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TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 0743	TPA CHANGE NOTICE FORM	Date: September 15, 2016
Document Number, Title, and Revision: DOE/RL-2013-30, Rev. 0, Sampling and Analysis Plan for 100-HR-3 Groundwater Operable Unit Monitoring 1238815		Date Document Last Issued: May 2016
Approved Change Notices Against this Document: N/A		
Originator: K. Ivarson / R. Mackley		Phone: 376-1941

Description of Change:
Addition of new monitoring wells, realignment of Pump and Treat system wells, and adjustment of the sampling schedule.

M. W. Cline (**DOE**) and N.M. Menard/R.A. Lobos (**Ecology/EPA**) agree that the proposed change modifies an approved sampling and analysis plan and will be processed in accordance with the Tri-Party Agreement Action Plan, Section 9.0, *Documentation and Records,* and not Chapter 12.0, *Changes to the Agreement*.

Text within DOE/RL-2013-30 Rev. 0 is updated to reflect the addition of new wells and realignment of current DX and HX Pump and Treat system wells.

Modifications were made to text on pages 3-2 and 3-6, and the contents of Table 3-3 (comprising pages 3-7 to 3-44) of the original document. The entire table is provided.

Note: Added text is denoted by double underline. Deleted text is denoted by ~~strike-through.~~

Justification and Impacts of Change:
Fifteen (15) new groundwater wells were installed in 100-HR-3 and fourteen (14) well realignments were made to the DX and HX pump-and-treat systems during FY16. The text and tables of the document are edited to reflect these changes and adjust the sampling schedule accordingly.

Other changes to the SAP include the following:

- Wells removed from the sampling schedule that cannot sustain adequate flow to purge the extraction well piping and produce a representative groundwater sample.
- The text of the SAP is clarified to specify that the ISRM barrier wells are to be sampled on a rotating basis. Each group of three wells is to have one well sampled once every third year, rotating through each group.
- Combines the sampling schedule for pump and treat extraction wells from Table 3-4 into Table 3-3, for clarity.
- Increased the sampling frequency for wells downgradient of the ISRM barrier from an annual to triannual schedule due to their proximal location to the river.
- Increased sampling frequency of well 199-H1-7 due to increasing contaminant concentrations.

Approvals:

DOE Project Manager	9/15/16 Date	X Approved [ ] Disapproved
EPA Project Manager	9-15-16 Date	X Approved [ ] Disapproved
Ecology Project Manager	9/19/16 Date	X Approved [ ] Disapproved

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Table 3-1. Status of 100-HR-3 Interim Action Compliance Wells

Well Number	Original Use	Status (September 30, 2014)

a. Compliance well is identified in DOE/RL-96-84, *Remedial Design Report and Remedial Action Work Plan for the 100-HR-3 and 100-KR-4 Groundwater Operable Units' Interim Action.*

b. Compliance well is identified in DOE/RL-99-51, *Remedial Design Report and Remedial Action Work Plan for the 100-HR-3 Groundwater Operable Unit In Situ Redox Manipulation.*

ISRM = in situ redox manipulation

3.2 Sample Location, Frequency, and Constituents to Be Monitored

The DQO process was used to identify sample locations, frequencies for collection, and constituents for monitoring. The detailed process is presented in Appendix A. Five problem statements were used to identify PSQs that can be answered using data inputs to satisfy specific data needs. Available groundwater monitoring locations within the 100-HR-3 OU are shown on Figures A-2 and A-3 (Appendix A).

The following subsections present a brief summary of the criteria used in the DQO process for each PSQ, with the results of the DQO selection process presented in Table 3-3. Sample collection will include measurement of field parameters (dissolved oxygen, oxidation reduction potential, pH, specific conductance, temperature, turbidity, and depth to groundwater).

Monitoring conducted for the PSQs also use data generated for P&T system O&M. O&M monitoring is described in DOE/RL-2013-49. These data include monthly (or more frequent) Cr(VI) measurements from extraction wells, which are collected to monitor P&T system performance; quarterly effluent tank co-contaminant and Cr(VI) samples; quarterly influent tank samples; and water level measurements in system wells. Wells in the ISRM barrier will be sampled on triennial (once every three years) frequency according to a rotating schedule with the associated sample start year (e.g. year 1, 2, or 3) noted in Table 3-3. Sitewide surveillance (*Atomic Energy Act of 1954* [AEA]) groundwater monitoring is not addressed in this plan; however, Table 3-2 provides an overview of this monitoring program and is included here for reference.

3.2.1 PSQ 1: Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?

Wells for monitoring were selected based on proximity to the Columbia River, distance between wells, and historical Cr(VI) distribution. Aquifer tubes for sampling were selected based on distance downgradient from a well, Cr(VI) distribution, and specific conductance data indicating the location represents groundwater. Historical groundwater data and evaluation of Cr(VI) discharge relative to river stage indicate the highest concentrations are observed during low river stage in wells near the river. Low river stage, which typically occurs from September to December, was identified for annual Cr(VI) sampling. Triennial (once every three years) monitoring in lower aquifer (RUM and basalt) unit wells will also be performed to assess potential vertical migration of contaminant plumes.

