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Revision 0

100-BC Plume Maps for Spring and Fall 2010

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

Contractor for the U.S. Department of Energy
under Contract DE-AC06-08RL14788

CH2MHILL
Plateau Remediation Company

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Richland, Washington 99352

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Program/Project: S&GRP

M. J. Hartman
CH2M HILL Plateau Remediation Company

Date Published
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CH2MHILL Plateau Remediation Company

Environmental Calculation Cover Page

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Terms

CHPRC	CH2M HILL Plateau Remediation Company
GIS	Geographical Information System
HEIS	Hanford Environmental Information System
R	rejected
RI	remedial investigation
TCE	trichloroethene
Y	suspected errors

1 Purpose

The purpose of this environmental calculation is to document the process of constructing groundwater contaminant plume maps for 100-BC. The maps will be used in the 100-BC remedial investigation (RI) report, and may be used for other purposes (e.g., sitewide groundwater annual report).

2 Methodology

2.1 Data Selection

The following points summarize the process. Chapters 3 through 5 provide additional detail.

- Contaminants: hexavalent chromium, chloroform, trichloroethene, strontium-90, and tritium
- Sampling date: May 2010 for spring; September 2010 for fall
- Exclusions: data flagged as rejected (R) or suspected errors (Y)
- Replicates: If more than one data point was available from the sampling window, then the highest concentration was used.
- The primary data set included data from completed, developed monitoring wells that were screened in the unconfined aquifer.
- Supplemental data included the following:
  - Characterization data (groundwater sampled during drilling) for new wells and boreholes installed for the RI
  - Data from outside the sampling window dates (but within calendar year 2010)

2.2 Map Construction

The following points summarize how maps were constructed. Chapter 5 provides additional detail.

- The project's Geographic Information Systems (GIS) team plotted the contaminant concentrations on a 100-BC base map.
- The 100-BC Technical Lead drew contours manually.
- Supplemental data (characterization samples) are illustrated with a distinct symbol to distinguish them from completed, developed wells.
- Data from dates outside the sampling windows were noted on the maps.

3 Assumptions and Inputs

The groundwater data were retrieved from a subset of Hanford Environmental Information System (HEIS) that is maintained by the Remedy Selection group of CH2M HILL Plateau Remediation Company (CHPRC) for the purposes of the 100-BC Remedial Investigation. The 100-BC RI database was retrieved from HEIS on January 26, 2011 for data collected through December 31, 2010. It includes any wells or

boreholes within the 100-BC geographic region, as defined by DOE/RL-2008-46, *Integrated 100 Area Remedial Investigation/Feasibility Study Work Plan.*

4 Software Applications

Microsoft Access®[1] is used to retrieve the data from the database and to exclude certain data from the input dataset.

A Microsoft Excel®[2] spreadsheet was used to transmit data to the GIS team and the Technical Lead.

5 Calculation

The following steps describe the process for creating 100-BC plume maps.

1. Queried the 100-BC RI database for the following contaminants:
   a. Chloroform
   b. Hexavalent chromium
   c. Strontium-90
   d. Trichloroethene (TCE)
   e. Tritium
2. Queried for sample dates in May 2010 for spring and September 2010 for fall.
3. Queried to remove any data with a review qualifier of "R" or "Y" (data identified in HEIS as reject or suspect).
4. Queried to remove data associated with characterization or vertical profiling. This was accomplished by excluding data with an associated "sample interval bottom" (some of these data were used to supplement the primary data set, as explained below).
5. Contaminant concentrations for each well were rounded to two significant digits.
6. The 100-BC Technical Lead reviewed the resultant data set (Excel file) and specified which data points to use on the map, based on the following criteria:
   a. Filtered samples: If both filtered and unfiltered results were available, then selected the unfiltered result.
   b. Replicates: If more than one data point was available from the sampling window, then selected the highest concentration.
   c. Supplemental data:
      – Added characterization data (groundwater sampled during drilling) for new wells and boreholes installed for the RI, if no routine data were available

[1] Microsoft Access is a registered product of the Microsoft Corporation.
[2] Microsoft Excel is a registered product of the Microsoft Corporation.

- Added data from outside the sampling window dates (but within calendar year 2010), if no data were available from a well within the window
- The same supplemental data set was used for the spring and fall maps

7. GIS staff posted the data on a 100-BC base map. Where a constituent was below the laboratory's reporting limit, a "U" qualifier was appended to the result. Additional laboratory qualifiers (J, T, and B) were added for chloroform and TCE as specified by the Technical Lead and listed in Tables 1 through 3.
8. The Technical Lead reviewed the maps and specified:
   a. Sample dates if not in the designated sampling window
   b. Characterization data
9. The Technical Lead drew concentration contours based on the posted data and professional judgment. Additional factors used to guide the interpretation included aquifer tube data from 2009, previous plume interpretations, waste site locations, and direction of groundwater flow.
10. All of the wells in the data set monitor the unconfined aquifer. Most, but not all, wells are screened in the upper portion of the aquifer. Where a pair of wells monitors different depths in the unconfined aquifer, both data points were plotted and the higher concentration was honored in contouring. Therefore, the maps represent the highest concentrations in the plume vertically, and not necessarily a consistent depth.
11. Where aquifer tube data are available, the highest concentration in a cluster was plotted.

6 Results

Figures 1 through 5 are the contaminant plume maps. Figure 6 shows the well names and locations. Tables 1 through 3 list the data and provide a rationale for selection of supplemental data.

7 References

DOE/RL-2008-46, 2010, *Integrated 100 Area Remedial Investigation/Feasibility Study Work Plan*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www5.hanford.gov/arpir/?content=findpage&AKey=1002260412.

Table 1. May 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Chloroform	199-B2-13	5/11/2010	0.59	µg/L	N	J		R	Y	
Chloroform	199-B2-14	5/11/2010	0.21	µg/L	N	J		R	Y	
Chloroform	199-B3-1	5/11/2010	0.27	µg/L	N	J		R	Y	
Chloroform	199-B3-46	5/11/2010	0.39	µg/L	N	J		R	Y	
Chloroform	199-B3-47	5/11/2010	0.11	µg/L	N	J		R	Y	
Chloroform	199-B3-50	5/11/2010	0.39	µg/L	N	J		R	Y	
Chloroform	199-B4-4	5/10/2010	0.49	µg/L	N	JT		R	Y	
Chloroform	199-B4-8	5/10/2010	0.44	µg/L	N	JT		R	Y	
Chloroform	199-B5-1	5/10/2010	0.12	µg/L	N	JT		R	Y	
Chloroform	199-B5-2	5/10/2010	0.35	µg/L	N	JT		R	Y	
Chloroform	199-B5-5	5/11/2010	3	µg/L	N			R	Y	
Chloroform	199-B5-6	5/11/2010	1.5	µg/L	N			R	Y	
Chloroform	199-B8-6	5/11/2010	0.21	µg/L	N	J		R	Y	
Chloroform	199-B9-3	5/10/2010	0.72	µg/L	N	JT		R	Y	
Chloroform	699-65-72	5/17/2010	0.15	µg/L	N	J		R	Y	
Chloroform	699-65-83	5/17/2010	0.2	µg/L	N	J		R	Y	
Chloroform	699-67-86	5/18/2010	0.14	µg/L	N	J		R	Y	
Chloroform	699-71-77	5/17/2010	0.1	µg/L	N	U		R	Y	
Hexavalent Chromium	199-B2-13	5/11/2010	9.5	µg/L	N			R	Y	
Hexavalent Chromium	199-B2-13	5/11/2010	9.5	µg/L	Y			R		
Hexavalent Chromium	199-B2-14	5/11/2010	24.1	µg/L	N			R	Y	
Hexavalent Chromium	199-B2-14	5/11/2010	24.9	µg/L	Y			R		

Table 1. May 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Hexavalent Chromium	199-B3-1	5/11/2010	14.9	µg/L	N			R	Y	
Hexavalent Chromium	199-B3-1	5/11/2010	17.7	µg/L	Y			R		
Hexavalent Chromium	199-B3-46	5/11/2010	13	µg/L	N			R	Y	
Hexavalent Chromium	199-B3-46	5/11/2010	13.7	µg/L	Y			R		
Hexavalent Chromium	199-B3-47	5/11/2010	43.8	µg/L	N			R	Y	
Hexavalent Chromium	199-B3-47	5/11/2010	44	µg/L	Y			R		
Hexavalent Chromium	199-B3-50	5/11/2010	13	µg/L	N			R	Y	
Hexavalent Chromium	199-B3-50	5/11/2010	13.4	µg/L	Y			R		
Hexavalent Chromium	199-B4-1	5/10/2010	38.8	µg/L	N			R	Y	
Hexavalent Chromium	199-B4-1	5/10/2010	38.4	µg/L	Y			R		
Hexavalent Chromium	199-B4-4	5/10/2010	23.4	µg/L	N			R	Y	
Hexavalent Chromium	199-B4-4	5/10/2010	23.6	µg/L	Y			R		
Hexavalent Chromium	199-B4-8	5/10/2010	15.2	µg/L	N			R	Y	
Hexavalent Chromium	199-B4-8	5/10/2010	15.4	µg/L	Y			R		
Hexavalent Chromium	199-B5-1	5/10/2010	30.2	µg/L	N			R	Y	
Hexavalent Chromium	199-B5-1	5/10/2010	30.4	µg/L	Y			R		
Hexavalent Chromium	199-B5-2	5/10/2010	21.9	µg/L	N			R	Y	
Hexavalent Chromium	199-B5-2	5/10/2010	19.9	µg/L	Y			R		
Hexavalent Chromium	199-B5-5	5/11/2010	37.1	µg/L	N			R	Y	
Hexavalent Chromium	199-B5-5	5/11/2010	37.4	µg/L	Y			R		
Hexavalent Chromium	199-B5-6	5/11/2010	33.8	µg/L	N			R	Y	
Hexavalent Chromium	199-B5-6	5/11/2010	33.8	µg/L	Y			R		

