SGW-63802
Revision 0

Hanford Site RCRA Groundwater Quarterly Report for January through March 2019

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

P.O. Box 1600
Richland, Washington 99352

Approved for Public Release;
Further Dissemination Unlimited

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Executive Summary

This report provides quarterly determinations of the concentration, rate of migration, and extent of dangerous waste constituents in groundwater at single-shell tank Waste Management Areas B-BX-BY, C, S-SX, T, TX-TY, and U for January through March 2019.

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Terms

NAVD88	*North American Vertical Datum of 1988*
RCRA	*Resource Conservation and Recovery Act of 1976*
QC	quality control
WMA	Waste Management Area

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1 Introduction

This report provides quarterly determinations of the concentration, rate of migration, and extent of dangerous waste constituents in groundwater at six single-shell tank Waste Management Areas (WMAs). The report is based on the requirements for interim status facilities, as defined by the *Resource Conservation and Recovery Act of 1976* (RCRA), with regulations promulgated by the Washington State Department of Ecology in the *Washington Administrative Code* and the *Code of Federal Regulations* by reference (WAC 173-303-400, "Dangerous Waste Regulations," "Interim Status Facility Standards"; 40 CFR 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," Subpart F, "Ground Water Monitoring"). Under 40 CFR 265.93(d)(7)(i), units monitored under groundwater quality assessment programs that have determined dangerous waste has entered the groundwater must determine the rate and extent of migration and the concentrations of the identified waste on a quarterly basis. This report presents results for January to March 2019.

The WMAs in this report (Figures 1 and 2) include the inactive single-shell tank farms at the Hanford Site that are part of an interim status dangerous waste management unit within Rev. 8c of WA7890008967, *Hanford Facility Resource Conservation and Recovery Act (RCRA) Permit, Dangerous Waste Portion for the Treatment, Storage, and Disposal of Dangerous Waste.* Groundwater monitoring plans for each WMA (Table 1) provide specific information on the monitoring networks and sampling programs. The WMAs and their associated dangerous waste constituents in groundwater are identified as follows:

- 200 East Area
  - WMA B-BX-BY – cyanide
  - WMA C – cyanide
- 200 West Area
  - WMA S-SX – chromium[1]
  - WMA T – hexavalent chromium[1]
  - WMA TX-TY – hexavalent chromium[1]
  - WMA U – chromium[1]

Other Hanford Site RCRA units currently monitored under assessment programs (216-A-29 Ditch, Nonradioactive Dangerous Waste Landfill , and WMA A-AX) are not included in this report because they were still in the "first determination" phase during the reporting quarter. Those units have not determined that they have impacted the groundwater with dangerous waste.

For each WMA, this report provides summary information of the well network, quarterly sample results of the associated dangerous waste constituent, a discussion of the extent of contamination, and an estimate of the rate and direction of contaminant migration. The rate of contaminant migration is assumed to equal the rate of groundwater flow because cyanide and hexavalent chromium are highly mobile in groundwater.

[1] Although total chromium and hexavalent chromium are analyzed by different methods, dissolved chromium in Hanford Site groundwater is almost entirely hexavalent, so filtered total chromium data effectively represent hexavalent chromium concentrations. Both types of data were used to create the plume maps included in this report. Unfiltered samples may include particulate chromium, which is typically not hexavalent. This report lists the specific type of analytical data required by the groundwater monitoring plans.

