

## HTW BCT, January 9, 2019

### December 2018 Key Events for OUCTP

- December 10-14: Fourth Quarter 2018 groundwater monitoring event.
  - Initial sampling of new monitoring wells MW-BW-93-A, MW-BW-95-A, MW-BW-57-180, MW-BW-58-180, and MW-BW-59-180.
  - Dec 12: Last long-term performance monitoring event for OUCTP EISB Deployment Area 3A extraction wells.

### January 9019 Key Events for OUCTP

- Decommissioning of:
  - MW-BW-94-A. Complete by February 1, 2019 (in FONR).
  - EISB Deployment Area 3A. Complete by February 1, 2019 (in FONR).
  - 24 soil gas probes in EISB Deployment Area 1A.
  - 1 soil gas probe, 4 extraction wells, 1 injection well, and 3 monitoring wells in EISB Deployment Area 1B. Complete in January 9019 (to avoid athletic field scheduled use).
- Installation of MW-BW-94-AR. Complete by February 1, 2019 (in FONR).

**Table 1.** OUCTP EISB 3A VOC Results

Analyte:	Carbon Tetrachloride												
ACL:	0.5 µg/L												
Well Identification	Baseline	Month 1	Month 2	Month 3	Month 5	Month 6	Month 7	3Q 2017	4Q 2017	1Q 2018	2Q 2018	3Q 2018	4Q 2018*
EW-BW-160-A	1.1 J+	0.86	0.66	0.60	1.3	1.0	1.0	0.64	0.83	0.91	1.2	1.2	1.0
EW-BW-161-A	0.84 J+	0.67	0.51	0.48 J	0.69	0.47 J	0.47 J	0.38 J	0.19 J	0.15 J	0.15 J	0.13 J	0.11 J
EW-BW-162-A	1.0 J+	0.72	0.59	0.56	0.41 J	0.28 J	0.18 J	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	NS^	NS^
EW-BW-163-A	1.2 J+	1.2	0.94	0.89	0.31 J	0.25 J	0.25 J	0.16 J	0.13 J	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
EW-BW-164-A	0.92 J+	0.73	0.61 J-	0.59	0.78	0.71	0.89	0.64	0.47 J	0.32 J	0.47 J	0.36 J	0.30 J
EW-BW-165-A	1.2 J+	1.1	0.83	0.82	0.13 J	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
EW-BW-166-A	1.7 J+	1.4	1.2	1.2	1.4	1.1	1.3	1.5	0.35 J	1.4	1.3	1.0	0.67
EW-BW-167-A	1.7 J+	1.4	1.1	1.4	1.1	0.71	0.66	0.43 J	0.22 J	0.16 J	0.16 J	NS^	NS^
EW-BW-168-A	1.3 J+	1.1	0.82	0.77	0.84	0.72	0.80	0.55	0.53	0.48 J	0.46 J	0.35 J	0.27 J
EW-BW-169-A	1.0 J+	0.68	0.63	0.67	0.73	0.42 J	0.80	0.51	0.38 J	0.23 J	0.25 J	0.15 J	0.12 J
MW-BW-16-A	0.60 J+	0.75	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
MW-BW-57-A	0.45 J+	ND (0.25)	0.26 J	0.32 J	0.26 J	0.24 J	0.31 J	0.17 J	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
MW-BW-87-A	0.17 J+	ND (0.25)	0.29 J	0.65	0.61	0.34 J	1.6	0.16 J	0.42 J	0.13 J	0.10 J	0.41 J	0.76
MW-BW-91-A	ND (0.25)	1.3	0.84	2.3	0.50	0.28 J	0.55	0.59	4.3	3.4	3.3	2.9	2.2

**Notes:**

There were no detections for either methylene chloride or trichloroethene

ACL: Aquifer Cleanup Level

ND: The analyte was not detected at or above the detection limit

µg/L: micrograms per liter

J: Estimated result with a possible low (-) or high bias (+)

