

Former Fort Ord Operable Unit Carbon Tetrachloride Plume Data and Status

HTW BCT, May 13, 2022

Table 1. OUCTP A-Aquifer Select Monitoring Well Data – Hydraulic Zones 1, 2, and 3

OUCTP Hydraulic Zone ¹	EISB Deployment Area	Well Identification	CT Concentrations (µg/L) ²			
			2Q 2021	3Q 2021	4Q 2021	1Q 2022
ACL:			0.5			
1	1C	EW-BW-109-A	0.80	0.32 J	0.94	0.67
1	N/A	MW-BW-24-A	ND (0.25)	ND (0.25)	NS	NS
2	3A	MW-BW-58-A	0.15 J	0.16 J	0.14 J	0.17 J
2	3A	MW-BW-87-A	3.2	2.4	2.0 J+	2.3
2	3A	MW-BW-91-A	0.87	0.89	0.56 J+	0.43 J
2	N/A	MW-BW-94-AR	0.28 J	0.43 J	0.30 J	0.32 J
N/A	3A	MW-BW-90-A	1.1	1.3	0.95	1.0
2	3A	EW-BW-160-A	1.3	1.3	1.5 J+	1.1
3	3A	EW-BW-166-A	ND (0.25)	ND (0.25)	NS	NS
3	N/A	MW-BW-88-A	0.92	0.55	0.82	1.2
3	N/A	MW-BW-93-A	0.24 J [0.16 J]	0.36 J	0.29 J	0.30 J
3	N/A	MW-BW-95-A	0.84	1.1	1.0 J+	1.1
N/A	N/A	MW-40-01-A	NS	NS	ND (0.25)	ND (0.25)

Notes:

CT: carbon tetrachloride

µg/L: micrograms per liter

ND: The analyte was not detected above the detection limit

NS: not sampled

N/A: not applicable

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

¹ Hydraulic zones are identified in the Groundwater QAPP.² 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]

* Preliminary data

February-April Key Events

- Feb 28-Mar 4: First Quarter 2022 Groundwater Monitoring event.
- Mar 14: Sample MW-BW-66-A late (PDB fell).
- Mar 28: Resample wells with anomalous results:
 - Upper 180-Foot Aquifer well MW-OU2-64-180
 - Lower 180-Foot Aquifer well MW-OU2-66-180
 - Lower 180-Foot Aquifer well MW-OU2-69-180
 - Results from resampling consistent with historical data and will be used for reporting.

Future Key Events

- June 6-10: Second Quarter 2022 Groundwater Monitoring event.

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Table 2. OUCTP A-Aquifer Select Monitoring Well Data – Hydraulic Zones 4 and 5

OUCTP Hydraulic Zone ¹	EISB Deployment Area	Well Identification	CT Concentrations (µg/L) ²			
			2Q 2021	3Q 2021	4Q 2021	1Q 2022
ACL:			0.5			
4	2A	EW-BW-124-A	0.84 J-	0.43 J	0.59 J+	0.67
4	2A	EW-BW-129-A	2.4 J-	2.0	1.7	1.2
4	2A	EW-BW-140-A	0.69 J-	0.52	0.49 J	0.41 J
4	2A	MW-BW-26-A^	2.9 J-	2.5	2.4	2.1
4	N/A	MW-B-12-A	0.44 J	0.23 J	0.15 J	0.17 J
4	2B	MW-B-14-A	0.48 J	0.34 J	0.24 J	0.33 J
4	2B	EW-BW-155-A	0.26 J	0.17 J	0.26 J	0.14 J
4	N/A	MW-BW-31-A	ND (0.25)	0.88	0.43 J	0.15 J
4	N/A	MW-BW-32-A	0.98 J-	1.2	2.0	2.7
4	N/A	MW-BW-35-A	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
4	N/A	MW-BW-36-A	0.17 J	ND (0.25)	0.12 J	ND (0.25)
4	N/A	MW-BW-42-A	NS	ND (0.25)	NS	NS
4	N/A	MW-BW-89-A	0.47 J	0.48 J	0.50 J+	0.53
4	N/A	MW-BW-92-A	0.78	1.0	1.0	1.1
5	Pilot	EISB-EW-01	0.25 J [0.27 J]	0.22 J	0.20 J	0.19 J
5	Pilot	EISB-EW-09	0.97	1.1	1.2 J+	0.92
5	N/A	MW-BW-49-A	0.26 J	0.32 J	0.26 J	0.18 J
5	N/A	MW-BW-65-A	0.32 J	0.56	0.66	ND (0.25) [0.59]
5	Pilot	MW-BW-66-A	0.46 J	0.37 J	0.31 J	0.17 J
5	N/A	MW-BW-74-A	ND (0.25) [0.12 J]	ND (0.25) [0.14 J]	NS	NS
5	N/A	MW-BW-75-A	2.1 [2.1]	2.3	0.29 J [2.0]	0.27 J [1.8]
5	N/A	MW-BW-78-A	ND (0.25) [0.17 J]	0.16 J [0.20 J]	NS	NS
5	N/A	MW-BW-79-A	0.54	0.64	1.3 J+	ND (0.25) [0.68]
5	N/A	MW-BW-80-A	3.7	5.4	5.5 [5.1]	5.1 [4.2]
5	N/A	MW-BW-81-A	NS	NS	0.18 J	0.22 J
5	N/A	MW-BW-82-A	0.98	1.1	0.84 J+	ND (0.25) [0.88]

