TRI-PARTY AGREEMENT

Change Notice Number TPA-CN- 0736	TPA CHANGE NOTICE FORM	Date: November 17, 2016
Document Number, Title, and Revision: DOE/RL-2014-44-ADD2, Rev. 0, Remedial Design Report/Remedial Action Work Plan Addendum for 100-F/IU Groundwater		Date Document Last Issued: August 2015
Approved Change Notices Against this Document: TPA-CN-708		
Originator: M.J. Hartman		Phone: 509-376-4385

Description of Change:
Update well network to account for changes caused by drilling conditions.

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

Changes are made throughout the document to modify the sampling and AWLN networks. Three planned wells were not completed (C9472, C9474, and C9479). Two of the wells (C9474 and C9479) were not completed because there was no unconfined aquifer present. Well C9472 was incorrectly installed and has been replaced by C9628. To account for a gap in the network between the nitrate plume and the Columbia River caused by C9474 not being completed, two existing aquifer tubes are added to the network.

One new well and two existing wells will receive AWLN stations in lieu of unsuccessful wells and the river gauging station.

Note: Include affected page number(s) 4-1; A-44; A-47 through A-49; A-51 through A-55; B-2 and B-3; C-3

Justification and Impacts of Change:

It was recognized before drilling began that an unconfined aquifer might not be present at all planned locations, and it was agreed, in that case, that the boreholes would be decommissioned. The aquifer was absent at two locations so the boreholes were decommissioned. Aquifer tubes 75-D and 77-D help fill the objective of the planned, unsuccessful well C9474. No suitable monitoring locations are currently available to replace the other dry well, C9479.

Approvals:

M W Cline DOE Project Manager	11/17/2016 Date	[X] Approved [ ] Disapproved
EPA Project Manager	11-21-2016 Date	[X] Approved [ ] Disapproved
N/A Ecology Project Manager	Date	[ ] Approved [ ] Disapproved

4 Remedial Action Management and Approach

The Integrated RDR/RAWP (DOE/RL-2014-44) presents a project team and change management approach associated with implementation of the selected remedies. For the groundwater remedy component, CH2M HILL Plateau Remediation Company is responsible for remedial design and RA activities associated with MNA and performance monitoring. RA work tasks specific to the groundwater remedy are described in Section 4.1.

4.1 Remedial Action Work Tasks

RA tasks associated with MNA and ICs are described in the following subsections.

4.1.1 Procurement and Construction

Performance monitoring activities include installation of new wells. Eight locations were identified for Phase 1 new well installation. Additional Phase 2 wells may be identified, depending on evaluation of Phase 1 results.

Procurement activities will include contracts for well drilling and construction, geophysical services, and analytical services. The work will be accomplished using the most efficient combination of onsite resources and service vendors.

Access to the new well locations may require construction of new access roads. The new roads will require maintenance through the monitoring period until the wells are decommissioned. Maintenance of existing roads to existing wells, and other locations within the identified monitoring network, will be required to provide access through the applicable monitoring periods until the wells are decommissioned.

An AWLN will be established and tracked at ~~19~~ 20 wells and the 100-F river gauge station for at least the first 5 years of monitoring. The AWLN includes ~~7~~ 6 new wells and ~~12~~ 14 existing wells. Locations within the AWLN will be equipped, as required, for the automated measurements.

4.1.2 Rehabilitation of Old Wells and River Gauge Station Repairs

Several older wells with missing or unverified construction information were identified for potential use in the monitoring networks. These wells will be investigated to determine suitability in the monitoring network. Investigation includes a review of documentation, where available; camera surveys; borehole geophysics; and field inspections. Table A-10 of the Groundwater SAP (Appendix A) identifies the wells requiring investigation.

Several existing wells identified for use in the monitoring network extend deeper than the base of the unconfined aquifer. Grouting of these wells will be performed to allow sampling within the unconfined aquifer. Table A-10 of the Groundwater SAP (Appendix A) identifies the wells requiring rehabilitation.

Repairs will be made to the existing 100-F river gauge station on the Columbia River to allow safe access and use of station.

4.1.3 Implementation of Institutional Controls

ICs for the 100-FR-3 OU groundwater are presented in Section 2.1.2 of the Integrated RDR/RAWP (DOE/RL-2014-44). ICs to be implemented by DOE include administrative controls that control well drilling through excavation permits and restrict groundwater use until such time as the groundwater achieves levels protective of UU/UE where groundwater is above cleanup levels. These ICs are implemented through DOE/RL-2001-41, *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions*.

meet the project DQOs. For routine groundwater monitoring undertaken through this SAP, the DQA is captured in QC associated with the annual groundwater report (e.g., DOE/RL-2014-32, *Hanford Site Groundwater Monitoring Report for 2013*), evaluating field and lab QC, and usability of data. Further DQAs will be performed at the discretion of the OU Project Manager and documented in a report overseen by SMR.

A3 Field Sampling Plan

This chapter lists the groundwater wells and aquifer tubes to be monitored, sampling frequency, and constituents to be analyzed.

The data will be evaluated as described in Chapter 6 of the Groundwater Addendum.

A3.1 Sampling Objectives

The primary objective of groundwater sampling in the 100-FR-3 OU is to monitor the natural attenuation of groundwater COCs in accordance with the data requirements identified in the DQO report (SGW-58291). Monitoring results will be used to assess the effectiveness of natural attenuation in meeting cleanup levels. Contaminants in groundwater in 100-FR-3 OU that will be managed through MNA are nitrate, Cr(VI), TCE, and strontium-90. Monitoring for TCE degradation products (*cis*-1,2-dichloroethene and vinyl chloride) will also be performed.

Due to analytical uncertainties identified in the 100-F/IU RI/FS (DOE/RL-2010-98), an investigation of antimony, cadmium, and cobalt was identified in the DQO report (SGW-58291) to determine if these analytes are present below the action level. Sampling for these metals will be performed using an analytical method with a sufficiently low detection limit.

These objectives are accomplished in the field by sampling groundwater at designated wells, aquifer tubes, and a riverbank seep and analyzing the samples for the COCs and other identified analytes.

A3.2 Sample Location, Frequency, and Constituents to be Monitored

The DQO process was used to identify sample locations, frequencies for collection, and constituents for monitoring. Problem statements were used to identify PSQs that can be answered using data inputs to satisfy specific data needs. PSQs are discussed in Section A3.2.1 and in the DQO report. (SGW-58291). The locations of the 100-FR-3 OU monitoring network, including wells, aquifer tubes, and a seep, are presented in Figures A-16 and A-17.

Based on the DQO (SGW-58291), eight locations were identified for installation of new Phase 1 monitoring wells. Details on the installation of the wells are presented in Section A3.2.2[1]. The sample locations, frequency, and constituents to be monitored are identified in Table A-8. Additional samples may be collected on an as needed basis.

[1]During the first phase of well installations in 2016, the unconfined aquifer was found to be absent at two of the locations (C9474 and C9479) and wells could not be installed. The lack of a well at C9474 left a gap in the network between the nitrate plume and the river. Existing well 699-70-23 was considered, but appears to be an old dug well cased with a metal culvert. The poor construction and lack of documentation precludes its use for sampling. Instead, aquifer tubes 75-D and 77-D are added to the network to monitor nitrate near the river.

