

Former Fort Ord Operable Unit Carbon Tetrachloride Plume Data and Status

HTW BCT, January 31, 2020

Table 1. OUCTP A-Aquifer Select Monitoring Well Data

OUCTP Hydraulic Zone ¹	EISB Deployment Area	Well Identification	COC Concentrations (µg/L)			
			1Q 2019	2Q 2019	3Q 2019	4Q 2019
			CT			
ACL:			0.5 µg/L			
1	1C	EW-BW-109-A	1.7	1.4	1.3	1.4
1	N/A	MW-BW-24-A	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
2	3A	MW-BW-58-A	0.37 J	ND (0.25)	0.38 J	0.30 J
2	3A	MW-BW-87-A	1.4	1.8	1.9	1.9
2	3A	MW-BW-91-A	2.7	2.1	1.6	0.93
2	N/A	MW-BW-94-AR	0.55	0.48 J	0.39 J	0.49 J
N/A	3A	MW-BW-90-A	1.5	1.4	1.1	1.3
2	3A	EW-BW-160-A	2.8 J+	3.2	2.2	1.2
3	3A	EW-BW-166-A	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
3	N/A	MW-BW-88-A	1.2	1.3	1.5	1.4
3	N/A	MW-BW-93-A	0.16 J	0.20 J	0.25 J	0.25 J
3	N/A	MW-BW-95-A	1.3	1.4	1.3	1.2
4	2A	EW-BW-124-A	0.94 J+	0.95	ND (0.25)	ND (0.25)
4	N/A	MW-B-12-A	ND (0.25)	0.49 J	0.48 J	0.65
4	2B	MW-B-14-A	1.2	0.77	0.69	0.60 J
4	2B	EW-BW-155-A	0.50	0.32 J	0.73	0.33 J
4	2A	MW-BW-26-A^	6.0	5.8	4.1	3.9
4	N/A	MW-BW-31-A	ND (0.25)	1.5	0.60	1.3
4	N/A	MW-BW-32-A	2.4	2.1	1.7	1.8
4	N/A	MW-BW-36-A	1.3	0.92	0.72	0.67
4	N/A	MW-BW-42-A	ND (0.25)	ND (0.25)	0.14 J	ND (0.25)
4	N/A	MW-BW-89-A	1.1	0.95	0.68	0.77
4	N/A	MW-BW-92-A	1.4	1.0	0.72	0.81
5	Pilot	EISB-EW-01	0.72	0.54	0.37 J	0.33 J
5	Pilot	EISB-EW-09	2.0	1.6	1.5	1.4
5	N/A	MW-BW-65-A	0.48 J-	0.23 J	0.39 J	0.70 J+
5	Pilot	MW-BW-66-A	1.9	2.0	1.5	1.1
5	N/A	MW-BW-74-A	0.11 J- [0.12 J-]	1.4 [0.10 J]	ND (0.25) [ND (0.25)]	ND (0.25) [0.12 J]
5	N/A	MW-BW-49-A	0.68 J-	0.33 J	0.48 J	1.4 J+
5	N/A	MW-BW-78-A	ND (0.25) [0.51 J+]	0.27 J [0.20 J]	0.24 J [0.24 J]	ND (0.25) [0.17 J]
5	N/A	MW-BW-80-A	0.77 J-	ND (0.25)	3.0	3.3 J+

December 2019 Key Events for OUCTP

- Dec 2-6: Fourth Quarter 2019 Groundwater Monitoring Event.
- Dec 10: Semi-Annual Optimization meeting.

January 2020 Key Events for OUCTP

- None.

February 2020 Key Events for OUCTP

- None.