Results in **bold** and shaded are concentrations above the ACL

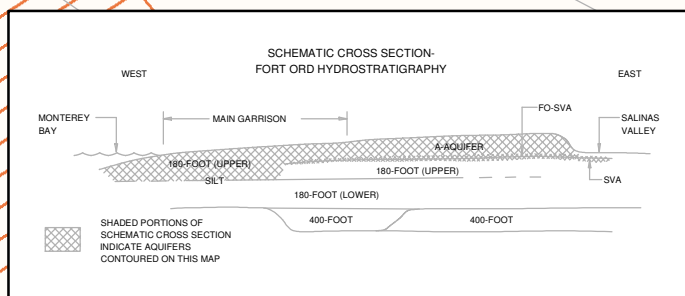
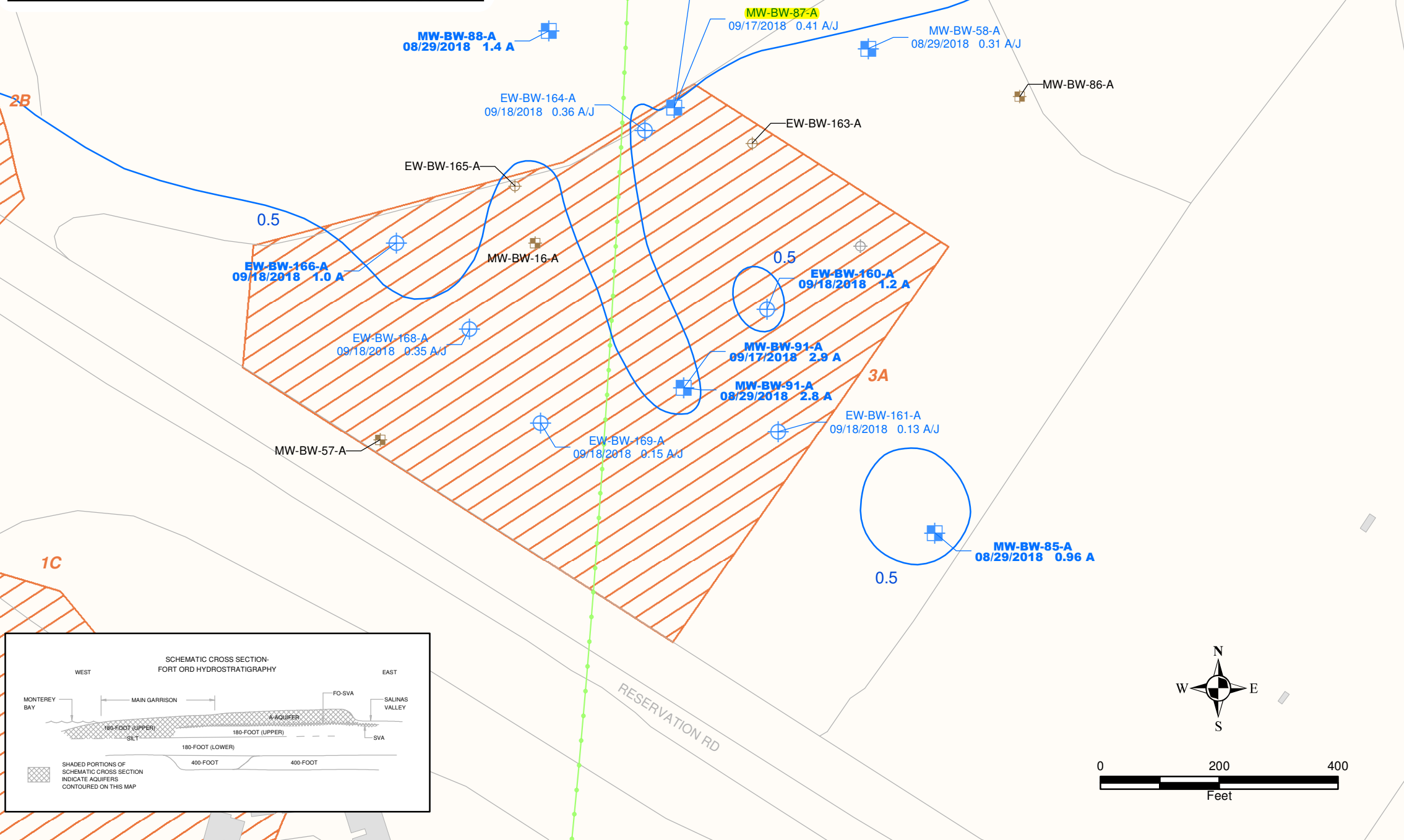
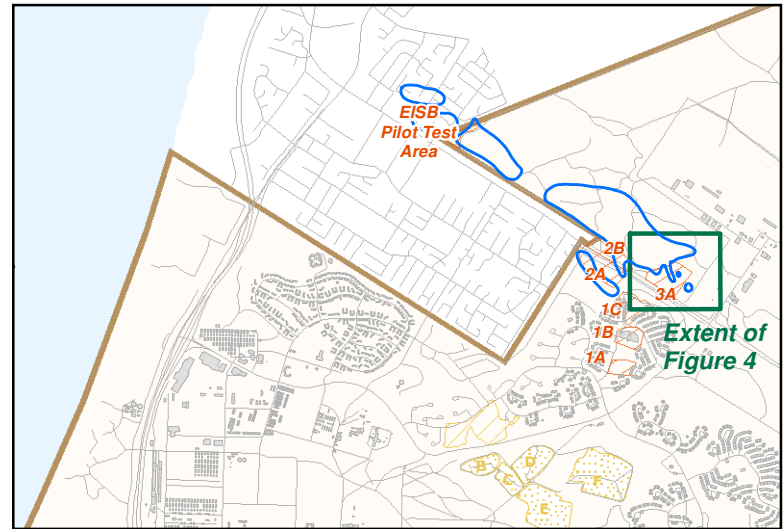
Results in gray are ND

