW Reactor Interim Safe Storage in Accordance with the Removal Action Work Plan.*

- (9/30/24) – At Risk – TPA Change package M-93-20-02 was approved 6/10/2020 and added three target dates. DOE RL is negotiating with EPA on development of a revised milestone due date.

105KE Interim Safe Storage (ISS) Progress:

- Continued foundation backfill operations.
- Completed installation of ventilation pipe.
- Completed stairwell removal.
- Commenced fabrication of structural steel members for Safe Storage Enclosure.



Installed Ventilation Pipe

**100/300 Area Unit Manager Meeting
100K Area Report
January 20, 2022**



105KE ISS Foundation Backfill Operations

TPA Target Date M-093-27-T01, *Initiate earthwork for construction of the 105-KE Safe Storage Enclosure.*

- **(9/30/2021)** – Complete – This target date was completed on September 7, 2021 by initiating the earthwork in support of the 105-KE Reactor Safe Storage Enclosure construction. Earthwork includes excavating and stockpiling clean soil and packaging contaminated soil from existing terrain around the 105-KE Reactor Building to prepare the area for installation of the engineered fill pad.

TPA Target Date M-093-27-T02, *Complete preparation of the 105-KW Reactor Building for Interim Safe Storage by removing liquids and accessible hazardous and controlled materials in accordance with the Removal Action Work Plan.*

- **(DATE – TBD)** - This target date will be satisfied by removing liquids and accessible hazardous and controlled materials from the deactivated and decommissioned portions of the 105-KW Reactor Building. Asbestos that is deemed stable and outside the Surveillance and Maintenance tour path, primarily at heights or asbestos cement wall/ceiling panels, will remain in place during the interim safe storage period.
- DOE RL is negotiating with EPA on development of target due date.

Demolition Preparation Progress:

- Commenced characterization walk downs to determine quantities of asbestos containing materials and other hazardous materials.
- Commenced walk downs to verify system and facility isolation points.

TPA Target Date M-093-27-T03, *Initiate earthwork for construction of the 105-KW Safe Storage Enclosure.*

- **(DATE – TBD)** - This target date will be satisfied by initiating the earthwork in support of the 105KW Reactor Safe Storage Enclosure construction. Earthwork includes excavating and preparing the area around the 105KW Reactor Building for installation of the engineered fill pad.

100/300 Area Unit Manager Meeting
100K Area Report
January 20, 2022

- DOE RL is negotiating with EPA on development of target due date.

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

- (9/30/23) – At Risk – DOE RL is negotiating with EPA on development of a revised milestone due date.

Garnet Filter Media Retrieval (GFMR) Progress:

- Completed Operator Familiarization of the Engineered Container Retrieval and Transfer System (ECRTS) Sand Filter Media Retrieval at MASF.
- Reconfigured the Garnet Filter Retrieval System in order to transfer the ECRTS Sand Filter media into Sludge Transport and Storage Container (STSC) #4.
- Completed sand filter media transfers into STSC #4 and prepared STSC #4 for shipment to T Plant.

Vertical Pipe Casing (VPC) Progress:

- Completed a formal pre-Hazard Review Board (HRB) meeting on the VPC loading/operations work package with the Operations team and HRB members, addressed Board comments, and prepared for the final HRB meeting.
- Started development of a work package to install VPC #4 debris sections if additional space is required to segregate high-dose basin debris from the remainder of the basin debris.
- Started planning to clear equipment and obstructions along basin monorail 27 and 32 to support future mobilization and installation of the larger top grout sections for the VPCs.



Obstructions along Monorail 27

100/300 Area Unit Manager Meeting
100K Area Report
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- Completed modifications and load testing of zeolite filter bags at MASF. Filter bags will be filled with zeolite and loaded into a VPC filter assembly for use during VPC loading/debris transfer operations.



Modified Zeolite Filter Bag Load Testing

Debris Management and Sampling Progress:

- Successfully completed the HRB meeting for the VPC, North Loadout Pit (NLOP) and floor sampling work package in support of upcoming sample cart and VPC debris loading operations in the basin.
- Continued performance of ID and Document activities, including cutting, dosing, and staging of hose segments and pole tools lying on the basin floor.

**100/300 Area Unit Manager Meeting
100K Area Report
January 20, 2022**



Operating Champion Shear to Cut Floor Pole Tools

- Completed effort to document location, weights, and dose rates of a number of Parsons bins and fuel cans filled with small basin debris. Reconciliation of these items was needed prior to starting VPC loading operations.



Fuel Cans and Bin Debris Checked during Reconciliation

100/300 Area Unit Manager Meeting

100K Area Report

January 20, 2022

- Started prototype development and testing of the NLOP pump/transfer equipment at MASF. Equipment will be used to transfer high-dose settled solids in the NLOP to a VPC.

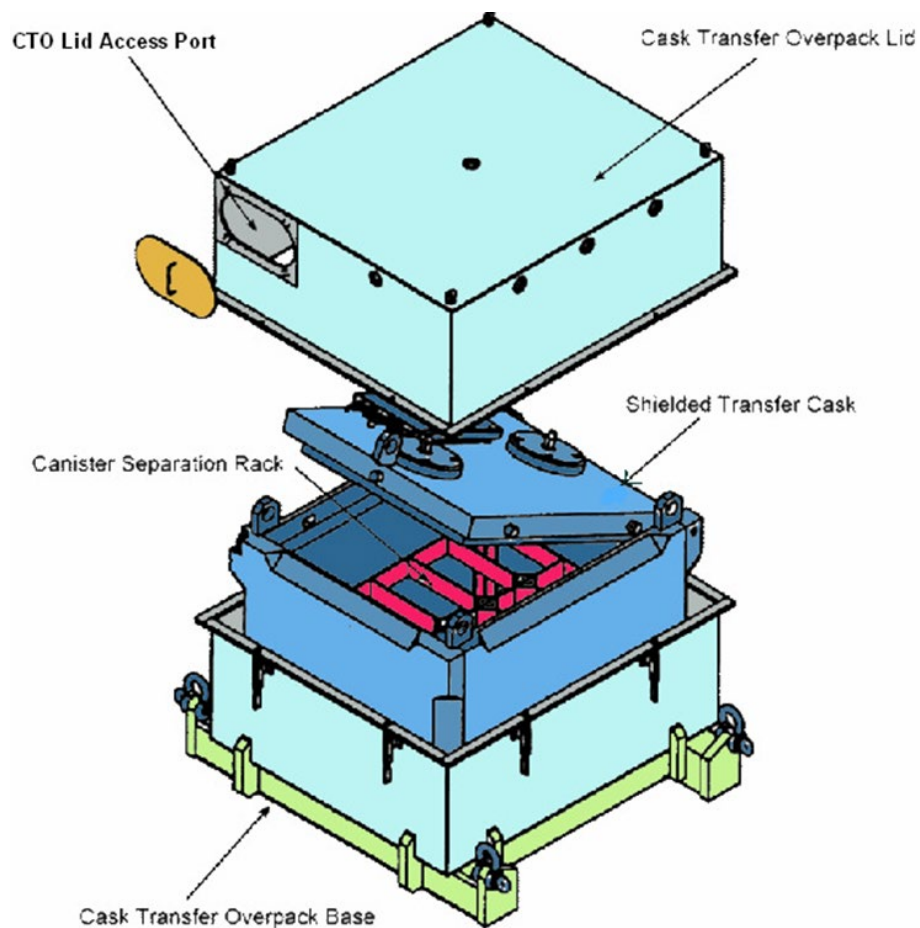


NLOP Retrieval Pump Testing

Transfer Cask Assembly (TCA) Disposition Progress:

- Continued engineering for removing outer cover and opening the inner shielded lid of TCA-2 within the tight confines of the FTS Annex.
- Started development of engineering sketches for the transfer system that will be used to move the TCA water/sludge contents to a VPC.

100/300 Area Unit Manager Meeting
100K Area Report
January 20, 2022

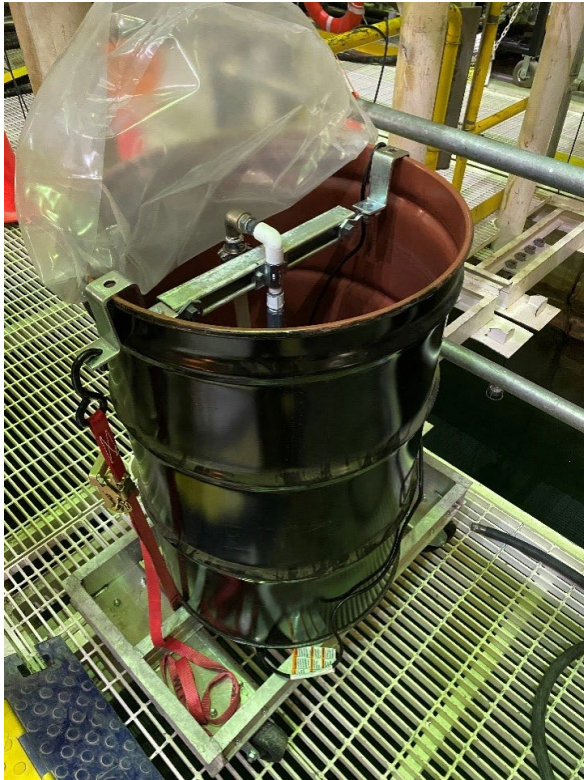


TCA Outer Lid and Inner Shielded Cask

105KW Basin Stabilization Systems Progress:

- Fabrication contractor started procurement of materials and fabrication of the Dewatering and Filtration System (DEW) and the Wetting and Fixative System (WFS) equipment.
- Finalized design for installation of the Stabilization Systems (i.e., DEW, WFS, camera system and grouting system).
- Awarded a contract for fabrication of three 8,000 gallon tankers that will be used to transport filtered water from the basin to the Effluent Treatment Facility (ETF).
- Continued development of a Scope of Work and Request for Proposal to install the Stabilization Systems in the basin and perform grouting of the 105KW Basin.
- Continued performing fixative nozzle testing at MASF to help finalize design specifications. A glycerin/water solution will be sprayed on the basin walls and floors during dewatering for contamination control.