3.2.2 PSQ 2: Is the remedy effectively reducing the groundwater Cr(VI) plume?

Wells for monitoring were selected based on calendar year 2013 Cr(VI) plume geometry and concentration contours. Data from P&T system monitoring, which provides monthly Cr(VI) concentration data, also will be used in the evaluation of plume geometry and mass reduction. Aquifer tubes for sampling were selected based on Cr(VI) distribution and specific conductance data indicating the location represents groundwater. An annual sampling frequency was selected for Cr(VI) remedy evaluation.

3.2.5 PSQ 5a: Are infrequently detected analytes confirmed not to be contaminants of potential concern?

and

3.2.6 PSQ 5b: Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?

Infrequently detected analytes and analytes, with detection limits above action levels, are referred to as "analytes with uncertainty." The monitoring locations for the analytes with uncertainty were selected to provide spatial representativeness, based on the highest number of previous detections of the identified analytes within the exposure area (Section A.7.1, Appendix A). The analytes for monitoring include antimony, cadmium, cobalt, copper, fluoride, iron, lead, manganese, nitrite, silver, sulfate, and zinc. A triannual sampling frequency, until nine samples are collected at each monitoring location, was selected.

3.2.7 PSQ 5c: Are potential source areas confirmed not to be continuing sources of COPCs in groundwater?

Wells for monitoring potential source areas were selected from downgradient locations. Analytes for monitoring are Cr(VI) at 100-D-100 and Cr(VI), nitrate, and uranium at 183-H. A triannual sampling frequency, until nine samples are collected at each monitoring location, was selected. Monitoring results will be evaluated to identify whether there is a potential continuing source and if additional sampling is warranted.

3.3 Operational Sampling

Samples are collected from the P&T facilities and analyzed for Cr(VI) to monitor system performance. Process sampling is conducted on a routine basis as described in the O&M plan (DOE/RL-2013-49, Table 4-2) and is not included herein. Additional samples are collected from the influent and effluent tanks. Treatment process water monitoring is presented in Table 3-4. The treatment process monitoring of extraction wells is also included in Table 3-3 for completeness and consistency with the remainder of the sample locations. Sampling for co-contaminants strontium-90 and uranium was limited to those areas near known plumes or downgradient of those areas with historical detections, as described in the following subsections.

3.3.1 Strontium-90 Sampling

No extraction wells are currently located within the strontium-90 groundwater plume at 100-D. Strontium-90 is present above the 8 pCi/L DWS at Wells 199-D5-132 and 199-D5-142, located near the 105-D Reactor (Figure 3-1). To evaluate if strontium-90 is migrating from that area and extracted downgradient, samples will be collected for strontium-90 analysis from the nearest downgradient extraction wells (199-D5-32, 199-D5-154 and 199-D5-159) from the known plume. Strontium-90 was detected historically near the 116-DR-1&2 trench and in downgradient aquifer tubes. In downgradient aquifer tubes C6278, DD-15-3, and DD-16-4, concentrations increased following the startup of DX. Extraction wells near the 116-DR-1&2 trench (Wells 199-D8-68, 199-D8-69, and 199-D8-55) were, therefore, included in the sampling for strontium-90 to ensure that concentrations in the DX system influent remained below 8 pCi/L. Figure 3-1 presents the wells that have, at one time in their history, had a detection of strontium-90 at 100-D.

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D2-6	Unconfined Aquifer		A			A	TE						X	X					
199-D2-10	Unconfined Aquifer	~~DX Injection~~ Not in use	~~Eff~~										~~Eff~~						
199-D2-11	Unconfined Aquifer		A						Yes	A- SO4			X		X				
199-D2-12	Unconfined Aquifer	~~DX Injection~~ Not in use	~~Eff~~										~~Eff~~						
199-D3-2	Unconfined Aquifer	ISRM well/no injection	~~A~~ TE- yr 1				TE		Yes	TE -SO4	TA	X	X	X	X				
199-D3-3	Unconfined Aquifer	ISRM well																	
199-D3-4	Unconfined Aquifer	ISRM well																	
199-D3-5	Unconfined Aquifer		A										X						
199-D4-1	Unconfined Aquifer	ISRM well/no injection	~~A~~ TE- yr 1							beta emitters (once)	A	X		X					
199-D4-2	Unconfined Aquifer	ISRM well/no injection																	
199-D4-3	Unconfined Aquifer	ISRM well/no injection																	

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Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D4-4	Unconfined Aquifer	ISRM well/no injection																	
199-D4-5	Unconfined Aquifer	ISRM well/no injection	~~A~~ TE- yr3							beta emitters (once)	A		X	X					
199-D4-6	Unconfined Aquifer	ISRM well/no injection	~~A~~ TE- yr3										X						
199-D4-7	Unconfined Aquifer	ISRM well																	
199-D4-8	Unconfined Aquifer	ISRM well/no injection																	
199-D4-9	Unconfined Aquifer	ISRM well	TE – yr3									X		X					
199-D4-10	Unconfined Aquifer	ISRM well																	
199-D4-11	Unconfined Aquifer	ISRM well																	
199-D4-12	Unconfined Aquifer	ISRM well	TE – yr2									X		X					
199-D4-13	Unconfined Aquifer	ISRM well/no injection				A	A		Yes	beta emitters (once)	A			X	X				