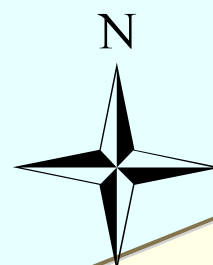
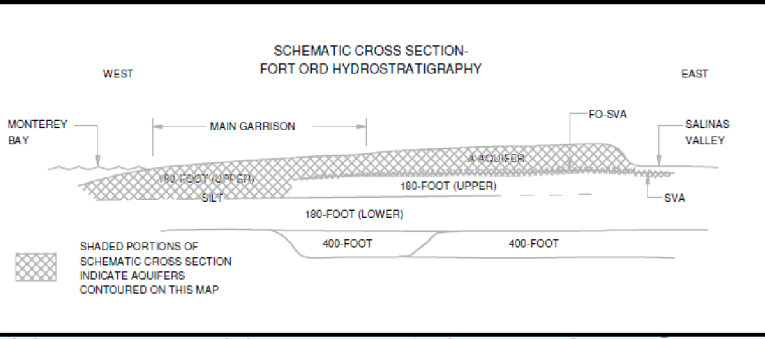
March 2020 Key Events for OUCTP

- Mar 2-6: First Quarter 2020 Groundwater Monitoring Event.

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
¹ 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]
 ^ Downgradient monitoring well MW-BW-30-A sampled annually: ND.
 * Preliminary data
 † Qualified as estimated (J) due to field duplicate imprecision.





EXPLANATION

- Extraction Well with CT Detection.
- Multi-Port Well with CT Detection.
- Monitoring Well with CT Detection.
- MW-BW-88-A** Well ID - Bold When CT Exceeds the ACL.
- 1.5** CT Concentrations ($\mu\text{g/L}$) and validation/lab qualifier.
- Extraction Well with No CT Detection.
- Monitoring Well with No CT Detection.
- Extraction Well Not Sampled.
- Monitoring Well Not Sampled.
- Multi-Port Well Not Sampled.

Chemical of Concern (COC) Aquifer Cleanup Level (ACL) Exceedance Contour in $\mu\text{g/L}$.

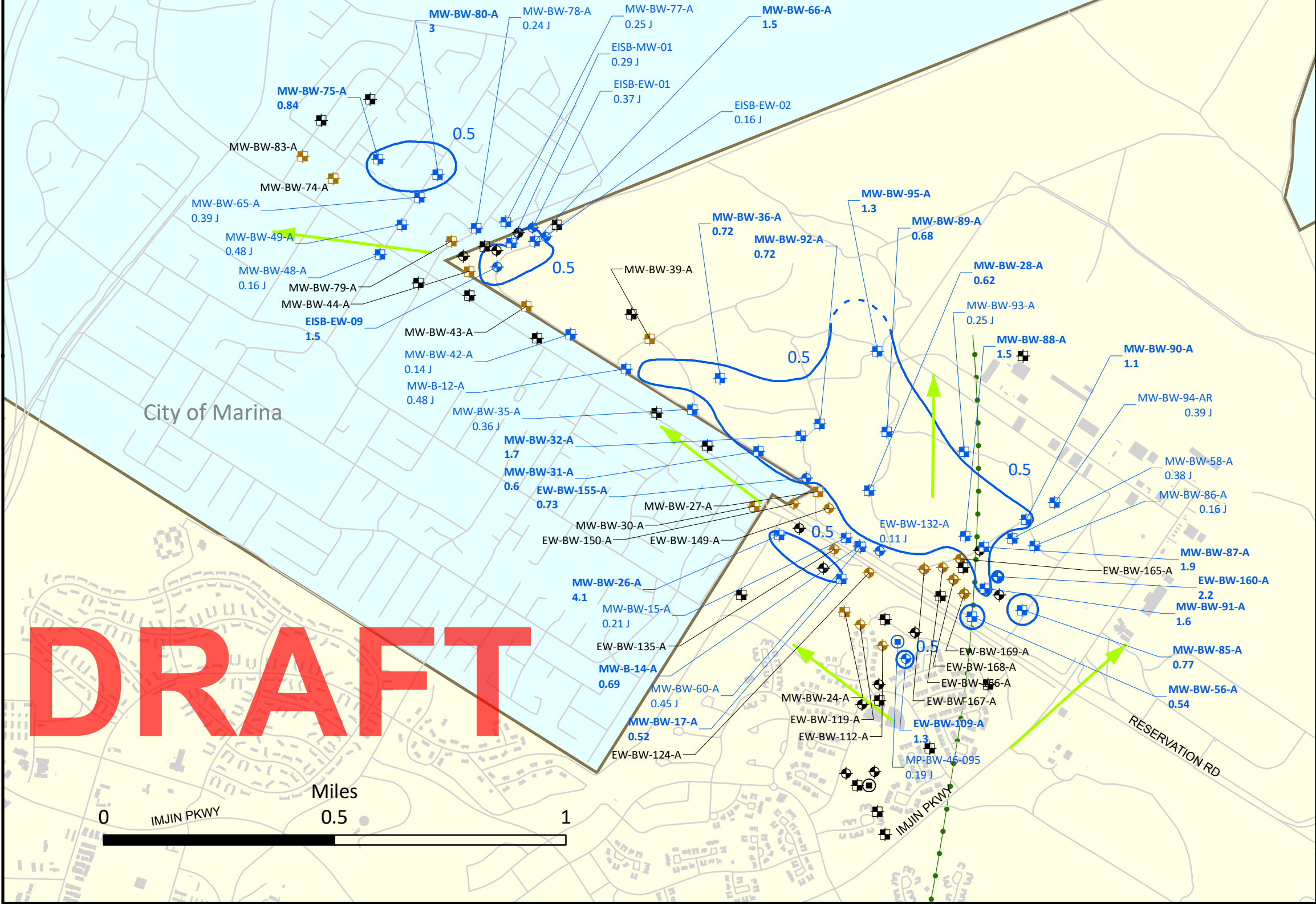
- 0.5 Carbon Tetrachloride (CT)
- 0.5 Estimated Carbon Tetrachloride (CT) Plume Extent
- General Groundwater Flow Direction
- Approximate Location of a Groundwater Divide
- Approximate Edge of Fort Ord - Salinas Valley Aquitard
- Roads
- Facilities
- Former Fort Ord Boundary