Table A-8. 100-FR-3 Operable Unit Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Analytes					Water Level[a]		Data Need							Sample Frequency		
	Cr(VI) (Filtered)	TCE and Degradation Products	Nitrate	Strontium-90	Trace Metals[b]	AWLN	Manual	PSQ 1a, 1b: Contamination Decreasing as expected?	PSQ 1c: Changes in environmental conditions that reduce effectiveness?	PSQ 1d: Unacceptable impacts to river?	PSQ 1e: Evidence of new contaminant releases?	PSQ 2: Trace metals below action levels?	PSQ 3: Geologic and hydrologic data confirm Conceptual Site Model?	PSQ 4a, 4b: Remediation objectives achieved?	Year 1	Year 2 to Year 5	Year 6 and Onward
Existing Monitoring Wells																	
199-F5-1			X	X			X	X	X		X			X	A, S[c]	A, S[c]	B
199-F5-4	X	X	X		X		X	X	X		X	X		X	A, S[d]	A, S[d]	B[e]
199-F5-42	X		X	X			X	X	X	X				X	A	A	B
199-F5-43A	X		X	X	X		X	X	X	X		X	X	X	A	A	B[e]
199-F5-44	X		X	X			X	X	X	X				X	A	A	B
199-F5-45	X	X	X			X	X	X	X		X		X	X	A	A	B
199-F5-46	X	X	X	X			X	X	X		X			X	S	S	B
199-F5-47	X		X	X			X	X	X		X			X	A	A	B
199-F5-48	X	X	X		X		X	X	X		X	X		X	A	A	B[e]
199-F5-52	X		X			X	X	X	X	X	X		X	X	A	A	B
199-F5-54	X		X	X			X	X	X		X			X	A	A	B
199-F5-55	X		X	X			X	X	X		X			X	A, S[c]	A, S[c]	B
199-F5-56	X	X	X	X			X	X	X		X			X	A	A	B
199-F5-6	X		X	X			X	X	X	X	X			X	A, S[f]	A, S[f]	B
199-F6-1	X		X	X		X	X	X	X	X	X		X	X	A	A	B
199-F7-1		X	X			X	X	X	X		X		X	X	A	A	B
199-F7-2		X	X			X	X	X	X		X		X	X	A	A	B
199-F7-3		X	X				X	X	X		X			X	A	A	B
199-F8-2	X			X			X	X	X		X			X	A	A	B
199-F8-4			X			X	X	X	X				X	X	A	A	B
199-F8-7		X	X	X	X		X	X	X		X	X		X	A	A	B[e]
699-58-24							X		X						A[g]	A[g]	B[g]
699-59-32[h]			X			X	X	X	X				X	X	A	A	B

Table A-8. 100-FR-3 Operable Unit Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Analytes					Water Level[a]		Data Need							Sample Frequency		
	Cr(VI) (Filtered)	TCE and Degradation Products	Nitrate	Strontium-90	Trace Metals[b]	AWLN	Manual	PSQ 1a, 1b: Contamination Decreasing as expected?	PSQ 1c: Changes in environmental conditions that reduce effectiveness?	PSQ 1d: Unacceptable impacts to river?	PSQ 1e: Evidence of new contaminant releases?	PSQ 2: Trace metals below action levels?	PSQ 3: Geologic and hydrologic data confirm Conceptual Site Model?	PSQ 4a, 4b: Remediation objectives achieved?	Year 1	Year 2 to Year 5	Year 6 and Onward
699-60-32[h]			X			X	X	X	X				X	X	A	A	B
699-61-37						X	X						X		A[g]	A[g]	B[g]
699-62-31			X				X	X	X				X	X	A	A	B
699-63-25A			X			X	X	X	X				X	X	A	A	B
699-64-27			X			X	X	X	X				X	X	A	A	B
699-66-23			X			X	X	X	X	X			X	X	A	A	B
699-70-23						X	X		X				X		A[g]	A[g]	B[g]
699-71-30		X	X			X	X	X	X				X	X	A	A	B
699-74-44							X		X				X		A[g]	A[g]	B[g]
699-77-36		X	X			X	X	X	X				X	X	A	A	B
New Monitoring Wells (Phase 1)																	
~~C9472~~ C9628 (699-75-34B)[i]		X	X			X	X	X	X				X	X	Q	A	B
~~C9474[i]~~			~~X~~			~~X~~	~~X~~	~~X~~	~~X~~	~~X~~			~~X~~	~~X~~	~~Q~~	~~A~~	~~B~~
C9475 (699-71-34)		X	X			X	X	X	X				X	X	Q	A	B
C9476 (699-75-31)		X	X			X	X	X	X				X	X	Q	A	B
C9477 (699-75-28)			X			X	X	X	X	X			X	X	Q	A	B
C9478 (699-66-32)			X			X	X	X	X				X	X	Q	A	B
~~C9479[k]~~			~~X~~			~~X~~	~~X~~	~~X~~	~~X~~				~~X~~	~~X~~	~~Q~~	~~A~~	~~B~~
C9480 (699-67-26)			X			X	X	X	X	X			X	X	Q	A	B

Table A-8. 100-FR-3 Operable Unit Summary of Monitoring Locations, Frequencies, and Constituents

Monitoring Location	Analytes					Water Level[a]		Data Need							Sample Frequency		
	Cr(VI) (Filtered)	TCE and Degradation Products	Nitrate	Strontium-90	Trace Metals[b]	AWLN	Manual	PSQ 1a, 1b: Contamination Decreasing as expected?	PSQ 1c: Changes in environmental conditions that reduce effectiveness?	PSQ 1d: Unacceptable impacts to river?	PSQ 1e: Evidence of new contaminant releases?	PSQ 2: Trace metals below action levels?	PSQ 3: Geologic and hydrologic data confirm Conceptual Site Model?	PSQ 4a, 4b: Remediation objectives achieved?	Year 1	Year 2 to Year 5	Year 6 and Onward
Aquifer Tubes																	
64-M	X		X	X				X		X					A	A	B
C6302	X		X	X				X		X					A	A	B
C6303	X		X					X		X					A	A	B
C6306	X		X	X				X		X					A	A	B
C6309	X		X	X				X		X					A	A	B
C6315	X		X	X				X		X					A	A	B
75-D			X					X		X					A	A	B
77-D			X					X		X					A	A	B
Riverbank Seep																	
Seep 187-1	X		X					X		X					A	A	B
River Gauge																	
100-F River Gauge						X			X	X			X				

a. Manual water level measurements will be obtained at low, high, and moderate river stage during sample years for the first 10 years of performance monitoring. For wells identified for only manual water level measurements, measurements will be taken each year for the first 5 years, and biennially thereafter. Manual water level measurements will not be obtained from wells within the AWLN during the operational period.

b. Trace metals include antimony, cadmium, and cobalt. These analytes are included for samples collected only during the first 10 years of monitoring until sufficient data are obtained for evaluation (eight samples).

c. Semiannual sample frequency will be performed for strontium-90. Other analytes are sampled at an annual frequency.

d. Semiannual sample frequency will be performed for Cr(VI), TCE, and nitrate. Trace metals sampled at an annual frequency.

e. Antimony, cadmium, and cobalt are not included for analysis after year 10.

f. Semiannual sample frequency will be performed for Cr(VI). Other analytes sampled at an annual frequency.

g. Water level measurements only.