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Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D4-14	Unconfined Aquifer	DX Extraction/ISRM	~~A~~ Q	Q		Q	A					X	X	X					
199-D4-15	Unconfined Aquifer		TA				A		Yes	TA (Sb, Cd, Co, Cu, Pb, Ag)				X	X		X	X	
199-D4-16	Unconfined Aquifer	ISRM well																	
199-D4-17	Unconfined Aquifer	ISRM well																	
199-D4-18	Unconfined Aquifer	ISRM well																	
199-D4-19	Unconfined Aquifer	ISRM well/no injection	~~A~~ TE – yr2						Yes	beta emitters (once)	TA	X		X	X				
199-D4-20	Unconfined Aquifer		A			A	TA		Yes				X	X	X				
199-D4-21	Unconfined Aquifer	ISRM well							Yes						X				
199-D4-22	Unconfined Aquifer	ISRM well/no injection				A	TA							X					
199-D4-23	Unconfined Aquifer	ISRM compliance	A						Yes			X	X		X				

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Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D4-24	Unconfined Aquifer	ISRM well	TE – yr2									X	X	X					
199-D4-25	Unconfined Aquifer	ISRM well/ZVI test	A							beta emitters (once)	A			X					
199-D4-26	Unconfined Aquifer	ISRM well/ZVI test																	
199-D4-27	Unconfined Aquifer	ISRM well/ZVI test	TE – yr3									X		X					
199-D4-28	Unconfined Aquifer	ISRM well																	
199-D4-29	Unconfined Aquifer	ISRM well	TE – yr1									X		X					
199-D4-30	Unconfined Aquifer	ISRM well																	
199-D4-31	Unconfined Aquifer	ISRM well	TE – yr2									X		X					
199-D4-32	Unconfined Aquifer	ISRM well	TE – yr3									X		X					
199-D4-33	Unconfined Aquifer	ISRM well																	
199-D4-34	Unconfined Aquifer	DX Extraction/ISRM	~~A~~ Q	Q		Q							X						

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Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D4-35	Unconfined Aquifer	ISRM well																	
199-D4-36	Unconfined Aquifer	ISRM well	TE – yr1									X		X					
199-D4-37	Unconfined Aquifer	ISRM well																	
199-D4-38	Unconfined Aquifer	~~DX Extraction~~/ISRM compliance	A							A –SO4		X	X						
199-D4-39	Unconfined Aquifer	DX Extraction	A							A –SO4		X	X						
199-D4-40	Unconfined Aquifer	ISRM well	TE – yr2									X		X					
199-D4-41	Unconfined Aquifer	ISRM well																	
199-D4-42	Unconfined Aquifer	ISRM well																	
199-D4-43	Unconfined Aquifer	ISRM well	TE – yr1									X		X					
199-D4-44	Unconfined Aquifer	ISRM well																	
199-D4-45	Unconfined Aquifer	ISRM well	TE – yr2									X		X					

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Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-D4-46	Unconfined Aquifer	ISRM well																	
199-D4-47	Unconfined Aquifer	ISRM well																	
199-D4-48	Unconfined Aquifer	ISRM well	TE – yr3									X		X					
199-D4-49	Unconfined Aquifer	ISRM well																	
199-D4-50	Unconfined Aquifer	ISRM well	TE – yr1									X		X					
199-D4-51	Unconfined Aquifer	ISRM well																	
199-D4-52	Unconfined Aquifer	ISRM well	TE – yr3									X		X					
199-D4-53	Unconfined Aquifer	ISRM well																	
199-D4-54	Unconfined Aquifer	ISRM well	TE – yr2									X		X					
199-D4-55	Unconfined Aquifer	ISRM well																	
199-D4-56	Unconfined Aquifer	ISRM well	TE – yr1									X		X					

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												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D4-57	Unconfined Aquifer	ISRM well																	
199-D4-58	Unconfined Aquifer	ISRM well	TE – yr3									X		X					
199-D4-59	Unconfined Aquifer	ISRM well																	
199-D4-60	Unconfined Aquifer	ISRM well	TE – yr2									X		X					
199-D4-61	Unconfined Aquifer	ISRM well																	
199-D4-62	Unconfined Aquifer	ISRM well	TE – yr1									X		X					
199-D4-63	Unconfined Aquifer	ISRM well																	
199-D4-64	Unconfined Aquifer	ISRM well	TE – yr3									X		X					
199-D4-65	Unconfined Aquifer	ISRM well																	
199-D4-66	Unconfined Aquifer	ISRM well	TE – yr2									X		X					
199-D4-67	Unconfined Aquifer	ISRM well																	

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												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-D4-68	Unconfined Aquifer	ISRM well	TE – yr1									X		X					
199-D4-69	Unconfined Aquifer	ISRM well																	
199-D4-70	Unconfined Aquifer	ISRM well	TE – yr3									X		X					
199-D4-71	Unconfined Aquifer	ISRM well																	
199-D4-72	Unconfined Aquifer	ISRM well																	
199-D4-73	Unconfined Aquifer	ISRM well	TE – yr1									X		X					
199-D4-74	Unconfined Aquifer	ISRM well																	
199-D4-75	Unconfined Aquifer	ISRM well	TE – yr3									X		X					
199-D4-76	Unconfined Aquifer	ISRM well																	
199-D4-77	Unconfined Aquifer	ISRM well	TE – yr2									X		X					
199-D4-78	Unconfined Aquifer	ISRM well																	