Table 1. May 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Hexavalent Chromium	199-B8-6	5/11/2010	5.7	µg/L	N			R	Y	
Hexavalent Chromium	199-B8-6	5/11/2010	5.7	µg/L	Y			R		
Hexavalent Chromium	199-B9-2	5/11/2010	11.3	µg/L	N			R	Y	
Hexavalent Chromium	199-B9-2	5/11/2010	12.4	µg/L	Y			R		
Hexavalent Chromium	199-B9-3	5/10/2010	13	µg/L	N			R	Y	
Hexavalent Chromium	199-B9-3	5/10/2010	13	µg/L	Y			R		
Hexavalent Chromium	699-65-72	5/17/2010	2.8	µg/L	N	B		R	Y	
Hexavalent Chromium	699-65-72	5/17/2010	2.4	µg/L	Y	B		R		
Hexavalent Chromium	699-65-83	5/17/2010	8.6	µg/L	N			R		
Hexavalent Chromium	699-65-83	5/17/2010	9.3	µg/L	N			R	Y	Maximum unfiltered
Hexavalent Chromium	699-67-86	5/18/2010	4.4	µg/L	N	B		R	Y	Maximum unfiltered
Hexavalent Chromium	699-67-86	5/18/2010	4.3	µg/L	N	B		R		
Hexavalent Chromium	699-71-77	5/17/2010	3.5	µg/L	N	B		R	Y	
Hexavalent Chromium	699-71-77	5/17/2010	3.3	µg/L	N	B		R		
Strontium-90	199-B2-13	5/11/2010	-3.8	pCi/L	N	U		R	Y	
Strontium-90	199-B2-14	5/11/2010	-3.9	pCi/L	N	U		R	Y	
Strontium-90	199-B3-1	5/11/2010	23	pCi/L	N			R	Y	
Strontium-90	199-B3-46	5/11/2010	15	pCi/L	N			R	Y	
Strontium-90	199-B3-47	5/11/2010	15	pCi/L	N		G	R	Y	
Strontium-90	199-B3-50	5/11/2010	-3.9	pCi/L	N	U		R	Y	
Strontium-90	199-B4-1	5/10/2010	4.2	pCi/L	N		G	R	Y	
Strontium-90	199-B4-4	5/10/2010	8.6	pCi/L	N		G	R	Y	

Table 1. May 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Strontium-90	199-B4-8	5/10/2010	-3.1	pCi/L	N	U		R	Y	
Strontium-90	199-B5-1	5/10/2010	-0.78	pCi/L	N	U		R	Y	
Strontium-90	199-B5-2	5/10/2010	15	pCi/L	N			R	Y	
Strontium-90	199-B5-5	5/11/2010	-2.6	pCi/L	N	U		R	Y	
Strontium-90	199-B5-6	5/11/2010	-6.5	pCi/L	N	U	G	R	Y	
Strontium-90	199-B8-6	5/11/2010	-1.9	pCi/L	N	U		R	Y	
Strontium-90	199-B9-3	5/10/2010	-3.2	pCi/L	N	U		R	Y	
Strontium-90	699-65-72	5/17/2010	-7.3	pCi/L	N	U		R	Y	
Strontium-90	699-65-83	5/17/2010	-8.4	pCi/L	N	U		R	Y	
Strontium-90	699-67-86	5/18/2010	-6.1	pCi/L	N	U		R	Y	
Strontium-90	699-71-77	5/17/2010	-5.6	pCi/L	N	U		R	Y	
Trichloroethene	199-B2-13	5/11/2010	0.4	µg/L	N	J		R	Y	
Trichloroethene	199-B2-14	5/11/2010	0.46	µg/L	N	J		R	Y	
Trichloroethene	199-B3-1	5/11/2010	0.49	µg/L	N	J		R	Y	
Trichloroethene	199-B3-46	5/11/2010	1.2	µg/L	N			R	Y	
Trichloroethene	199-B3-47	5/11/2010	0.23	µg/L	N	J		R	Y	
Trichloroethene	199-B3-50	5/11/2010	1.2	µg/L	N			R	Y	
Trichloroethene	199-B4-4	5/10/2010	1.2	µg/L	N	T		R	Y	
Trichloroethene	199-B4-8	5/10/2010	0.72	µg/L	N	JT		R	Y	
Trichloroethene	199-B5-1	5/10/2010	0.21	µg/L	N	UT		R	Y	
Trichloroethene	199-B5-2	5/10/2010	0.58	µg/L	N	JT		R	Y	
Trichloroethene	199-B5-5	5/11/2010	2.2	µg/L	N			R	Y	

Table 1. May 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Trichloroethene	199-B5-6	5/11/2010	3.3	µg/L	N			R	Y	
Trichloroethene	199-B8-6	5/11/2010	0.48	µg/L	N	J		R	Y	
Trichloroethene	199-B9-3	5/10/2010	2	µg/L	N	T		R	Y	
Trichloroethene	699-65-72	5/17/2010	1.3	µg/L	N			R	Y	
Trichloroethene	699-65-83	5/17/2010	0.21	µg/L	N	U		R	Y	
Trichloroethene	699-67-86	5/18/2010	0.21	µg/L	N	U		R	Y	
Trichloroethene	699-71-77	5/17/2010	0.21	µg/L	N	U		R	Y	
Tritium	199-B2-13	5/11/2010	690	pCi/L	N			R	Y	
Tritium	199-B2-14	5/11/2010	8,000	pCi/L	N			R	Y	
Tritium	199-B3-1	5/11/2010	3,900	pCi/L	N			R	Y	
Tritium	199-B3-46	5/11/2010	1,700	pCi/L	N			R	Y	
Tritium	199-B3-47	5/11/2010	30,000	pCi/L	N			R	Y	
Tritium	199-B3-50	5/11/2010	1,100	pCi/L	N			R	Y	
Tritium	199-B4-1	5/10/2010	18,000	pCi/L	N			R	Y	
Tritium	199-B4-4	5/10/2010	11,000	pCi/L	N			R	Y	
Tritium	199-B4-8	5/10/2010	6,900	pCi/L	N			R	Y	
Tritium	199-B5-1	5/10/2010	11,000	pCi/L	N			R	Y	
Tritium	199-B5-2	5/10/2010	12,000	pCi/L	N			R	Y	
Tritium	199-B5-5	5/11/2010	1,600	pCi/L	N			R	Y	
Tritium	199-B5-6	5/11/2010	7,000	pCi/L	N			R	Y	
Tritium	199-B8-6	5/11/2010	24,000	pCi/L	N			R	Y	
Tritium	199-B9-2	5/11/2010	1,300	pCi/L	N			R	Y	

Table 1. May 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Tritium	199-B9-3	5/10/2010	790	pCi/L	N			R	Y	
Tritium	699-65-72	5/17/2010	86	pCi/L	N	U		R	Y	
Tritium	699-65-83	5/17/2010	190	pCi/L	N			R	Y	
Tritium	699-67-86	5/18/2010	84	pCi/L	N	U		R	Y	
Tritium	699-71-77	5/17/2010	260	pCi/L	N			R	Y	

Filt.: N = unfiltered; Y = filtered

LabQ (laboratory data qualifiers): B = associated with blank contamination; J = estimated (below contractually required detection limit but above method detection limit); T = spike recovery outside control limits; U = undetected

RvwQ (review qualifier): G = data review has been completed and data point was found to be valid

Collection purpose: R = routine

Use for plume: Y = yes (blank = no)

Table 2. September 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Chloroform	199-B2-13	9/7/2010	0.12	µg/L	N	J		R	Y	
Chloroform	199-B2-13	9/7/2010	0.11	µg/L	N	J		R		
Chloroform	199-B2-14	9/7/2010	0.1	µg/L	N	U		R	Y	
Chloroform	199-B3-1	9/7/2010	0.17	µg/L	N	J		R	Y	
Chloroform	199-B3-46	9/7/2010	0.31	µg/L	N	J		R	Y	
Chloroform	199-B3-47	9/7/2010	0.1	µg/L	N	U		R	Y	
Chloroform	199-B3-50	9/2/2010	0.38	µg/L	N	J		R	Y	
Chloroform	199-B4-4	9/7/2010	0.28	µg/L	N	J		R	Y	
Chloroform	199-B4-8	9/2/2010	0.34	µg/L	N	J		R	Y	
Chloroform	199-B5-1	9/7/2010	0.1	µg/L	N	U		R	Y	
Chloroform	199-B5-2	9/2/2010	0.24	µg/L	N	J		R	Y	
Chloroform	199-B5-5	9/7/2010	2.5	µg/L	N			R	Y	
Chloroform	199-B5-6	9/2/2010	1.5	µg/L	N			R	Y	
Chloroform	199-B8-6	9/7/2010	0.1	µg/L	N	U		R	Y	
Chloroform	199-B9-3	9/7/2010	0.42	µg/L	N	J		R	Y	
Chloroform	699-65-72	9/2/2010	0.12	µg/L	N	J		R	Y	
Chloroform	699-65-83	9/2/2010	0.22	µg/L	N	J		R	Y	
Chloroform	699-67-86	9/2/2010	0.11	µg/L	N	J		R	Y	
Chloroform	699-71-77	9/7/2010	0.1	µg/L	N	U		R	Y	
Chloroform	C7842	9/14/2010	5	µg/L	N	U		C	Y	Grab sample from borehole
Chloroform	C7842	9/14/2010	5	µg/L	N	U		C		Grab sample from borehole
Chloroform	C7842	9/14/2010	5	µg/L	N	U		C		Grab sample from borehole