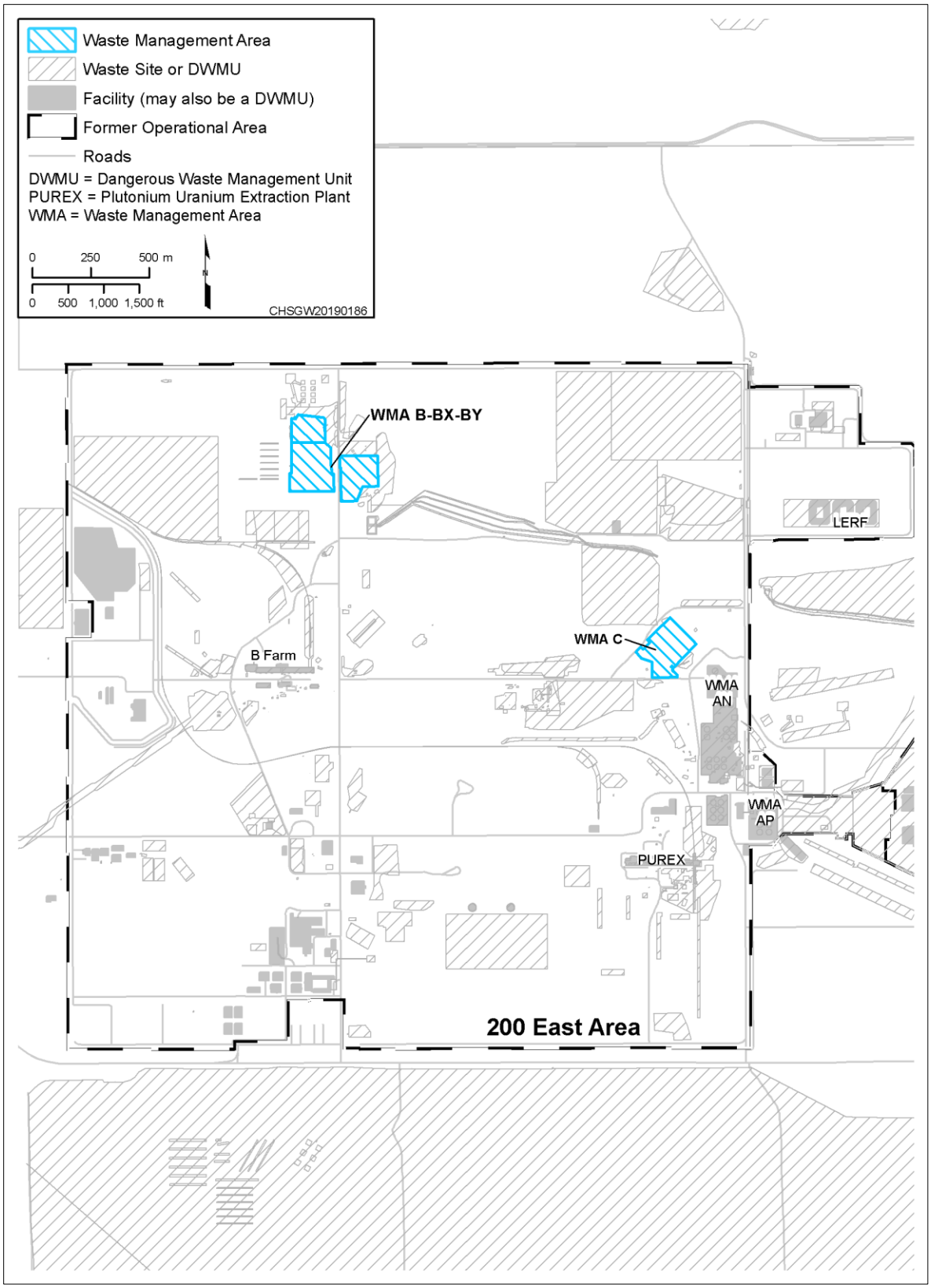


Figure 1. 200 East Area WMAs

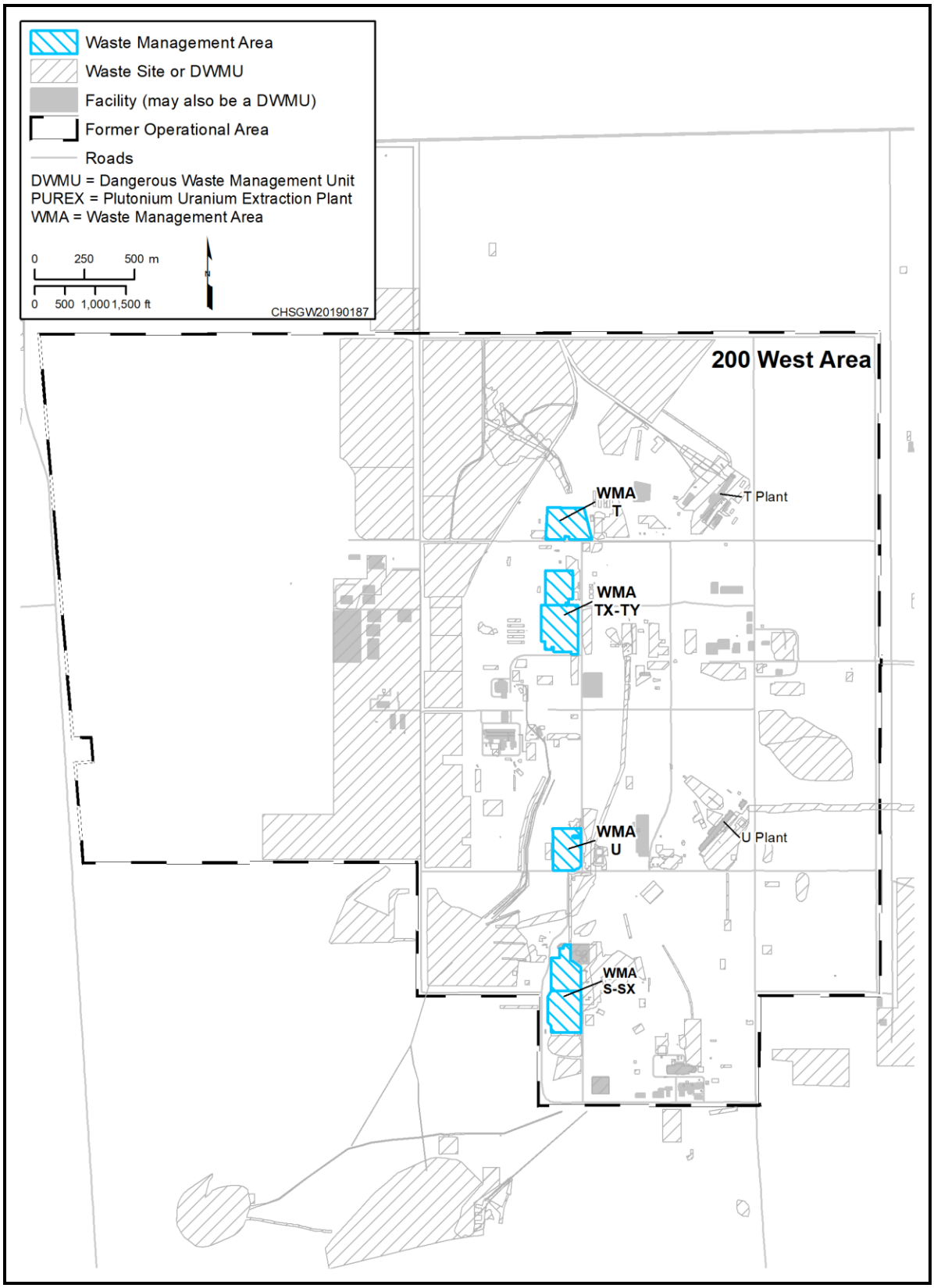


Figure 2. 200 West Area WMAs

Table 1. Groundwater Monitoring Plans and Engineering Evaluation Reports Associated with Single-Shell Tank WMAs

WMA	Groundwater Quality Assessment Monitoring Plan*	Engineering Evaluation Report for Groundwater Monitoring
200 West Area		
WMA S-SX	DOE/RL-2009-73, Rev. 0	SGW-60577
WMA T	DOE/RL-2009-66, Rev. 1	SGW-60576
WMA TX-TY	DOE/RL-2009-67, Rev. 1	SGW-60575
WMA U	DOE/RL-2009-74, Rev. 1	SGW-60578
200 East Area		
WMA B-BX-BY	DOE/RL-2012-53, Rev. 0	SGW-60587
WMA C	DOE/RL-2009-77, Rev. 0	SGW-60588

Note: Complete reference citations are provided in Chapter 8.

*Version in effect during the reporting quarter (January through March 2019).

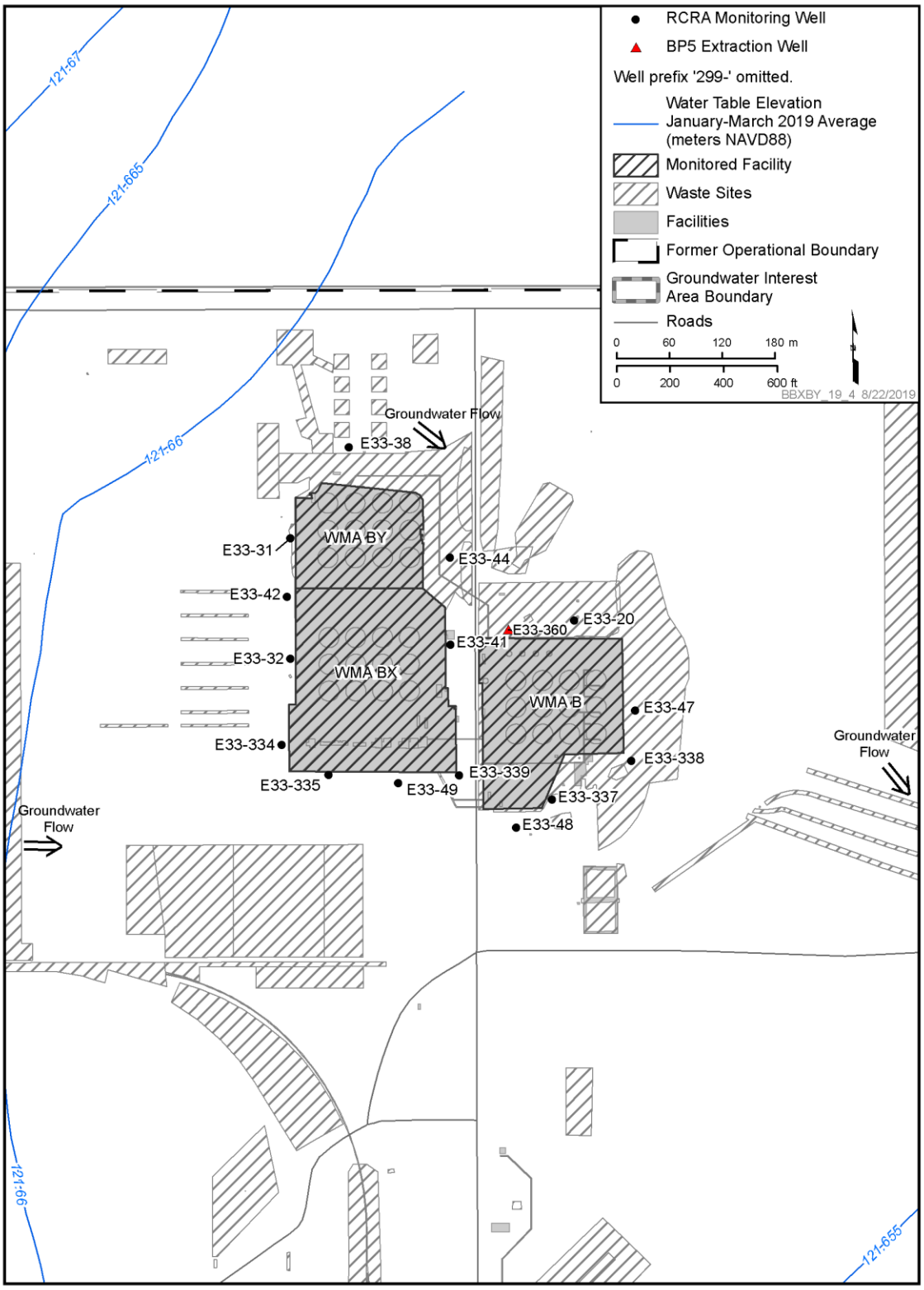
A suite of groundwater monitoring engineering evaluation reports was prepared to support the Part B (final status) permit application for the future Rev. 9 of WA7890008967, *Hanford Facility Dangerous Waste Permit.* The engineering evaluation reports (Table 1) contain comprehensive background information, as well as the geology, hydrogeology, and conceptual contaminant migration models.

2 Waste Management Area B-BX-BY

WMA B-BX-BY, which includes the single-shell tanks and ancillary equipment of the 241-B, 241-BX, and 241-BY Tank Farms, is located in the north-central portion of the 200 East Area (Figure 1). Figure 3 presents the monitoring network with a water table map.

Previous releases from WMA B-BX-BY, along with the other waste sites, have contributed to groundwater contamination with the dangerous waste constituent cyanide, which is monitored under DOE/RL-2012-53, *Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area B-BX-BY*. Table 2 lists January through March 2019 sampling results for cyanide at WMA B-BX-BY, and Figure 4 illustrates the most recent interpretation of the cyanide plume (2018).