NOTES:

- (1) Water levels were measured between August 26, 2019 and September 17, 2019.
- (2) Groundwater elevation 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 and/or multiple ports where applicable.
- (4) Contours near wells not sampled this quarter are inferred from previous analytical data.

CARBON TETRACHLORIDE CONCENTRATIONS
A-AQUIFER
THIRD QUARTER 2019
Operable Unit Carbon Tetrachloride Plume
Fourth Quarter 2018 through Third Quarter 2019
Groundwater Monitoring Report
Former Fort Ord, California

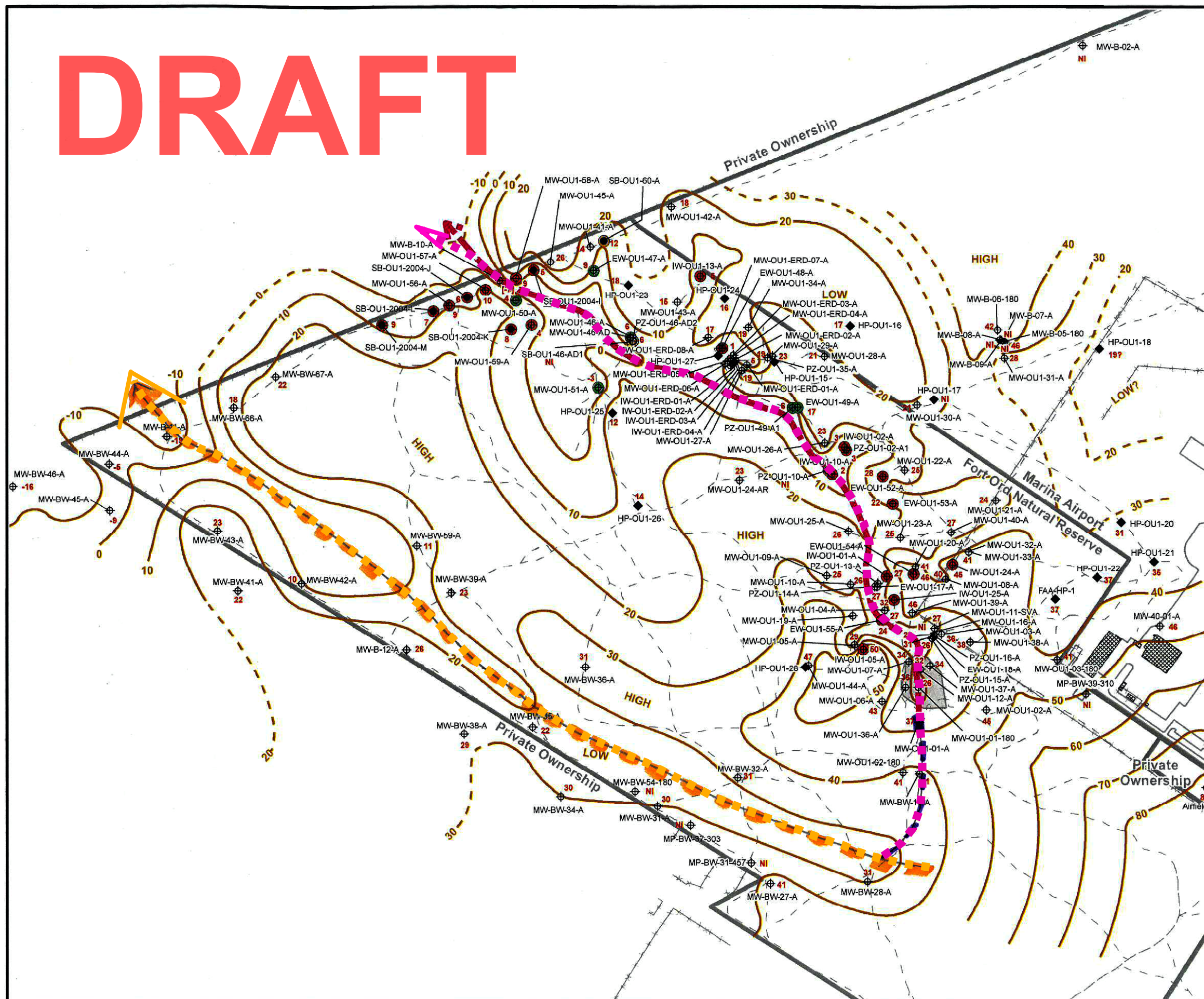
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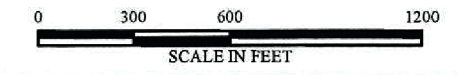
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Figure 4.4A
Salinas Valley Aquiclude (SVA)
Elevation Contour Map - Large View
Operable Unit 1 Area
Former Fort Ord, CA



Legend

- ⊕ Well/Piezometer
- Abandoned Soil Boring
- Drilling - Phase 1 Well
- Drilling - Phase 2 Boring/Well
- Drilling - Phase 4 Boring/Well
- ◆ Hydropunch Boring
- Salinas Valley Aquiclude (SVA) Elevation Contour in Feet Mean Sea Level, Dashed Where Inferred (Contour Interval = 10 Feet)