^ Pump failure, sample not collected

\* Analytical results preliminary



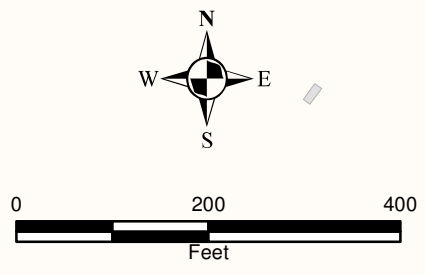
Wednesday, November 14, 2018 3:22:56 PM thomas.hunt  
 P:\8418191360\_FortOrd\GIS\9019\OUCTP\_GMTSR\Figure14\_CT\_OUCTP\_A\_EISB3A\_18Q3.mxd



### EXPLANATION

- Monitoring Well with CT Detection
- Extraction Well with CT Detection
- Well ID - Bold When ACL Exceeded (\* Indicates: Sample result not used for contouring)
- Baseline and/or quarterly monitoring concentration (µg/L) with validation/lab qualifier. Bold when exceeds the ACL.
- Monitoring Well CT Not Detected
- Extraction Well CT Not Detected
- Monitoring Well Not Sampled This Quarter
- Extraction Well Not Sampled This Quarter
- Chemical of Concern (COC) Aquifer Cleanup Level (ACL) Exceedance Contour in µg/L
- 0.5 — Carbon tetrachloride (CT)
- Enhanced In Situ Bioremediation (EISB) Deployment Area
- Approximate Location of a Groundwater Divide
- Roads
- Facilities
- Former Fort Ord Boundary
- Approximate extent of Fort Ord Landfill Areas
  - OU2 Landfill Areas B through F
  - Area A (clean closed)

- NOTES:
- (1) Quarterly samples at EISB Deployment Area 3A extraction wells were collected on September 17 and 18, 2018. Samples at OUCTP monitoring wells were collected on August 29, 2018.
  - (2) Contours are based on one interpretation of the data that were available at the time this report was prepared; other interpretations may be possible.
  - (3) Contours based on highest value obtained from multiple bags where applicable.
  - (4) Contours near wells not sampled this quarter are inferred from previous analytical data.



CT CONCENTRATIONS  
 EISB DEPLOYMENT AREA 3A, A-AQUIFER  
 THIRD QUARTER 2018  
 Operable Unit Carbon Tetrachloride Plume  
 Fourth Quarter 2017 - Third Quarter 2018  
 Groundwater Monitoring Report, Former Fort Ord, California