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												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-D4-79	Unconfined Aquifer	ISRM well	TE – yr1									X		X					
199-D4-80	Unconfined Aquifer	ISRM well																	
199-D4-81	Unconfined Aquifer	ISRM well	TE – yr3									X		X					
199-D4-82	Unconfined Aquifer	ISRM well	TE – yr2									X		X					
199-D4-83	Unconfined Aquifer	DX Extraction/ISRM compliance	~~A~~ Q	Q		Q	TE			A –SO4		X	X	X					
199-D4-84	Unconfined Aquifer	~~DX Extraction/~~ISRM compliance	A				A					X	X	X					
199-D4-85	Unconfined Aquifer	~~DX Extraction/~~ISRM compliance	A				TE			A-SO4		X	X	X					
199-D4-86	Unconfined Aquifer	ISRM compliance	A				TE		Yes	A-SO4		X	X	X	X				
199-D4-87	Unconfined Aquifer	ISRM well																	
199-D4-88	Unconfined Aquifer	ISRM well																	
199-D4-89	Unconfined Aquifer	ISRM well																	

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												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D4-90	Unconfined Aquifer	ISRM well																	
199-D4-91	Unconfined Aquifer	ISRM well																	
199-D4-92	Unconfined Aquifer	ISRM well/ZVI test																	
199-D4-93	Unconfined Aquifer	ISRM well/ZVI test																	
199-D4-94	Unconfined Aquifer	ISRM well																	
199-D4-95	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-D4-96	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q	A						X	X					
199-D4-97	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-D4-98	Unconfined Aquifer	~~DX Extraction~~	TA									X	X						
199-D4-99	Unconfined Aquifer	~~DX Extraction~~	TA									X	X						
199-D4-101	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q	TA						X	X					

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
												Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-D4-102	Unconfined Aquifer	DX Extraction	Q	Q		Q	Q			Q[f]			X						
199-D4-103	Unconfined Aquifer	DX Extraction	Q	Q		Q	Q			Q[f]			X						
199-D5-13	Unconfined Aquifer		A										X						
199-D5-14	Unconfined Aquifer		A			A			Yes	TA (Sb, Cd, Co, Cu, Pb, Ag)			X	X	X		X	X	
199-D5-15	Unconfined Aquifer																		
199-D5-16	Unconfined Aquifer		A			A	A						X	X					
199-D5-17	Unconfined Aquifer		A			A			Yes				X	X	X				
199-D5-18	Unconfined Aquifer		A				TE						X	X					
199-D5-19	Unconfined Aquifer		A				A		Yes				X	X	X				
199-D5-20	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q						X	X						
199-D5-32	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q	~~A~~ Q	~~A~~ Q							X	~~EXT~~ X					

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D5-33	Unconfined Aquifer								Yes						X				
199-D5-34	Unconfined Aquifer	DX Extraction	~~TA~~ Q	Q		~~A~~ Q							X	X					X
199-D5-36	Unconfined Aquifer		A						Yes			X			X				
199-D5-37	Unconfined Aquifer								Yes						X				
199-D5-38	Unconfined Aquifer		A						Yes				X		X				
199-D5-39	Unconfined Aquifer	DX Extraction	~~TA~~ Q	Q		~~A~~ Q	A						X	X					X
199-D5-40	Unconfined Aquifer		A			A	A						X	X					
199-D5-41	Unconfined Aquifer		A										X						
199-D5-42	Unconfined Aquifer	~~DX Injection~~	~~Eff~~ TA									X	~~Eff~~						
199-D5-43	Unconfined Aquifer		A				A		Yes					X	X				
199-D5-44	Unconfined Aquifer	~~DX Injection~~	~~Eff~~ A										~~Eff~~ X						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D5-92	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q						X	X						
199-D5-97	Unconfined Aquifer		TA						Yes				X		X				X
199-D5-101	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q	A						X	X					
199-D5-103	Unconfined Aquifer		TA						Yes				X		X				X
199-D5-104	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						X
199-D5-106	Unconfined Aquifer								Yes						X				
199-D5-107	Unconfined Aquifer	Molasses Inj Test/ Injection Well																	
199-D5-108	Unconfined Aquifer	DX Injection / Vegetable Oil Inj Test~~/Injection Well~~	Eff										Eff						
199-D5-109	Unconfined Aquifer	Molasses Inj Test																	
199-D5-110	Unconfined Aquifer	Molasses Inj Test																	
199-D5-111	Unconfined Aquifer	DX Injection / Molasses Inj Test	Eff										Eff						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-D5-112	Unconfined Aquifer	Molasses Inj Test																	
199-D5-113	Unconfined Aquifer	Molasses Inj Test																	
199-D5-114	Unconfined Aquifer	Vegetable Oil Inj Test																	
199-D5-115	Unconfined Aquifer	Vegetable Oil Inj Test																	
199-D5-116	Unconfined Aquifer	Vegetable Oil Inj Test																	
199-D5-117	Unconfined Aquifer	Vegetable Oil Inj Test																	
199-D5-118	Unconfined Aquifer	Vegetable Oil Inj Test																	
199-D5-123	Unconfined Aquifer		A		A		A							X					
199-D5-125	Unconfined Aquifer		A										X						
199-D5-126	Unconfined Aquifer								Yes						X				
199-D5-127	Unconfined Aquifer	DX Extraction	~~TA~~ Q	Q		~~A~~ Q							X	X					X