- 37 SVA Elevation Value in Feet Mean Sea Level
- [7] SVA Elevation Value in Feet Mean Sea Level Projected From Cross Section (Well Not Deep Enough)
- NI No SVA Elevation Information
- ← OU-1 SVA Channel Low (Arrow Points Down Dip)
- - - Trail/Unimproved Road
- Fence
- Fire Drill Area (FDA)



X:\OMA009_Fr_Ord\TO_201\Maps\100%_EDR_Vol1\SVA_Cont-7200-scale.mxd
 Source: HydroGeologic, Inc.
 06/23/06 PS



Table 2. OUCTP Upper 180-Foot Aquifer Select Monitoring Well Data

OUCTP Hydraulic Zone ¹	Well Identification	CT Concentration (µg/L) ²			
		1Q 2019	2Q 2019	3Q 2019	4Q 2019
ACL:		0.5 µg/L			
6	EW-OU2-09-180 ³	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
6	MP-BW-46-170	8.9 J	5.4	5.0	5.0
6	MW-BW-52-180	NS	ND (0.25)	0.81	0.92
6	MW-BW-57-180	0.61	0.81	0.95	1.1
6	MW-BW-58-180	0.30 J	0.66	ND (0.25)	ND (0.25)
6	MW-OU2-64-180	ND (0.25)	ND (0.25)	6.3	8.8
6	MW-OU2-67-180 ⁴	6.9	4.4	0.11 J	0.11 J

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

¹ Hydraulic zones are identified in the Groundwater QAPP.