Evaluation of January through March 2019 water levels indicates that groundwater beneath WMA B-BX-BY flowed to the southeast at 0.43 m/d (1.4 ft/d) (ECF-HANFORD-19-0091, *Hydraulic Gradient and Average Linear Velocity Calculations -- Quarter 1 Calendar Year 2019*). The impact of extraction well 299-E33-360, which operates adjacent to WMA B-BX-BY (Figure 3), is not easily discerned from water-level data alone because the hydraulic gradient is so low (6.0×10^{-6}). A previous study (DOE/RL-2015-75, *Aquifer Treatability Test Report for the 200-BP-5 Groundwater Operable Unit*) indicated a radius of influence of 210 m (690 ft), and the 2018 chemical data indicated the extraction well was capturing cyanide from existing sources at WMA B-BX-BY (Section 3.2 of DOE/RL-2018-65, *Hanford Site RCRA Groundwater Monitoring Report for 2018*). Cyanide concentrations in WMA B-BX-BY monitoring wells have declined, and data from February 2019 (Table 2) were consistent with 2018 interpretations.



Reference: ECF-200E-19-0081, *Groundwater Elevation Mapping for 200 East Area - Quarter 1 Calendar Year 2019*.

Figure 3. WMA B-BX-BY Monitoring Well Network and January-March 2019 Water Table

Table 2. WMA B-BX-BY Sample Results for January Through March 2019

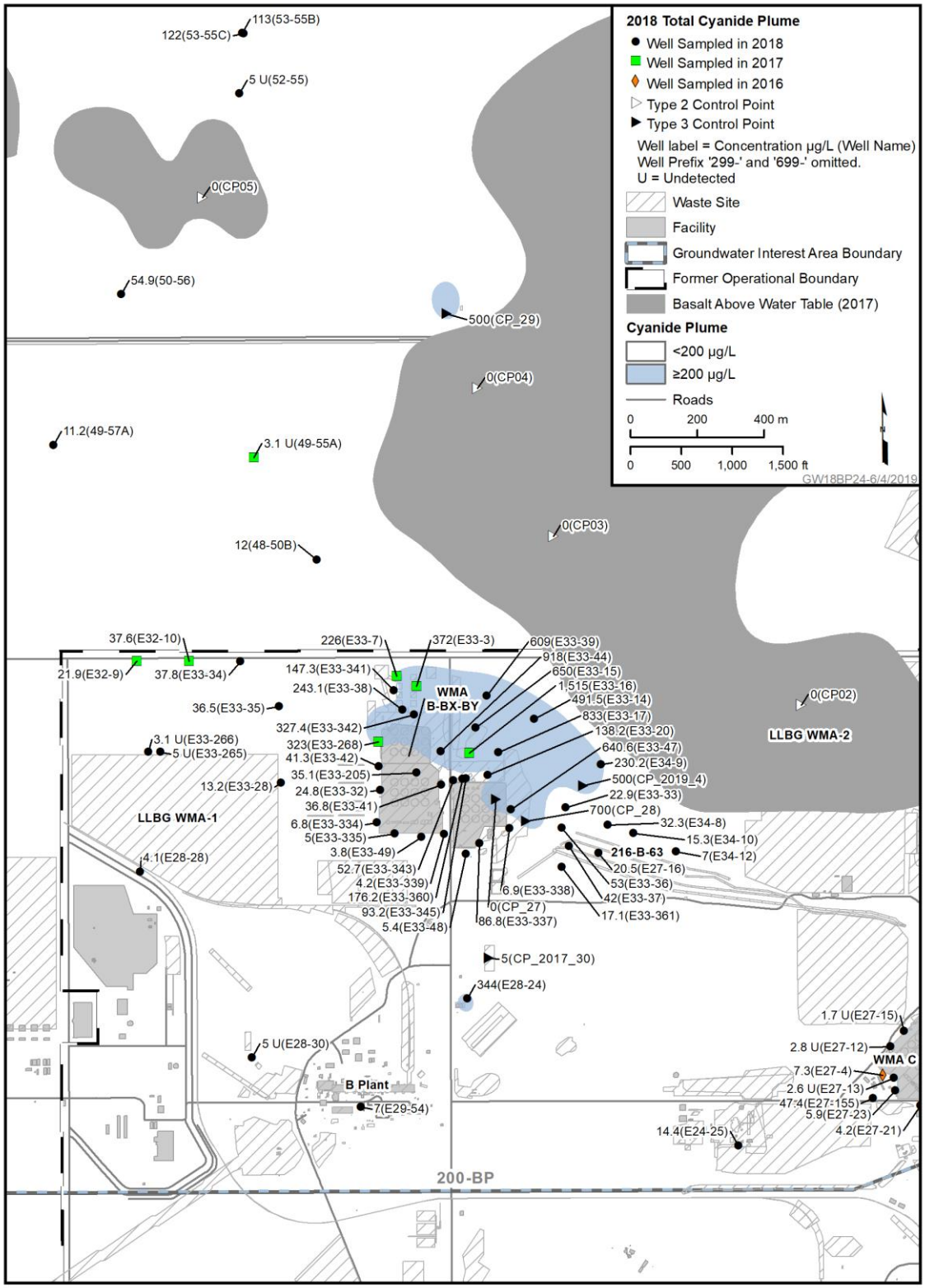
Well Name	Sample Date	Cyanide (Total) (µg/L)	Comment
299-E33-18[a,b]	None	None	Decommissioned in 2013
299-E33-20[a,b]	2/7/2019	238 D 238 D	Duplicate samples
299-E33-31[a]	2/7/2019	88.5	--
299-E33-32[a]	2/7/2019	18.1	--
299-E33-38	2/7/2019	230 D	--
299-E33-41	2/7/2019	28.7	--
299-E33-42[a]	2/7/2019	48.2	--
299-E33-44	2/7/2019	1,000 D	--
299-E33-47	2/4/2019	697 D	--
299-E33-48	2/4/2019	5.26	--
299-E33-49	2/4/2019	5.77	--
299-E33-334[a]	2/7/2019	10.7	--
299-E33-335	2/7/2019	5.81	--
299-E33-337	2/4/2019	68.1	--
299-E33-338	2/4/2019	8.04	--
299-E33-339	2/7/2019	5.4	--

Note: Practical quantitation limit for cyanide by Methods 335.4, 9012, 9014, and 4500: 10.5 µg/L (ECF-HANFORD-18-0058, *Practical Quantitation Limits for Groundwater Environmental Samples*).

a. Upgradient well.

b. Well is not compliant with the construction standards in WAC 173-160, "Minimum Standard for Construction and Maintenance of Wells," and a replacement in kind well will be proposed.