**100/300 Area Unit Manager Meeting
100K Area Report
January 20, 2022**

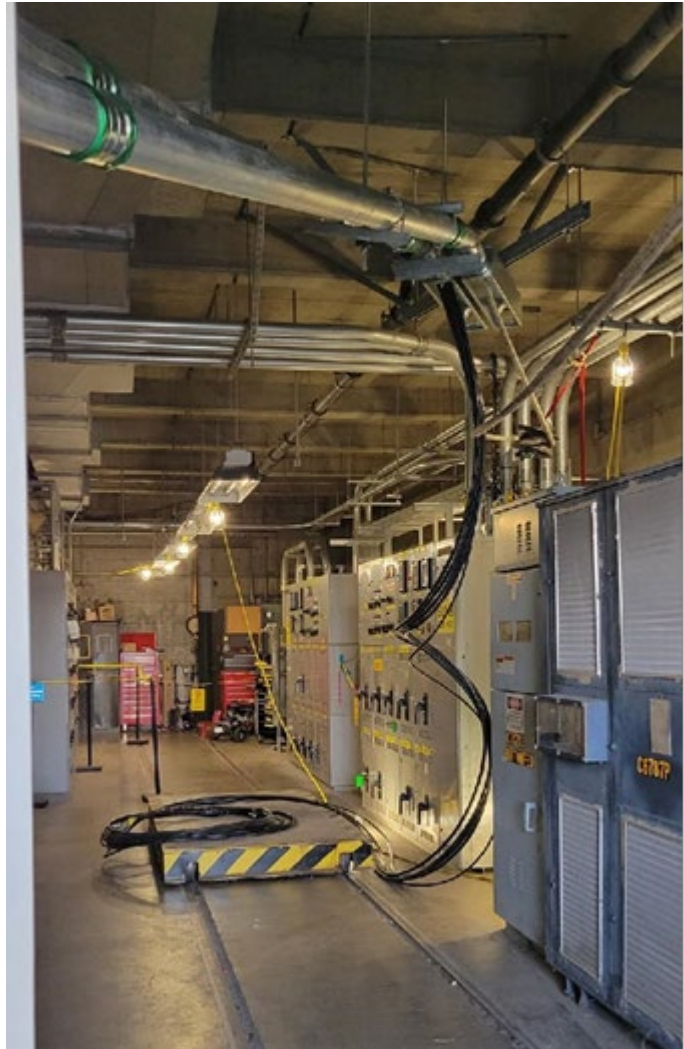


Fixative Nozzle Testing at MASF

105KW System Deactivation and Demolition Prep Progress:

- Initiated development a Cold and Dark Isolation index for the 105KW Annex to remove the mechanical and electrical hazards from the building.
- Started development of isolation indexes for mechanical and electrical systems inside 105KW.
- Continued skid-mounted substation installation activities, including switchgear/transformer testing and installation of secondary wiring between the substation and the interior of 105KW in preparation for tie-in to the facility the weekend of February 11th.

**100/300 Area Unit Manager Meeting
100K Area Report
January 20, 2022**



Secondary wiring installed from the Skid-Mounted Substation to the 105KW Electrical Room

TPA Milestone M-016-186, *Initiate soil remediation under the 105-KW Fuel Storage Basin.*

- **(12/31/23)** – At Risk – DOE RL is negotiating with EPA on development of a revised milestone due date.

TPA Milestone M-016-00C, *Complete all response actions for the 100 K Area*

- **(9/30/24)** – At Risk – DOE RL is negotiating with EPA on development of a revised milestone due date.

300 Area River Corridor Soils Summary
300 Area Unit Manager Meeting
January 20, 2022

300 Area ROD Scope – (Ben Vannah)

TPA Milestone M-016-85A, *Complete remote excavation of the 300-296 waste site in accordance with an approved RD/RA Work Plan, (11/30/2025)* – On Schedule

Performing the following activities in preparation for remote excavation of the highly contaminated soil beneath the 324 Building B-Cell, and grout in place in the adjacent hot cells (A, C, D) for disposal.

324 Building Equipment Installation:

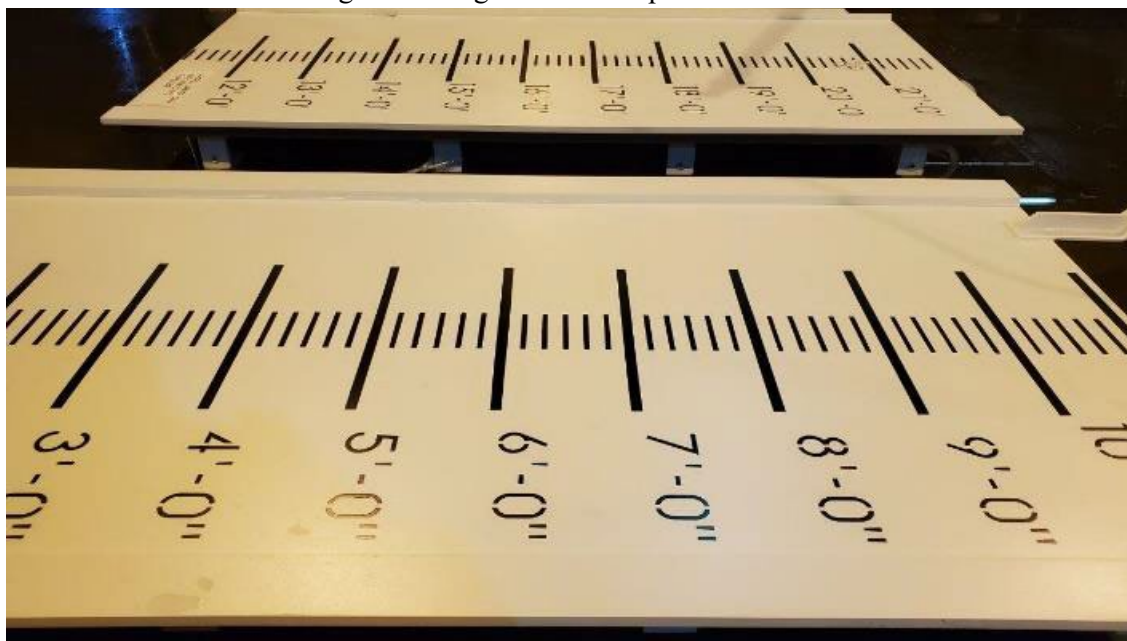
- N/A

Safety and Environmental Documents:

- N/A

Equipment Procurement & Fabrication:

- Equipment Delivered
 - N/A
- Continued Design and procurement
 - Airlock 7.5 Ton Crane is 93% designed by PaR systems and has begun submitting final packages
 - A-Cell Lower and Upper Replacement Dam and its associated test frame are complete. Estimated delivery is the week of January 17
 - Motorized indexing hook design is 90% complete



A-Cell Lower & Upper Replacement Dam

324 Activities:

- Continued adjusting electric heaters and added new heaters as needed
- Completed and approved HRB for A-04/A-06 (11/8)
- Completed Airlock Smoke Test without Tracks (12/28)

300 Area River Corridor Soils Summary
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- Completed Airlock Anemometer Acceptance Test (12/28)
- Breach of Fire Suppression System line in room 146 flooded multiple rooms in the facility. Main line drained (1/2/2022)
- **Breach of Fire Suppression System Recovery:**
 - Initiated a daily fire watch and limited personnel on floors other than the main floor
 - Evaluated rooms for electrical hazards
 - Mopped up water from floor
 - Test ports for the fire suppression system were drained to mitigate further pipe damage

Structural Modifications:

- Completed waste load out of Room 18 (11/9/2021 & 11/29/2021)
 - Waste Drums
 - Removed pieces of Casing
- Room 18 Micropiles
 - Moved the drill rig over Borehole #8 (11/5/2021)
 - Grouted Borehole #8 (11/22/2021)
 - Moved the drill rig over Borehole #13 (11/30/2021)
 - Drilled to depth on Borehole #13 (12/8/2021)
 - Started grouting Borehole #13, rig broke and casing could not be backpulled. Casing cemented in place (12/14/2021).
 - Recovery plan for Micropile #13 is being developed
 - Moved drill rig over Borehole #10 (12/16/2021)
 - Drilled to depth on Borehole #10 (12/21/2021)