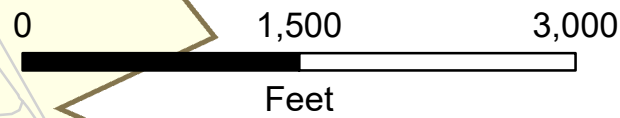
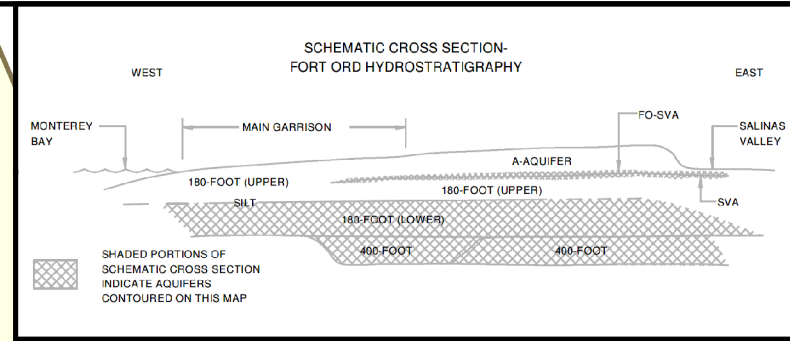
² Concentration in **bold** and shaded cell exceeds the Aquifer Cleanup Level (ACL) for CT. Results in *gray* are ND.

³ 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.

⁴ Downgradient well MW-OU2-70-180 sampled annually: ND.

* Preliminary data

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EXPLANATION

- Extraction Well with TCE Detection and No CT Detection.
- Monitoring Well with No CT or TCE Detection.
- Monitoring Well with CT Detection and NO TCE Detection.
- Monitoring Well with TCE Detection and No CT Detection.
- Monitoring Well with CT and TCE Detection.
- Multi-Port Westbay Well with NO CT or TCE Detection.
- Multi-Port Westbay Well with CT Detection.
- Multi-Port Westbay Well with TCE Detection and NO CT Detection.
- Multi-Port Westbay Well With CT and TCE Detection.
- Marina Coast Supply Well with CT and TCE Detection.

Well ID
 MP-BW-50-339
CT: 0.77
TCE: 0.14 J
 Concentration in µg/L and validation/lab qualifier. (blue indicates CT; red indicates TCE)
 Bold when COC exceeds the ACL.

Chemical of Concern (COC) Aquifer Cleanup Level (ACL)
 Exceedance Contour in µg/L.

- 0.5 Carbon Tetrachloride (CT)
- General Groundwater Flow Direction.
- Roads
- Facilities
- OU2 Landfill Areas B Through F
- Former Fort Ord Boundary

- (1) Samples were measured taken between August 26th, 2019 and September 17, 2019.
- (2) Contour is based on one interpretation of the data that was available at the time this report was prepared; other interpretations may be possible.
- (3) Contour based on highest value obtained from multiple bags and/or multiple ports where applicable.
- (4) TCE is not a chemical of concern in the OU2P Lower 180-Foot Aquifer.

CT AND TCE CONCENTRATIONS
 LOWER 180-FOOT/400-FOOT AQUIFER
 THIRD QUARTER 2019
 Operable Unit Carbon Tetrachloride Plume
 Fourth Quarter 2018 - Third Quarter 2019
 Groundwater Monitoring Report, Former Fort Ord, California