D = reported at a secondary dilution factor

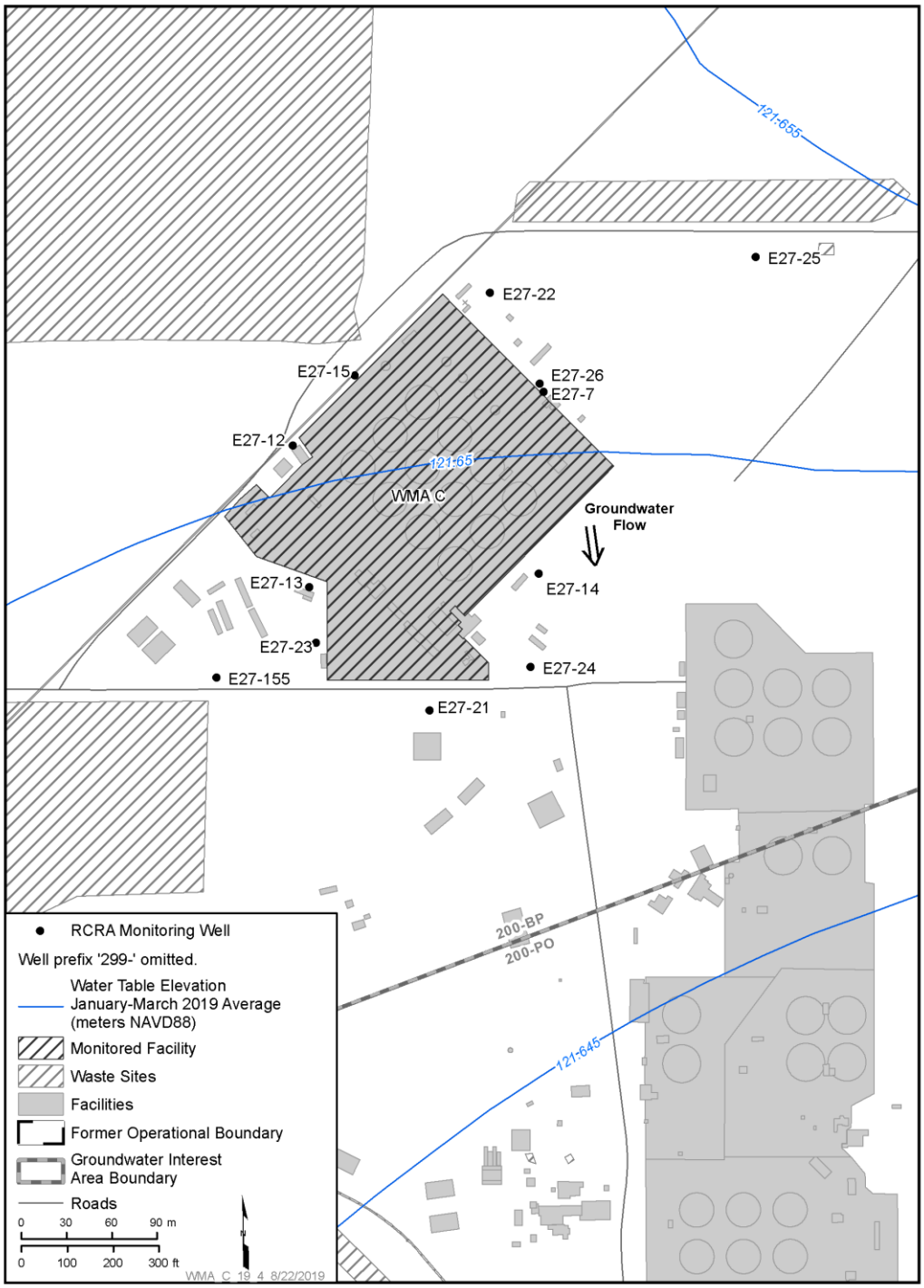


Source: DOE/RL-2018-66, *Hanford Site Groundwater Monitoring for 2018*.

Figure 4. Total Cyanide Plume Near WMA B-BX-BY, 2018

3 Waste Management Area C

WMA C, which includes the single-shell tanks and ancillary equipment of the 241-C Tank Farm, is located in the east-central portion of the 200 East Area (Figure 1). Figure 5 presents the monitoring network with a water table map.



Reference: ECF-200E-19-0081, *Groundwater Elevation Mapping for 200 East Area - Quarter 1 Calendar Year 2019*.

Figure 5. WMA C Monitoring Well Network and January-March 2019 Water Table

Previous releases from WMA C have contributed to groundwater contamination with the dangerous waste cyanide (DOE/RL-2009-77, *Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area C*). Table 3 lists January through March 2019 sampling results for cyanide at WMA C. A contaminant plume map is not provided because total cyanide concentrations are below levels used for contouring plumes in Chapter 9 of DOE/RL-2018-66, *Hanford Site Groundwater Monitoring Report for 2018*, except in deep, cross-gradient well 299-E27-155. It is likely the deep contamination originated at an upgradient source (Section 9.10 of DOE/RL-2018-66).

During January through March 2019, the average direction of groundwater flow beneath WMA C was south and the average velocity was 1.5 m/d (5.0 ft/d) (ECF-HANFORD-19-0091).

Table 3. WMA C Sample Results for January Through March 2019

Well Name	Sample Date	Cyanide (Total) (µg/L)	Comment
299-E27-4	None	None	Decommissioned
299-E27-7[a]	3/22/2019	5.04	--
299-E27-12[b]	3/24/2019	1.67 U 1.67 U	Duplicate samples
299-E27-13	3/24/2019	1.67 U	--
299-E27-14	3/22/2019	5.92	--
299-E27-15[b]	3/20/2019	1.67 U	--
299-E27-21	3/20/2019	1.67 U	--
299-E27-22[b]	3/22/2019	1.73 B	--
299-E27-23	3/22/2019	8.56	--
299-E27-24[c]	3/20/2019	22	Deep well
299-E27-25[c,d]	3/22/2019	1.67 U	--
299-E27-26	3/22/2019	4.88 B	Not formally part of the monitoring network but sampled during the reporting quarter
299-E27-155[d]	3/20/2019	66.7	Deep well

Notes: Practical quantitation limit for cyanide by Methods 335.4, 9012, 9014, and 4500: 10.5 µg/L (ECF-HANFORD-18-0058, *Practical Quantitation Limits for Groundwater Environmental Samples*).

Designation of upgradient, downgradient, and cross-gradient based on current groundwater flow directions.

a. Well 299-E27-7 is not compliant with the construction standards in WAC 173-160, "Minimum Standard for Construction and Maintenance of Wells," and a replacement well has been proposed.

b. Upgradient well.

c. Wells 299-E27-24 and 299-E27-25 were listed as "proposed well south of 299-E27-14" and "proposed upgradient well," respectively, in Table 3 of DOE/RL-2009-77, *Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area C*.

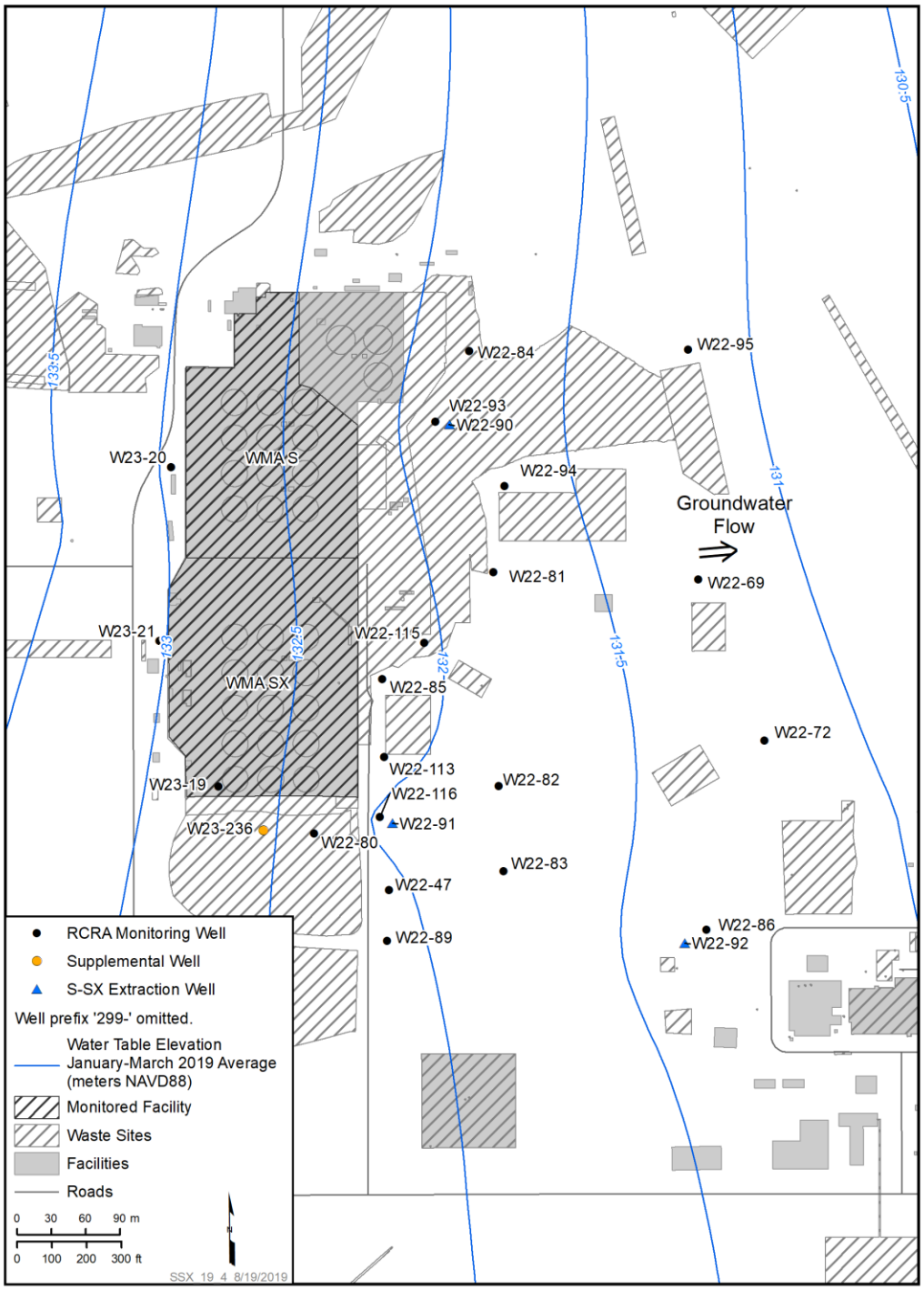
d. Cross-gradient well.