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.

² Results in **bold** and shaded are concentrations above the ACL

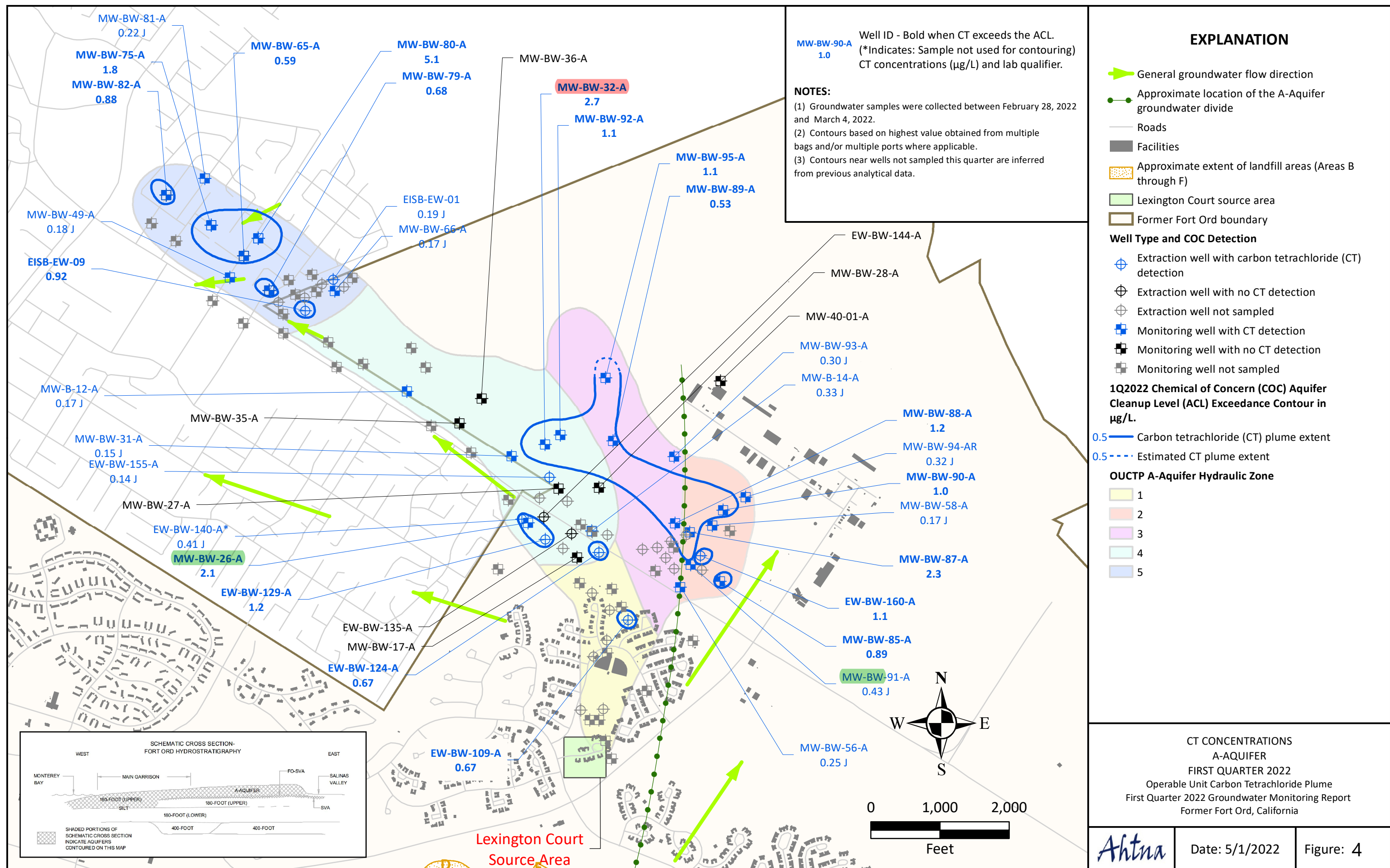
Results in gray are ND