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-D5-128	Unconfined Aquifer	DX Injection	Eff										Eff						
199-D5-129	Unconfined Aquifer	DX Injection	Eff										Eff						
199-D5-130	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		~~A~~ Q							X	X					
199-D5-131	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		~~A~~ Q							X	X					
199-D5-132	Unconfined Aquifer		A		TA	A							X	X					
199-D5-133	Unconfined Aquifer		TA						Yes				X		X				X
199-D5-134	Unconfined Aquifer								Yes						X				
~~199-D5-141~~	~~Unconfined Aquifer~~																		
199-D5-142	Unconfined Aquifer		A		TA	A				TA (Sb, Cd, Co, Cu, Pb, Ag)			X	X			X	X	
199-D5-143	Unconfined Aquifer		A										X						
199-D5-145	Unconfined Aquifer		TA										X						X

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-D5-146	Unconfined Aquifer	DX Extraction	~~TA~~ Q	Q		Q							X						X
199-D5-147	Unconfined Aquifer																		
199-D5-148	Unconfined Aquifer	DX Injection	Eff										Eff						
199-D5-149	Unconfined Aquifer		Q	A	A	A				A[g]	A, plus gross alpha		X						X
199-D5-150	Unconfined Aquifer		Q	A	A	A				A[g]	A, plus gross alpha		X						X
199-D5-151	Unconfined Aquifer		M	M	A	M				M[g]	A, plus gross alpha		X						X
199-D5-152	Unconfined Aquifer		M	M	A	M				M[g]	A, plus gross alpha		X						X
199-D5-153	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		~~A~~ Q							X	X					
199-D5-154	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q	~~A~~ Q	Q							X	~~EXT~~ X					
199-D5-159	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q	~~A~~ Q	Q							X	~~EXT~~ X					

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
												Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-D5-160	Unconfined Aquifer		Q	Q		Q	Q			Q[f]	Q, plus gross alpha		X						X
199-D6-1	Unconfined Aquifer	DX Injection	Eff										Eff						
199-D6-2	Unconfined Aquifer	DX Injection	Eff										Eff						
199-D6-3	Unconfined Aquifer		A										X						
199-D7-3	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-D7-4	Unconfined Aquifer	DX Injection	Eff										Eff						
199-D7-5	Unconfined Aquifer	DX Injection	Eff										Eff						
199-D7-6	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-D8-4	Unconfined Aquifer		TA			A							X	X					
199-D8-5	Unconfined Aquifer		A						Yes			X	X		X				
199-D8-6	Unconfined Aquifer		TA										X						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D8-53	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-D8-54A	Unconfined Aquifer		A		A				Yes			X		X	X				
199-D8-55	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q	~~A~~ Q	Q						X	X	~~EXT~~ X					
199-D8-68	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q	~~A~~ Q	~~A~~ Q	TE					X	X	~~EXT~~ X					
199-D8-69	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q	~~A~~ Q	Q						X	X	~~EXT~~ X					
199-D8-70	Unconfined Aquifer		A						Yes			X	X		X				
199-D8-71	Unconfined Aquifer		A						Yes			X	X		X				
199-D8-72	Unconfined Aquifer		A									X							
199-D8-73	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q						X	X						
199-D8-88	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q						X	X						
199-D8-89	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q						X	X						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D8-90	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-D8-91	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q						X	X						
199-D8-93	Unconfined Aquifer	DX Injection	Eff										Eff						
199-D8-94	Unconfined Aquifer	DX Injection	Eff										Eff						
199-D8-95	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-D8-96	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		~~A~~ Q							X	X					
199-D8-97	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		~~A~~ Q							X	X					
199-D8-98	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		~~A~~ Q							X	X					
199-D8-99	Unconfined Aquifer	DX ~~Injection~~ Extraction	~~Eff~~ Q	Q		Q							~~Eff~~						
199-D8-101	Unconfined Aquifer		A			A							X	X					
199-D8-102	Unconfined Aquifer		Q	Q	Q	Q	Q				Q, plus gross alpha		X	X					