B = Detected at a value less than the required detection limit (e.g., practical quantitation limit) but greater than or equal to the method detection limit

U = undetected

4 Waste Management Area S-SX

WMA S-SX, which includes the single-shell tanks and ancillary equipment of the 241-S and 241-SX Tank Farms, is located in the southern portion of the 200 West Area (Figure 2). Figure 6 presents the monitoring network with a water table map for the reporting quarter.



Reference: ECF-200W-19-0082, *Groundwater Elevation Mapping for 200 West Area - Quarter 1 Calendar Year 2019*.

Figure 6. WMA S-SX Monitoring Well Network and January-March 2019 Water Table

Previous releases from WMA S-SX have contributed to groundwater contamination with chromium (DOE/RL-2009-73, *Interim Status Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area S-SX*). Table 4 lists January through March 2019 sampling results for chromium at WMA S-SX. Two narrow chromium plumes with concentrations above 48 µg/L were defined based on 2018 data (Figure 7).

Groundwater flow is influenced by extraction wells, including 299-W22-90 and 299-W22-91, located just east of WMA S-SX. Evaluation of January through March 2019 water levels indicated the average flow direction was to the east and the average velocity was 0.15 m/d (0.49 ft/d) (ECF-HANFORD-19-0091). Extraction wells 299-W22-90 and 299-W22-91 capture contaminated groundwater from these plumes (Figure 7), so the plumes did not expand during the reporting quarter.

Table 4. WMA S-SX Sample Results for January Through March 2019

Well Name	Sample Date	Chromium (µg/L)		Comment
		Unfiltered	Filtered	
299-W22-47	3/24/2019	13	3.6 B	--
299-W22-69	3/25/2019	2.5 B	2.4 U	--
299-W22-72	3/25/2019	7.36	2.51 B	--
299-W22-80	3/24/2019	14.6 C	6.9 BC	--
299-W22-81	3/25/2019	125	7.8 B	--
299-W22-82	3/27/2019	24	15	--
299-W22-83	3/25/2019	15.8	9.88	--
299-W22-84	3/24/2019	7.1 BC	6.5 BC	--
299-W22-85	3/24/2019	4.2 B	3.0 B	--
299-W22-86	3/25/2019	19	18	--
299-W22-89	3/24/2019	1.29 B	1.43 B	--
299-W22-93	3/25/2019	197 185 201 186	196 185 194 185	Replacement for 299-W22-44[a]; split and duplicate samples
299-W22-94	3/25/2019	74.4	11.8	Replacement for 299-W22-48 [a]
299-W22-95	3/25/2019	32	28	Replacement for 299-W22-26 [a]
299-W22-113	3/24/2019	4.3 B	3.0 U	--
299-W22-115	3/25/2019	3.1 B 2.8 B 2.5 B 2.7 B	3.2 B 2.6 B 2.7 B 2.6 B	Replacement for 299-W22-45[a]; split and duplicate samples

Table 4. WMA S-SX Sample Results for January Through March 2019

Well Name	Sample Date	Chromium (µg/L)		Comment
		Unfiltered	Filtered	
299-W22-116	3/25/2019	120 113	125 113	Replacement for 299-W22-50[a]
299-W23-19	3/24/2019	341	409	--
299-W23-20[b]	3/24/2019	15 C	6.3 BC	--
299-W23-21[b]	3/24/2019	3.0 U	3.0 U	--
299-W23-236	3/24/2019	3.3 B	2.4 U	Not included in DOE/RL-2009-73, Rev. 0, but sampled during the reporting period

Reference: DOE/RL-2009-73, *Interim Status Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area S-SX.*

Note: Practical quantitation limit for chromium by Method 6010 is 10.5 µg/L, and by Method 6020 is 10 µg/L (ECF-HANFORD-18-0058, *Practical Quantitation Limits for Groundwater Environmental Samples*).

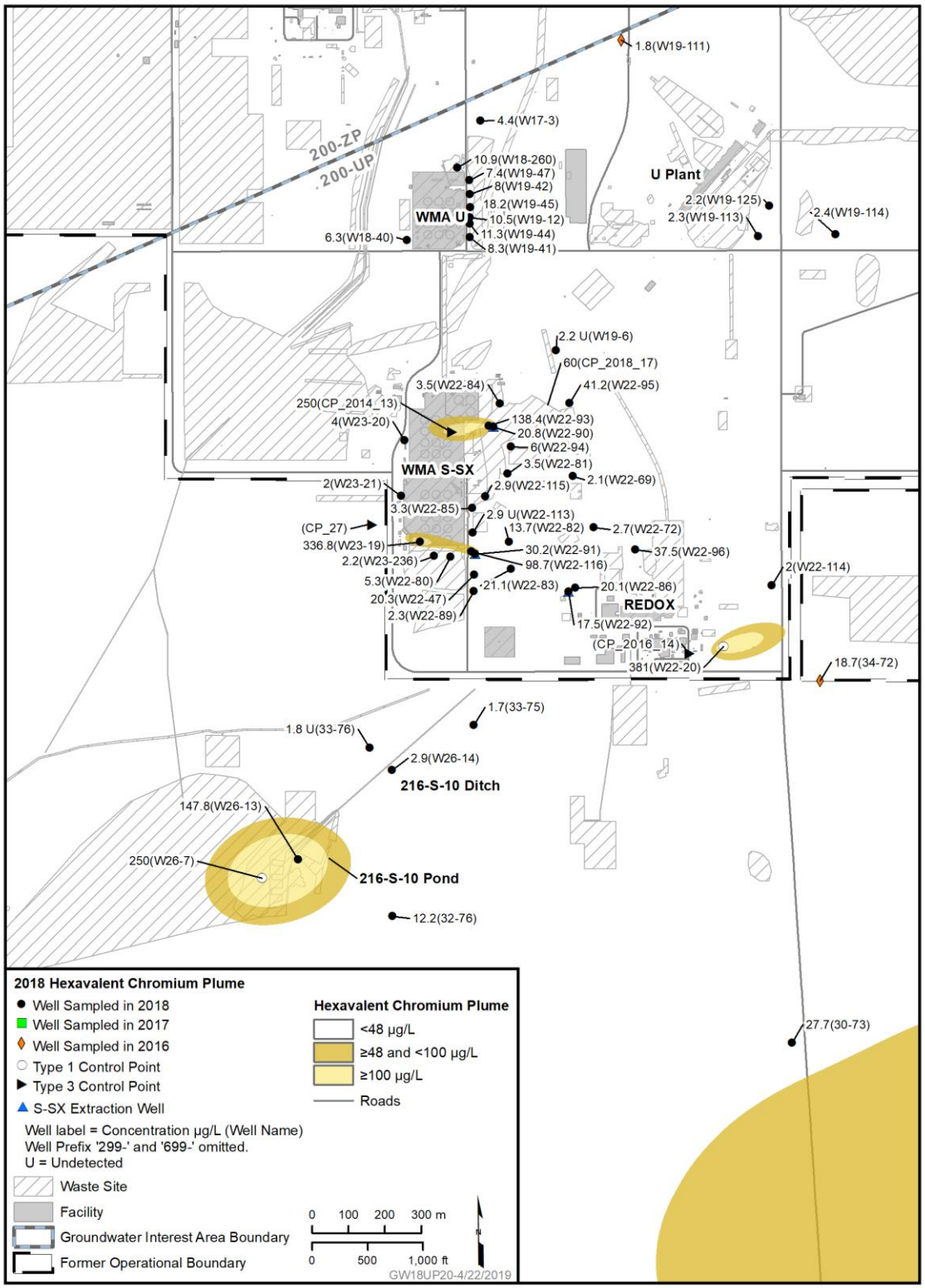
a. These wells formerly monitored for WMA S-SX went dry and were replaced.

b. Upgradient well.