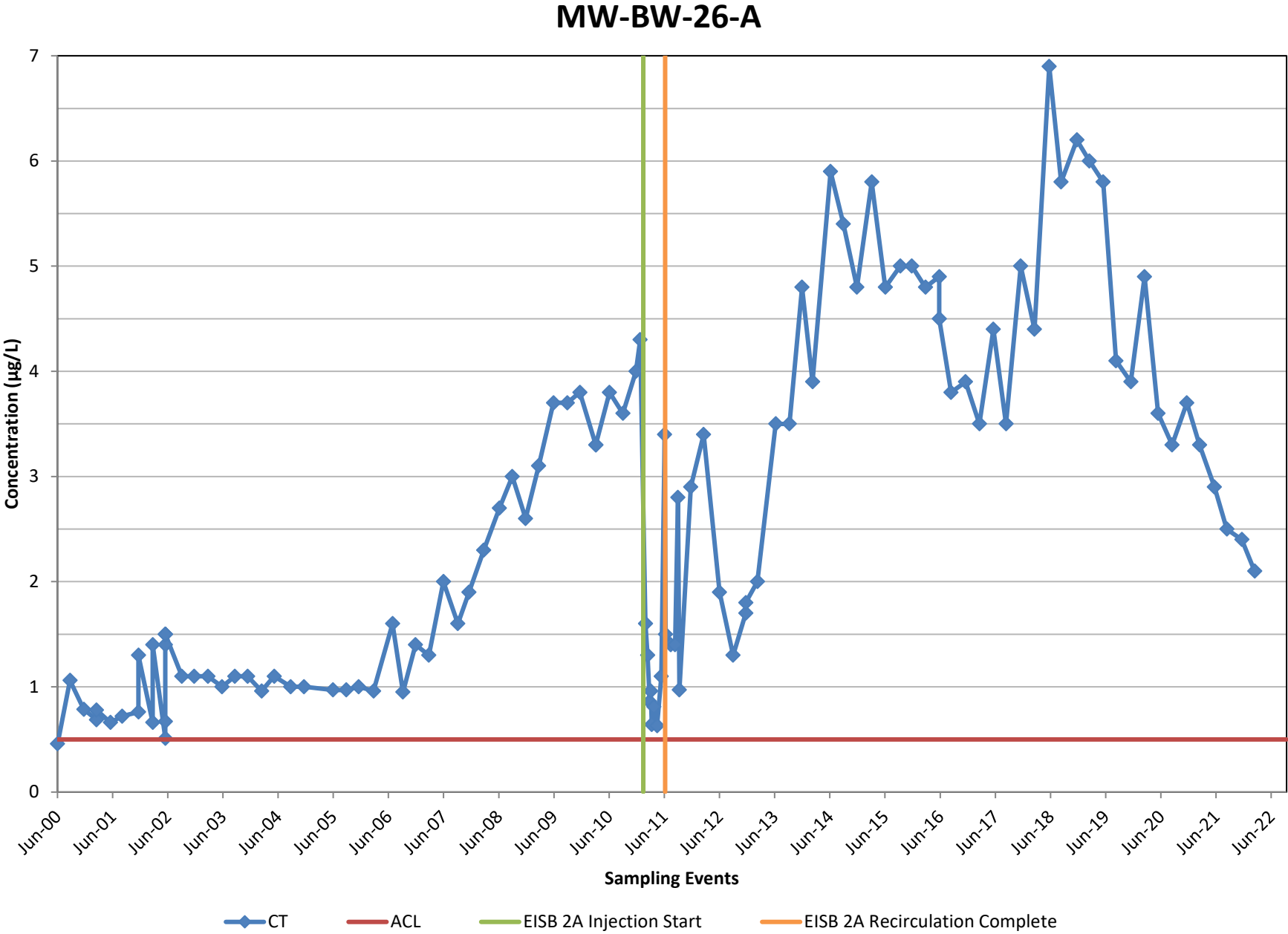
COC: chemical of concern

[Results in brackets are from a second deeper passive diffusion bag]

[^] Downgradient monitoring well MW-BW-30-A sampled annually: ND.