Completed Micropile #11 in Room 18

300 Area River Corridor Soils Summary
300 Area Unit Manager Meeting
January 20, 2022



Room 18 Drilling

- North Shoring
 - Completed drilling 9 micropile boreholes for expansion of shoring wall
 - Began drilling 10th micropile borehole for expansion of shoring wall
 - Completed Grouting 5 micropiles for expansion of shoring box wall



Drilling for Temp Shoring

300 Area River Corridor Soils Summary
300 Area Unit Manager Meeting
January 20, 2022



Temp Shoring Drill Rig

- Continued low hazard cell sealing

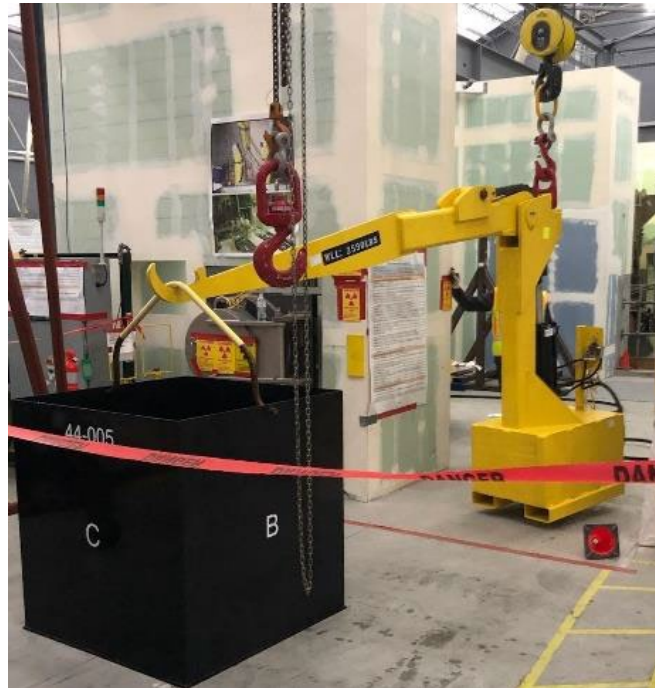


Cell Sealing

300 Area River Corridor Soils Summary
300 Area Unit Manager Meeting
January 20, 2022

Mockup:

- Continued REA Demo Tool training
- Completed Offset Lifting Too training
- Initiated Shield Plug Puller training



Mockup Offset Lifting Tool



Diamond Wire Saw (REA Demo Tool)

**300 Area River Corridor Soils Summary
300 Area Unit Manager Meeting
January 20, 2022**



REA Demo Tool Training at Mockup

Resumption Activities:

- Continued CA/HCA Training, 15 more entrants trained
- Continued Room 18 Training, 5 more entrants and one doff attendant trained
- Continued Airlock Training, 5 more entrants trained



HCA Training

Upcoming Activities:

- Continue Fire Suppression System Recovery and Repair
- Continue North Shoring additional vertical micropile drilling
- Continue drilling and/or grouting micropiles in Room 18

300 Area River Corridor Soils Summary
300 Area Unit Manager Meeting
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TPA Milestone M-016-85, *Complete Remedial Actions for 300-296 and Disposition for 324 Bldg. and Ancillary Bldgs. (11/30/2030)* – On Schedule

Milestone Description: *Complete remedial actions for 300-296 waste site in accordance with RD/RA Work Plan for 300-FF-2 Soils (DOE/RL-2014-13-ADD1) and disposition for the 324 Building and Ancillary Buildings in accordance with the Removal Action Work Plan (DOE/RL-2004-77). Completion of facility disposition is defined as the completion of deactivation, decontamination, decommissioning, and demolition in accordance with the removal action work plan.*

TPA Milestone M-016-86, *Complete Remedial Actions for 618-11 Burial Ground in accordance with DOE/RL-2014-13-ADD1. (9/30/2021)* – Dispute Resolution

Milestone Description: *Complete remedial actions for 618-11 Burial Ground in accordance with RD/RA Work Plan for 300-FF-2 Soils (DOE/RL-2014-13-ADD1).*

Safety and Environmental Documents:

- TPA Change request package for M-016-86 was disapproved by EPA not taking any action. DOE-RL is disputing.

300 Area River Corridor Soils Summary
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TAR2_12.19.21_DEC_OAES - 300-296 Waste Site Remediation - FES			300 Area End States - DOE Summary Schedule																Printed = 1-5-22 10:55														
#	Activity Name	Start	Finish	2022				2023				2024				2025				2026				2027				2028				2029	
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1	300-296 Key Milestones	2-8-21 A	3-8-29																														
2	Resume General CAHCA Work_ 11/14/19 Event	2-8-21 A																															
3	Resume Room 18 Work_ 11/14/19 Event	3-22-21 A																															
4	Resume Airlock Work	1-20-22																															
5	FY2022 KPG - Complete installation of 6 micropiles in 324 Building room 18		2-3-22*																														
6	FY2021 KPG 14.1 - Complete 324 Building Hotcell Cleanout		5-10-23																														
7	FY2021 KPG 14.2 - Initiate 324-B-Cell Floor Cutting	6-5-23																															
8	Complete Structural Modifications		11-5-24																														
9	Start B-Cell Soil Removal	11-6-24																															
10	TPA M-016-85A Complete remote excavation of the 300-296 waste site (Due 11/30/2025)		9-11-25*																														
11	TPA M-016-85 Complete Remedial Actions for 300-296 Waste Site		3-8-29																														
12	Project Resumption from 11/14/19 Event	1-25-21 A	2-15-22																														
13	A/D Crane Recovery	5-6-21 A	5-27-25																														
14	Mockup Training	2-16-21 A	9-30-24																														
15	Cell Sealing	2-18-21 A	4-9-25																														
16	Structural Modifications - Temp Shoring	4-20-21 A	2-9-22																														
17	Structural Modifications - Interference Removal	4-22-21 A	11-15-22																														
18	Structural Modifications - Micropiles	1-25-21 A	10-4-23																														
19	Structural Modifications - Soil Stabilization	11-23-21 A	3-19-24																														
20	Structural Modifications - Scabbling/Dowel Drilling	3-20-24	8-13-24																														
21	Structural Modifications - Pile Cap	6-3-24	11-5-24																														
22	Equipment Procurements	1-25-21 A	8-15-24																														
23	Equipment Installations	1-25-21 A	6-5-25																														
24	REC Cleanout	9-20-21 A	9-20-22																														
25	B-Cell Debris Removal	6-23-22	5-10-23																														
26	B-Cell Floor Scoring	6-5-23	7-17-23																														
27	B-Cell Floor Removal	3-19-24	5-14-24																														
28	B-Cell Soil Excavation	11-6-24	7-22-25																														
29	B-Cell Grouting	8-12-25	9-11-25																														
30	324 Above Grade Demolition	9-15-25	7-20-26																														
31	324 Building Demolition	7-21-26	10-19-26																														
32	324 Building Monolith Disposition	10-20-26	6-8-28																														
33	Waste Site Remediation	12-17-26	3-8-29																														
Data Date = 12-19-21			Page 1 of 1																© Oracle Corporation														

**100/300 Area Unit Managers Meeting
Groundwater Summary by OU
November - December, 2021 Data
January 20, 2022**

100-K Area Groundwater Operable Unit

EPA Lead

RL – E. Glossbrenner, CPCCo – E. Macdonald, J. Lynn

CERCLA Process Implementation:

- Revision 1 of 100-KR-4 groundwater monitoring SAP (DOE/RL-2013-29) began in May 2021 and is in-process. Revision 1 was sent to EPA review and comments were received in October 2021. Initial EPA comment disposition was completed and the RCR is in review by EPA.
- 100-KR-4 FS and RI comment resolution is in-progress and a total of four comment packages have been sent to EPA for concurrence. The comment resolution process has been extended into January 2022.
- EPA, Ecology, and DOE project managers agreed to move TCE wells associated with the firestation from the 100-KR-4 OU SAP (DOE/RL-2013-29) to the 100-NR-2 SAP.

183.1 KE Headhouse Soil Flushing

- RL comments for DOE/RL-2021-31, *183.1 KE Headhouse Soil Flushing Sampling and Analysis Plan* were dispositioned in October. Comments were dispositioned and the cleared SAP was sent to EPA for 45-day review in November.
- Construction of the conveyance line from the KW P&T effluent and the infiltration gallery has begun. Construction was temporarily postponed at end of December due to weather.

183.1 KW Headhouse Soil Flushing and Rebound Study

- The KW rebound study began in June 2021. Samples are being collected monthly for select wells and data is being provided to RL and EPA via email status update as data is received. Figure K-1 shows Cr(VI) concentration data collected up through the end of December 2021 for key monitoring wells.