Table 2. September 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Hexavalent Chromium	199-B2-13	9/7/2010	3.7	µg/L	N	B		R	Y	
Hexavalent Chromium	199-B2-13	9/7/2010	3.5	µg/L	N	B		R		
Hexavalent Chromium	199-B2-13	9/7/2010	4	µg/L	Y	B		R		
Hexavalent Chromium	199-B2-13	9/7/2010	4	µg/L	Y	B		R		
Hexavalent Chromium	199-B2-14	9/7/2010	26.3	µg/L	N			R	Y	
Hexavalent Chromium	199-B2-14	9/7/2010	26.4	µg/L	Y			R		
Hexavalent Chromium	199-B3-1	9/7/2010	22.4	µg/L	N			R	Y	
Hexavalent Chromium	199-B3-1	9/7/2010	22.9	µg/L	Y			R		
Hexavalent Chromium	199-B3-46	9/7/2010	13.1	µg/L	N			R	Y	
Hexavalent Chromium	199-B3-46	9/7/2010	14	µg/L	Y			R		
Hexavalent Chromium	199-B3-47	9/7/2010	56	µg/L	N			R	Y	
Hexavalent Chromium	199-B3-47	9/7/2010	57.1	µg/L	Y			R		
Hexavalent Chromium	199-B3-50	9/2/2010	12.6	µg/L	N			R	Y	
Hexavalent Chromium	199-B3-50	9/2/2010	12.2	µg/L	Y			R		
Hexavalent Chromium	199-B4-4	9/7/2010	22.4	µg/L	N			R	Y	
Hexavalent Chromium	199-B4-4	9/7/2010	23.4	µg/L	Y			R		
Hexavalent Chromium	199-B4-8	9/2/2010	18.6	µg/L	N			R	Y	
Hexavalent Chromium	199-B4-8	9/2/2010	18.6	µg/L	Y			R		
Hexavalent Chromium	199-B5-1	9/7/2010	22	µg/L	N			R	Y	
Hexavalent Chromium	199-B5-1	9/7/2010	22.2	µg/L	Y			R		
Hexavalent Chromium	199-B5-2	9/2/2010	27	µg/L	N			R	Y	
Hexavalent Chromium	199-B5-2	9/2/2010	27	µg/L	Y			R		

Table 2. September 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Hexavalent Chromium	199-B5-5	9/7/2010	34.8	µg/L	N			R	Y	
Hexavalent Chromium	199-B5-5	9/7/2010	35.2	µg/L	Y			R		
Hexavalent Chromium	199-B5-6	9/2/2010	37.3	µg/L	N			R	Y	
Hexavalent Chromium	199-B5-6	9/2/2010	36.5	µg/L	Y			R		
Hexavalent Chromium	199-B8-6	9/7/2010	2	µg/L	N	U		R	Y	
Hexavalent Chromium	199-B8-6	9/7/2010	2	µg/L	Y	U		R		
Hexavalent Chromium	199-B9-3	9/7/2010	11.8	µg/L	N			R	Y	
Hexavalent Chromium	199-B9-3	9/7/2010	12.3	µg/L	Y			R		
Hexavalent Chromium	699-65-72	9/2/2010	2	µg/L	N	U		R	Y	
Hexavalent Chromium	699-65-72	9/2/2010	2	µg/L	Y	U		R		
Hexavalent Chromium	699-65-83	9/2/2010	6.9	µg/L	N			R	Y	
Hexavalent Chromium	699-65-83	9/2/2010	7.3	µg/L	Y			R		
Hexavalent Chromium	699-67-86	9/2/2010	2	µg/L	N	U		R	Y	
Hexavalent Chromium	699-67-86	9/2/2010	2	µg/L	Y	U		R		
Hexavalent Chromium	699-71-77	9/7/2010	4.5	µg/L	N	B		R	Y	
Hexavalent Chromium	699-71-77	9/7/2010	5.7	µg/L	Y			R		
Hexavalent Chromium	C7718	9/15/2010	16.6	µg/L	N			R		Shallow aquifer tube in cluster C7718,19,20
Hexavalent Chromium	C7718	9/15/2010	19.1	µg/L	Y			R		
Hexavalent Chromium	C7719	9/15/2010	24.3	µg/L	N			R	Y	Max. unfiltered in aquifer tube cluster C7718,19,20
Hexavalent Chromium	C7719	9/15/2010	23.6	µg/L	Y			R		Mid-depth aquifer tube in cluster C7718,19,20

Table 2. September 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Hexavalent Chromium	C7720	9/15/2010	20.8	µg/L	N			R		Deep aquifer tube in cluster C7718,19,20
Hexavalent Chromium	C7720	9/15/2010	20.8	µg/L	Y			R		
Hexavalent Chromium	C7724	9/15/2010	2	µg/L	N	U		R		Shallow aquifer tube in cluster C7724,25,26
Hexavalent Chromium	C7724	9/15/2010	2	µg/L	Y	U		R		
Hexavalent Chromium	C7725	9/15/2010	34.8	µg/L	N			R	Y	Max. unfiltered in aquifer tube cluster C7724,25,26
Hexavalent Chromium	C7725	9/15/2010	34.8	µg/L	Y			R		Mid-depth aquifer tube in cluster C7724,25,26
Hexavalent Chromium	C7726	9/15/2010	25.5	µg/L	N			R		Deep aquifer tube in cluster C7724,25,26
Hexavalent Chromium	C7726	9/15/2010	25.8	µg/L	Y			R		
Hexavalent Chromium	C7780	9/15/2010	2	µg/L	N	U		R		Shallow aquifer tube in cluster C7780,81,82
Hexavalent Chromium	C7780	9/15/2010	2	µg/L	Y	U		R		
Hexavalent Chromium	C7781	9/15/2010	2	µg/L	N	U		R		Mid-depth aquifer tube in cluster C7780,81,82
Hexavalent Chromium	C7781	9/15/2010	2	µg/L	Y	U		R		
Hexavalent Chromium	C7782	9/15/2010	9.6	µg/L	N			R	Y	Max. unfiltered in aquifer tube cluster
Hexavalent Chromium	C7782	9/15/2010	10.5	µg/L	Y			R		Deep aquifer tube in cluster C7780,81,82
Hexavalent Chromium	C7842	9/14/2010	3.7	µg/L	N	U		C		Grab samples from borehole; unrepresentative
Hexavalent Chromium	C7842	9/14/2010	3.7	µg/L	N	U		C		
Strontium-90	199-B2-13	9/7/2010	-3.6	pCi/L	N	U		R		
Strontium-90	199-B2-13	9/7/2010	-2.7	pCi/L	N	U		R	Y	
Strontium-90	199-B2-14	9/7/2010	3.1	pCi/L	N			R	Y	

Table 2. September 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Strontium-90	199-B3-1	9/7/2010	31	pCi/L	N			R	Y	
Strontium-90	199-B3-46	9/7/2010	45	pCi/L	N			R	Y	
Strontium-90	199-B3-47	9/7/2010	14	pCi/L	N			R	Y	
Strontium-90	199-B3-50	9/2/2010	-5.3	pCi/L	N	U		R	Y	
Strontium-90	199-B4-4	9/7/2010	6.7	pCi/L	N			R	Y	
Strontium-90	199-B4-8	9/2/2010	-0.082	pCi/L	N	U		R	Y	
Strontium-90	199-B5-1	9/7/2010	-5.6	pCi/L	N	U		R	Y	
Strontium-90	199-B5-2	9/2/2010	14	pCi/L	N			R	Y	
Strontium-90	199-B5-5	9/7/2010	-6.1	pCi/L	N	U		R	Y	
Strontium-90	199-B5-6	9/2/2010	-4.8	pCi/L	N	U		R	Y	
Strontium-90	199-B8-6	9/7/2010	-5.2	pCi/L	N	U		R	Y	
Strontium-90	199-B9-3	9/7/2010	-4.1	pCi/L	N	U		R	Y	
Strontium-90	699-65-72	9/2/2010	-5.4	pCi/L	N	U		R	Y	
Strontium-90	699-65-83	9/2/2010	-0.99	pCi/L	N	U		R	Y	
Strontium-90	699-67-86	9/2/2010	-2	pCi/L	N	U		R	Y	
Strontium-90	699-71-77	9/7/2010	-4.4	pCi/L	N	U		R	Y	
Strontium-90	C7718	9/15/2010	-1.5	pCi/L	N	U		R	Y	Max. in aquifer tube cluster C7718,19,20 (maximum of duplicate)
Strontium-90	C7718	9/15/2010	-4.4	pCi/L	N	U		R		Shallow aquifer tube in cluster C7718,19,20
Strontium-90	C7719	9/15/2010	-5.2	pCi/L	N	U		R		Mid-depth aquifer tube in cluster C7718,19,20

Table 2. September 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Strontium-90	C7720	9/15/2010	-1.6	pCi/L	N	U		R		Deep aquifer tube in cluster C7718,19,20
Strontium-90	C7724	9/15/2010	8.8	pCi/L	N			R		Shallow aquifer tube in cluster C7724,25,26
Strontium-90	C7725	9/15/2010	18	pCi/L	N			R	Y	Max. in aquifer tube cluster C7724,25,26
Strontium-90	C7726	9/15/2010	-3.5	pCi/L	N	U		R		Deep aquifer tube in cluster C7718,19,20
Strontium-90	C7780	9/15/2010	-1.9	pCi/L	N	U		R		Shallow aquifer tube in cluster C7780,81,82
Strontium-90	C7781	9/15/2010	-2.5	pCi/L	N	U		R		Mid-depth aquifer tube in cluster C7780,81,82
Strontium-90	C7782	9/15/2010	5.3	pCi/L	N			R	Y	Max. in aquifer tube cluster C7780,81,82
Strontium-90	C7842	9/14/2010	13.3	pCi/L	N			C	Y	Max grab sample from borehole
Strontium-90	C7842	9/14/2010	12	pCi/L	N			C		Grab sample from borehole
Trichloroethene	199-B2-13	9/7/2010	0.25	µg/L	N	U		R	Y	Max of duplicate
Trichloroethene	199-B2-13	9/7/2010	0.25	µg/L	N	U		R		
Trichloroethene	199-B2-14	9/7/2010	0.25	µg/L	N	U		R	Y	
Trichloroethene	199-B3-1	9/7/2010	0.32	µg/L	N	J		R	Y	
Trichloroethene	199-B3-46	9/7/2010	0.99	µg/L	N	J		R	Y	
Trichloroethene	199-B3-47	9/7/2010	0.25	µg/L	N	U		R	Y	
Trichloroethene	199-B3-50	9/2/2010	1.2	µg/L	N	B		R	Y	
Trichloroethene	199-B4-4	9/7/2010	0.72	µg/L	N	J		R	Y	