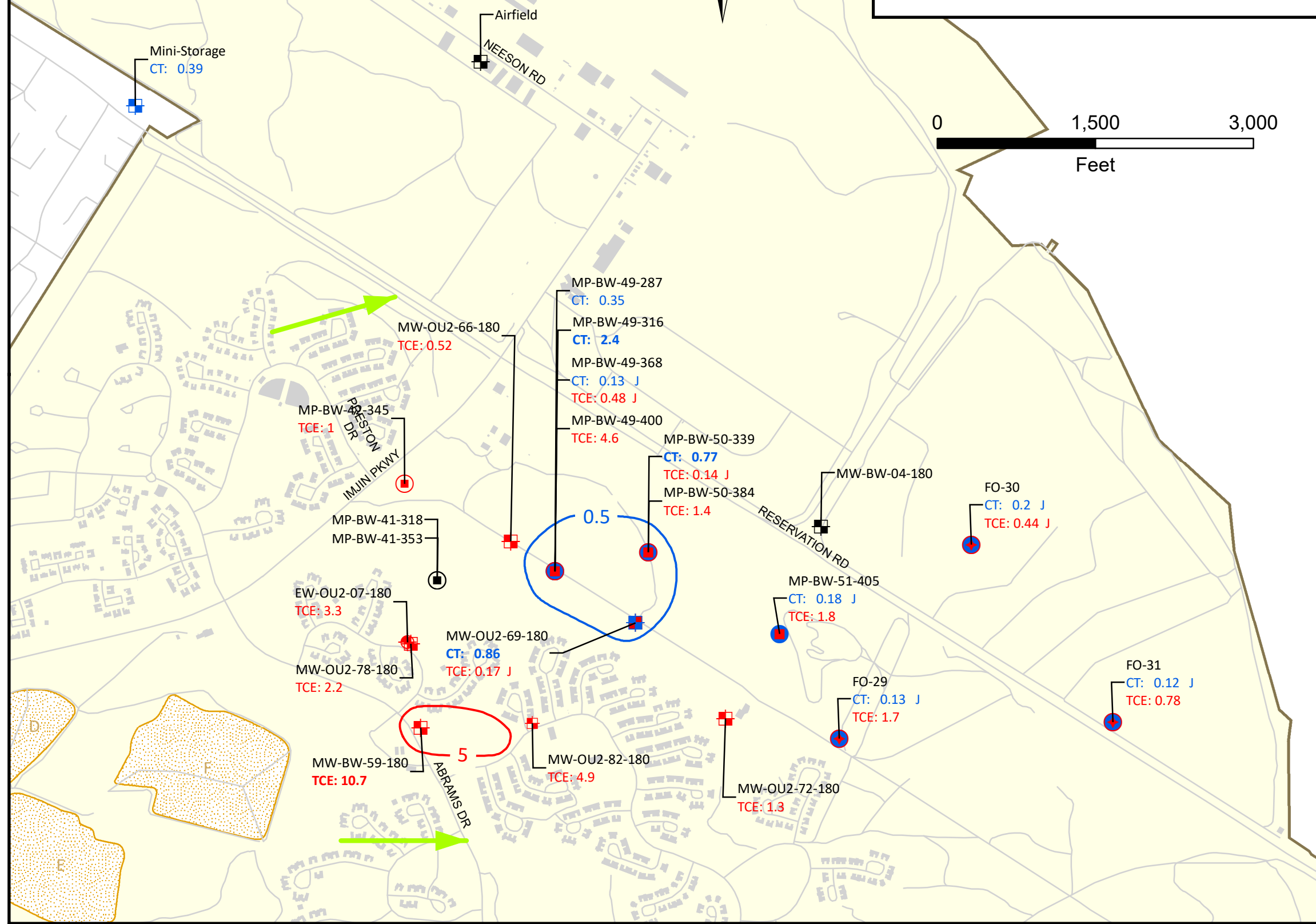


Table 3. OUCTP Lower 180-Foot Aquifer Select Monitoring Well Data

OUCTP Hydraulic Zone ¹	Well Identification	Select COC Concentrations (µg/L) ²							
		1Q 2019	2Q 2019	3Q 2019	4Q 2019	1Q 2019	2Q 2019	3Q 2019	4Q 2019
		CT				TCE ³			
Limit:		ACL 0.5 µg/L				MCL 5.0 µg/L			
7	MP-BW-49-316	1.5	2.0	2.4	1.8	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
7	MP-BW-49-400	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	4.0	4.6	4.6	3.9
7	MP-BW-50-339	0.29 J	1.3	0.77	0.59	0.17 J	ND (0.25)	0.14 J	0.17 J
7	MP-BW-50-384	0.10 J	ND (0.25)	ND (0.25)	ND (0.25)	2.3	1.3	1.3	2.3
7	MP-BW-51-405	0.16 J	0.17 J	0.11 J	0.12 J	1.7	1.5	1.3	1.7
7	MW-OU2-69-180	0.70	1.0	0.86	1.0	0.10 J	0.10 J	0.17 J	ND (0.25)
8	AIRFIELD	0.16 J	0.54	ND (0.25)	0.40 J	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
N/A	EW-OU2-07-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	2.7	2.3	3.3	2.9