B = Detected at a value less than the required detection limit (e.g., practical quantitation limit) but greater than or equal to the method detection limit

C = Detected in both the sample and the associated quality control blank

U = undetected

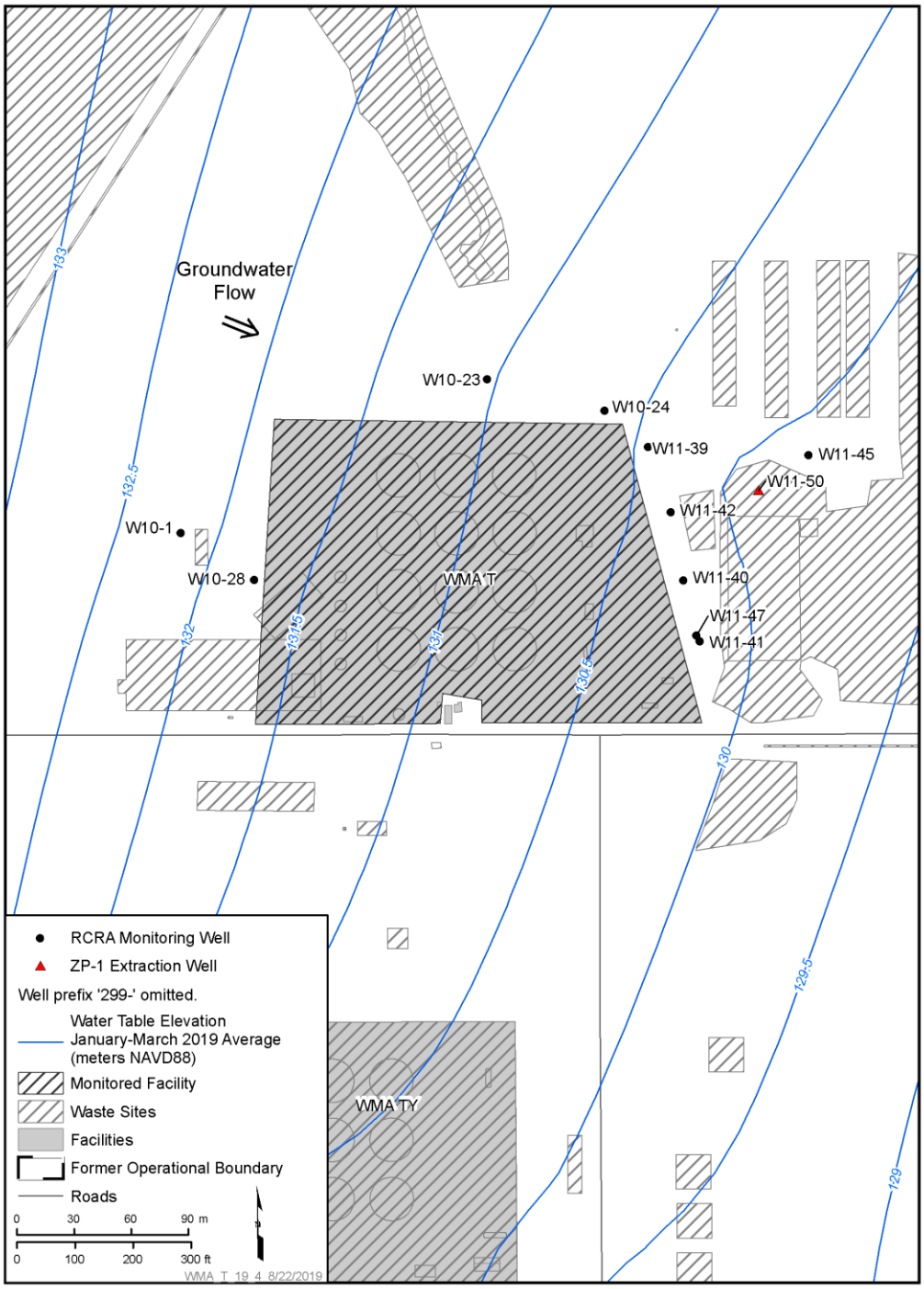


Source: DOE/RL-2018-66, *Hanford Site Groundwater Monitoring for 2018*.

Figure 7. Chromium Plumes Near WMA S-SX, 2018

5 Waste Management Area T

WMA T, which includes the single-shell tanks and ancillary equipment of the 241-T Tank Farm, is located in the northern portion of the 200 West Area (Figure 2). Figure 8 illustrates the monitoring well network and water table contours for the reporting quarter.



Reference: ECF-200W-19-0082, *Groundwater Elevation Mapping for 200 West Area - Quarter 1 Calendar Year 2019*.

Figure 8. WMA T Monitoring Well Network and January-March 2019 Water Table

Previous releases from WMA T have contributed to groundwater contamination with hexavalent chromium (DOE/RL-2009-66, *Interim Status Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area T*). Table 5 lists January through March 2019 quarterly sampling results for hexavalent chromium.

Evaluation of January through March 2019 water levels indicates that groundwater beneath WMA T flowed to the east-southeast at 0.23 m/d (0.75 ft/d) (ECF-HANFORD-19-0091).

Table 5. WMA T Sample Results for January Through March 2019

Well Name	Sample Date	Hexavalent Chromium (Unfiltered) (µg/L)	Comment
299-W10-1[a,b]	3/26/2019	6.0 BZ	--
299-W10-4[b,c]	None	None	Dry since 2014
299-W10-8[b]	None	None	Dry since 2015
299-W10-23[c]	3/26/2019	13 Z	--
299-W10-24	3/25/2019	10 ZHQ	--
299-W10-28[a]	3/26/2019	34.2 Z	--
299-W11-39	3/25/2019	32.3 ZHQ	--
299-W11-40	3/25/2019	28.8 ZHQ	--
299-W11-41	3/25/2019	52.3 ZHQ	--
299-W11-42	3/25/2019	24.1 ZHQ	--
299-W11-45[d]	3/26/2019	18.9	--
299-W11-47	3/26/2019	3.7 B	Data under review; off trend low and inconsistent with total chromium

Note: Practical quantitation limit for Method 7196 21 µg/L from ECF-HANFORD-18-0058, *Practical Quantitation Limits for Groundwater Environmental Samples*.

a. Upgradient well.

b. Well is not compliant with the construction standards in WAC 173-160, "Minimum Standard for Construction and Maintenance of Wells."

c. Assessment wells were used to help distinguish other contaminant plumes affecting WMA T and were not necessarily directly upgradient or downgradient (Table 3-2 in DOE/RL-2009-66, *Interim Status Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area T*).

d. Far-field well; located far downgradient to determine lateral extent of contamination.

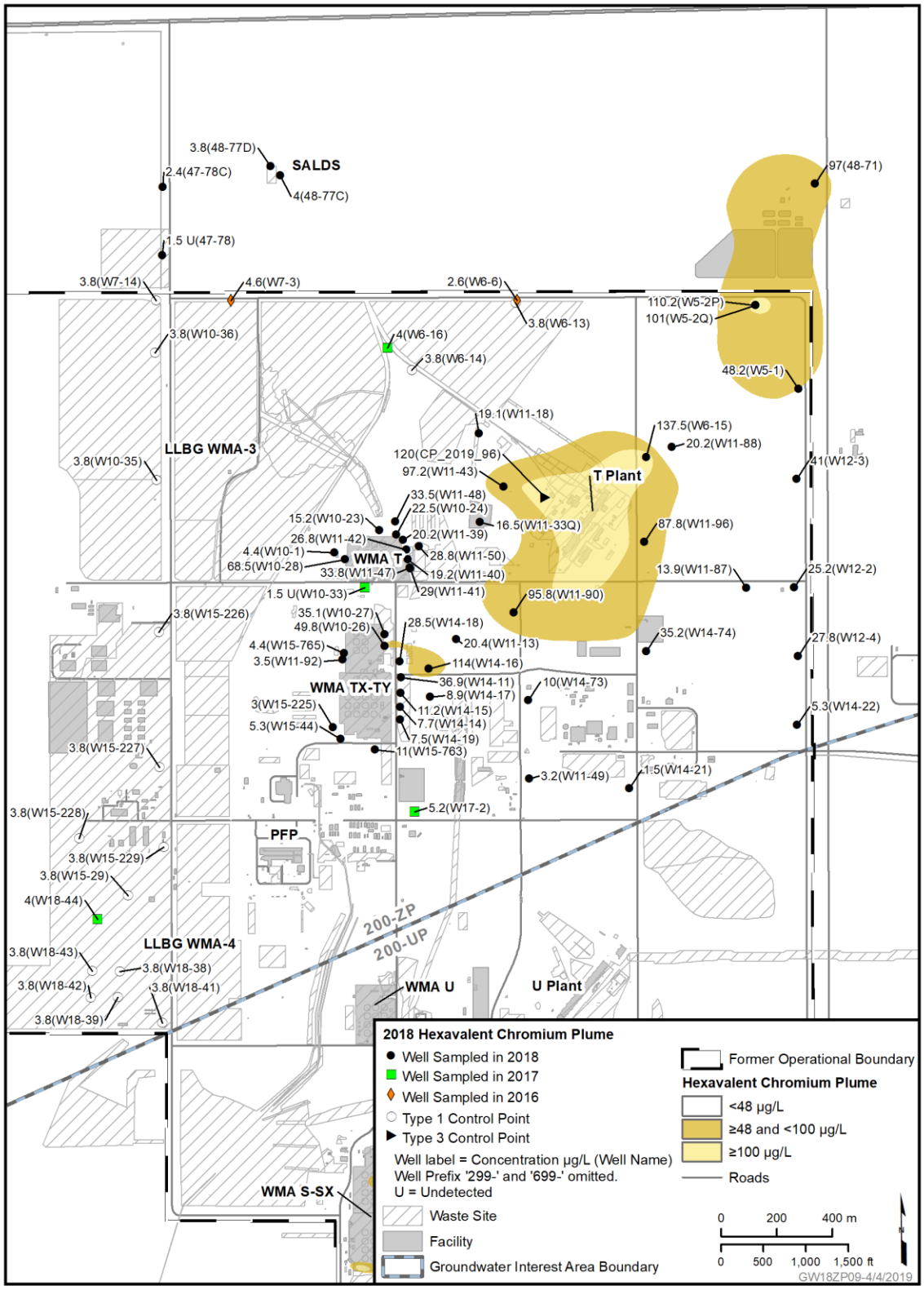
B = Detected at a value less than the required detection limit (e.g., practical quantitation limit) but greater than or equal to the method detection limit.