RPO and Drilling

- EPA review comments for DOE/RL-2019-16-ADD1, *100-KR-4 Groundwater Operable Unit Well Installation Sampling and Analysis Plan, Addendum 1: Wells 199-K-241, 199-K-242, and 199-K-243* were received in October 2021 and the SAP was approved by EPA in December.
- Re-alignment of wells 199-K-208 and 199-K-238 began in late August 2021, however the work was delayed due to contracting issues, but is in-progress. KX P&T extraction well 199-K-208 will be converted to a monitoring well, and current monitoring well 199-K-238 will be converted to an extraction well.
- Well 199-K-165 is scheduled to be converted from an extraction well to a monitoring well to support soil remediation activities around the KW powerhouse.
- Installation of aquifer tubes D0218 and D0219 were attempted; however, have not been installed due to issues with field equipment. Substitute materials have been received and the aquifer tube installation will commence as weather permits.

Monitoring & Reporting:

- The following are missed sampling events during November and December:
 - Well 199-K-222 was inaccessible due to D&D and soil excavation activities. The well will be sampled in January if it become accessible.
 - Extraction well 199-K-148 is offline due to a failed well pump and was offline during the attempted sampling in December.
 - Three aquifer tubes and one seep were not able to be located. Four aquifer tubes did not produce water.

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Remedial Actions & System Modifications:

- Figures K-2 through K-4 present the monthly volume of groundwater treated and mass of hexavalent chromium removed through December 2021. The observed decrease in treatment capacity at the KR4 P&T system (Figure K-2) is attributed to the repair of distributors inside several IX resin vessels. The decrease at the KW P&T system (Figure K-3) is a result of P&T wells being shutdown to support a rebound study at the 183.1KW Headhouse. The decrease at the KX P&T system (Figure K-4) is a result of an in-progress repair of several IX resin vessels.
- Figure K-5 illustrates the monthly average pumping rates for operating extraction wells across the 100-KR-4 OU P&T systems.
- The volume of groundwater treated, and mass of Cr(VI) removed for the 100-K P&T systems (KX, KR-4, and KW) during November and December are:

Month	Gallons Treated (millions)	Hexavalent Chromium Removed (kg)
November	26.82	1.17
December	35.80	1.69
Totals	62.62	2.86

- FY 2022 (October 2021 through December 2021) P&T performance to date:

P&T System	Treated (mgal)	Removed (kg)
KR4	21.95	0.40
KW	17.46	0.54
KX	50.54	2.94
Total	89.95	3.88

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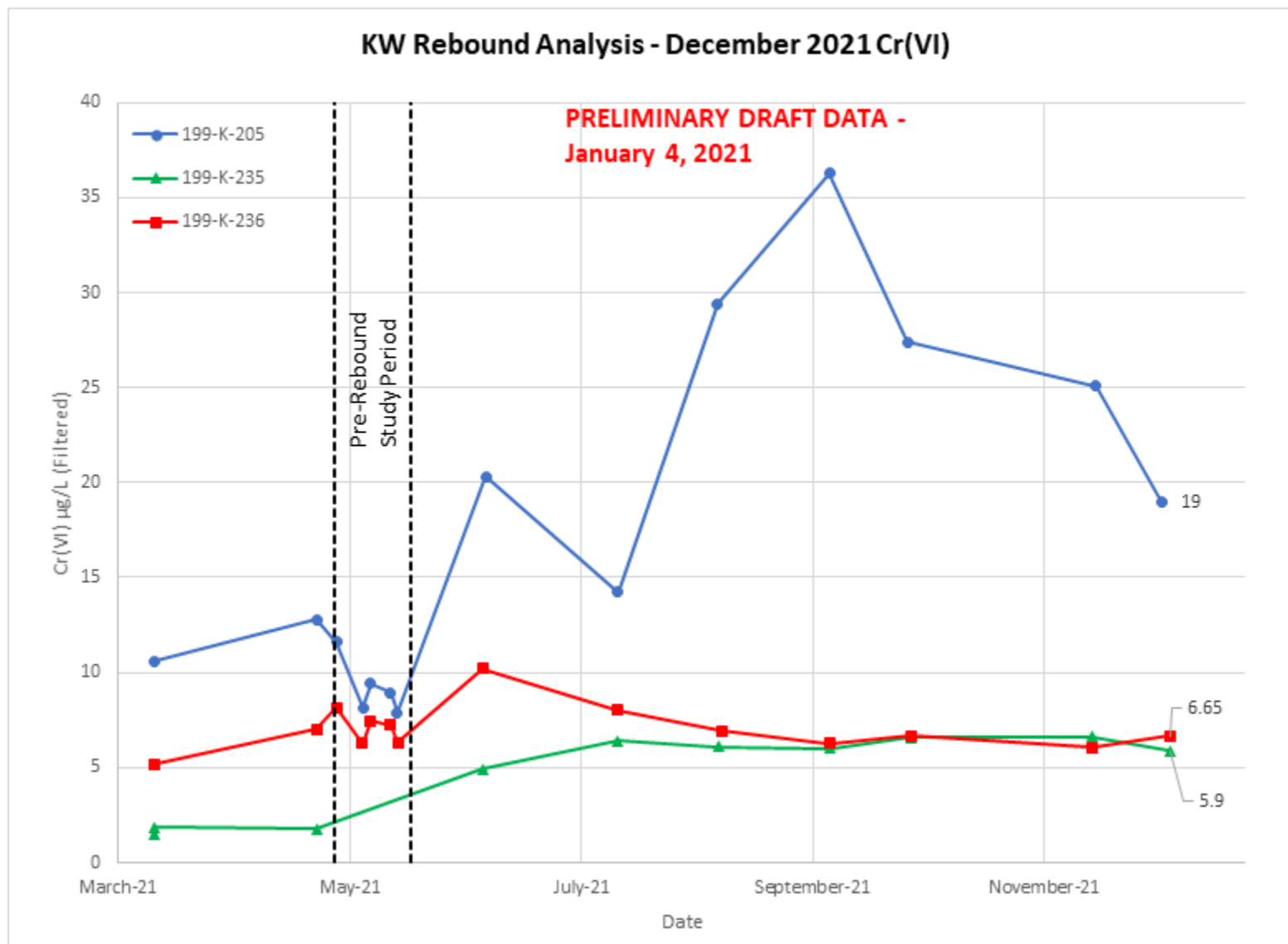


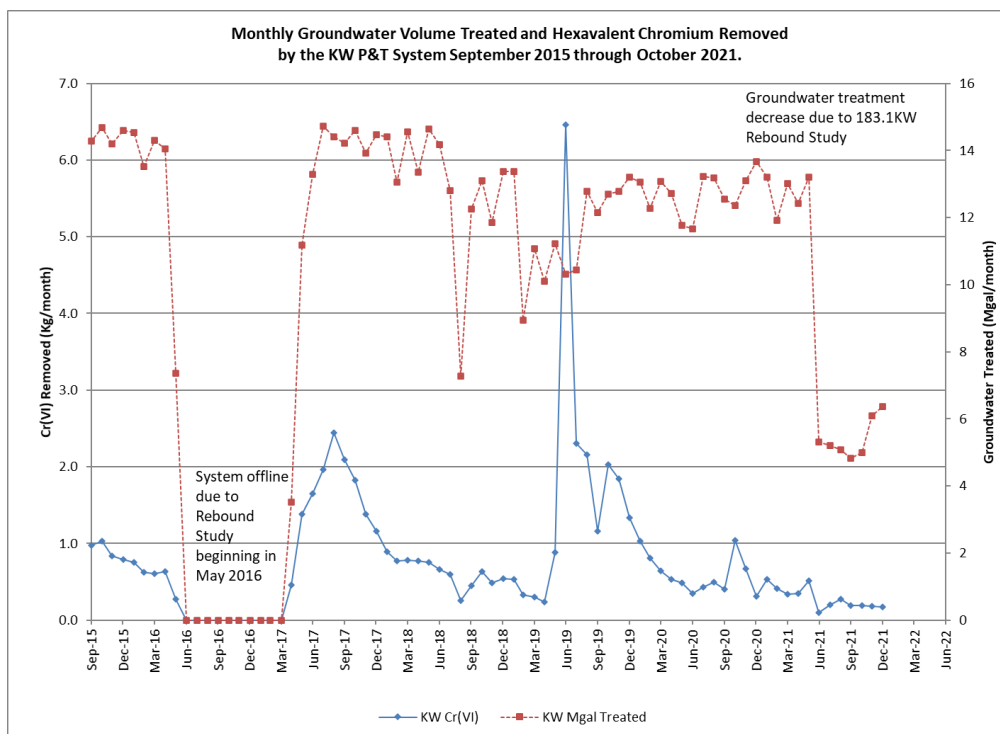
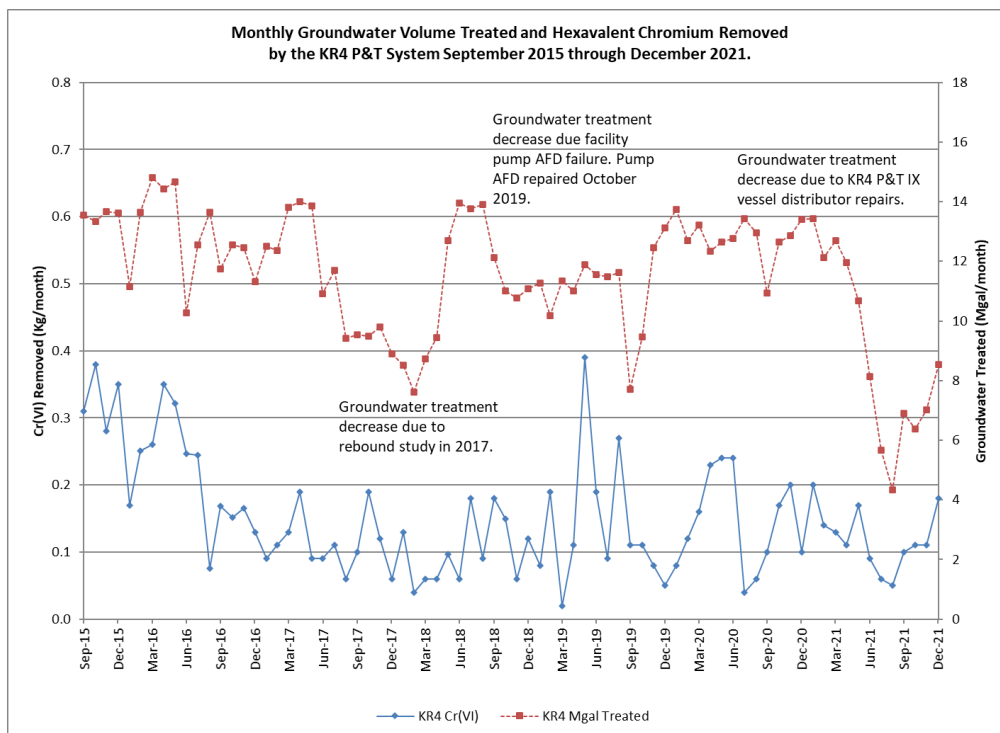
Figure K-1. Cr(VI) Concentrations in Key KW Soil Flushing and Rebound Observation Wells