* Preliminary data





The graph displays the concentration of a substance over time, measured in µg/L. The x-axis represents sampling events from November 2000 to November 2021. The y-axis represents concentration from 0 to 9 µg/L. Two data series are shown: CT (blue line with diamond markers) and ACL (red line). The CT series shows significant fluctuations, with major peaks in Nov-01 and Nov-15. The ACL series is a constant horizontal line at 0.5 µg/L.

Sampling Event	CT (µg/L)	ACL (µg/L)
Nov-00	2.0	0.5
Nov-01	8.1	0.5
Nov-02	2.9	0.5
Nov-03	1.0	0.5
Nov-04	1.2	0.5
Nov-05	1.0	0.5
Nov-06	0.7	0.5
Nov-07	0.5	0.5
Nov-08	0.8	0.5
Nov-09	1.2	0.5
Nov-10	0.8	0.5
Nov-11	1.2	0.5
Nov-12	1.0	0.5
Nov-13	2.5	0.5
Nov-14	4.0	0.5
Nov-15	7.9	0.5
Nov-16	0.8	0.5
Nov-17	2.5	0.5
Nov-18	2.3	0.5
Nov-19	1.8	0.5
Nov-20	1.0	0.5
Nov-21	2.7	0.5

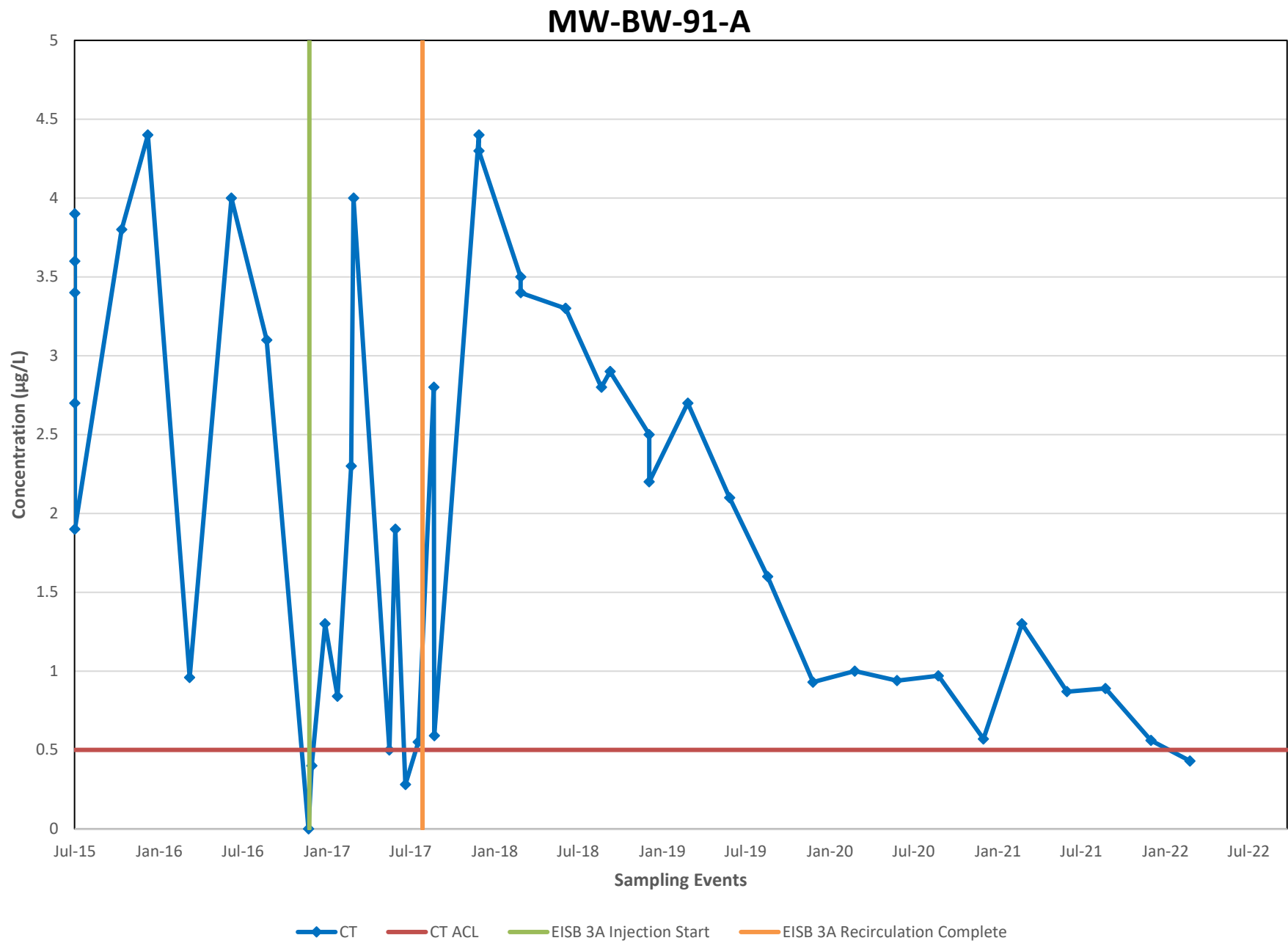


Table 3. OUCTP Upper 180-Foot Aquifer Select Monitoring Well Data

OUCTP Hydraulic Zone ¹	Well Identification	CT Concentrations (µg/L) ²			
		2Q 2021	3Q 2021	4Q 2021	1Q 2022
ACL:		0.5			
6	EW-OU2-09-180 ³	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
6	MP-BW-46-170	5.2	6.2 J+	5.4	5.0
N/A	MW-BW-21-180	0.22 J	ND (0.25)	ND (0.25)	0.17 J
N/A	MW-BW-43-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
6	MW-BW-52-180	0.60 J+	0.53	0.47 J	0.49 J
6	MW-BW-57-180	0.60	0.30 J	0.17 J	0.11 J
6	MW-BW-58-180	NS	ND (0.25)	NS	NS
6	MW-OU2-64-180	5.3 J+	3.5 J+	2.1 J+	2.4
6	MW-OU2-67-180 ⁴	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)