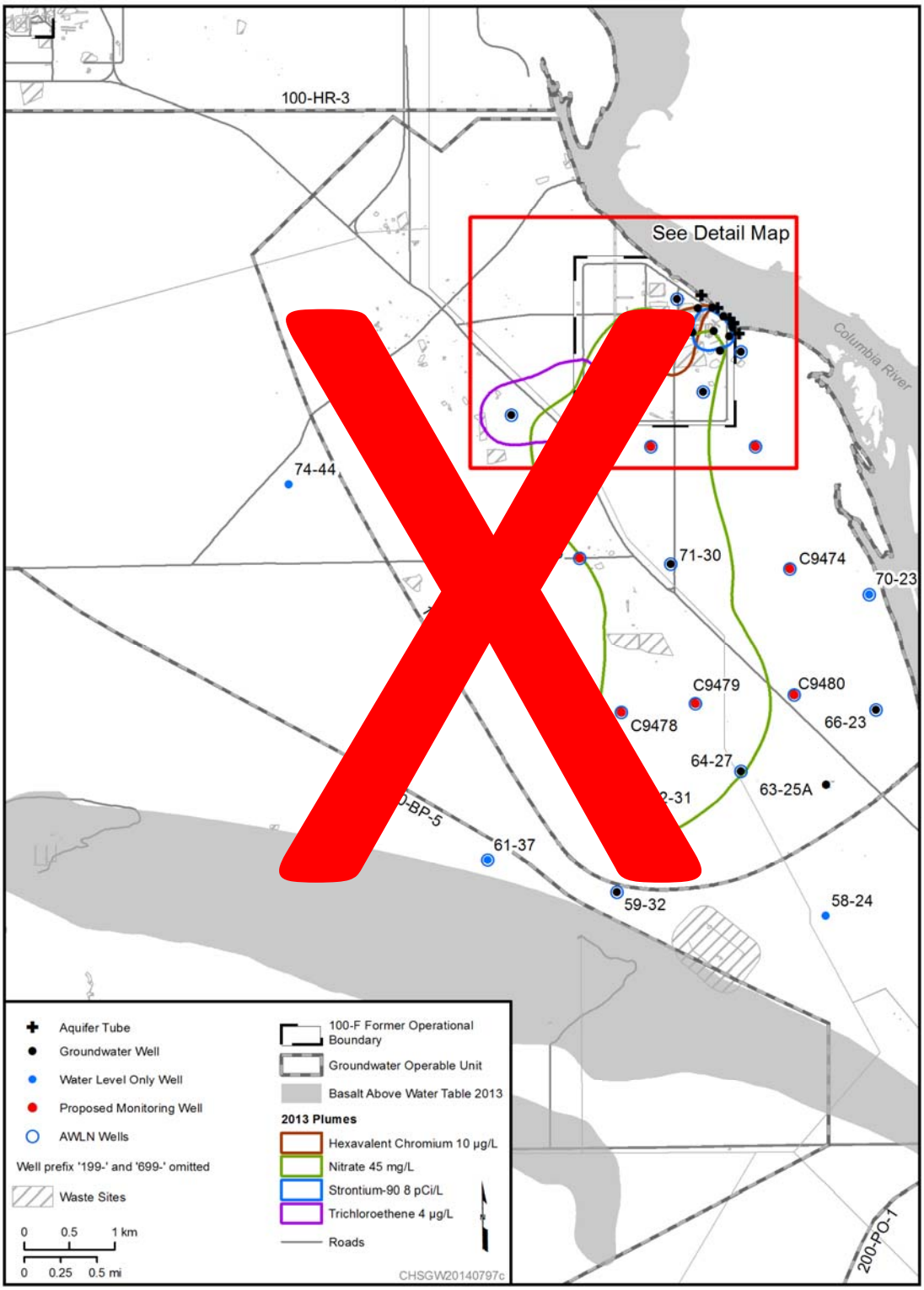
h. Only one of Wells 699-59-32 and 699-60-32 will be included in the monitoring network. The decision of which well to be included will be based on well investigation results.

i. Well C9472 was constructed incorrectly and subsequently decommissioned. It was replaced by C9628 at the same location.

j. The aquifer at the location of borehole C9474 (699-71-26) was too thin to monitor. A water sample was collected (primarily from the Ringold upper mud unit) and the borehole was decommissioned.

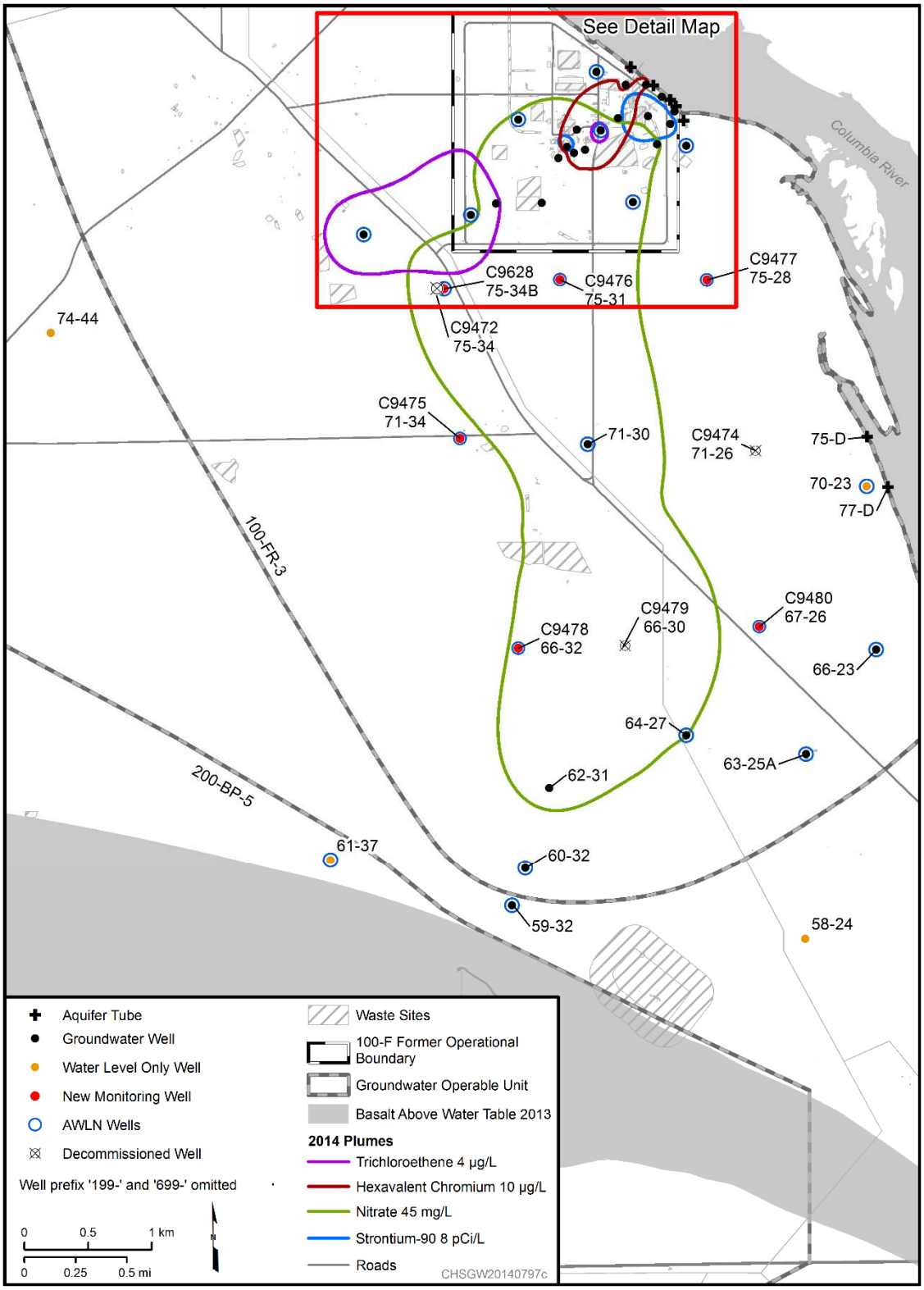
k. Borehole C9479 was dry 10 ft into the Ringold upper mud unit and was decommissioned.