<b>wood.</b>	By: TJH	Project No. 8418191360
	Date: 11/14/2018	Figure <b>14</b>

**Table 2. OUCTP A-Aquifer Select Monitoring Well Data**

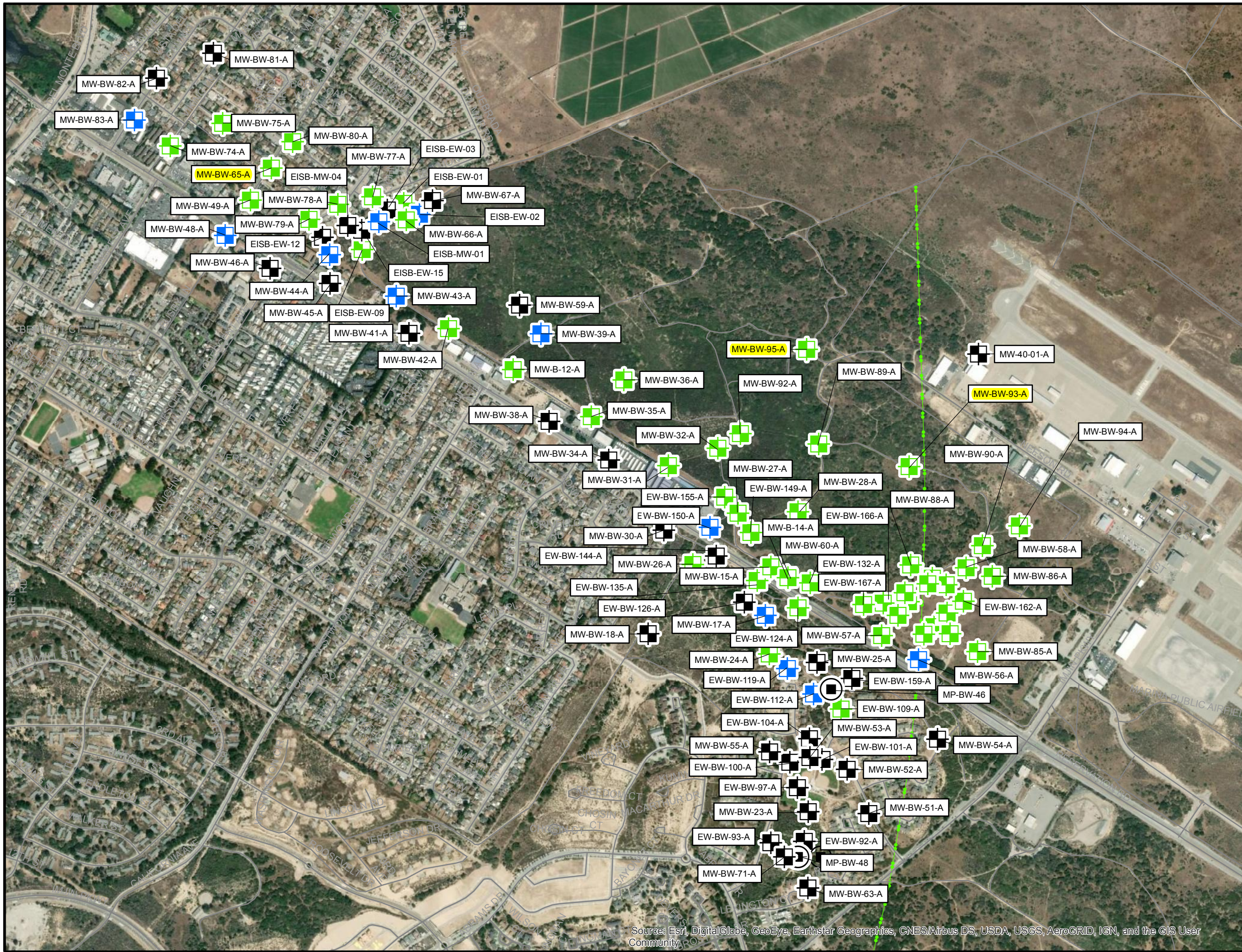
OUCTP Hydraulic Zone <sup>1</sup>	EISB Deployment Area	Well Identification	COC Concentrations (µg/L)	
			3Q 2018	4Q 2018*
<b>ACL:</b>			<b>0.5</b>	
1	1C	EW-BW-109-A	<b>1.6</b>	<b>1.9</b>
1	N/A	MW-BW-24-A	<b>3.8</b>	<b>3.7</b>
2	3A	MW-BW-58-A	0.31 J	0.21 J
2	3A	MW-BW-87-A	<b>0.57</b>	<b>0.79</b>
2	3A	MW-BW-91-A	<b>2.8</b>	<b>2.5</b>
N/A	3A	MW-BW-90-A	<b>1.2</b>	<b>1.4</b>
3	3A	MW-BW-16-A	ND (0.25)	ND (0.25)
3	3A	MW-BW-57-A	ND (0.25)	ND (0.25)
3	N/A	MW-BW-88-A	<b>1.4</b>	<b>1.5</b>
3	N/A	MW-BW-93-A	NEW WELL (NS)	0.11 J
3	N/A	MW-BW-95-A	NEW WELL (NS)	<b>1.5</b>
4	2A	EW-BW-124-A	<b>0.90</b>	<b>0.92</b>
4	N/A	MW-B-12-A	0.23 J	<b>0.65</b>
4	2B	MW-B-14-A	<b>1.8</b>	<b>0.56</b>
4	2B	EW-BW-155-A	<b>1.1</b>	<b>0.58</b>
4	2A	MW-BW-26-A <sup>^</sup>	<b>5.8</b>	<b>6.2</b>
4	N/A	MW-BW-31-A	ND (0.25)	ND (0.25)
4	N/A	MW-BW-32-A	<b>2.3</b>	<b>2.0</b>
4	N/A	MW-BW-36-A	<b>0.59</b>	<b>0.90</b>
4	N/A	MW-BW-42-A	0.15 J	0.13 J
4	N/A	MW-BW-89-A	<b>1.1</b>	<b>0.96</b>
4	N/A	MW-BW-92-A	<b>1.4</b>	<b>1.4</b>
5	Pilot	EISB-EW-01	<b>0.67</b>	<b>0.72</b>
5	Pilot	EISB-EW-09	<b>2.6</b>	<b>2.2</b>
5	N/A	MW-BW-65-A	0.21 J	<b>0.72</b>
5	Pilot	MW-BW-66-A	<b>1.4</b>	<b>1.5</b>
5	N/A	MW-BW-74-A	ND (0.25) [ND (0.25)]	ND (0.25) [ND (0.25)]
5	N/A	MW-BW-49-A	<b>1.2</b>	<b>1.4</b>
5	N/A	MW-BW-78-A	<b>0.59 [0.50]</b>	<b>0.63 [0.59]</b>
5	N/A	MW-BW-80-A	<b>0.89</b>	<b>0.83</b>