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-H1-1	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H1-2	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H1-3	Unconfined Aquifer	~~HX Extraction~~ Not in use																	
199-H1-4	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H1-5	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-H1-6	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H1-7	Unconfined Aquifer		~~A~~ TA	TA					Yes			X			X				
199-H1-20	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H1-21	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H1-25	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H1-27	Unconfined Aquifer	HX Injection	Eff										Eff						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-H1-32	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q						X	X						
199-H1-33	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q						X	X						
199-H1-34	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q						X	X						
199-H1-35	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q						X	X						
199-H1-36	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H1-37	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q						X	X						
199-H1-38	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q						X	X						
199-H1-39	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q						X	X						
199-H1-40	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q						X	X						
199-H1-42	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H1-43	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
												Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-H1-45	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H1-46	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q	Q	Q				Q[f]			X						
199-H3-2A	Unconfined Aquifer		A							TA (Sb, Cd, Co, Cu, Pb, Ag)							X	X	
199-H3-2B	Unconfined Aquifer								Yes						X				
199-H3-3	Unconfined Aquifer		A										X						
199-H3-4	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H3-5	Unconfined Aquifer																		
199-H3-6	Unconfined Aquifer		A		TA	A						X	X	X					
199-H3-7	Unconfined Aquifer		A			A							X	X					
199-H3-11	Unconfined Aquifer		A										X						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-H3-25	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H3-26	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H3-27	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H4-2	~~Unconfined Aquifer~~ Basalt Confined																		
199-H4-4	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q	~~A~~ Q	~~A~~ Q		~~TA~~ SA			TE	X	X	~~EXT~~ X					X
199-H4-5	Unconfined Aquifer		A						Yes			X	X		X				
199-H4-6	Unconfined Aquifer																		
199-H4-8	Unconfined Aquifer	RCRA	A			A		A	Yes			X	X	X	X				X
199-H4-10	Unconfined Aquifer		A						Yes			X	X		X				
199-H4-11	Unconfined Aquifer		A		TA				Yes			X	X	X	X				
199-H4-12A	Unconfined Aquifer	RCRA	TA			A		TA				X	X	X	X				X

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
												Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-H4-12B	Unconfined Aquifer								Yes						X				
199-H4-13	Unconfined Aquifer		A		TA				Yes	TA (Sb, Cd, Co, Cu, Pb, Ag)	A	X	X	X	X		X	X	
199-H4-15A	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q						X	X						
199-H4-15B	Unconfined Aquifer								Yes						X				
199-H4-16	Unconfined Aquifer																		
199-H4-17	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H4-18	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H4-45	Unconfined Aquifer		A		A							X	X	X					
199-H4-46	Unconfined Aquifer		A			A							X	X					
199-H4-47	Unconfined Aquifer																		

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
												Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-H4-49	Unconfined Aquifer		A										X						
199-H4-63	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q	~~TA~~ Q	Q		~~TA~~ SA			A	X	X	~~EXT~~ X					
199-H4-64	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q		~~TA~~ SA				X	X	~~EXT~~ X					
199-H4-65	Unconfined Aquifer		A									X	X						X
199-H4-69	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q	A	Q							X	X					
199-H4-70	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H4-71	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H4-72	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H4-73	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H4-74	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H4-75	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		~~A~~ Q							X	X					

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
												Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-H4-76	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H4-77	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H4-78	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H4-79	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H4-80	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-H4-81	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-H4-82	Unconfined Aquifer	DX Extraction	~~A~~ Q	Q		Q							X						
199-H4-83	Unconfined Aquifer		A		TA				Yes	beta emitters (once)	TA		X	X	X				
199-H4-84	Unconfined Aquifer	RCRA	TA			TA		TA	Yes	TA (Sb, Cd, Co, Cu, Pb, Ag)	A		X	X	X		X	X	X
199-H4-85	Unconfined Aquifer		TA			TA		TA		beta emitters (once)	A	X	X	X	X				X

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-H4-86	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q							X						
199-H4-87	Unconfined Aquifer		Q	A	A	A				A[g]	A, plus gross alpha		X						X
199-H4-88	Unconfined Aquifer		M	M	A	M		TA		M[g]	A, plus gross alpha		X						X
199-H4-89	Unconfined Aquifer		A	A	A	A		TA		A[g]	A, plus gross alpha		X						X
199-H4-92	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q	Q	Q	Q			Q[f]			X						
199-H4-93	Unconfined Aquifer	HX Extraction	~~A~~ Q	Q		Q				Q[f]			X						
199-H5-1A	Unconfined Aquifer	ISRM Field Test Piezometer	A						Yes				X		X				
199-H5-2	Unconfined Aquifer	ISRM Field Test/ Injection Well																	
199-H5-3O	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-3P	Unconfined Aquifer	ISRM Field Test Piezometer																	

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-H5-4O	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-4P	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-5O	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-5P	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-6	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-7	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-8	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-9	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-10	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-11	Unconfined Aquifer	ISRM Field Test Piezometer																	
199-H5-12	Unconfined Aquifer																		