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

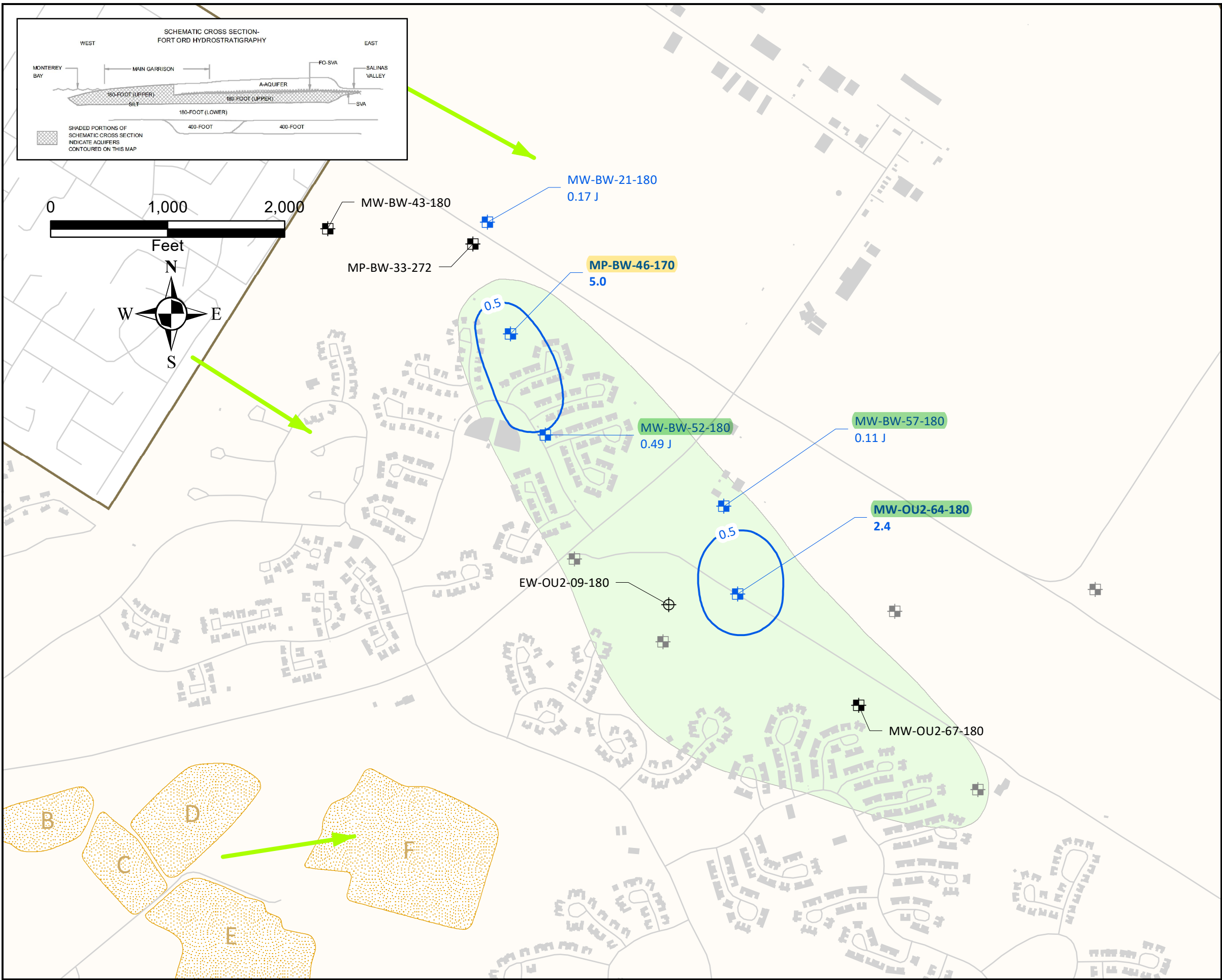
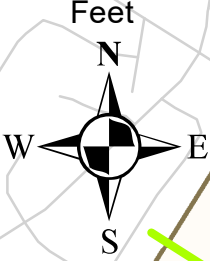
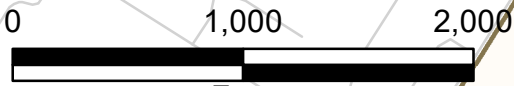
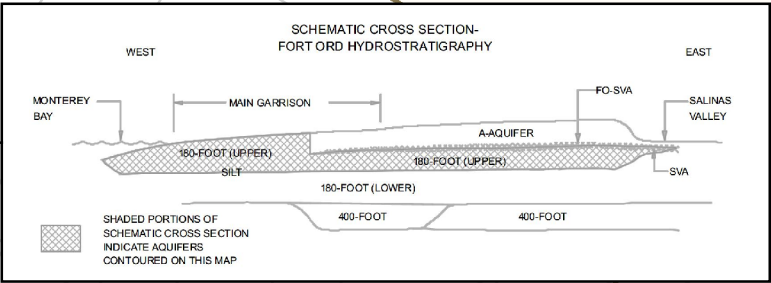
¹ Hydraulic zones are identified in the Groundwater QAPP.

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 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



EXPLANATION

- General groundwater flow direction
- Roads
- Facilities
- Approximate extent of landfill areas (Areas B through F)
- Former Fort Ord boundary

Well Type and CT Detection

- Extraction well with no carbon tetrachloride (CT) detected
- Monitoring well with CT detected
- Monitoring well with no CT detected
- Monitoring well not sampled

Chemical of Concern (COC) Aquifer Cleanup Level (ACL) exceedance contour in µg/L.

0.5 Carbon Tetrachloride

OUCTP Upper 180-Foot Aquifer Hydraulic Zone

6

Well ID - Bold When Concentration Exceeds the ACL for CT
MW-OU2-64-180 2.4
CT Concentrations (µg/L) and validation/lab qualifier.