100/300 Area Unit Managers Meeting

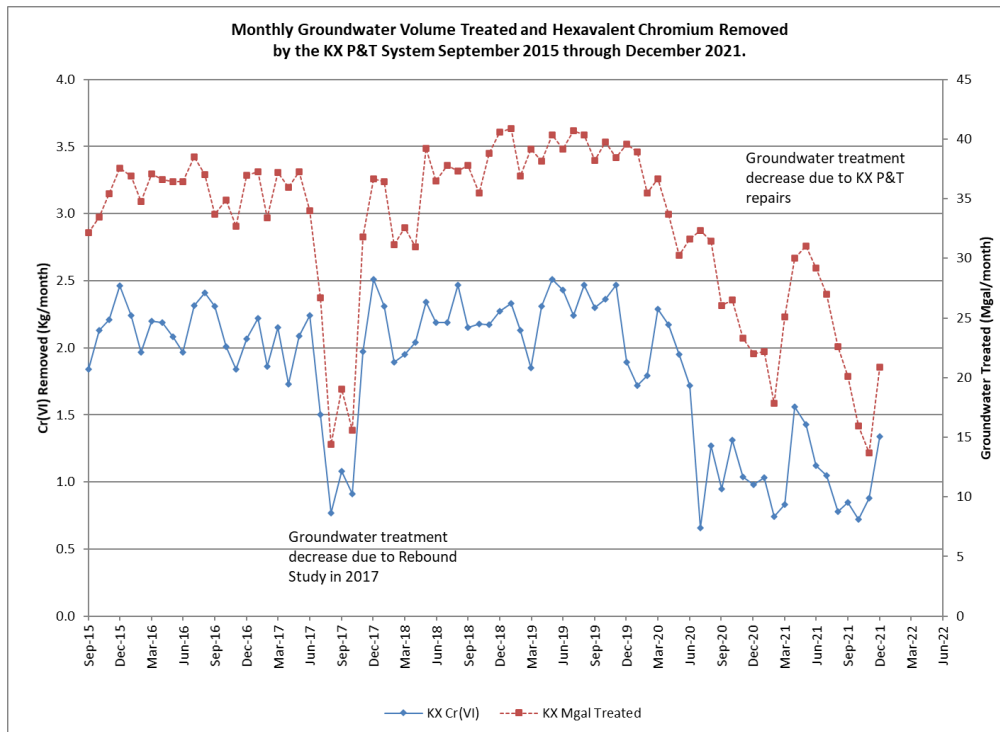
Groundwater Summary by OU

November - December, 2021 Data

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100/300 Area Unit Managers Meeting Groundwater Summary by OU November - December, 2021 Data January 20, 2022





**100/300 Area Unit Managers Meeting
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100-BC Area Groundwater Operable Unit

EPA Lead

RL – J. Sands, CPCCo – E. Macdonald, M. Hartman

CERCLA Process Implementation:

- ROD was completed and signed on September 28, 2021.
- CPCCo is developing the RD/RAWP.

Monitoring & Reporting:

- Aquifer tube C6135 did not yield water during two attempts at sampling during the fall, nor did an adjacent tube in the same cluster. Sampling will be canceled.
- All data from wells and monitoring tubes sampled during fall 2021 have been loaded into HEIS. Nothing unexpected was observed.

Regulatory Agency Comments: No comments

100-N Area Operable Unit

Ecology Lead

RL – E. Glossbrenner, CPCCo – E. Macdonald, A. Lee

CERCLA Process Implementation and Remedial Actions:

- An update to TPA CN-0821 was provided to Ecology for review on December 15, 2021 to change the schedule for reinjection of apatite and completion of the PRB reflected in the 100-NR-2 RD/RAWP (DOE/RL-2001-27). The revised PRB completion schedule coordinates the PRB completion with the cultural review process for this Project's scope.
- Comment resolution on the 100-N RI/FS is ongoing with 82 percent of the comments fully resolved. Ecology approved extending the comment resolution process through March 31, 2022 (Letter 21-NWP-201, "Approval of the United States Department of Energy's Request for an Additional Extension of the Department of Ecology's Comment Review Period for the Remedial Investigation/Feasibility Study for the 100-NR-1 and 100-NR-2 Operable Units, DOE/RL-2012-15, Draft B," dated November 18, 2021).
- Evaluating option with Ecology to discontinue use of automatic data logging of bioventing system operational data. The current data logger uses cloud storage for telemetry due to remote location of the biovent system. This system is not FedRAMP compliant and will be removed from use in June 2022.
- Sampling of well 199-N-167 scheduled for November was missed and proposed to be cancelled. Well 199-N-167 could not be sampled due to separated well screen from casing and filter pack material in the well above the water table. Well 199-N-169 located within 30 feet of 199-N-167 was successfully sampled in November and provides groundwater monitoring information in this area. A Groundwater Sampling Event Disposition Concurrence form was sent out for review/concurrence on December 11, 2021.
- A draft of TPA-CN-0925 to the 100-NR-2 Sampling and Analysis Plan (DOE/RL-2001-27, Appendix A) was provided to Ecology and EPA for review on December 10, 2021. This TPA-CN is to align the 100-N SAP with the 100-K SAP revision currently with EPA for review (DOE/RL-2013-29, *Sampling and Analysis Plan for 100-KR-4 Groundwater Operable Unit Monitoring*, Revision 1, Draft A), which removes Cr(VI) analysis of the 100-N wells monitoring the portion of the Cr(VI) plume that is exclusively in 100-N.

Regulatory Agency Comments: No comments

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100-D/H Areas Groundwater Operable Unit

Ecology Lead

RL –E. Glossbrener, CPCCo –E. Macdonald, T. Hammond

CERCLA Process Implementation:

- The RD/RAWP (DOE/RL-2017-13), Revision 1 was signed on 11/29/2021.
- The Parent Drilling SAP (DOE/RL-2017-13-ADD2), Revision 0 has been finalized and was signed on 11/29/2021.
- Parent rebound study SAP (DOE/RL-2021-23) was sent back to Ecology with DOE's responses to comments along with Draft A of the 100-H North subarea rebound SAP (DOE/RL-2021-23-ADD1) for its 45-day regulator review.
- TPA-CN-1109 against the groundwater monitoring Sampling and Analysis Plan (DOE/RL-2017-13-ADD1) adding wells drilled in late FY 2021, planned for FY 2022 is in regulator review and signature is expected in the second week of January.
- Waste site reclassification forms are currently in the following stages of review; however, progress on the waste site reclassification forms has been postponed until FY22.
 - Package A – Ecology reviewing responses to their initial comments.
 - Package B – With Ecology for review.
 - Package C – With RL for review

Monitoring & Reporting:

- The October and November 2021 canceled samples were combined into a single Sampling Concurrence Form, which was signed by RL and the regulators on 12/16/2021. Two P&T well sampling events were canceled due to low water levels, one P&T well was not sampled due to a failed transducer, one monitoring well was not sampled because the dedicated sample pump failed, and one P&T well was realigned to an injection well. Three aquifer tube sampling events were canceled; one could not be found and unable to pump water to the surface in the other two.