N/A	FO-29	0.20 J	0.19 J	0.13 J	0.18 J	1.5	1.8	1.7	1.6
N/A	FO-30	0.12 J	0.15 J	0.20 J	0.19 J	0.55	0.57	0.44 J	0.39 J
N/A	FO-31	ND (0.25)	ND (0.25)	0.12 J	0.13 J	0.11 J	0.91	0.78	0.79
N/A	MP-BW-41-318	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	0.52	0.72	0.60
N/A	MP-BW-41-353	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	1.3	1.6	ND (0.25)	1.2
N/A	MW-BW-59-180	ND (0.25)	0.12 J	ND (0.25)	ND (0.25)	8.9	11.3	10.7	9.3
N/A	MW-OU2-72-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	1.4	1.3	1.3	1.4
N/A	MW-OU2-78-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	1.5	2.3	2.2	2.3
N/A	MW-OU2-82-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	4.6	4.1	4.9	5.0

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

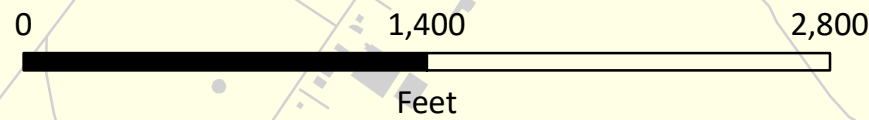
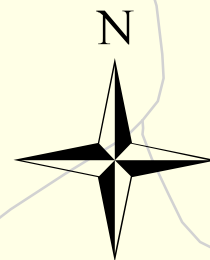
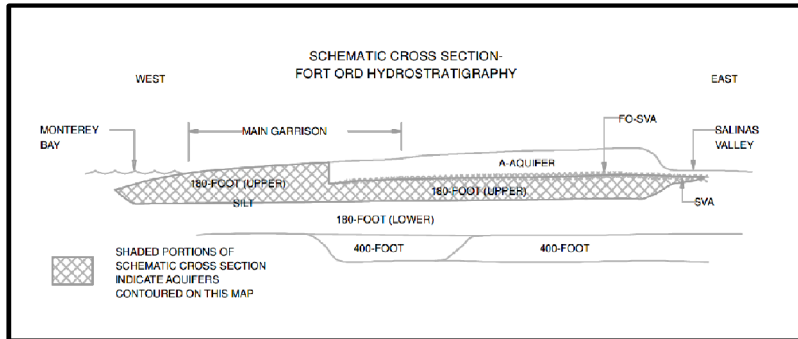
J: Estimated result with a low (-) or high (+) bias

¹ Hydraulic zones are identified in the Groundwater QAPP.