A = annual
B = biennial
AWLN = automated water level network
Cr(VI) = hexavalent chromium
PSQ = principal study question
S = semiannual
TCE = trichloroethene



Note: Either Well 59-32 or 60-32 will be included in the network depending on field investigation results.

Figure A-16. 100-FR-3 Operable Unit Performance Monitoring Network



Note: Either Well 59-32 or 60-32 will be included in the network depending on field investigation results.

Figure A-16. 100-FR-3 Operable Unit Performance Monitoring Network

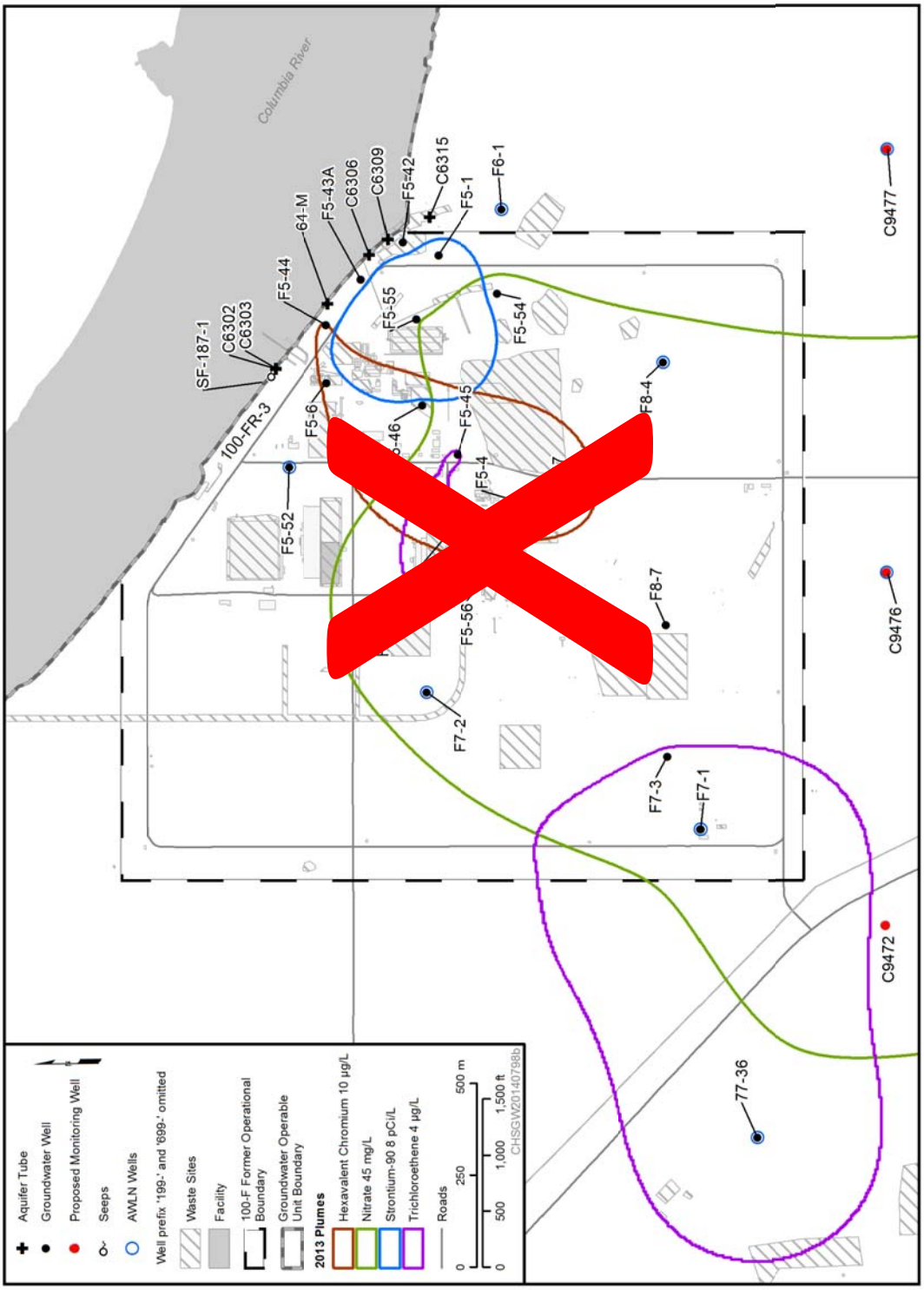


Figure A-17. Detail Map of 100-FR-3 Operable Unit Performance Monitoring Network near 100-F Area