H = Laboratory holding time exceeded (see text).

Q = Associated quality control field blank was out of limits (see text).

Z = Laboratory report noted the samples were analyzed beyond recommended holding time.

Figure 9 presents the 2018 hexavalent chromium plume in the vicinity of WMA T. Concentrations have declined in WMA T network wells in response to groundwater remediation, and most were below the 48 µg/L contour level in network wells in 2018. At the estimated rate of groundwater flow, the plume may have migrated 21 m during the quarter.



Source: DOE/RL-2018-66, *Hanford Site Groundwater Monitoring for 2018*.

Figure 9. Chromium Plumes near WMA T and TX-TY, 2018

Many of the hexavalent chromium (Cr(VI)) samples were analyzed outside the recommended 24-hour holding time (Z and H flags in Table 5), but within 48 hours. The impact on data usability is likely insignificant. A limited study using Hanford Site groundwater samples in 2013 found that there was no discernible impact on Cr(VI) results analyzed up to 8 weeks after the sample date (Section 4.3.7.2 of DOE/RL-2010-96, *Remedial Investigation/Feasibility Study for the 100-BC-1, 100-BC-2, and 100-BC-5 Operable Units*).

Several of the Cr(VI) results were flagged "Q" because they were associated with quality control (QC) field blanks contaminated at levels that were at least 5% of the sample result. The impact on data quality is believed to be insignificant based on comparisons to previous Cr(VI) data and total chromium results.

6 Waste Management Area TX-TY

WMA TX-TY, which includes the single-shell tanks and ancillary equipment of the 241-TX and 241-TY Tank Farms, is located in the northern portion of the 200 West Area (Figure 2). Figure 10 presents the monitoring network well and water table contours for the reporting period.

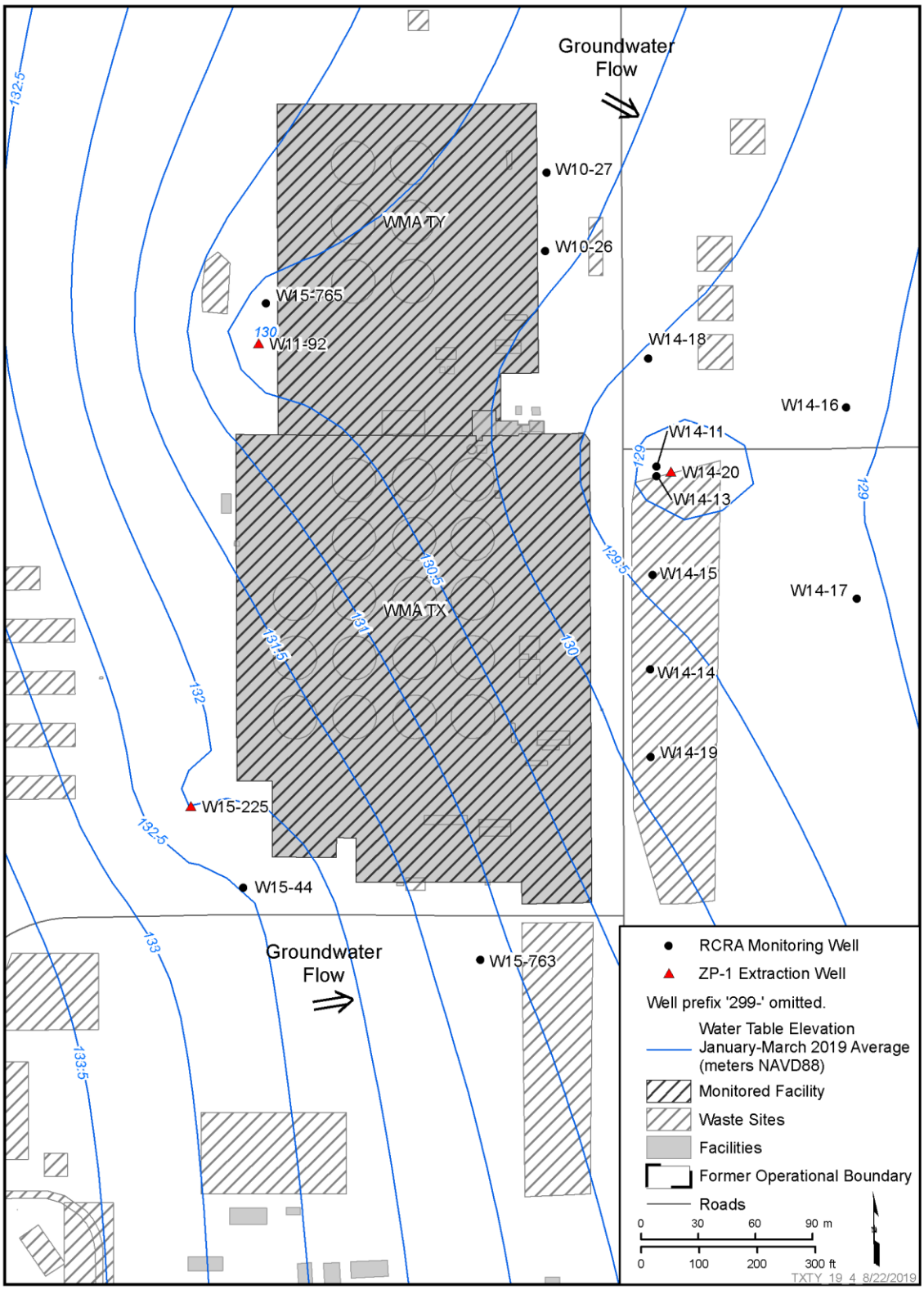
Previous releases from WMA TX-TY have contributed to groundwater contamination with hexavalent chromium. Under DOE/RL-2009-67, *Interim Status Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area TX-TY*, hexavalent chromium is monitored as a dangerous waste constituent. Table 6 lists January through March 2019 quarterly sampling results.

Evaluation of January through March 2019 water levels indicates that the direction of groundwater flow beneath WMA TX-TY ranged from southeast to northeast because of the influence of groundwater extraction wells. The average flow rate was 0.31 m/d (1.02 ft/d) (ECF-HANFORD-19-0091).

Figure 9 includes the 2018 chromium plume in the vicinity of WMA TX-TY. Groundwater extraction well 299-W14-20, located east of the plume, captures the contaminated groundwater.

Some of the Cr(VI) samples were analyzed outside the recommended 24-hour holding time (X, Z, and H flags in Table 6), but within 48 hours. The impact on data usability is likely insignificant. A limited study using Hanford Site groundwater samples in 2013 found that there was no discernible impact on Cr(VI) results analyzed up to 8 weeks after the sample date (Section 4.3.7.2 of DOE/RL-2010-96).