Table 2. September 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Trichloroethene	199-B4-8	9/2/2010	0.86	µg/L	N	JB		R	Y	
Trichloroethene	199-B5-1	9/7/2010	0.25	µg/L	N	U		R	Y	
Trichloroethene	199-B5-2	9/2/2010	0.66	µg/L	N	JB		R	Y	
Trichloroethene	199-B5-5	9/7/2010	1.9	µg/L	N			R	Y	
Trichloroethene	199-B5-6	9/2/2010	3.1	µg/L	N	B		R	Y	
Trichloroethene	199-B8-6	9/7/2010	0.25	µg/L	N	U		R	Y	
Trichloroethene	199-B9-3	9/7/2010	1.2	µg/L	N			R	Y	
Trichloroethene	699-65-72	9/2/2010	1.3	µg/L	N	B		R	Y	
Trichloroethene	699-65-83	9/2/2010	0.66	µg/L	N	JB		R	Y	
Trichloroethene	699-67-86	9/2/2010	0.39	µg/L	N	JB		R	Y	
Trichloroethene	699-71-77	9/7/2010	0.52	µg/L	N	J		R	Y	
Trichloroethene	C7842	9/14/2010	5	µg/L	N	U		C	Y	Grab sample from borehole
Trichloroethene	C7842	9/14/2010	5	µg/L	N	U		C		Grab sample from borehole
Trichloroethene	C7842	9/14/2010	5	µg/L	N	U		C		Grab sample from borehole
Tritium	199-B2-13	9/7/2010	1,300	pCi/L	N			R	Y	
Tritium	199-B2-13	9/7/2010	1,100	pCi/L	N			R		
Tritium	199-B2-14	9/7/2010	8,000	pCi/L	N			R	Y	
Tritium	199-B3-1	9/7/2010	4,000	pCi/L	N			R	Y	
Tritium	199-B3-46	9/7/2010	1,700	pCi/L	N			R	Y	
Tritium	199-B3-47	9/7/2010	32,000	pCi/L	N			R	Y	
Tritium	199-B3-50	9/2/2010	1,300	pCi/L	N			R	Y	
Tritium	199-B4-4	9/7/2010	11,000	pCi/L	N			R	Y	

Table 2. September 2010 Groundwater Data from Routine Samples

Constituent	Well	Date	Result	Units	Filt.	LabQ	RvwQ	Collection Purpose	Use for Plume	Comment
Tritium	199-B4-8	9/2/2010	10,000	pCi/L	N			R	Y	
Tritium	199-B5-1	9/7/2010	10,000	pCi/L	N			R	Y	
Tritium	199-B5-2	9/2/2010	69,000	pCi/L	N			R	Y	
Tritium	199-B5-5	9/7/2010	1,300	pCi/L	N			R	Y	
Tritium	199-B5-6	9/2/2010	7,400	pCi/L	N			R	Y	
Tritium	199-B8-6	9/7/2010	4,600	pCi/L	N			R	Y	
Tritium	199-B9-3	9/7/2010	720	pCi/L	N			R	Y	
Tritium	699-65-72	9/2/2010	34	pCi/L	N	U		R	Y	
Tritium	699-65-83	9/2/2010	210	pCi/L	N			R	Y	
Tritium	699-67-86	9/2/2010	100	pCi/L	N	U		R	Y	
Tritium	699-71-77	9/7/2010	810	pCi/L	N			R	Y	
Tritium	C7720	9/15/2010	4,500	pCi/L	N			R	Y	Aquifer tube
Tritium	C7726	9/15/2010	8,700	pCi/L	N			R	Y	Aquifer tube
Tritium	C7782	9/15/2010	1,500	pCi/L	N			R	Y	Aquifer tube
Tritium	C7842	9/14/2010	27,400	pCi/L	N			C		Grab sample from borehole
Tritium	C7842	9/14/2010	28,800	pCi/L	N			C	Y	Grab sample from borehole; Max of duplicate

Filt.: N = unfiltered; Y = filtered

LabQ (laboratory data qualifiers): B (organic) = associated with blank contamination; B (inorganic) or J (organic) = below contractually required detection limit but above method detection limit; U = undetected

RvwQ (review qualifier): G = data review has been completed and data point was found to be valid

Collection purpose: R = routine; C = characterization (these results did not have an associated "sample interval bottom" when data were pulled from HEIS; thus, they appear in the primary data set)

Use for plume: Y = yes (blank = no)

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Chloroform	199-B2-16	8/27/2010	1	µg/L	N	U			
Chloroform	199-B2-16	8/30/2010	1	µg/L	N	U			
Chloroform	199-B2-16	8/31/2010	1	µg/L	N	U			
Chloroform	199-B2-16	9/1/2010	1	µg/L	N	U			
Chloroform	199-B2-16	9/2/2010	1	µg/L	N	U			
Chloroform	199-B2-16	9/3/2010	1	µg/L	N	U			
Chloroform	199-B2-16	9/8/2010	1	µg/L	N	U			
Chloroform	199-B2-16	9/9/2010	1	µg/L	N	U			
Chloroform	199-B2-16	9/9/2010	1	µg/L	N	U			
Chloroform	199-B2-16	9/13/2010	1	µg/L	Y	U			
Chloroform	199-B2-16	9/15/2010	1	µg/L	Y	U			
Chloroform	199-B2-16	9/16/2010	1	µg/L	Y	U			
Chloroform	199-B2-16	9/17/2010	1	µg/L	Y	U			
Chloroform	199-B2-16	9/20/2010	1	µg/L	Y	U			
Chloroform	199-B2-16	9/21/2010	1	µg/L	Y	U			
Chloroform	199-B2-16	9/23/2010	3	µg/L	N	J			
Chloroform	199-B2-16	11/1/2010	4.4	µg/L	N	J			
Chloroform	199-B2-16	11/3/2010	2.2	µg/L	N	J			
Chloroform	199-B2-16	11/5/2010	4.8	µg/L	N	J		Y	Max of drilling characterization samples
Chloroform	199-B4-14	7/21/2010	1	µg/L	N	U		Y	Max of drilling characterization samples
Chloroform	199-B4-14	7/21/2010	1	µg/L	Y	U			

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Chloroform	199-B8-9	7/1/2010	1	µg/L	Y	U		Y	Max of drilling characterization samples
Chloroform	199-B8-9	7/2/2010	1	µg/L	Y	U			
Chloroform	199-B8-9	7/12/2010	1	µg/L	Y	U			
Chloroform	199-B8-9	7/13/2010	1	µg/L	Y	U			
Chloroform	199-B8-9	7/14/2010	1	µg/L	Y	U			
Chloroform	199-B8-9	7/16/2010	1	µg/L	Y	U			
Chloroform	199-B8-9	7/19/2010	1	µg/L	Y	U			
Chloroform	199-B8-9	7/20/2010	1	µg/L	Y	U			
Chloroform	199-B8-9	7/22/2010	1	µg/L	N	U			
Chloroform	199-B8-9	7/22/2010	1	µg/L	N	U			
Chloroform	199-B8-9	7/26/2010	1	µg/L	N	U			
Chloroform	199-B8-9	7/27/2010	1	µg/L	N	U			
Chloroform	199-B8-9	7/30/2010	1	µg/L	Y	U			
Chloroform	199-B8-9	8/2/2010	1	µg/L	Y	U			
Chloroform	199-B8-9	8/3/2010	1	µg/L	N	U			
Chloroform	199-B8-9	8/5/2010	1	µg/L	N	U			
Chloroform	199-B8-9	8/10/2010	1	µg/L	N	U			
Chloroform	199-B8-9	8/12/2010	1	µg/L	N	U			
Chloroform	199-B8-9	8/13/2010	1	µg/L	N	U			
Chloroform	199-B8-9	8/17/2010	1	µg/L	N	U			
Chloroform	199-B8-9	8/18/2010	1	µg/L	N	U			
Chloroform	199-B8-9	8/20/2010	1	µg/L	N	U			

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Hexavalent Chromium	199-B2-16	8/27/2010	3.7	µg/L	N	U			
Hexavalent Chromium	199-B2-16	8/27/2010	2	µg/L	N	U			
Hexavalent Chromium	199-B2-16	8/30/2010	8.5	µg/L	N				
Hexavalent Chromium	199-B2-16	8/31/2010	5.8	µg/L	N				
Hexavalent Chromium	199-B2-16	8/31/2010	6	µg/L	N				
Hexavalent Chromium	199-B2-16	9/1/2010	8.9	µg/L	N				
Hexavalent Chromium	199-B2-16	9/2/2010	2	µg/L	N	U			
Hexavalent Chromium	199-B2-16	9/3/2010	13.1	µg/L	N				
Hexavalent Chromium	199-B2-16	9/7/2010	12.8	µg/L	N				
Hexavalent Chromium	199-B2-16	9/8/2010	15	µg/L	N				
Hexavalent Chromium	199-B2-16	9/9/2010	16.3	µg/L	N				
Hexavalent Chromium	199-B2-16	9/9/2010	17.3	µg/L	N				
Hexavalent Chromium	199-B2-16	9/13/2010	2	µg/L	Y	U			
Hexavalent Chromium	199-B2-16	9/15/2010	14.6	µg/L	Y				
Hexavalent Chromium	199-B2-16	9/16/2010	2	µg/L	Y	U			
Hexavalent Chromium	199-B2-16	9/17/2010	13.2	µg/L	Y				
Hexavalent Chromium	199-B2-16	9/20/2010	15.8	µg/L	Y				
Hexavalent Chromium	199-B2-16	9/21/2010	17	µg/L	Y				
Hexavalent Chromium	199-B2-16	9/23/2010	15.3	µg/L	N				
Hexavalent Chromium	199-B2-16	11/1/2010	15.5	µg/L	N				
Hexavalent Chromium	199-B2-16	11/3/2010	2	µg/L	N	U			
Hexavalent Chromium	199-B2-16	11/5/2010	18.2	µg/L	N			Y	Max. of drilling characterization samples