**Notes:**

CT: carbon tetrachloride  
 µg/L: micrograms per liter  
 ND: The analyte was not detected above the detection limit  
 NS: not sampled  
 J: Estimated result with a low (-) or high (+) bias  
<sup>1</sup> Hydraulic zones are identified in the Groundwater QAPP.  
 Results in **bold** and shaded are concentrations above the ACL

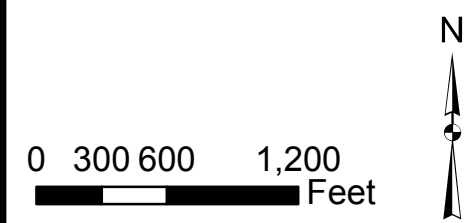
Results in gray are ND  
 COC: chemical of concern  
 [Results in brackets are from a second deeper passive diffusion bag]  
<sup>^</sup> Downgradient monitoring well MW-BW-30-A sampled annually: ND.  
 \* Preliminary results





**Legend**

- Roads
- Groundwater Divide
- OUCTP-A Wells 2018-3Q**
- Well Type and Sample Schedule**
- Monitoring Well - Quarterly VOCs
- Multi-Port Well - Quarterly VOCs
- Monitoring Well - Annual VOCs
- Monitoring Well - Water Levels
- Multi-Port Well - Water Levels



**OUCTP A-Aquifer**  
**Groundwater Monitoring Program**  
**Sampling Locations**  
 Quality Assurance Project Plan  
 Former Fort Ord, California  
 Volume 1, Appendix A, Revision 7  
 Groundwater Remedies and Monitoring  
 at Operable Unit 2, Sites 2 and 12,  
 and Operable Unit Carbon Tetrachloride Plume

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Table 3.** OUCTP Upper 180-Foot Aquifer Select Monitoring Well Data