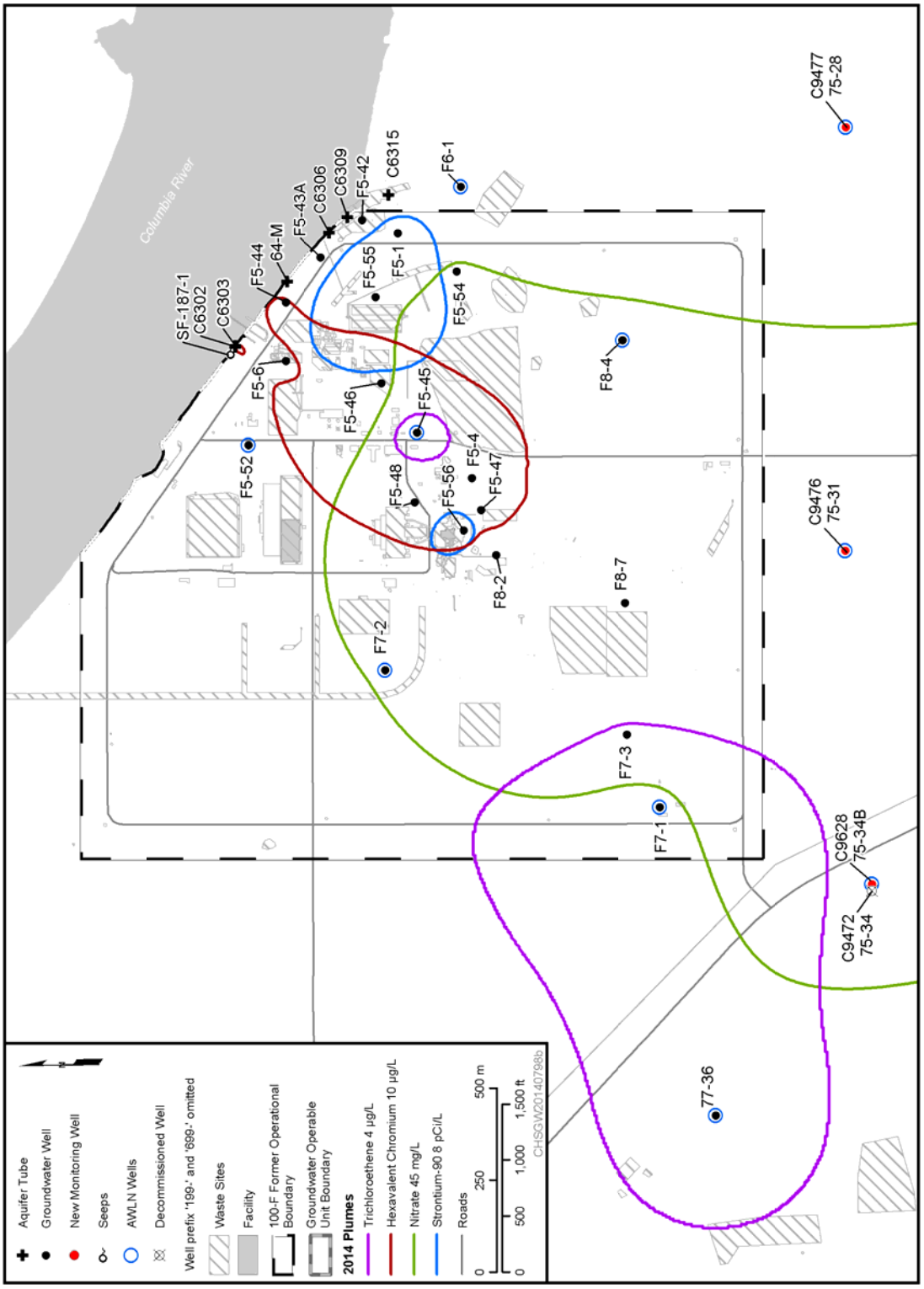


Figure A-17. Detail Map of 100-FR-3 Operable Unit Performance Monitoring Network near 100-F Area

The 100-F river gauge station and 20 ~~19~~ monitoring wells were identified for creating the AWLN for the first 5 years of monitoring. AWLN measurements will be recorded hourly. The need for continuation of the AWLN will be evaluated as part of the 5-year performance reports.

Groundwater levels are measured annually in March across the Hanford Site to construct water table maps that are used to determine the direction and rate of groundwater flow in the unconfined aquifer (SGW-38815, *Water-Level Monitoring Plan for the Hanford Site Soil and Groundwater Remediation Project*). In addition to the March water table map, at a minimum, the high and low river stage maps will be provided in the Phase 1 well report and the comprehensive 5-year performance monitoring reports for as long as the AWLN remains active.

Groundwater measurements also will be recorded at monitoring locations concurrent with collection of groundwater samples.

A3.2.1.4 PSQ 4: Have RAOs been achieved?

PSQ 4a: Are concentrations of COCs below cleanup levels?

PSQ 4b. Will groundwater continue to meet the cleanup levels in the future?

Performance monitoring of the 100-FR-3 OU will produce data usable for determining if groundwater RAOs have been achieved. The following groundwater specific RAOs are identified in the 100-F/IU ROD (EPA and DOE, 2014):

RAO 1: Prevent unacceptable risk to human health from ingestion of and incidental exposure to groundwater containing contaminant concentrations above federal and state standards and risk-based thresholds.

RAO 2: Prevent unacceptable risk to human health and ecological receptors from groundwater discharges to surface water containing contaminant concentrations above federal and state standards and risk-based thresholds.

RAO 7: Restore groundwater impacted from 100-FR-1, 100-FR-2, 100-IU-2, and 100-IU-6 releases to proposed cleanup levels, which include DWSs, within a time frame that is reasonable given the particular circumstances of the site.

Only data from monitoring wells will be used in calculations and evaluation of compliance with cleanup levels. Results from aquifer tubes and the seep will be used to determine changes in plume size and, in the case of aquifer tubes, assess COC concentrations nearest the surface water.

A3.2.2 New Groundwater Monitoring Well Installation

The first phase of new wells to support performance monitoring ~~includes~~ included eight locations, but only six wells were successfully installed (Table A-9). ~~Approximate coordinates for the new well locations are presented in Table A-9.~~ Field walk downs of the identified locations ~~will be~~ were performed prior to drilling. ~~These locations may require adjustment based on accessibility or results of ecological/cultural reviews. Well locations may also require change if the aquifer is not present at the drilling location. If the new location is more than 100 m (330 ft) from the original location, EPA and DOE will be consulted for concurrence prior to drilling.~~

During drilling, a well site geologist ~~will~~ collected drill cutting samples for archive approximately every 1.5 m (5 ft) and completed geologic logs according to project procedures. Samples from the desired screen depth ~~will be~~ were collected for sieve analyses. No other soil or water samples are required during

drilling. ~~When the boreholes reach total depth, project staff will determine whether~~ Borehole geophysical logging was conducted in all boreholes except C9628 (replacement for C9472). ~~is needed~~.

~~After wells are completed and developed, project staff will determine whether~~ Slug tests and/or single-well pumping tests ~~will be~~ were not performed to characterize hydraulic conductivity because the hydrogeology of the region was adequately understood.

Additional Phase 2 monitoring wells may be identified based on evaluation of results from the Phase 1 well samples. Phase 2 wells will be constructed using the same instruction as the Phase 1 wells.

A3.2.2.1 Well Depth and Screen Placement

Each new well ~~will be~~ was drilled approximately 3 m (10 ft) into the RUM unit to facilitate geologic and geophysical interpretations. Table A-9 summarizes depths and construction information. ~~Estimated depths of each well are presented in Table A-9. A 6.1 m (20 ft) screen will be installed at the top of the unconfined aquifer, with approximately 1 to 1.5 m (3 to 5 ft) of screen above the water table.~~

A3.2.2.2 Well Drilling, Completion, and Development

Well drilling and completion ~~will be~~ were performed in accordance with WAC 173-160. The wells ~~will be~~ were drilled using 20 cm (8 in.) diameter ~~(or larger)~~ temporary casing and were ~~Each well will be~~ constructed with 10 cm (4 in.) diameter stainless steel casing and 1.5 to 4.6 m (5 to 15 ft) ~~a 6.1 m (20 ft)~~ long, continuous wire-wrap stainless steel screen, atop a 1.0 to 1.5 m (3 to 5 ft) long stainless steel sump with end cap.