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Hexavalent Chromium	199-B4-14	7/21/2010	14.9	µg/L	N			Y	Max. of drilling characterization samples
Hexavalent Chromium	199-B4-14	7/21/2010	14.4	µg/L	N				
Hexavalent Chromium	199-B8-7	1/13/2010	10.4	µg/L	N			Y	Last sample before decommissioning
Hexavalent Chromium	199-B8-7	1/13/2010	10.2	µg/L	Y				
Hexavalent Chromium	199-B8-8	1/13/2010	13.4	µg/L	N			Y	Last sample before decommissioning
Hexavalent Chromium	199-B8-8	1/13/2010	13.5	µg/L	Y				
Hexavalent Chromium	199-B8-9	7/1/2010	7.2	µg/L	Y				
Hexavalent Chromium	199-B8-9	7/2/2010	2.9	µg/L	Y	B			
Hexavalent Chromium	199-B8-9	7/2/2010	2.6	µg/L	Y	B			
Hexavalent Chromium	199-B8-9	7/12/2010	2	µg/L	Y	U	Y		
Hexavalent Chromium	199-B8-9	7/13/2010	7.4	µg/L	Y				
Hexavalent Chromium	199-B8-9	7/13/2010	9.3	µg/L	Y				
Hexavalent Chromium	199-B8-9	7/14/2010	4.3	µg/L	Y	B			
Hexavalent Chromium	199-B8-9	7/16/2010	6.8	µg/L	Y				
Hexavalent Chromium	199-B8-9	7/19/2010	9.2	µg/L	Y				
Hexavalent Chromium	199-B8-9	7/20/2010	8.3	µg/L	Y				
Hexavalent Chromium	199-B8-9	7/22/2010	7.1	µg/L	N				
Hexavalent Chromium	199-B8-9	7/22/2010	2	µg/L	N	U	Y		
Hexavalent Chromium	199-B8-9	7/27/2010	2.7	µg/L	N	B			
Hexavalent Chromium	199-B8-9	7/30/2010	15	µg/L	Y			Y	Max. of drilling characterization samples

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Hexavalent Chromium	199-B8-9	8/2/2010	2.8	µg/L	N	B			
Hexavalent Chromium	199-B8-9	8/3/2010	2	µg/L	N	U			
Hexavalent Chromium	199-B8-9	8/5/2010	2	µg/L	N	U			
Hexavalent Chromium	199-B8-9	8/10/2010	2	µg/L	N	U	Y		
Hexavalent Chromium	199-B8-9	8/12/2010	2.7	µg/L	N	B			
Hexavalent Chromium	199-B8-9	8/13/2010	2	µg/L	N	U	Y		
Hexavalent Chromium	199-B8-9	8/17/2010	2	µg/L	N	U			
Hexavalent Chromium	199-B8-9	8/18/2010	2	µg/L	N	U	Y		
Hexavalent Chromium	199-B8-9	8/20/2010	2	µg/L	N	U			
Hexavalent Chromium	C7842	9/14/2010	3.7	µg/L	N	U			Grab sample from borehole; unrepresentative
Hexavalent Chromium	C7842	9/14/2010	3.7	µg/L	N	U			Grab sample from borehole; unrepresentative
Hexavalent Chromium	C7844	12/7/2010	3.7	µg/L	N	U			Grab sample from borehole; unrepresentative
Hexavalent Chromium	C7844	12/7/2010	3.7	µg/L	N	U			Grab sample from borehole; unrepresentative
Hexavalent Chromium	C7845	11/9/2010	23	µg/L	N				Grab sample from borehole
Hexavalent Chromium	C7845	11/9/2010	24	µg/L	N			Y	Max. grab sample from borehole
Strontium-90	199-B2-16	8/27/2010	-8.3	pCi/L	N	U			
Strontium-90	199-B2-16	8/27/2010	4.35	pCi/L	N			Y	Max of drilling characterization samples
Strontium-90	199-B2-16	8/30/2010	1	pCi/L	N	U			
Strontium-90	199-B2-16	8/31/2010	-2.4	pCi/L	N	U			

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Strontium-90	199-B2-16	8/31/2010	-5.3	pCi/L	N	U			
Strontium-90	199-B2-16	9/1/2010	2.8	pCi/L	N				
Strontium-90	199-B2-16	9/2/2010	-4.3	pCi/L	N	U			
Strontium-90	199-B2-16	9/3/2010	-3.7	pCi/L	N	U			
Strontium-90	199-B2-16	9/7/2010	-2.3	pCi/L	N	U			
Strontium-90	199-B2-16	9/8/2010	-2.5	pCi/L	N	U			
Strontium-90	199-B2-16	9/9/2010	-6.8	pCi/L	N	U			
Strontium-90	199-B2-16	9/9/2010	-3.7	pCi/L	N	U			
Strontium-90	199-B2-16	9/13/2010	-3	pCi/L	Y	U			
Strontium-90	199-B2-16	9/15/2010	-1.9	pCi/L	Y	U			
Strontium-90	199-B2-16	9/16/2010	-4.8	pCi/L	Y	U			
Strontium-90	199-B2-16	9/17/2010	-2.1	pCi/L	Y	U			
Strontium-90	199-B2-16	9/20/2010	-6.8	pCi/L	Y	U			
Strontium-90	199-B2-16	9/21/2010	-6.3	pCi/L	Y	U			
Strontium-90	199-B2-16	9/23/2010	-8.7	pCi/L	N	U			
Strontium-90	199-B2-16	11/1/2010	-2.7	pCi/L	N	U			
Strontium-90	199-B2-16	11/3/2010	-6.3	pCi/L	N	U			
Strontium-90	199-B2-16	11/5/2010	-2.7	pCi/L	N	U			
Strontium-90	199-B4-14	7/21/2010	-4.9	pCi/L	N	U		Y	Drilling characterization samples
Strontium-90	199-B4-14	7/21/2010	23	pCi/L	Y		F		Reanalysis of sample showed no detectable Sr-90. New result replaced this one in HEIS.
Strontium-90	199-B8-9	7/1/2010	-6.6	pCi/L	Y	U			

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Strontium-90	199-B8-9	7/2/2010	-2.3	pCi/L	Y	U			
Strontium-90	199-B8-9	7/2/2010	-4.7	pCi/L	Y	U			
Strontium-90	199-B8-9	7/12/2010	-1.6	pCi/L	Y	U			
Strontium-90	199-B8-9	7/13/2010	-1.9	pCi/L	Y	U			
Strontium-90	199-B8-9	7/13/2010	-2.3	pCi/L	Y	U			
Strontium-90	199-B8-9	7/14/2010	-8.4	pCi/L	Y	U			
Strontium-90	199-B8-9	7/16/2010	-2.3	pCi/L	Y	U			
Strontium-90	199-B8-9	7/19/2010	-2.6	pCi/L	Y	U			
Strontium-90	199-B8-9	7/20/2010	-6.1	pCi/L	Y	U			
Strontium-90	199-B8-9	7/22/2010	-7	pCi/L	N	U			
Strontium-90	199-B8-9	7/22/2010	-7.6	pCi/L	N	U			
Strontium-90	199-B8-9	7/26/2010	-0.36	pCi/L	N	U			
Strontium-90	199-B8-9	7/27/2010	-1.5	pCi/L	N	U			
Strontium-90	199-B8-9	7/30/2010	0.68	pCi/L	Y	U			
Strontium-90	199-B8-9	8/2/2010	3.2	pCi/L	Y	U		Y	Max of drilling characterization samples
Strontium-90	199-B8-9	8/3/2010	-4.9	pCi/L	N	U			
Strontium-90	199-B8-9	8/5/2010	-5.1	pCi/L	N	U			
Strontium-90	199-B8-9	8/10/2010	-4.8	pCi/L	N	U			
Strontium-90	199-B8-9	8/12/2010	-1.8	pCi/L	N	U			
Strontium-90	199-B8-9	8/13/2010	-8.9	pCi/L	N	U			
Strontium-90	199-B8-9	8/17/2010	-7.1	pCi/L	N	U			
Strontium-90	199-B8-9	8/18/2010	-6.7	pCi/L	N	U			

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Strontium-90	199-B8-9	8/20/2010	-5.1	pCi/L	N	U			
Strontium-90	C7842	9/14/2010	13.3	pCi/L	N			Y	Max. grab sample from borehole
Strontium-90	C7842	9/14/2010	12	pCi/L	N				
Strontium-90	C7845	11/9/2010	72.9	pCi/L	N			Y	Max. grab sample from borehole
Strontium-90	C7845	11/9/2010	68.4	pCi/L	N				
Trichloroethene	199-B2-16	8/27/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	8/30/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	8/31/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	9/1/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	9/2/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	9/3/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	9/8/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	9/9/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	9/9/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	9/13/2010	1	µg/L	Y	U			
Trichloroethene	199-B2-16	9/15/2010	1.3	µg/L	Y	J			
Trichloroethene	199-B2-16	9/16/2010	1	µg/L	Y	U			
Trichloroethene	199-B2-16	9/17/2010	1	µg/L	Y	U			
Trichloroethene	199-B2-16	9/20/2010	1	µg/L	Y	U			
Trichloroethene	199-B2-16	9/21/2010	1	µg/L	Y	U			
Trichloroethene	199-B2-16	9/23/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	11/1/2010	1.6	µg/L	N	J			