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-H5-13	Unconfined Aquifer																		
199-H5-14	Unconfined Aquifer																		
199-H5-16	Unconfined Aquifer	HX Extraction	Q	Q	Q	Q				Q[f]			X						
199-H6-1	Unconfined Aquifer		A		A	A							X	X					
199-H6-2	Unconfined Aquifer	~~HX Extraction~~ Not in use	~~A~~										X						
199-H6-3	Unconfined Aquifer		A			A							X	X					
199-H6-4	Unconfined Aquifer																		
199-H6-7	Unconfined Aquifer	HX Injection	Eff										Eff						
199-H6-8	Unconfined Aquifer	HX Injection	Eff										Eff						
699-88-41	Unconfined Aquifer		A										X						
699-88-41A	Unconfined Aquifer		Q	Q		Q				Q[f]			X						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
699-89-35	Unconfined Aquifer																		
699-90-34	Unconfined Aquifer																		
699-90-37B	Unconfined Aquifer		A										X						
699-90-38	Unconfined Aquifer	To be Decommissioned – Dry Well																	
699-90-45	Unconfined Aquifer		A										X						
699-90-45B	Unconfined Aquifer	HX Injection	Eff										Eff						
699-90-47B	Unconfined Aquifer	DX Injection	Eff										Eff						
699-91-46A	Unconfined Aquifer		A										X						
699-92-49	Unconfined Aquifer																		
699-93-37A	Unconfined Aquifer		Q	Q		Q				Q[f]			X						
699-93-48A	Unconfined Aquifer		A										X						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
699-93-48C	Unconfined Aquifer	DX Injection	Eff										Eff						
699-93-50	Unconfined Aquifer																		
699-94-41	Unconfined Aquifer		A										X						
699-94-43	Unconfined Aquifer		A										X						
699-95-45	Unconfined Aquifer		A										X						
699-95-45B	Unconfined Aquifer	HX Injection	Eff										Eff						
699-95-48	Unconfined Aquifer		A										X						
699-95-51	Unconfined Aquifer		A						Yes				X		X				
699-96-43	Unconfined Aquifer																		
699-96-44	Unconfined Aquifer																		
699-96-45	Unconfined Aquifer																		

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
699-96-52B	Unconfined Aquifer		A						Yes			X	X		X				
699-97-41	Unconfined Aquifer		A						Yes				X		X				
699-97-43B	Unconfined Aquifer		A							TA (Sb, Cd, Co, Cu, Ag)			X				X	X	
699-97-45	Unconfined Aquifer		A						Yes				X		X				
699-97-47B	Unconfined Aquifer		TA										X						
699-97-48B	Unconfined Aquifer		A						Yes				X		X				
699-97-51A	Unconfined Aquifer		A										X						
699-98-43	Unconfined Aquifer		A						Yes				X		X				
699-98-46	Unconfined Aquifer		A							TA (Sb, Cd, Co, Cu, Ag)			X				X	X	
699-98-49A	Unconfined Aquifer		A										X						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
												Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
699-98-51	Unconfined Aquifer		TA						Yes						X				
699-99-41	Unconfined Aquifer		A						Yes			X			X				
699-99-42B	Unconfined Aquifer		A						Yes	TA (Sb, Cd, Co, Cu, Ag)		X	X		X		X	X	
699-99-44	Unconfined Aquifer		A						Yes				X		X				
699-100-43B	Unconfined Aquifer		A						Yes			X	X		X				
699-101-45	Unconfined Aquifer								Yes						X				
699-101-48B	Unconfined Aquifer		TE									X							
C7647	Aquifer Tube – 100-D Area		A									X	X						
DD-10-3	Aquifer Tube – 100-D Area		A									X	X						
DD-12-2	Aquifer Tube – 100-D Area		A									X	X						
DD-15-3	Aquifer Tube – 100-D Area		A		A							X	X	X					

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
												Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
DD-16-4	Aquifer Tube – 100-D Area		A		A							X	X	X					
DD-17-2	Aquifer Tube – 100-D Area		A									X							
C6278	Aquifer Tube – 100-D Area		A		A									X					
DD-41-3	Aquifer Tube – 100-D Area		A									X	X						
DD-44-4	Aquifer Tube – 100-D Area		A									X	X						
DD-49-3	Aquifer Tube – 100-D Area		A				TE					X	X	X					
DD-50-3	Aquifer Tube – 100-D Area		A				A							X					
DD-50-4	Aquifer Tube – 100-D Area		A				TE					X	X	X					
Redox-1-6.0	Aquifer Tube – 100-D Area		A									X	X						
Redox-3-3.3	Aquifer Tube – 100-D Area		A									X	X						
36-M	Aquifer Tube – 100-D Area		A									X	X						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
38-M	Aquifer Tube – 100-D Area		A									X	X						
AT-D-1-M	Aquifer Tube – 100-D Area		A									X	X						
AT-D-3-D	Aquifer Tube – 100-D Area		A									X	X						
AT-D-4-D	Aquifer Tube – 100-D Area		A									X	X						
43-M	Aquifer Tube – 100-H Area		A									X	X						
45-M	Aquifer Tube – 100-H Area		A									X	X						
47-D	Aquifer Tube – 100-H Area		A		A									X					
47-M	Aquifer Tube – 100-H Area		A									X	X						
48-M	Aquifer Tube – 100-H Area		A									X	X						
50-M	Aquifer Tube – 100-H Area		A									X	X						
51-D	Aquifer Tube – 100-H Area		A									X	X						

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
199-D5-134	RUM First Water Bearing Unit		A										X			X			
199-D5-141	RUM First Water Bearing Unit		A	TE			TE	TE		TE[g]	TE, plus gross alpha		X			X			
199-D8-54B	RUM First Water Bearing Unit		A	TE					Yes			X	X			X			
199-H2-1	RUM First Water Bearing Unit		TA			TA			Yes			X	X	X		X			
199-H3-10	RUM First Water Bearing Unit		A						Yes				X			X			
199-H3-2C	RUM First Water Bearing Unit	HX Extraction	~~A~~ Q	Q		~~TA~~ Q	TE	TE		TE[g]	TE, plus gross alpha		X	X		X			
199-H3-9	RUM First Water Bearing Unit	HX Extraction	~~A~~ Q	Q		Q	TE	TE		beta emitters (once); TE[g]	TE, plus gross alpha	X	X	X		X			
199-H4-12C	RUM First Water Bearing Unit	HX Extraction/RCRA	~~A~~ Q	Q		~~TA~~ Q	TE	TE		TE[g]	TE, plus gross alpha	X	X	X		X			X