Remedial Actions & System Modifications:

- The volume of groundwater treated, and mass of Cr(VI) removed from the 100-HR-3 P&T systems during November and December are:

Month	Gallons Treated (in millions)	Hexavalent Chromium Removed (kg)
November	49	3.7
December	55	3.8
Total	104	7.5

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- FY 2022 (October 2021 through December 2021) P&T performance to date:

P&T System	Treated (mgal)	Removed (kg)
DX	81	3.8
HX	66	7.2
Total	147	11.0

- Figure H-1 illustrates the monthly average pumping rates for operating extraction wells across the 100-HR-3 system. Summaries of the monthly Cr(VI) removed, and groundwater volume treated at DX and HX P&T systems are shown in Figures H-2 and H-3, respectively.

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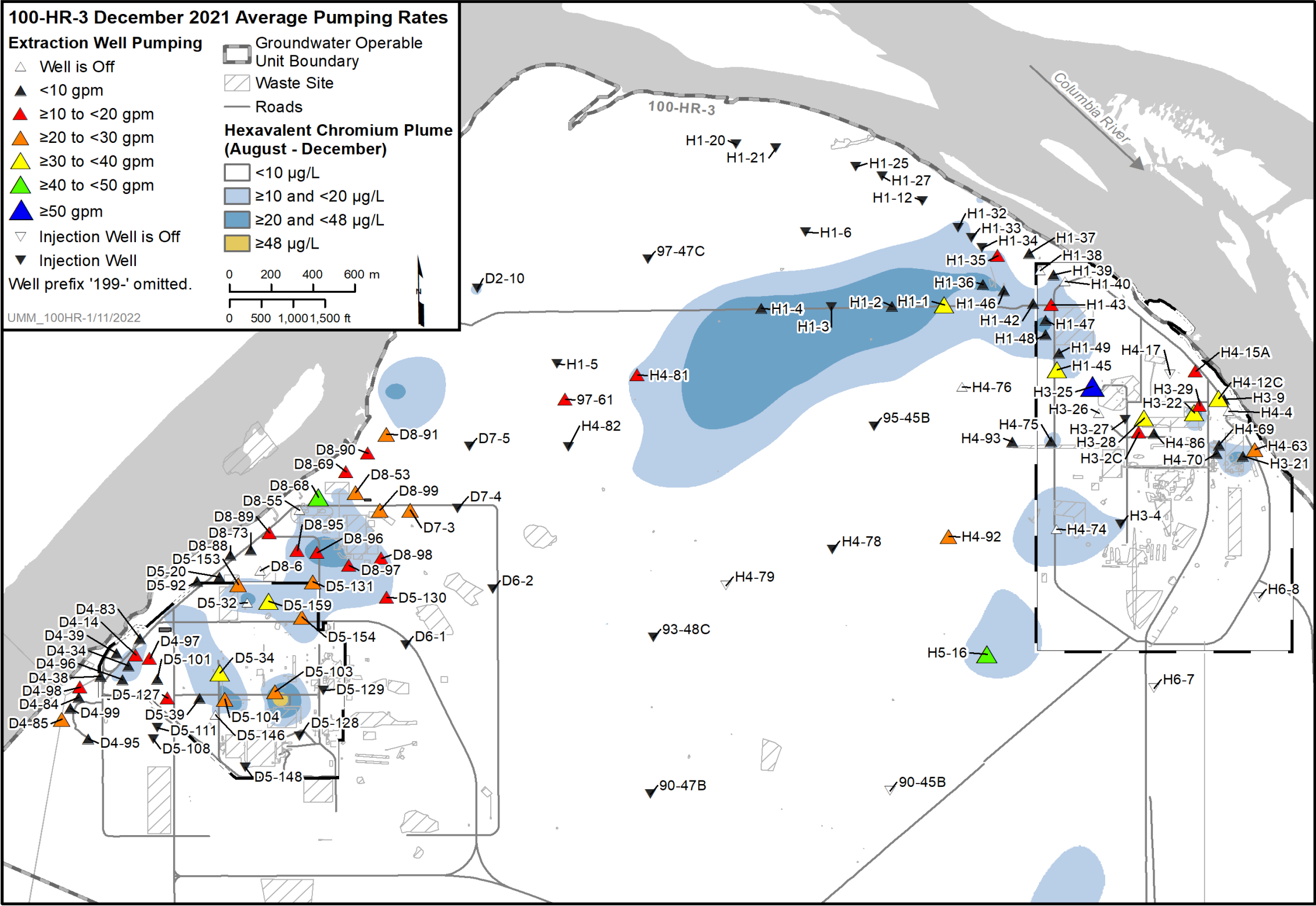


Figure H-1. December 2021 Average Pumping Rates for the 100-HR-3 P&T System

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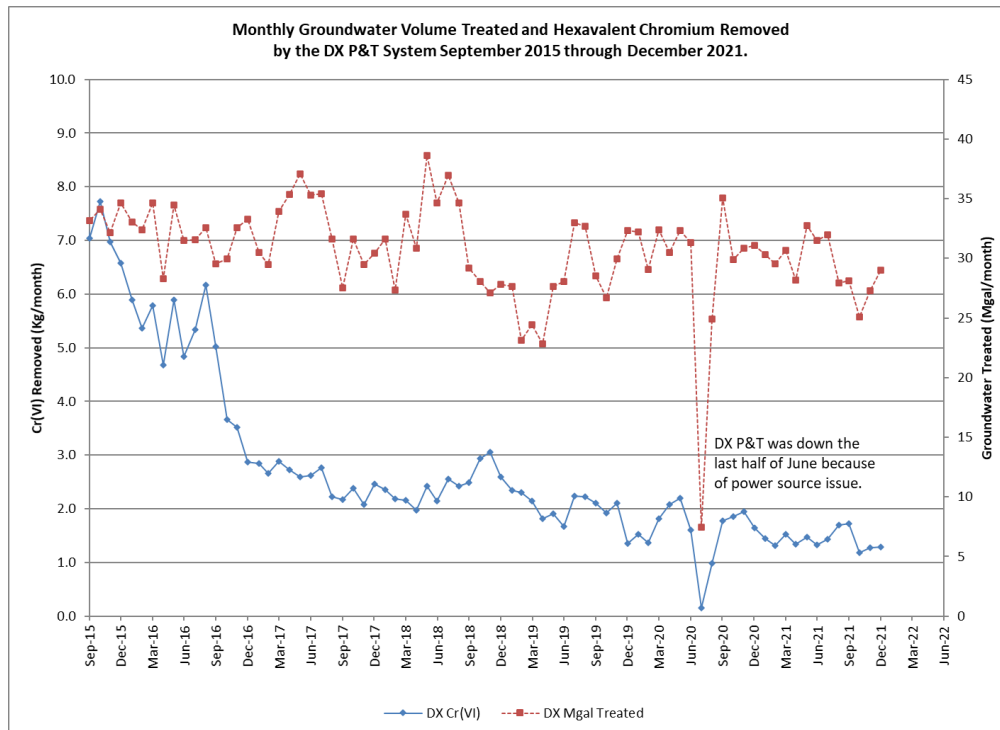


Figure H-2. Monthly Cr(VI) Removed and Groundwater Volume Treated by DX P&T September 2015 through December 2021

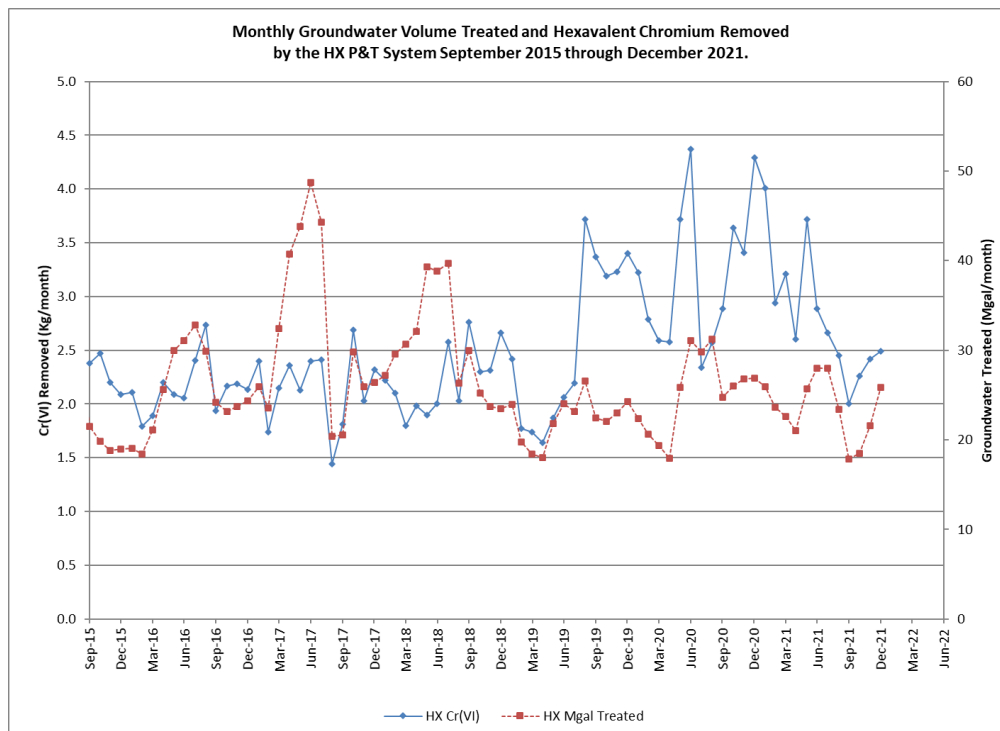


Figure H-3. Monthly Cr(VI) Removed and Groundwater Volume Treated by HX P&T September 2015 through December 2021