Several of the Cr(VI) results were flagged "Q" because they were associated with QC field blanks contaminated at levels that were at least 5% of the sample result. The impact on data quality is believed to be insignificant based on comparisons to previous Cr(VI) data and total chromium results.



Reference: ECF-200W-19-0082, *Groundwater Elevation Mapping for 200 West Area - Quarter 1 Calendar Year 2019*.

Figure 10. WMA TX-TY Monitoring Well Network and January-March 2019 Water Table

Table 6. WMA TX-TY Sample Results for January Through March 2019

Well Name	Sample Date	Hexavalent Chromium (µg/L)		Comment
		Unfiltered	Filtered	
299-W10-26	3/26/2019	51.8 Z	--	--
299-W10-27	3/26/2019	37.7 Z	38.4	--
299-W14-11	3/26/2019	20.1 Z 20.1 Z	--	Duplicate samples
299-W14-13	3/26/2019	9.5 BZ	--	--
299-W14-14	3/28/2019	--	5.7 XHQ	--
299-W14-15	3/28/2019	--	10.7 XHQ	--
299-W14-16[a]	3/27/2019	--	108 D 116 D	Duplicate samples
299-W14-17[a]	3/28/2019	--	9.81 XHQ	--
299-W14-18	3/27/2019	--	29.9	--
299-W14-19	3/28/2019	--	7.26 Q	--
299-W15-44	3/27/2019	--	6.28 XH	--
299-W15-763	3/27/2019	--	11.6 XH	--
299-W15-765[b]	3/28/2019	--	4.79 Q	--

Note: Practical quantitation limit for Method 7196 is 21 µg/L from ECF-HANFORD-18-0058, *Practical Quantitation Limits for Groundwater Environmental Samples*.

a. Far-field well; located far downgradient to determine lateral extent of contamination.

b. Upgradient well.

B = Detected at a value less than the required detection limit (e.g., practical quantitation limit) but greater than or equal to the method detection limit.

D = Reported at a secondary dilution factor.

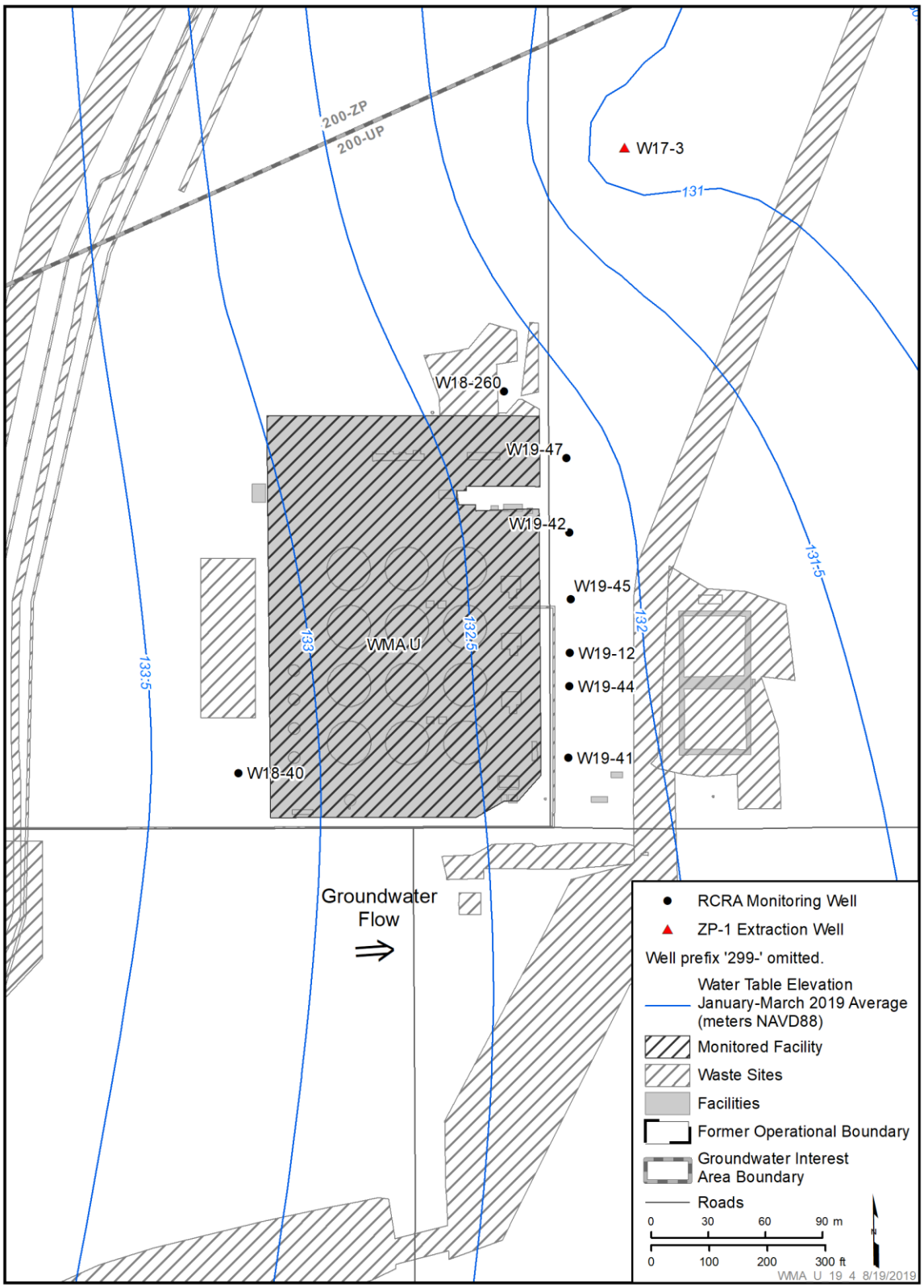
H = Laboratory holding time exceeded (see text).

Q = Associated quality control field blank was out of limits (see text).

X, Z = Laboratory reports noted the samples were analyzed beyond recommended holding time.

7 Waste Management Area U

WMA U, which includes the single-shell tanks and ancillary equipment of the U Tank Farm, is located in the south-central portion of the 200 West Area (Figure 2). Figure 11 presents the monitoring network with a water table map for the reporting quarter.



Reference: ECF-200W-19-0082, *Groundwater Elevation Mapping for 200 West Area - Quarter 1 Calendar Year 2019*.

Figure 11. WMA U Monitoring Well Network and January-March 2019 Water Table

Previous releases from WMA U have contributed to groundwater contamination with chromium (DOE/RL-2009-74, *Interim Status Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area U*). Table 7 lists January through March 2019 sampling results for chromium.

Evaluation of January through March 2019 water levels indicates that groundwater beneath WMA U generally flowed to the east at 0.20 m/d (0.66 ft/d) (ECF-HANFORD-19-0091).

A contaminant plume map is not provided because chromium concentrations are below levels used for contouring plumes in Chapter 11 of DOE/RL-2018-66.

Table 7. WMA U Sample Results for January Through March 2019

Well Name	Sample Date	Chromium (µg/L)		Comment
		Unfiltered	Filtered	
299-W18-40[a]	1/21/2019	8.1 B	7.5 B	--
299-W18-260	1/22/2019	15.9	15.8	Replacement for 299-W18-30[b]
299-W19-12[c]	1/21/2019	133	12.5	--
299-W19-41	1/21/2019	14.8	7.8 B	--
299-W19-42	1/22/2019	12.7	9.4 B	--
299-W19-44	1/21/2019	19.2	20.4	--
299-W19-45	1/22/2019	14.9	13.4	--
299-W19-47	1/22/2019	10.4	10.5	--

Note: Practical quantitation limit for chromium by Method 6010 is 10.5 µg/L (ECF-HANFORD-18-0058, *Practical Quantitation Limits for Groundwater Environmental Samples*).

a. Upgradient well.

b. Well 299-W18-30 went dry in 2013 and was replaced.

c. Well is not compliant with the construction standards in WAC 173-160, "Minimum Standard for Construction and Maintenance of Wells," and a replacement in kind well will be proposed. Well is usable as a "Screening well...to assist in defining the extent of contamination..." (Table 3-2 in DOE/RL-2009-74, *Interim Status Groundwater Quality Assessment Plan for the Single-Shell Tank Waste Management Area U*).

B = Detected at a value less than the required detection limit (e.g., practical quantitation limit) but greater than or equal to the method detection limit.

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