Table A-9. 100-FR-3 Operable Unit Phase 1 Monitoring Well Locations

~~Well Identification~~	~~Northing (m)~~	~~Easting (m)~~	~~Estimated Drill Depth (ft)*~~
~~C9472~~	~~146518.7~~	~~579424.8~~	~~46~~
~~C9474~~	~~145173.9~~	~~581917.5~~	~~49~~
~~C9475~~	~~145292.3~~	~~579601.4~~	~~23~~
~~C9476~~	~~146516.3~~	~~580385.7~~	~~33~~
~~C9477~~	~~146514.8~~	~~581538.1~~	~~43~~
~~C9478~~	~~143589.5~~	~~580059.3~~	~~76~~
~~C9479~~	~~143688.6~~	~~580874.3~~	~~43~~
~~C9480~~	~~143783.7~~	~~581960.7~~	~~62~~

~~* Estimated depth is to top of Ringold Formation upper mud unit plus 3 m (10 ft).~~

Well ID	Well Name	Northing (m)	Easting (m)	Depth to Water (m bgs)	Aquifer Thickness (m)	Total Depth (m bgs)	Elevation Top of Screen (m)	Elevation Bottom of Screen (m)
C9472	699-75-34	146444.09	579477.05	7.28	2.7	13.6	Decommissioned[a]	
C9474	699-71-26	145176.00	581918.55	9.37	0.1	12.4	Decommissioned[b]	
C9475	699-71-34	145271.21	579602.08	6.28	1.6	11.2	116.1	113.0
C9476	699-75-31	146516.19	580385.85	8.87	0.6	12.4	115.3	113.8
C9477	699-75-28	146514.93	581538.22	11.79	2.8	18.0	115.0	110.4
C9478	699-66-32	143628.39	580059.33	7.49	1.0	11.9	119.6	118.0
C9479	699-66-30	143649.79	580895.57	None	0.0	9.6	Decommissioned[b]	
C9480	699-67-26	143798.07	581949.54	8.28	0.9	12.6	113.2	111.6
C9628	699-75-34B	146447.03	579478.30	7.84	2.5	12.6	117.1	112.6

bgs = below ground surface

ID = identification

a. Well constructed incorrectly, decommissioned and replaced by C9628

b. Insufficient aquifer thickness

~~Surface construction consisting of~~ Protective casing, protective guard posts, and cement pad were installed at the completed wells. ~~must be in place before job completion~~.

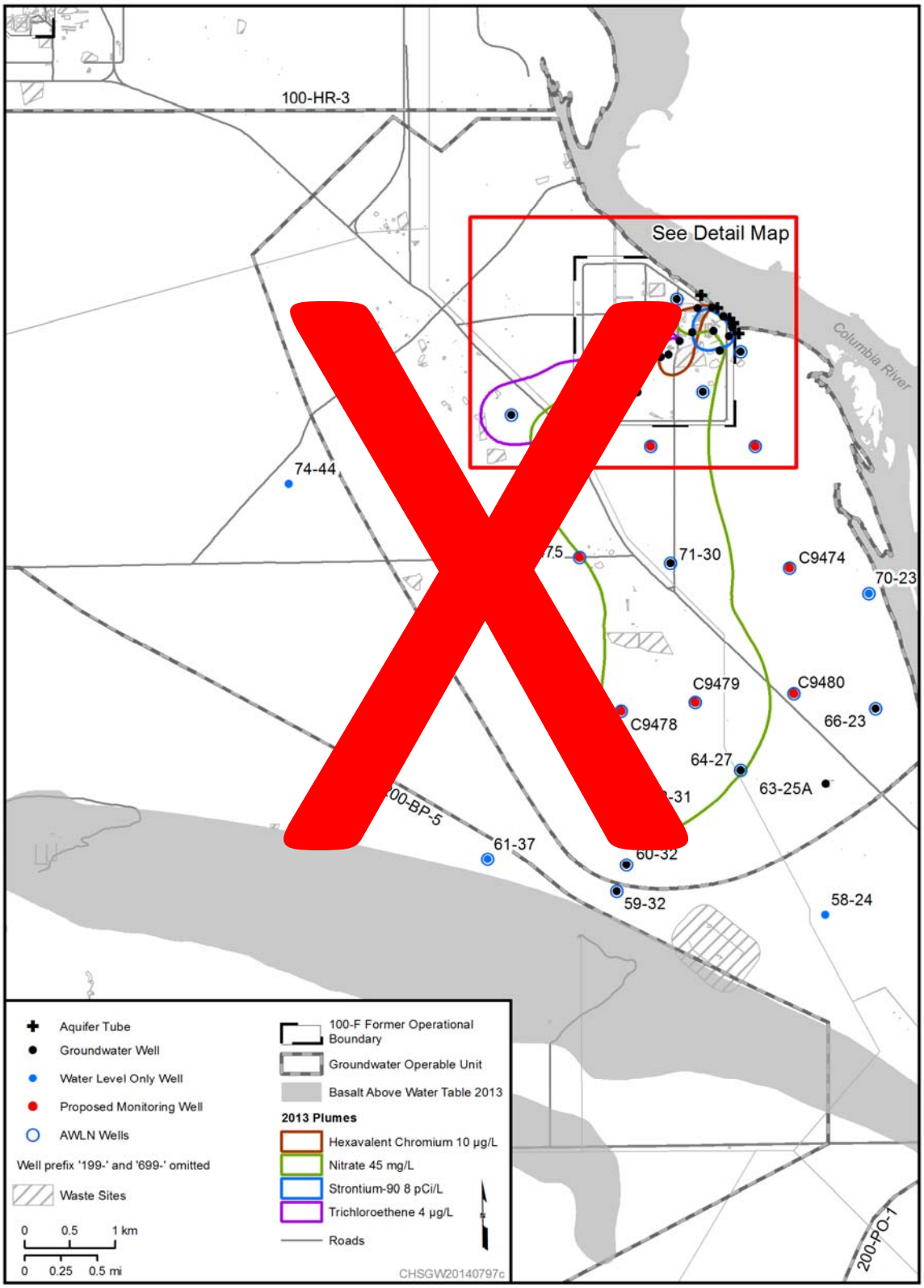
Final well design, including screen placement and length, ~~will be~~ were determined by concurrence of the field geologist, drilling lead, and OU lead based upon field conditions.

Following completion, well locations and elevations will be surveyed, and dedicated sampling pumps will be installed in each well.