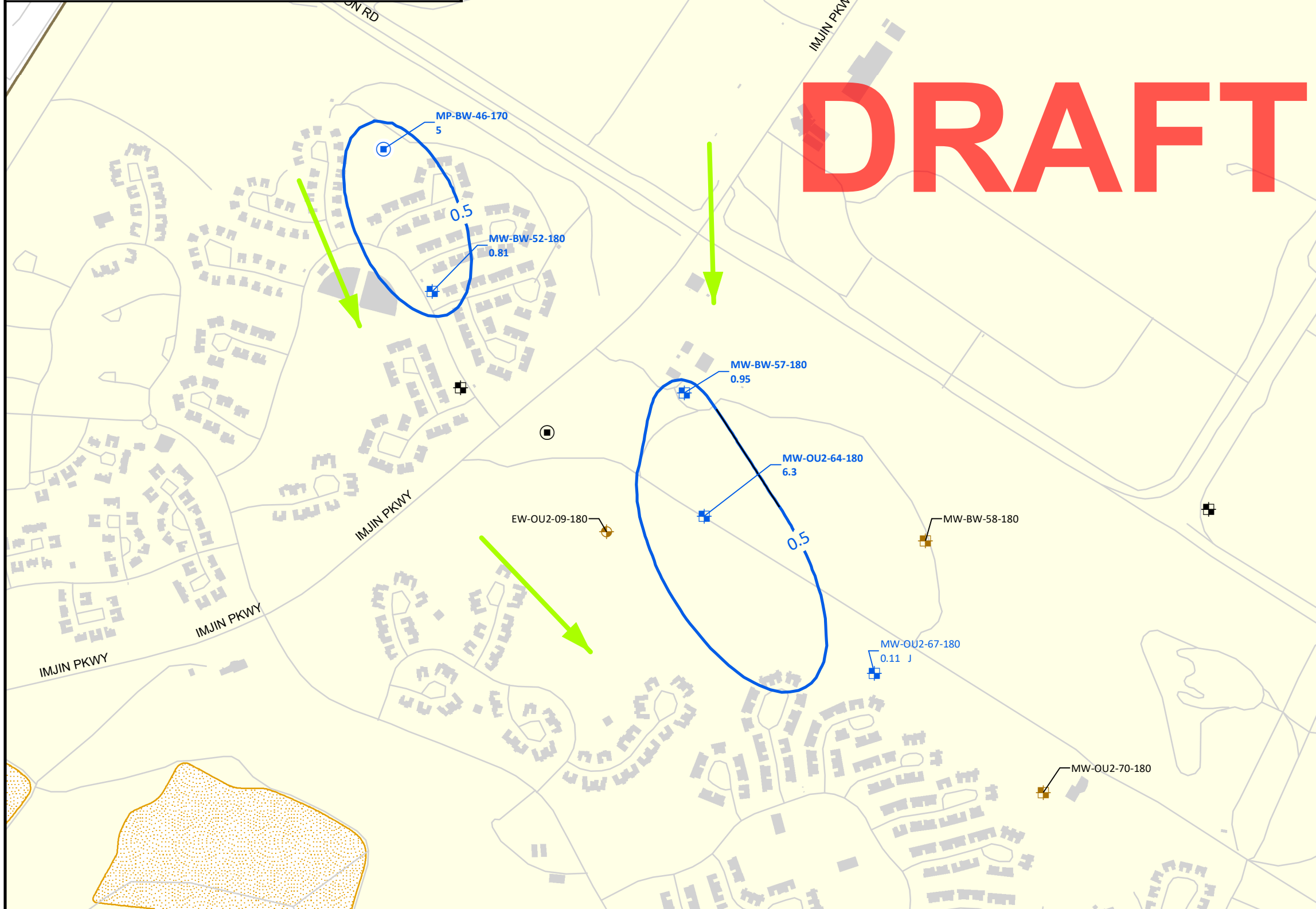
² Concentration in **bold** and shaded cell exceeds the Aquifer Cleanup Level (ACL) for CT and the Maximum Contaminant Level (MCL) for TCE. Results in *gray* are ND.

³ 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)

* Preliminary data



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EXPLANATION

- Extraction Well CT Not Detected
- Multi-Port Westbay Well Not Sampled
- Multi-Port Westbay Well With CT Detection
- Monitoring Well Not Sampled
- Monitoring Well CT Not Detected
- Monitoring Well With CT Detection
- Well ID - Bold When Concentration Exceeds the ACL
- MW-OU2-64-180**
- 6.3**
- CT Concentrations (µg/L) and validation/lab qualifier.
- Chemical of Concern (COC) Aquifer Cleanup Level (ACL) Exceedance Contour in µg/L.
- 0.5** Carbon Tetrachloride (CT)
- General Groundwater Flow Direction
- Roads
- OU2 Landfill Areas B Through F
- Facilities
- Former Fort Ord Boundary

Notes:

- (1) Samples were collected between August 26, 2019 and September 17, 2019.
- (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 are based on highest value obtained from multiple bags and/or multiple ports were applicable.
- (4) Contours near wells not sampled this quarter are inferred from previous analytical data.

CT CONCENTRATIONS
 UPPER 180-FOOT AQUIFER
 THIRD QUARTER 2019
 Operable Unit Carbon Tetrachloride Plume
 Fourth Quarter 2018 - Third Quarter 2019
 Groundwater Monitoring Report, Former Fort Ord, California