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Trichloroethene	199-B2-16	11/3/2010	1	µg/L	N	U			
Trichloroethene	199-B2-16	11/5/2010	2.1	µg/L	N	J		Y	Max of drilling characterization samples
Trichloroethene	199-B4-14	7/21/2010	1	µg/L	N	U		Y	Max of drilling characterization samples
Trichloroethene	199-B4-14	7/21/2010	1	µg/L	Y	U			
Trichloroethene	199-B8-9	7/1/2010	1	µg/L	Y	U			
Trichloroethene	199-B8-9	7/2/2010	1	µg/L	Y	U			
Trichloroethene	199-B8-9	7/12/2010	1	µg/L	Y	U			
Trichloroethene	199-B8-9	7/13/2010	1	µg/L	Y	U			
Trichloroethene	199-B8-9	7/14/2010	1	µg/L	Y	U			
Trichloroethene	199-B8-9	7/16/2010	1.3	µg/L	Y	J		Y	Max of drilling characterization samples
Trichloroethene	199-B8-9	7/19/2010	1.2	µg/L	Y	J			
Trichloroethene	199-B8-9	7/20/2010	1	µg/L	Y	U			
Trichloroethene	199-B8-9	7/22/2010	1	µg/L	N	U			
Trichloroethene	199-B8-9	7/22/2010	1	µg/L	N	J			
Trichloroethene	199-B8-9	7/26/2010	1	µg/L	N	U			
Trichloroethene	199-B8-9	7/27/2010	1	µg/L	N	U			
Trichloroethene	199-B8-9	7/30/2010	1	µg/L	Y	U			
Trichloroethene	199-B8-9	8/2/2010	1	µg/L	Y	U			
Trichloroethene	199-B8-9	8/3/2010	1	µg/L	N	U			
Trichloroethene	199-B8-9	8/5/2010	1	µg/L	N	U			

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Trichloroethene	199-B8-9	8/10/2010	1.1	µg/L	N	J			
Trichloroethene	199-B8-9	8/12/2010	1	µg/L	N	U			
Trichloroethene	199-B8-9	8/13/2010	1	µg/L	N	U			
Trichloroethene	199-B8-9	8/17/2010	1	µg/L	N	U			
Trichloroethene	199-B8-9	8/18/2010	1	µg/L	N	U			
Trichloroethene	199-B8-9	8/20/2010	1	µg/L	N	U			
Tritium	199-B2-16	8/27/2010	4,100	pCi/L	N				
Tritium	199-B2-16	8/30/2010	4,600	pCi/L	N				
Tritium	199-B2-16	8/31/2010	4,800	pCi/L	N				
Tritium	199-B2-16	8/31/2010	4,500	pCi/L	N				
Tritium	199-B2-16	9/1/2010	4,400	pCi/L	N				
Tritium	199-B2-16	9/2/2010	3,900	pCi/L	N				
Tritium	199-B2-16	9/3/2010	5,000	pCi/L	N				
Tritium	199-B2-16	9/7/2010	5,200	pCi/L	N				
Tritium	199-B2-16	9/8/2010	5,400	pCi/L	N			Y	Max of drilling characterization samples
Tritium	199-B2-16	9/9/2010	5,000	pCi/L	N				
Tritium	199-B2-16	9/9/2010	4,700	pCi/L	N				
Tritium	199-B2-16	9/13/2010	5,000	pCi/L	Y				
Tritium	199-B2-16	9/15/2010	5,300	pCi/L	Y				
Tritium	199-B2-16	9/16/2010	4,900	pCi/L	Y				
Tritium	199-B2-16	9/17/2010	4,300	pCi/L	Y				
Tritium	199-B2-16	9/20/2010	4,400	pCi/L	Y				

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Tritium	199-B2-16	9/21/2010	4,000	pCi/L	Y				
Tritium	199-B2-16	9/23/2010	2,800	pCi/L	N				
Tritium	199-B2-16	11/1/2010	1,400	pCi/L	N				
Tritium	199-B2-16	11/3/2010	2,500	pCi/L	N				
Tritium	199-B2-16	11/5/2010	590	pCi/L	N				
Tritium	199-B4-14	7/21/2010	19,000	pCi/L	N			Y	Max of drilling characterization sample
Tritium	199-B4-14	7/21/2010	19,000	pCi/L	Y				
Tritium	199-B8-7	1/13/2010	28,000	pCi/L	N			Y	Last sample before decommissioning
Tritium	199-B8-8	1/13/2010	28,000	pCi/L	N			Y	Last sample before decommissioning
Tritium	199-B8-9	7/1/2010	9,800	pCi/L	Y				
Tritium	199-B8-9	7/2/2010	9,200	pCi/L	Y				
Tritium	199-B8-9	7/2/2010	9,600	pCi/L	Y				
Tritium	199-B8-9	7/12/2010	6,600	pCi/L	Y				
Tritium	199-B8-9	7/13/2010	10,000	pCi/L	Y				
Tritium	199-B8-9	7/13/2010	10,000	pCi/L	Y				
Tritium	199-B8-9	7/14/2010	13,000	pCi/L	Y				
Tritium	199-B8-9	7/16/2010	14,000	pCi/L	Y				
Tritium	199-B8-9	7/19/2010	16,000	pCi/L	Y				
Tritium	199-B8-9	7/20/2010	16,000	pCi/L	Y				
Tritium	199-B8-9	7/22/2010	17,000	pCi/L	N				

Table 3. Supplemental Groundwater Data for Spring and Fall Plume Maps

Constituent	Well	Date	Result	Units	Filt	LabQ	RvwQ	Use for Plume	Comment
Tritium	199-B8-9	7/22/2010	16,000	pCi/L	N				
Tritium	199-B8-9	7/26/2010	15,000	pCi/L	N				
Tritium	199-B8-9	7/27/2010	15,000	pCi/L	N				
Tritium	199-B8-9	7/30/2010	17,000	pCi/L	Y			Y	Max of drilling characterization samples
Tritium	199-B8-9	8/2/2010	17,000	pCi/L	Y				
Tritium	199-B8-9	8/3/2010	16,000	pCi/L	N				
Tritium	199-B8-9	8/5/2010	16,000	pCi/L	N				
Tritium	199-B8-9	8/10/2010	15,000	pCi/L	N				
Tritium	199-B8-9	8/12/2010	15,000	pCi/L	N				
Tritium	199-B8-9	8/13/2010	3,600	pCi/L	N				
Tritium	199-B8-9	8/17/2010	1,900	pCi/L	N				
Tritium	199-B8-9	8/18/2010	13,000	pCi/L	N		F		
Tritium	199-B8-9	8/20/2010	1,300	pCi/L	N				
Tritium	C7842	9/14/2010	27,400	pCi/L	N				
Tritium	C7842	9/14/2010	28,800	pCi/L	N			Y	Max. grab sample from borehole
Tritium	C7845	11/9/2010	19,600	pCi/L	N				
Tritium	C7845	11/9/2010	19,900	pCi/L	N			Y	Max. grab sample from borehole

Filt.: N = unfiltered; Y = filtered

LabQ (laboratory data qualifiers): B (inorganic) or J (organic) = estimated (below contractually required detection limit but above method detection limit); U = undetected

RvwQ (review qualifier): F = data under review (suspected error)

Use for plume: Y = yes (blank = no)

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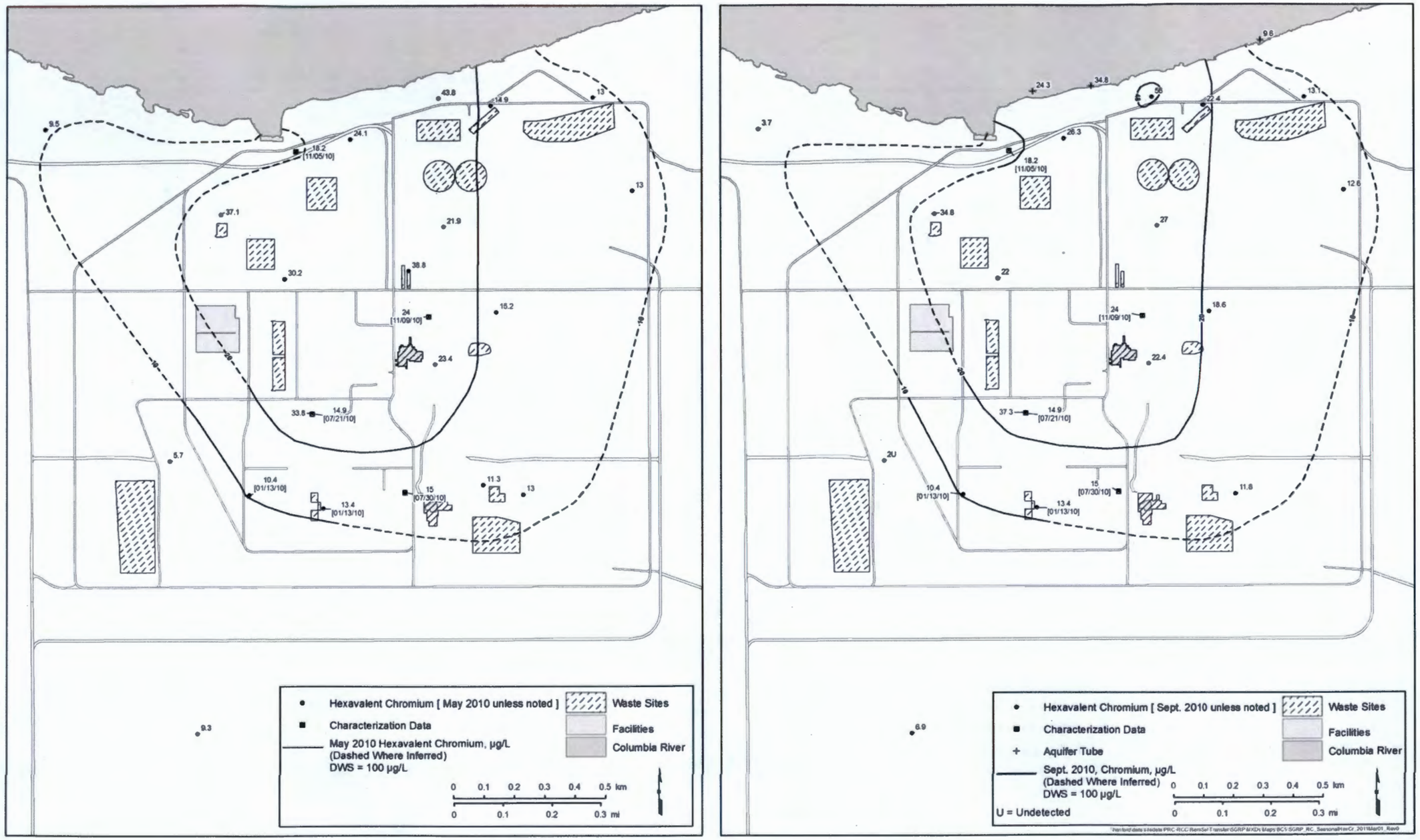