A3.2.3 Automated Water Level Network

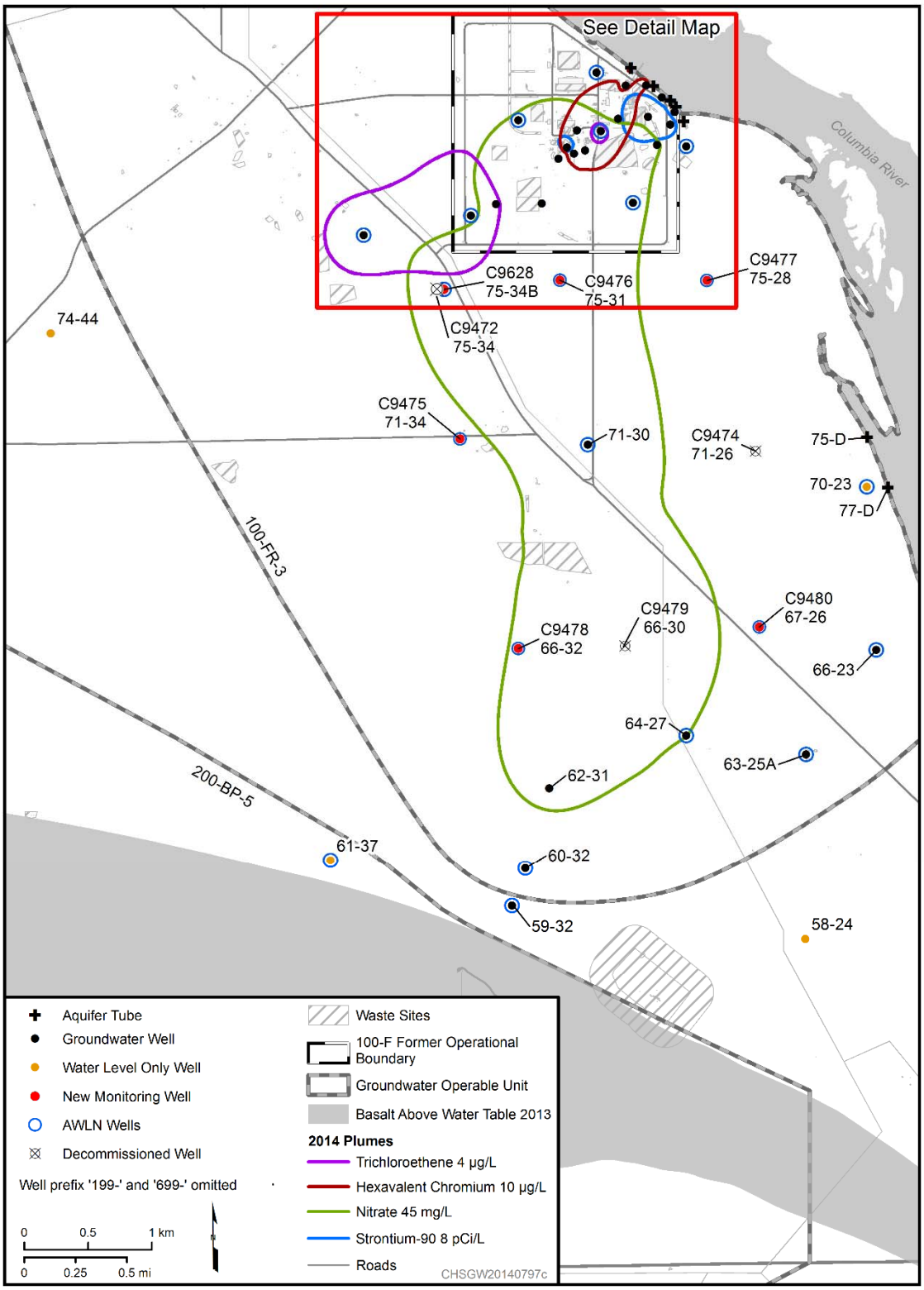
AWLN is the combination of equipment, hardware, and software for the measurement, collection, transmittal, storage, and management of water level data in the aquifer. Water-level data are measured by submersible pressure transducers installed in a network of monitoring locations. The data are then directly transmitted to a base station via telemetry or can be manually downloaded to portable computers.

The 100-F automated river gauge and 20 ~~19~~ monitoring wells will comprise the AWLN for the 100-FR-3 OU (Table A-8). ~~Twelve~~ Fourteen existing wells and ~~seven~~ six new wells will be incorporated into the AWLN and equipped as required for the automated measurements. Two of the existing wells (699-61-37 and 699-70-23) are included in the network for the purpose of the AWLN only. For new wells, equipment necessary for automated measurements will be installed when the wells are completed. The 100-F river



Note: Either Well 59-32 or 60-32 will be included in the network, depending on field investigation results.

Figure B-1. 100-FR-3 Operable Unit Monitoring Network



Note: Either well 59-32 or 60-32 will be included in the network, depending on field investigation results.

Figure B-2. 100-FR-3 Operable Unit Monitoring Network

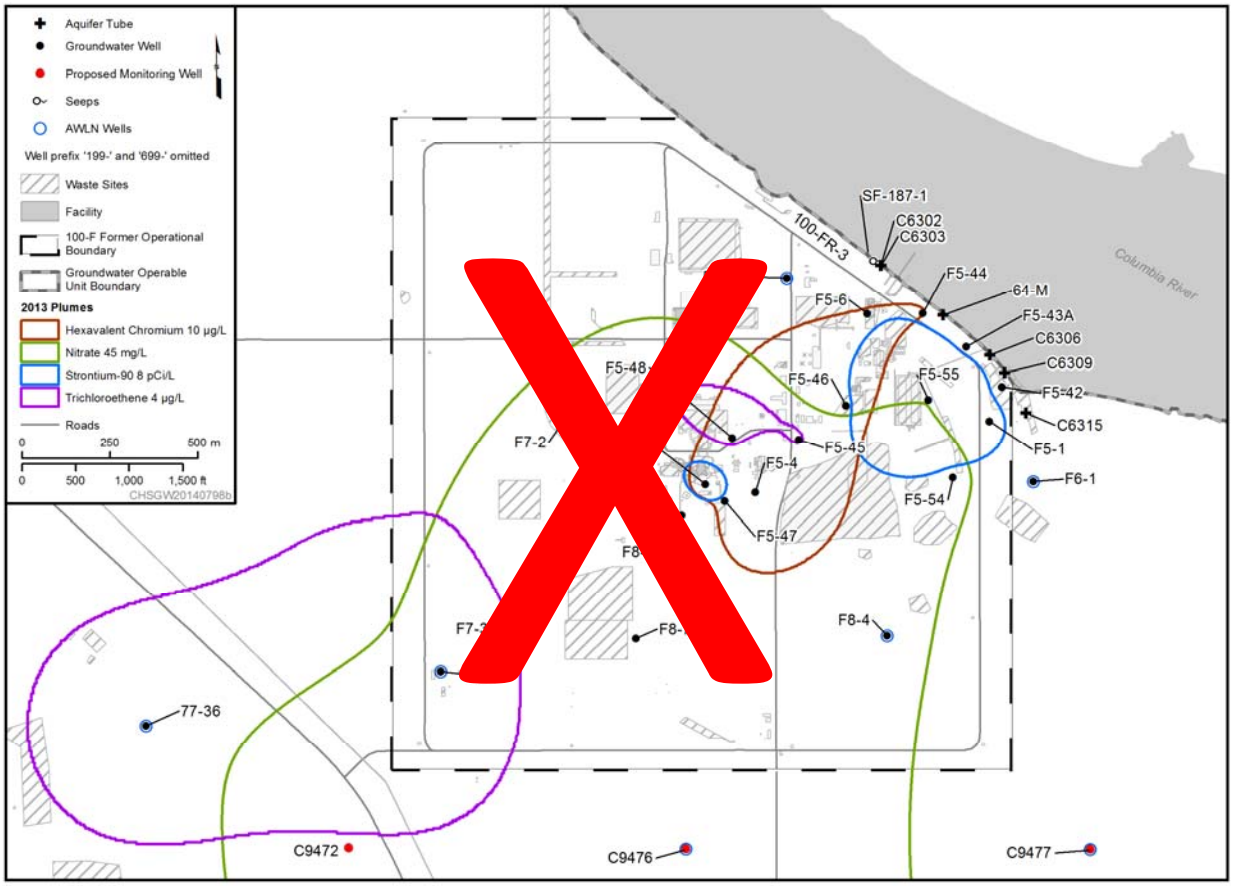


Figure B-2. Detail Map of 100-FR-3 Operable Unit Monitoring Network near 100-F Area

B2 Operations

The operational goal is to sample at designated monitoring wells, aquifer tubes, and the river gauge station during the natural attenuation performance monitoring period. An AWLN will be operated continuously through at least the initial 5 years of monitoring. As the concentrations of COCs are reduced and the plume sizes reduce, the monitoring network will be adjusted. Wells and aquifer tubes will not be arbitrarily removed from service unless they are determined to be no longer needed in the groundwater monitoring network due to decreasing COC plume size. Wells taken out of service due to shrinking of the COC plumes will be scheduled for future decommissioning if it is determined that they are not potentially needed for future monitoring.