OUCTP Hydraulic Zone <sup>1</sup>	Well Identification	CT Concentration (µg/L) <sup>2</sup>	
		3Q 2018	4Q 2018*
<b>ACL:</b>		<b>0.5</b>	
6	EW-OU2-09-180 <sup>3</sup>	ND (0.25)	
6	MP-BW-46-170	<b>5.7</b>	<b>3.5</b>
6	MW-BW-52-180	<b>0.90</b>	<b>1.1</b>
6	MW-BW-57-180	NEW WELL (NS)	0.14 J
6	MW-BW-58-180	NEW WELL (NS)	ND (0.25)
6	MW-OU2-64-180	<b>7.4</b>	<b>7.7</b>
6	MW-OU2-67-180 <sup>5</sup>	ND (0.25)	0.44 J

**Table 4.** OUCTP Lower 180-Foot Aquifer Select Monitoring Well Data

OUCTP Hydraulic Zone <sup>1</sup>	Well Identification	Select COC Concentrations (µg/L) <sup>2</sup>			
		3Q 2018	4Q 2018*	3Q 2018	4Q 2018*
		CT		TCE <sup>4</sup>	
<b>Limit:</b>		ACL 0.5		MCL 5.0	
7	MP-BW-49-316	<b>1.2</b>	<b>1.0</b>	ND (0.25)	ND (0.25)
7	MP-BW-49-400	ND (0.25)	ND (0.25)	4.2	4.2
7	MP-BW-50-339	<b>0.89</b>	0.26 J	ND (0.25)	0.14 J
7	MP-BW-50-384	0.12 J	ND (0.25)	2.2	1.7
7	MP-BW-51-405	0.16 J	0.13 J	1.6	1.2
7	MW-OU2-69-180	<b>0.55</b>	<b>0.83</b>	0.13 J	ND (0.25)
8	AIRFIELD	<b>0.59</b>	0.47 J	ND (0.25)	ND (0.25)
N/A	EW-OU2-07-180	ND (0.25)	ND (0.25)	2.8	2.2
N/A	FO-29	0.12 J	0.17 J	2.1	1.7
N/A	FO-30	0.20 J	0.13 J	0.48 J	0.51
N/A	FO-31	ND (0.25)	0.10 J	ND (0.25)	0.95
N/A	MP-BW-41-353	ND (0.25)	ND (0.25)	1.3	1.8
N/A	MW-BW-04-180	0.45 J	NS	ND (0.25)	NS
N/A	MW-BW-59-180	NEW WELL (NS)	ND (0.25)	NEW WELL (NS)	<b>8.6</b>
N/A	MW-OU2-72-180	ND (0.25)	ND (0.25)	1.4	1.3
N/A	MW-OU2-78-180	ND (0.25)	ND (0.25)	2.2	2.0
N/A	MW-OU2-82-180	ND (0.25)	ND (0.25)	<b>6.3</b>	4.9

**Notes:**

ACL: aquifer cleanup level

COC: chemical of concern

CT: carbon tetrachloride

MCL: maximum contaminant level

ND: The analyte was not detected at or above the detection limit

NS: not sampled

TCE: trichloroethene

µg/L: micrograms per liter

J: Estimated result with a low (-) or high (+) bias

<sup>1</sup> Hydraulic zones are identified in the Groundwater QAPP.

<sup>2</sup> Concentration in **bold** and shaded cell exceeds the Aquifer Cleanup Level (ACL) for CT and the Maximum Contaminant Level (MCL) for TCE. Results in gray are ND.

<sup>3</sup> EW-OU2-09-180 is operated as part of the remedy for the OUCTP Upper 180-Foot Aquifer and is connected to the OU2 GWTP. cis-1,2-DCE was detected in this well at 8.4 µg/L in 2Q17 and 5.3 µg/L in 2Q18.

<sup>4</sup> TCE is not a COC in the OUCTP Lower 180-Foot Aquifer (reported for Lower 180-Foot Aquifer with respect to protection of supply wells)

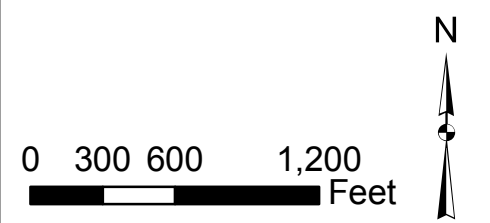
<sup>5</sup> Downgradient well MW-OU2-70-180 sampled annually: ND.