Regulatory Agency Comments: No comments

**100/300 Area Unit Managers Meeting
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100-F Area Groundwater Operable Unit

EPA Lead

RL – J. Sands, CPCCo – E. Macdonald, M. Hartman

CERCLA Process Implementation:

- Nothing new to report

Monitoring & Reporting:

- All of the monitoring wells were sampled as planned in October and all data have been loaded into HEIS. Results were within previously established ranges.
- 3 of 7 aquifer tubes could not be sampled during fall 2021 because they were underwater. There is no negative impact on plume interpretations.
- DOE/RL-2020-47, *Performance Monitoring Report for 100-FR-3 Monitored Natural Attenuation, 2015 to 2020*, was placed into the Administrative Record.
- A TPA change notice has been drafted to implement changes in the monitoring program that were recommended in DOE/RL-2020-47.

Regulatory Agency Comments: No comments

300 Area Groundwater Operable Unit

EPA Lead

RL – J. Sands, CPCCo – E. Macdonald, S. Bendaña, V. Rohay

CERCLA Process Implementation:

- Nothing new to report

Remedial Actions:

- Nothing new to report.

Monitoring & Reporting:

300 Area Industrial Complex:

- The AEA sampling paperwork is in the field for an April 2021 sampling event. The wells scheduled for November 2021 and December 2021 were successfully sampled.
- The twenty-eight wells used to support calibration of the fate and transport model in the 300 Area Industrial Complex were successfully sampled in December 2021. The next semiannual sampling event is scheduled for June 2022.
- The thirteen wells in the Stage B area were successfully sampled in December 2021. The next quarterly sampling event is scheduled for March 2022.
- The eleven wells used to evaluate elevated uranium concentrations observed at well 399-6-3 were successfully sampled in December 2021. The next quarterly sampling event is scheduled for March 2022.

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618-10 Burial Ground/316-4 Crib:

- The five wells were successfully sampled in November 2021. The next sampling event is scheduled for February 2022.
- The AEA sampling event was successful in November 2021. The next annual sampling event for AEA is scheduled for November 2023.

618-11 Burial Ground (RL - B. Vannah)

- The five wells were successfully sampled in October 2021. The next sampling event is scheduled for April 2022.
- The next AEA sampling event is scheduled for October 2022.

300 Area Process Trenches (316-5) RCRA Monitoring:

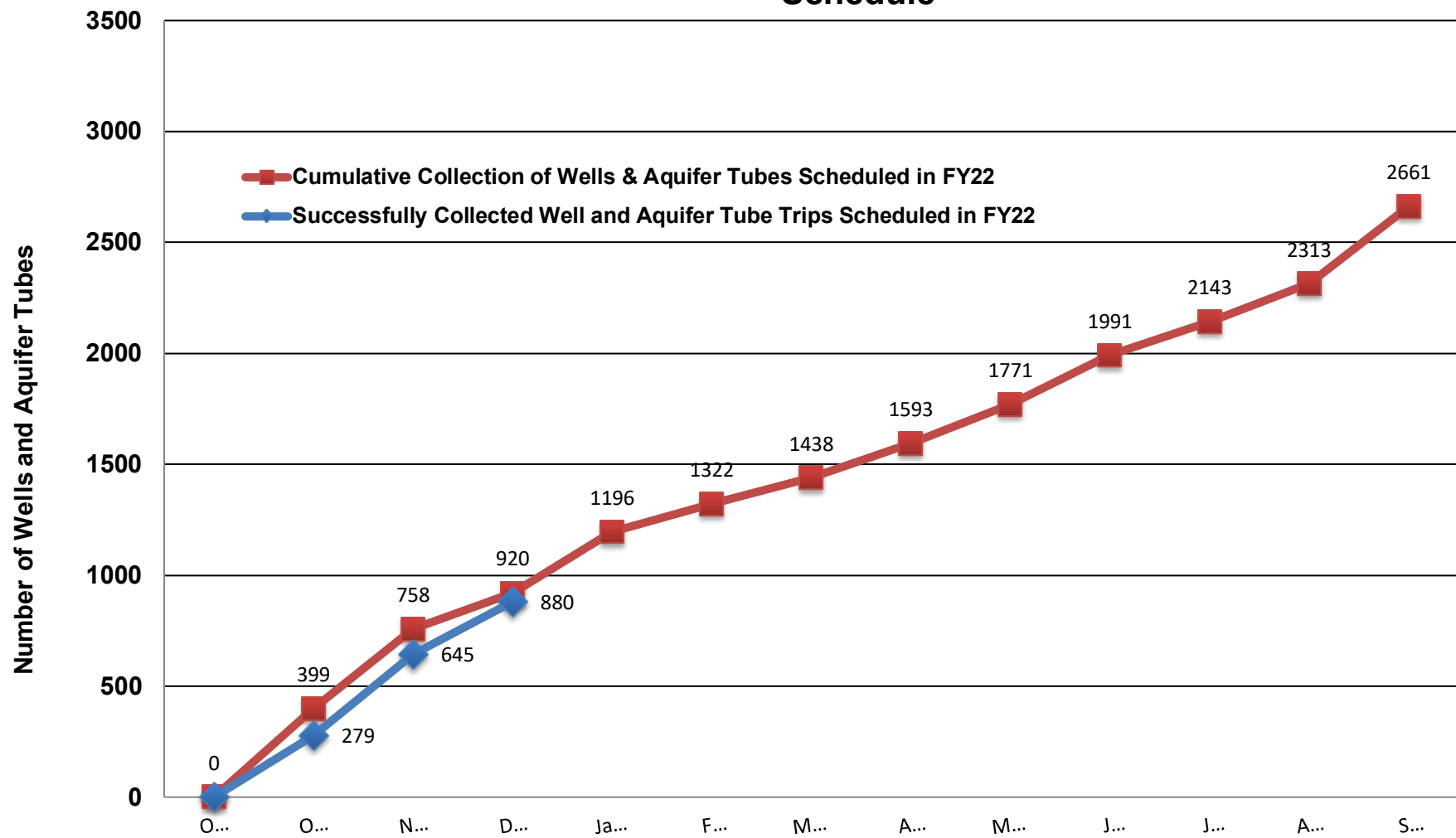
- The next sampling event is scheduled for June 2022.

Regulatory Agency Comments: No comments

100/300 Area Unit Managers Meeting
Groundwater Summary by OU
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Hanford Annual Groundwater Sampling Program Performance

FY 2022 Cumulative Well + Aquifer Tube Collection Progress vs Schedule



**100/300 Area Unit Managers Meeting
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Monthly Performance Report Assessment

The DOE Project Managers have identified no outstanding issues with the preceding month's Environmental Performance Report for this scope.

**100/300 Area Unit Managers Meeting
Groundwater Summary by OU
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Documents Submitted to the AR

Document Number	Title	Referencing Document
DOE-RL-2020-47_R0	Performance Monitoring Report for 100-FR-3 Monitored Natural Attenuation, 2015 to 2020	Annual Reports
ECF-100HR3-21-0122_R0	Natural Attenuation Evaluation Nitrate and Strontium-90 in Groundwater Through 2020 for the 100-HR-3 OU	Annual Reports
ECF-HANFORD-21-0117_R0	Preparation of the March 2021 Hanford Site Water Table Map	Annual Reports
ECF-HANFORD-21-0030_R0	Description of Groundwater Calculations and Assessments for the Calendar Year 2020 (CY2020) 100 Areas Pump-and-Treat Report	Annual Reports
SGW-67358_R0	100-K-47:2 and 100-K-60:1 Data Usability Assessment	Annual Report

Approved Change Notices

Number	Title	Description of Change
TPA-CN-0915	DOE/RL-2013-35-ADD13, 100-HR-3 Groundwater Operable Unit Well Installation Sampling and Analysis Plan, Addendum 13: Wells 199-D2-14, 199-D1-1, 199-H1-51, 199-H3-33, 199-H3-34, and 199-H6-9, Rev. 0	DOE/RL-2013-35-ADD13 is amended to add five RUM extraction wells and related details in the well installation sampling and analysis plan.
TPA-CN-0917	DOE/RL-2014-42, 300-FF-5 Operable Unit Remedy Implementation Sampling and Analysis Plan, Rev. 0	DOE/RL-2014-42 is amended to extend quarterly sampling of 13 monitoring wells in the enhanced attenuation area for another year (FY 2022); extend quarterly sampling of 11 wells in the vicinity of well 399-6-3 for another year (FY 2022); add quarterly monitoring of 6 wells downgradient of the 618-10 Burial Ground for two years (FY 2022 and FY 2023); add monitoring of 7 wells in the vicinity of the 618-11 Burial Ground for two years (FY 2022 and FY 2023), and add field parameters for the two monitoring wells downgradient of the 324 Building.
TPA-CN-0911	DOE/RL-2013-49, 100-HR-3 Pump and Treat System Operations and Maintenance Plan, Rev. 1	This change notice amends DOE/RL-2013-49, Rev. 1, to update wells associated with the 100-HR-3 P&T systems from 2017 through the end of CY2019 and reduces the 100-HR-3 in-process sampling frequency for the IX resin vessels.