B3 Monitoring Network Maintenance

B3.1 Well Maintenance

Well maintenance will be necessary for some wells during the time frame of the MNA remedy. Maintenance includes repair or replacement of pumps and wellhead inspection and maintenance.

Well maintenance will be performed on an as-needed basis. During scheduled sample collection events, sampling crews will inspect the wells. If problems with the wellhead or pump are observed, or if there is a problem obtaining samples (e.g., excessive drawdown or high turbidity), well maintenance will be performed. Well maintenance may also be performed based on unusual sampling results.

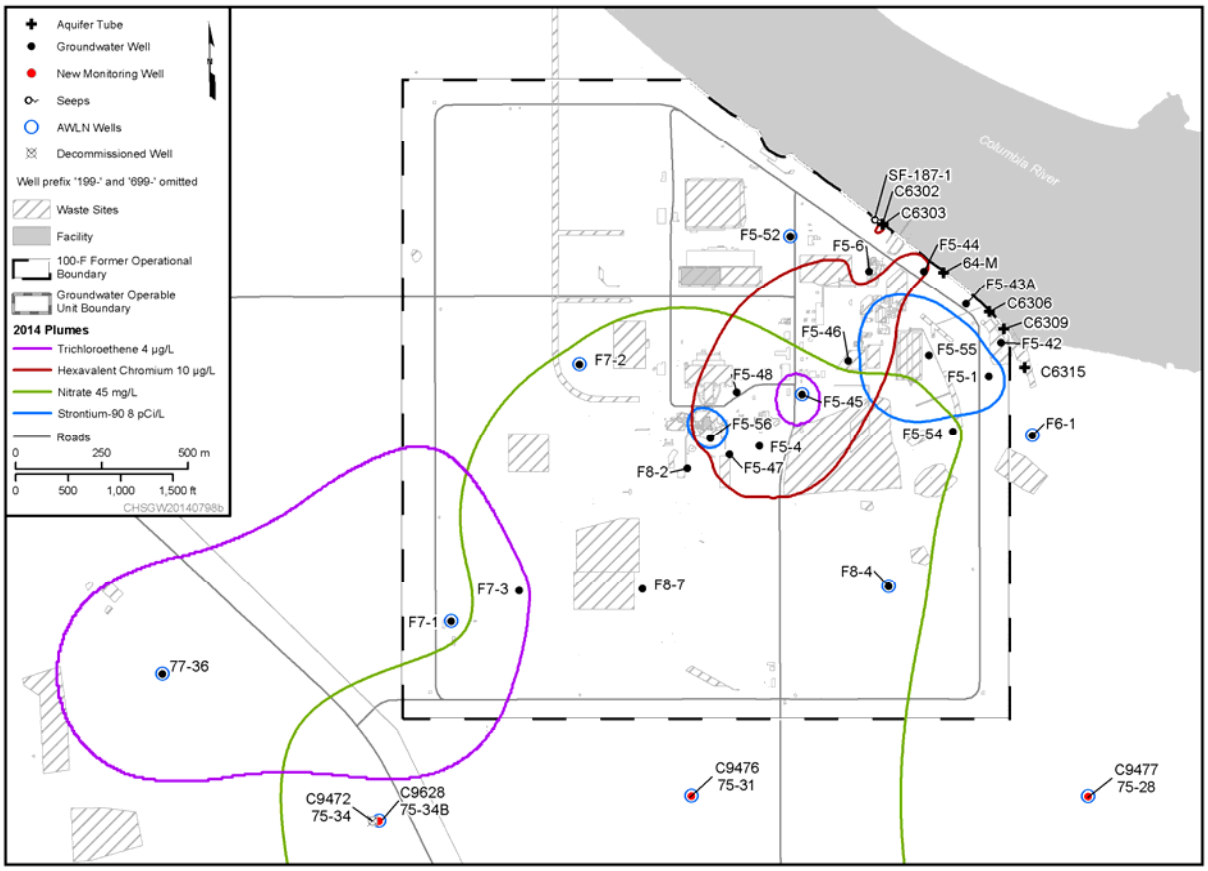


Figure B-2. Detail Map of 100-FR-3 Operable Unit Monitoring Network near 100-F Area

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Table C-1. Wells Associated with the 100-FR-3 Operable Unit

Well Name	Well Identification	Well Name	Well Identification	Well Name	Well Identification
199-F1-2	A4586	199-F8-2	A4607	699-69-45R	A9761
199-F5-1	A4587	199-F8-3	A4608	699-70-23	A5318
199-F5-4	A4590	199-F8-4	A4609	699-71-30	A5320
199-F5-42	A4591	199-F8-7	C6834	699-71-52	A5321
199-F5-43A	A4592	699-57-29A	A5267	699-74-44	A5328
199-F5-43B	A4593	699-57-29B	A5268	699-77-36	A5330
199-F5-44	A4594	699-58-24	A5275	699-77-54	A5331
199-F5-45	A4595	699-59-32	A5276	699-80-43P	A8993
199-F5-46	A4596	699-60-32	A5279	699-80-43S	A5336
199-F5-47	A4597	699-62-31	A5287	699-81-38	A5337
199-F5-48	A4598	699-63-25A	A5289	699-83-47	A5341
199-F5-52	C7790	699-64-27	A5295	699-84-34B	A9021
199-F5-53	C7791	699-65-22	A5297	699-84-35A	A5342
199-F5-54	C7792	699-66-23	A5306	699-84-35AO	A9769
199-F5-55	C7970	699-66-38	A5307	699-84-35AP	A9770
199-F5-56	C7972	699-66-39	A5308	699-84-35AQ	A9771
199-F5-6	A4600	699-69-38	A5316	699-84-35AR	A9772
199-F6-1	A4602	699-69-45	A8967	699-84-35AS	A9773
199-F7-1	A4603	699-69-45O	A5317	699-86-42	A5344
199-F7-2	A4604	699-69-45P	A9759	699-87-42A	A5345
199-F7-3	A4605	699-69-45Q	A9760	699-61-37	A5283
~~Phase 1~~ New Boreholes or Wells ~~To Be Installed~~					
~~TBD~~ 699-75-34*	C9472	~~TBD~~ 699-75-31	C9476	~~TBD~~ 699-66-30*	C9479
~~TBD~~ 699-71-26*	C9474	~~TBD~~ 699-75-28	C9477	~~TBD~~ 699-67-26	C9480
~~TBD~~ 699-71-34	C9475	~~TBD~~ 699-66-32	C9478	699-75-34B	C9628

Note: Wells identified in Table C-1 are associated with the 100-FR-3 groundwater interest area as of July 2016 ~~January 2015~~.

*Decommissioned

~~TBD = to be determined~~