\* Preliminary results





- Legend**
- Roads
  - Fort Ord Landfills
  - OUCTP-Upper Wells 2018-3Q**
  - Well Type and Sample Schedule**
  - Extraction Well - Quarterly VOCs
  - Monitoring Well - Quarterly VOCs
  - Multi-Port Wells - Quarterly VOCs
  - Monitoring Well - Annual VOCs
  - Multi-Port Well - Annual VOCs
  - Monitoring Well - Water Levels
  - Multi-Port Well - Water Levels



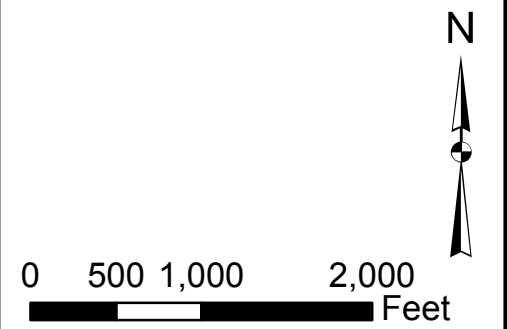
**OUCTP Upper 180-Foot Aquifer  
Groundwater Monitoring Program  
Sampling Locations**

Quality Assurance Project Plan  
Former Fort Ord, California  
Volume 1, Appendix A, Revision 7  
Groundwater Remedies and Monitoring  
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- Legend**
- Roads
  - Fort Ord Landfills
  - OUCTP-Lower Wells 2018-3Q**
  - Well Type and Sample Schedule**
  - Extraction Well - Quarterly VOCs
  - Monitoring Well - Quarterly VOCs
  - Multi-Port Well - Quarterly VOCs
  - Water Supply Well - Quarterly VOCs
  - Monitoring Well - Annual VOCs
  - Multi-Port Well - Annual VOCs
  - Monitoring Well - Water Levels
  - Multi-Port Well - Water Levels



**OUCTP Lower 180-Foot Aquifer  
Groundwater Monitoring Program  
Sampling Locations**

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and Operable Unit Carbon Tetrachloride Plume



**Table 3. OUCTP New Monitoring Well Data**

OUCTP Hydraulic Zone <sup>1</sup>	Well Identification	Sample Depth (ft btoc)	CT Concentration (µg/L) <sup>2</sup>	TCE Concentration (µg/L) <sup>2</sup>
			4Q 2018*	4Q 2018*
ACL/MCL:			0.5	5.0
3	MW-BW-93-A	86	ND (0.25)	ND (0.25)
		91	ND (0.25)	ND (0.25)
		96	<b>0.11 J</b>	ND (0.25)
		101	ND (0.25)	ND (0.25)
		106	ND (0.25)	ND (0.25)
		111	ND (0.25)	ND (0.25)
3	MW-BW-95-A	97	<b>1.3</b>	0.31 J
		102	<b>1.3</b>	0.28 J
		107	<b>1.3</b>	0.24 J
		112	<b>1.3</b>	0.27 J
		117	<b>1.5</b>	0.30 J
6	MW-BW-57-180	188	ND (0.25)	NS
		193	0.14 J	NS
		198	ND (0.25)	NS
		203	ND (0.25)	NS
6	MW-BW-58-180	160	ND (0.25)	NS
		165	ND (0.25)	NS
		170	ND (0.25)	NS
		175	ND (0.25)	NS
7	MW-BW-59-180	345	ND (0.25)	<b>8.5</b>
		350	ND (0.25)	<b>8.6</b>
		355	ND (0.25)	<b>8.0</b>
		360	ND (0.25)	<b>8.3</b>

**Notes:**

ACL: aquifer cleanup level

COC: chemical of concern

CT: carbon tetrachloride

Ft btoc: feet below top of casing

MCL: maximum contaminant level

ND: The analyte was not detected at or above the detection limit

NS: not sampled

TCE: trichloroethene

µg/L: micrograms per liter

J: Estimated result with a low (-) or high (+) bias

<sup>1</sup> Hydraulic zones are identified in the Groundwater QAPP.

<sup>2</sup> Concentration in **bold** and shaded cell exceeds the Aquifer Cleanup Level (ACL) for CT and the Maximum Contaminant Level (MCL) for TCE in the Lower 180-Foot Aquifer. Results in gray are ND.

\* Preliminary results