100/300 Area Unit Manager Meeting
100-OL-1 – Orchard Lands
January 20, 2022

100-OL-1 OU Scope - (*John Sands, PNNL, Ecology*)

Background

- 100-OL-1 OU covers 4,995 acres across the River Corridor, incorporating lands where former orchards used lead arsenate pesticide (Figure 1). Lead arsenate was the standard pesticide for controlling codling moths in many fruit trees from the 1890s through 1988. Some waste sites in the 100 Area contain relatively high lead and arsenic concentrations near the soil surface. 100-OL-1 OU was divided into 133 decision units (DUs) for the evaluation of lead and arsenic in the surface soils using a portable x-ray fluorescence (XRF) analyzer. The Remedial Investigation found:
 - There are 83 DUs (3,056 acres) that need no further action because the nature and extent of lead and arsenic soil concentrations in the DUs do not meet or exceed any criteria of the “3-part rule” (WAC 173-340-740(7)) for human health or ecological screening levels.
 - There are 9 DUs (362 acres) that do not meet or exceed any criteria of the “3-part rule” for the human health screening levels but exceed ecological screening levels.
 - There are 41 DUs (1,578 acres) that meet or exceed some criteria of the “3-part rule” for the human health screening levels.

Status

M-015-96 – Submit 100-OL-1 RI Report and a CR to Establish a Date for the FS Report to Ecology by February 28, 2019 (complete)

- Draft A RI report submitted to Ecology for comments on September 7, 2017.
- Comments received from Ecology on Draft A RI Report on May 10, 2018.
- Draft B RI report submitted to Ecology for review on June 24, 2020.
- Ecology extended the completion date for their comment review period to November 18, 2021.
- M-015-97 – Submit the Draft A Feasibility Study Report to Ecology by August 31, 2021 (complete)
- Ecology extended the completion date for their comment review period to December 2, 2021 (21-NWP-177).

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100-OL-1 – Orchard Lands
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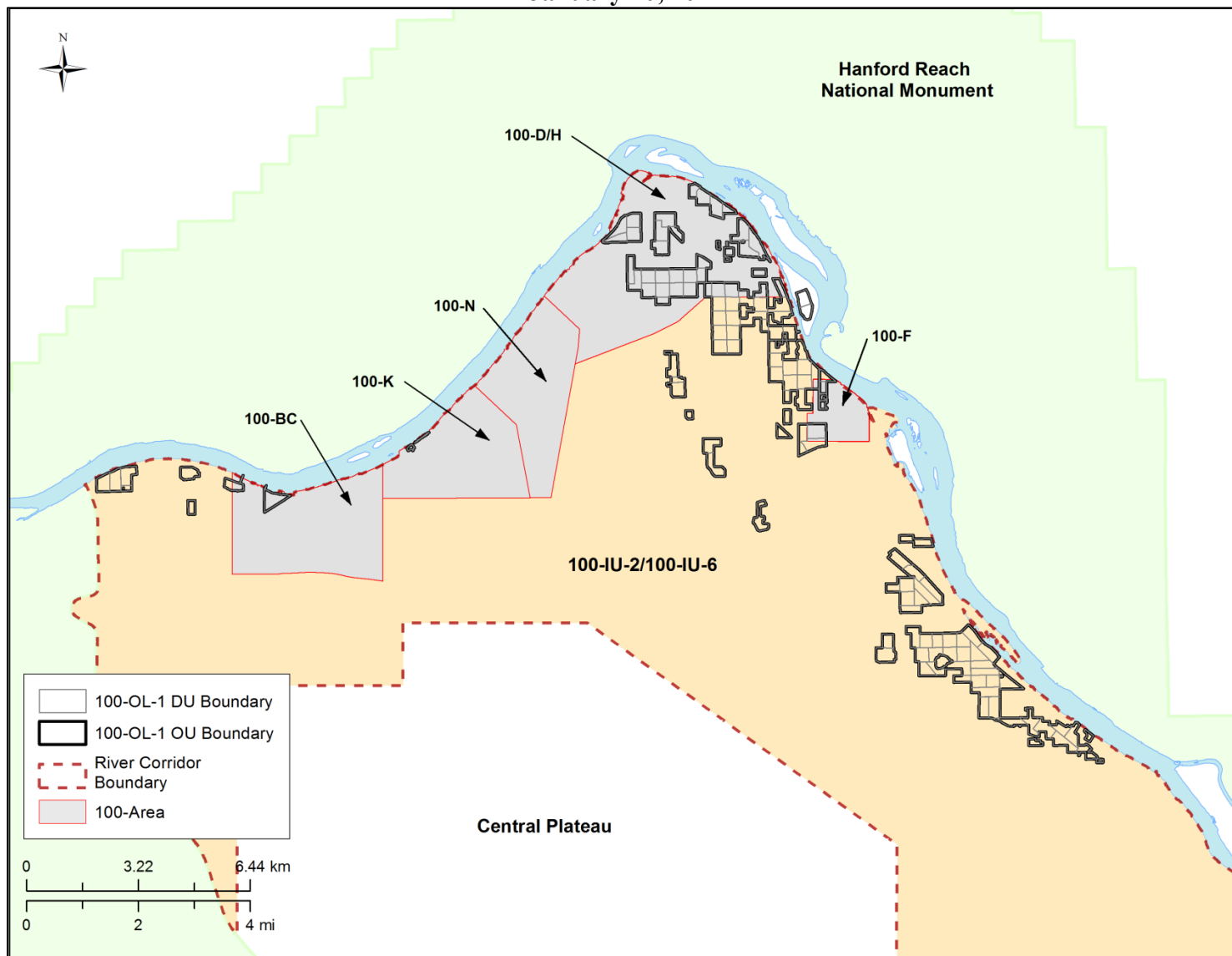


Figure 1. The 100-OL-1 OU and Associated Decision Units across the Hanford Site River Corridor

100/300 Area Unit Manager Meeting
Action Items List
January 20, 2022

CPCC-2200365
ATTACHMENT 9

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

This contains all the Groundwater Sample Event Disposition Concurrence Forms approved in September and October.

regulatory Agency Comments: No comments

GROUNDWATER SAMPLE EVENT DISPOSITION CONCURRENCE

Project Scientist:

Darrell Newcomer

OU/TSD/Waste Site/WMA/GW Interest Area:

100-HR-3 OU

AEA/CERCLA/RCRA/Other:

CERCLA

TABLE OF WELLS FOR DISPOSITION APPROVAL

Well	Scheduled Event (MM/YY)	Disposition (Canceled/Deferred Sample Event)	Justification	Document Driver (Document Containing Sample Requirements)
199-D4-15	5/1/2021	Canceled	Dedicated sample pump not working (October 2021 outstanding list)	DOE/RL-2013-30, Rev. 0
199-D4-99	8/1/2021	Canceled	Level transducer failed (October 2021 outstanding list)	DOE/RL-2013-30, Rev. 0
199-H1-40	5/1/2021	Canceled	P&T pump not running due to low water (October 2021 outstanding list)	DOE/RL-2013-30, Rev. 0
199-H3-26	9/1/2021	Canceled	P&T pump not running due to low water (October 2021 outstanding list)	DOE/RL-2013-30, Rev. 0
199-H4-80	10/1/2021	Canceled	P&T well realigned to injection well in April 2021 (October 2021 outstanding list)	DOE/RL-2013-30, Rev. 0
36-M	11/1/2021	Canceled	Unsuccessful sample on 11/9/2021. Aquifer tube could not be located (November 2021 outstanding list)	DOE/RL-2013-30, Rev. 0
51-D	11/1/2021	Canceled	Unsuccessful sample on 11/15/2021. Unable to pump water to the surface (November 2021 outstanding list)	DOE/RL-2013-30, Rev. 0
AT-D-4-D	11/1/2021	Canceled	Unsuccessful sample on 11/9/2021. Unable to pump water to the surface (November 2021 outstanding list)	DOE/RL-2013-30, Rev. 0

APPROVALS

DOE:

Mike Cline

Print First and Last Name

MICHAEL CLINE

Digitally signed by MICHAEL CLINE
Date: 2021.12.16 06:04:30 -08'00'

Signature / Date

Regulator:

Kim Welsch

Print First and Last Name

Digitally signed by Welsch, Kim (ECY)
Date: 2021.12.16 09:36:14 -08'00'

Signature / Date

Regulator:

Laura Buelow

Print First and Last Name

LAURA BUELOW

Digitally signed by LAURA BUELOW
Date: 2021.12.16 10:25:20 -08'00'

Signature / Date