Figure 1. Hexavalent Chromium in the Unconfined Aquifer, 100-BC

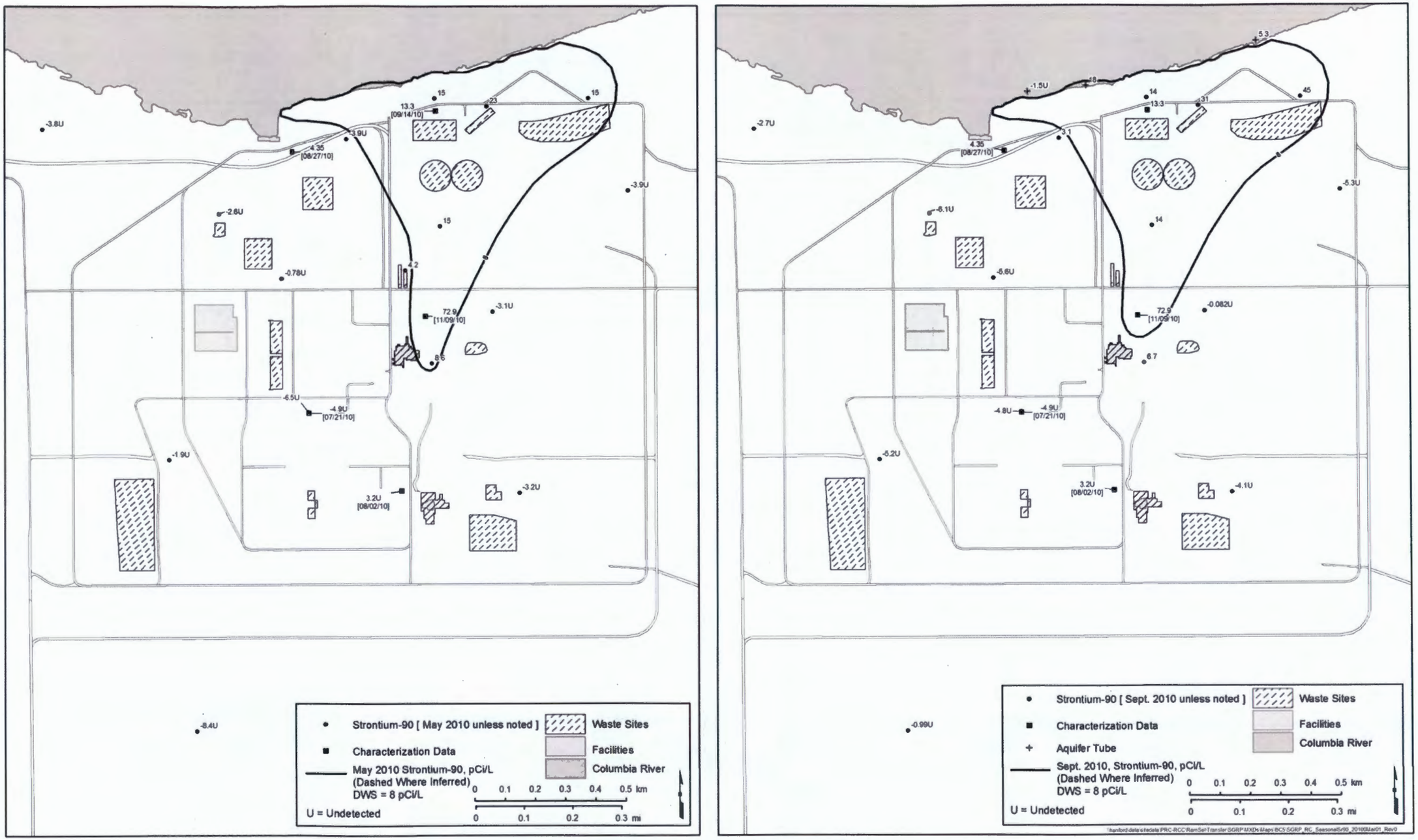

Figure 2. Strontium-90 in the Unconfined Aquifer, 100-BC

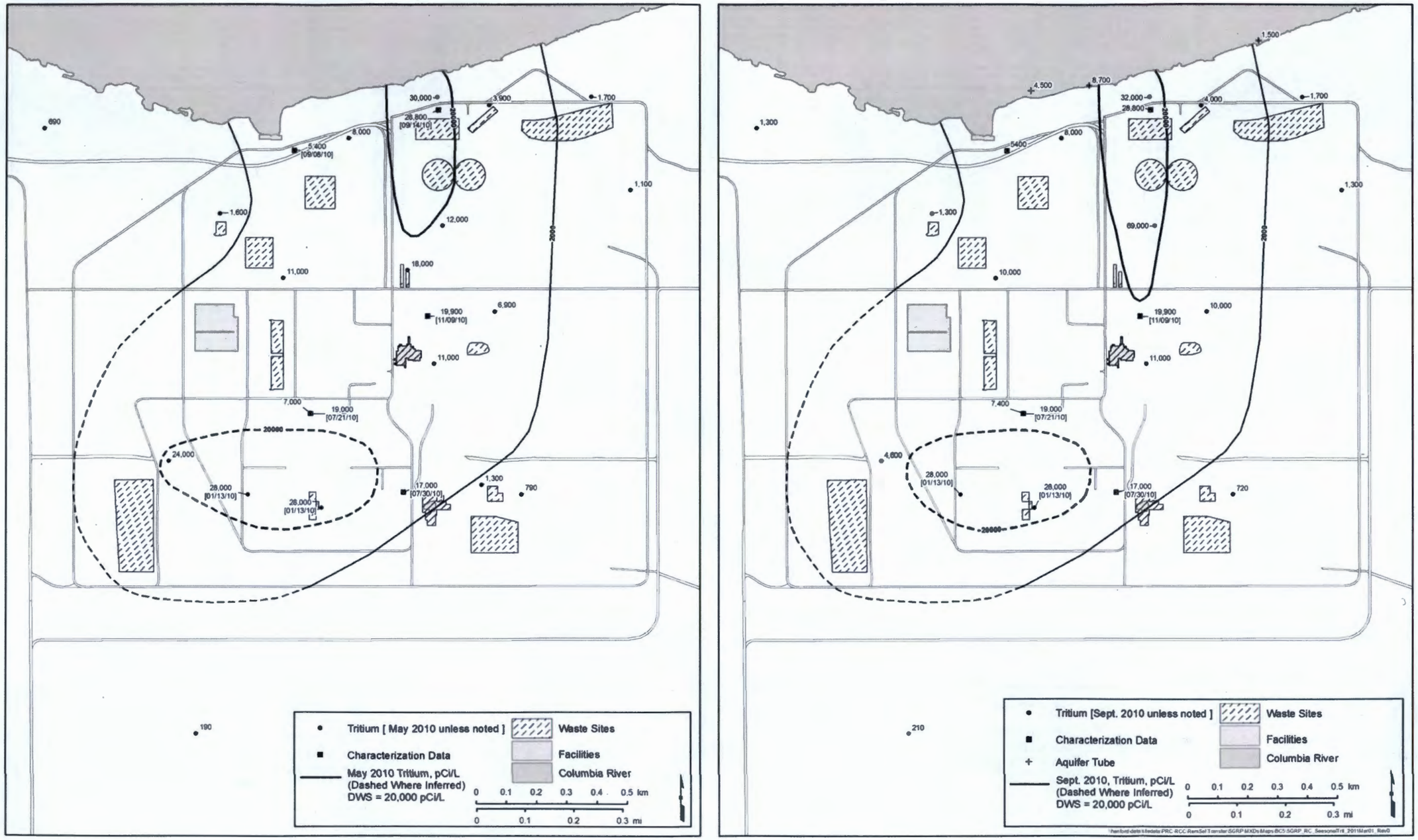

Figure 3. Tritium in the Unconfined Aquifer, 100-BC

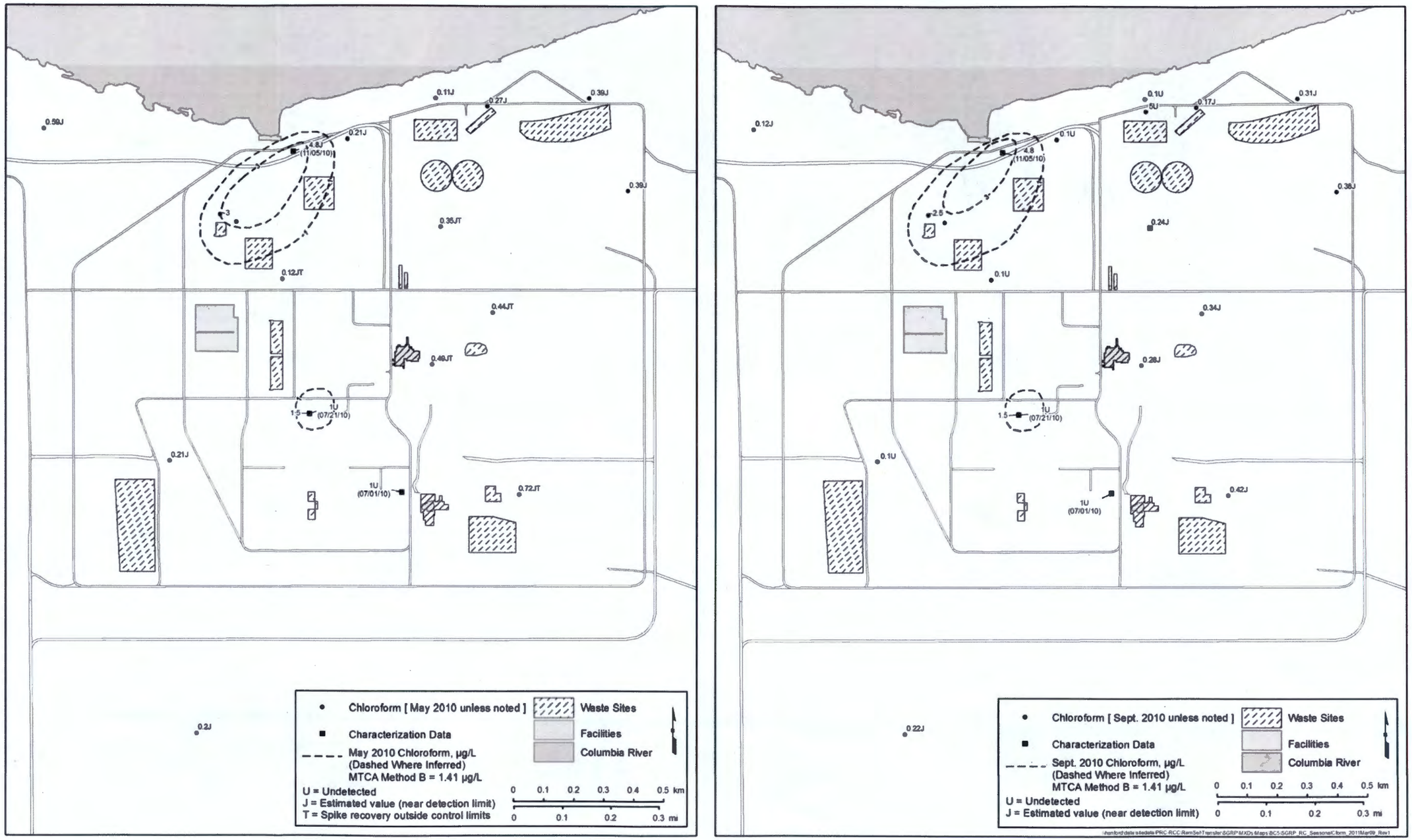

Figure 4. Chloroform in the Unconfined Aquifer, 100-BC

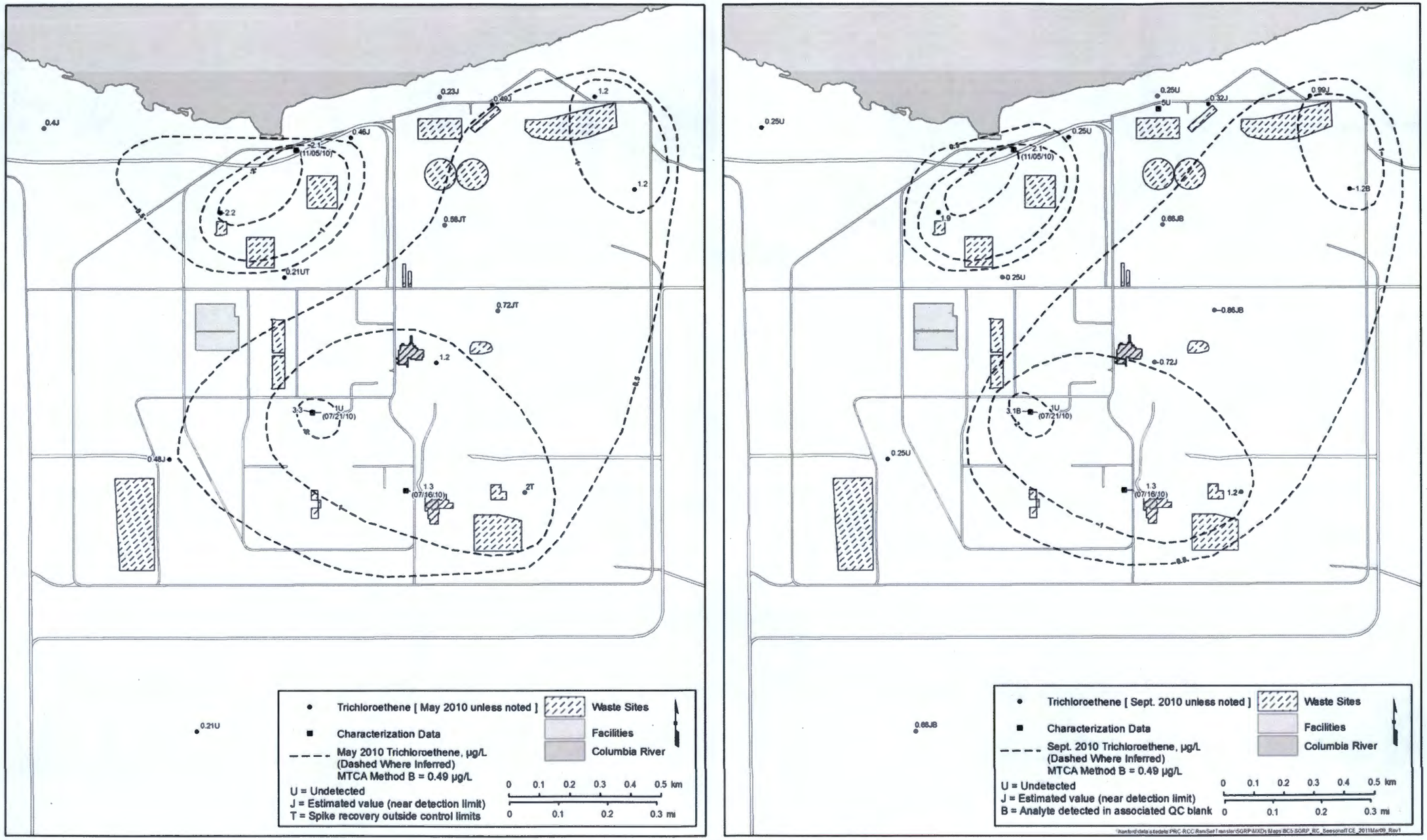

Figure 5. Trichloroethene in the Unconfined Aquifer, 100-BC

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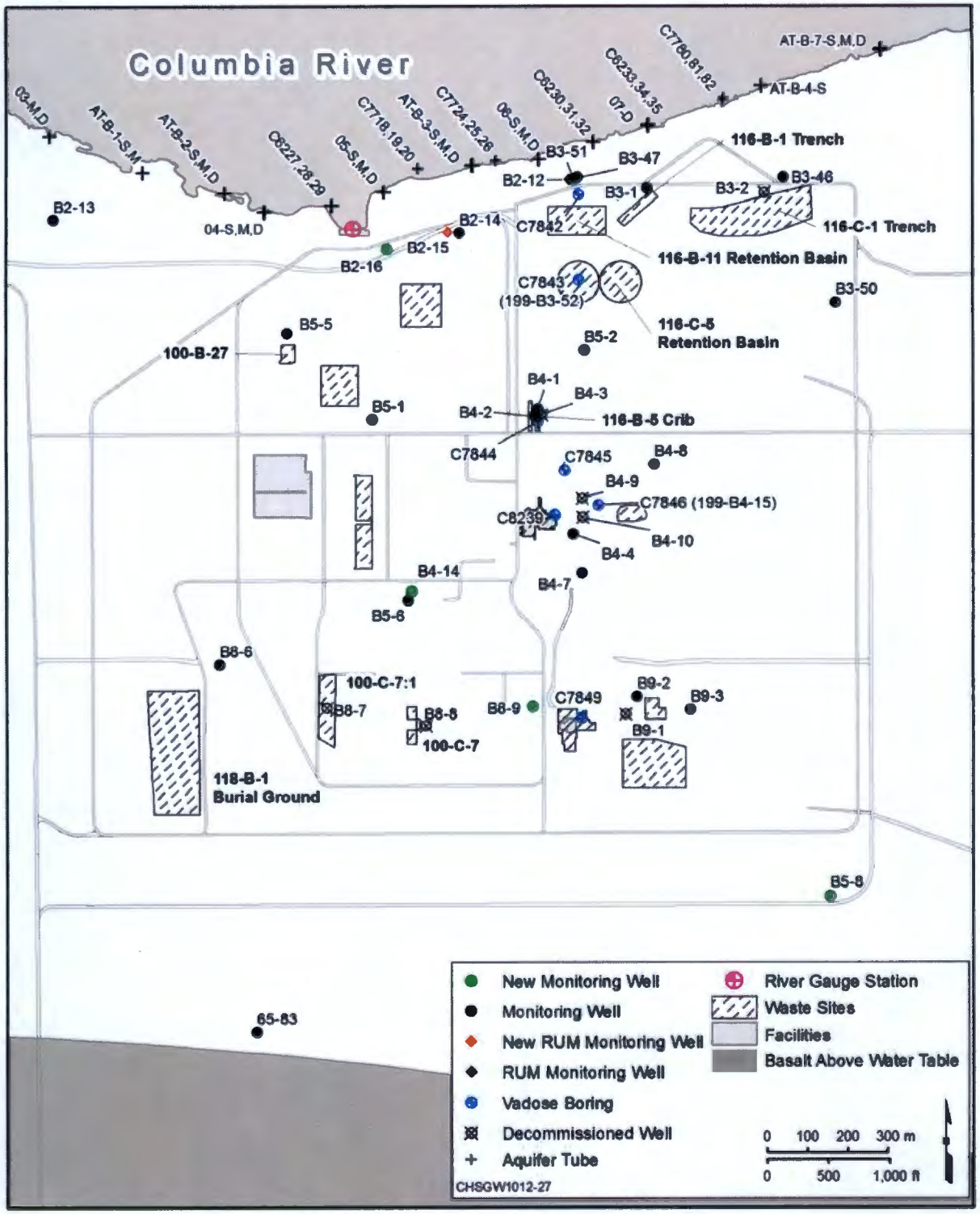

Figure 6. Well Locations and Names in 100-BC

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Distribution

	MS	Quantity
U.S. Department of Energy, Richland Operations Office		
DOE Public Reading Room	H2-53	1
CH2M HILL Plateau Remediation Company – Electronic Distribution		
N. A. Bowles	R3-60	
D. B. Erb	R3-60	
M. J. Hartman	R3-50	
K. A. Ivarson	H8-15	
S. P. Luttrell	R3-50	
C. J. Martin	R3-50	
J. S. Ni	H8-15	
J. L. Smoot	R3-50	
L. C. Swanson	R3-50	
Administrative Record	H6-08	1
Document Clearance	H6-08	1