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Well Type or Aquifer Tube	Treatment System[a]	Hexavalent Chromium (filtered and unfiltered)	Total Chromium[a] (filtered and unfiltered)	Strontium-90	Nitrate	Tritium	Uranium	AWLN[b]	Other[c]	Gross Beta	PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
												Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?	Is the remedy effectively reducing the groundwater Cr(VI) plume?	Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?	What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?	What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?	Are infrequently detected analytes confirmed not to be contaminants of potential concern?	Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?	Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?
199-H4-15CP	Basalt Confined		TE	TE			TE	TE		TE[g]	TE, plus gross alpha	X							
199-H4-15CQ	Ringold Confined Unit A		TE	TE			TE	TE		TE[g]	TE, plus gross alpha	X							
199-H4-15CR	Ringold Confined Unit B		TE	TE			TE	TE		TE[g]	TE, plus gross alpha	X							
199-H4-15CS	RUM First Water Bearing Unit		A	A	A		A	TE		TE[g]	A, plus gross alpha	X							
199-H4-90	RUM First Water Bearing Unit		TA			TA							X	X		X			
199-H4-91	RUM First Water Bearing Unit		TA			TA							X	X		X			
699-97-43C	RUM First Water Bearing Unit		TA				TE						X	X		X			
699-97-45B	RUM First Water Bearing Unit		TA				TE						X	X		X			

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**
699-97-48C	RUM First Water Bearing Unit		TA				TE		Yes				X	X		X			
699-97-60	RUM First Water Bearing Unit		TA	TA		TA	TE			TA[f]			X	X		X			
699-97-61	RUM First Water Bearing Unit	DX Extraction	~~TA~~ Q	Q		Q	TE			beta emitters (once), Q[f]	TE		X	X		X			
D River Gauge									Yes						X				
H River Gauge									Yes						X				

a. Data for extraction and injection wells will be collected as identified in DOE/RL-2013-49, *100-HR-3 Pump and Treat System Operations and Maintenance Plan*, and Table 3-4.

b. AWLN = automated water level network; yes = transducers at these locations are set up to collect measurements hourly.

c. Listed ~~Other~~ - analytes are as follows: Sb - antimony; Cd – cadmium; Co – cobalt; Cu – copper; F – fluoride; Fe – iron; PB – lead; Mn – manganese; NO2 – nitrite; Ag – silver; SO4 – sulfate; Zn – zinc.

d. Field parameters will be collected from sample location when a laboratory sample is collected. Field parameters include pH, temperature, conductivity, and turbidity. Additional field parameters that may be included are dissolved oxygen and oxygen reduction potential.

e. PSQ 3 includes operational sampling from extraction wells

f. Analyte list includes: bicarbonate, calcium, chloride, magnesium, potassium, sodium, and sulfate. Samples are to establish baseline conditions and are to be re-evaluated after two years.

g. Analyte list includes: alkalinity, calcium, chloride, fluoride, nitrate, nitrite, sulfate, antimony, barium, beryllium, cadmium, copper, cobalt, iron, magnesium, manganese, potassium, nickel, sodium, silver, strontium, vanadium, and zinc.

Note: total chromium will be collected in conjunction with Cr(VI) on a periodic basis, where a schedule is not specified.

A = annual monitoring

Eff = Effluent

Table 3-3. Summary of Monitoring Locations, Frequencies, and Constituents

												PSQ Addressed[d]							
												1	2	3[e]	4a	4b	5a	5b	5c
Monitoring Location	**Well Type or Aquifer Tube**	**Treatment System[a]**	**Hexavalent Chromium (filtered and unfiltered)**	**Total Chromium[a] (filtered and unfiltered)**	**Strontium-90**	**Nitrate**	**Tritium**	**Uranium**	**AWLN[b]**	**Other[c]**	**Gross Beta**	**Is Cr(VI) discharging to the river at concentrations greater than 10 µg/L?**	**Is the remedy effectively reducing the groundwater Cr(VI) plume?**	**Are other contaminant plumes that exceed risk-based/applicable or relevant and appropriate requirement (ARAR) levels decreasing as predicted?**	**What are the direction and magnitude of groundwater hydraulic gradients in the unconfined aquifer?**	**What are the direction and magnitude of groundwater hydraulic gradients in the confined aquifer?**	**Are infrequently detected analytes confirmed not to be contaminants of potential concern?**	**Are analytes with detection limits above action levels confirmed not to be contaminants of potential concern?**	**Are potential source areas confirmed not to be continuing sources of contaminants of potential concern in groundwater?**

M = Monthly for one year

RUM = Ringold Formation upper mud

SA = semiannual monitoring (two times per year)

Sr-90 = strontium-90

TA = triannual monitoring (three times per year)

TE = triennial monitoring (once every three years); ISRM Wells are sampled on a rotating schedule with the associated year in the rotation indicated.

Yes = location is part of the automated water level network

X = location selected to address PSQ