NOTES:

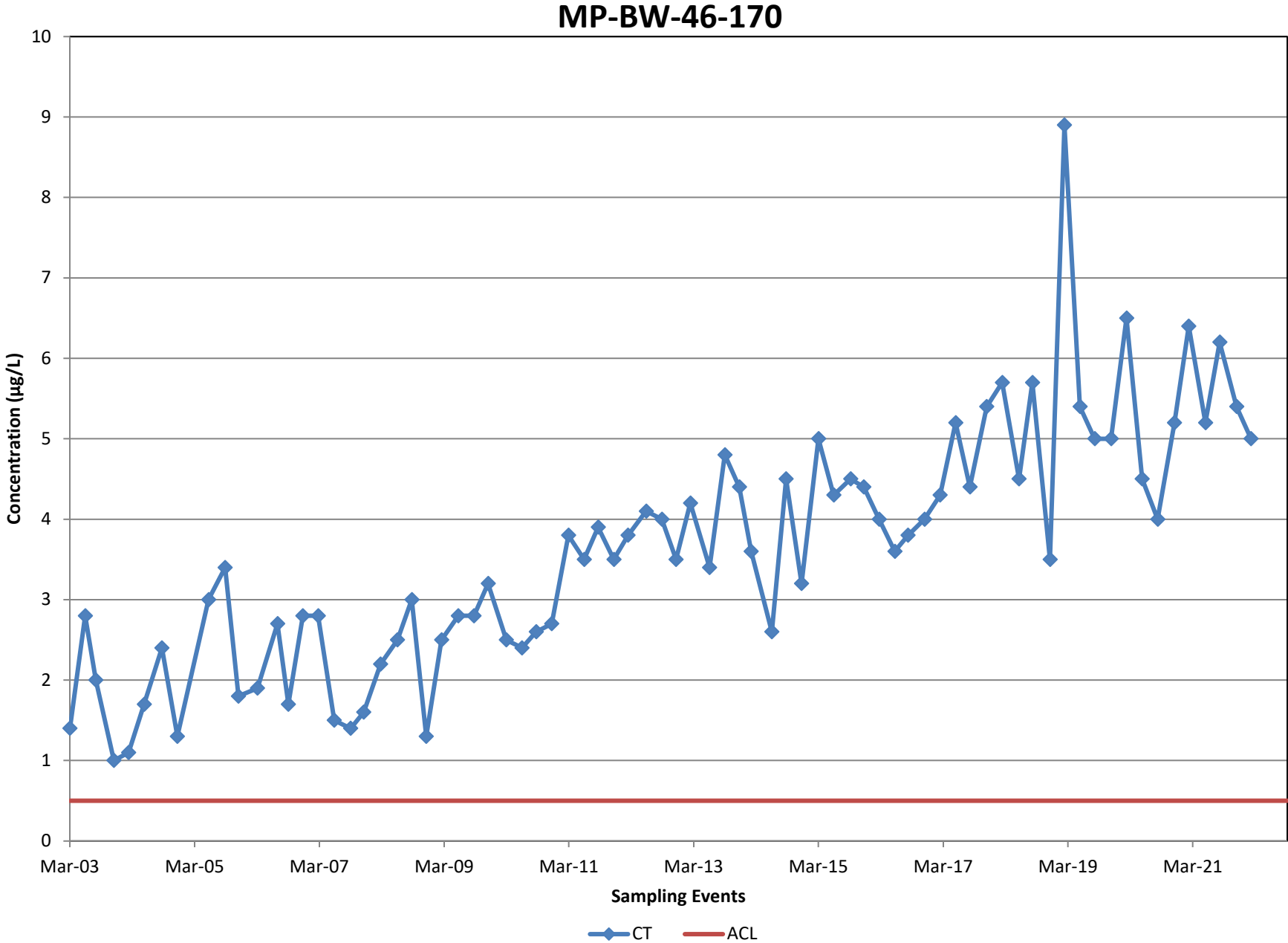
- Samples were collected between February 28, 2022 and March 31, 2022.
- Contours are based on one interpretation of the data that were available at the time this report was prepared; other interpretations may be possible.
- Contours are based on highest value obtained from multiple bags and/or multiple ports were applicable.
- Contours near wells not sampled this quarter are inferred from previous analytical data.

CT CONCENTRATIONS
UPPER 180-FOOT AQUIFER
FIRST QUARTER 2022
Operable Unit Carbon Tetrachloride Plume
First Quarter 2022 Groundwater Monitoring Report
Former Fort Ord, California

Ahtna

Date: 5/1/2022

Figure: 7



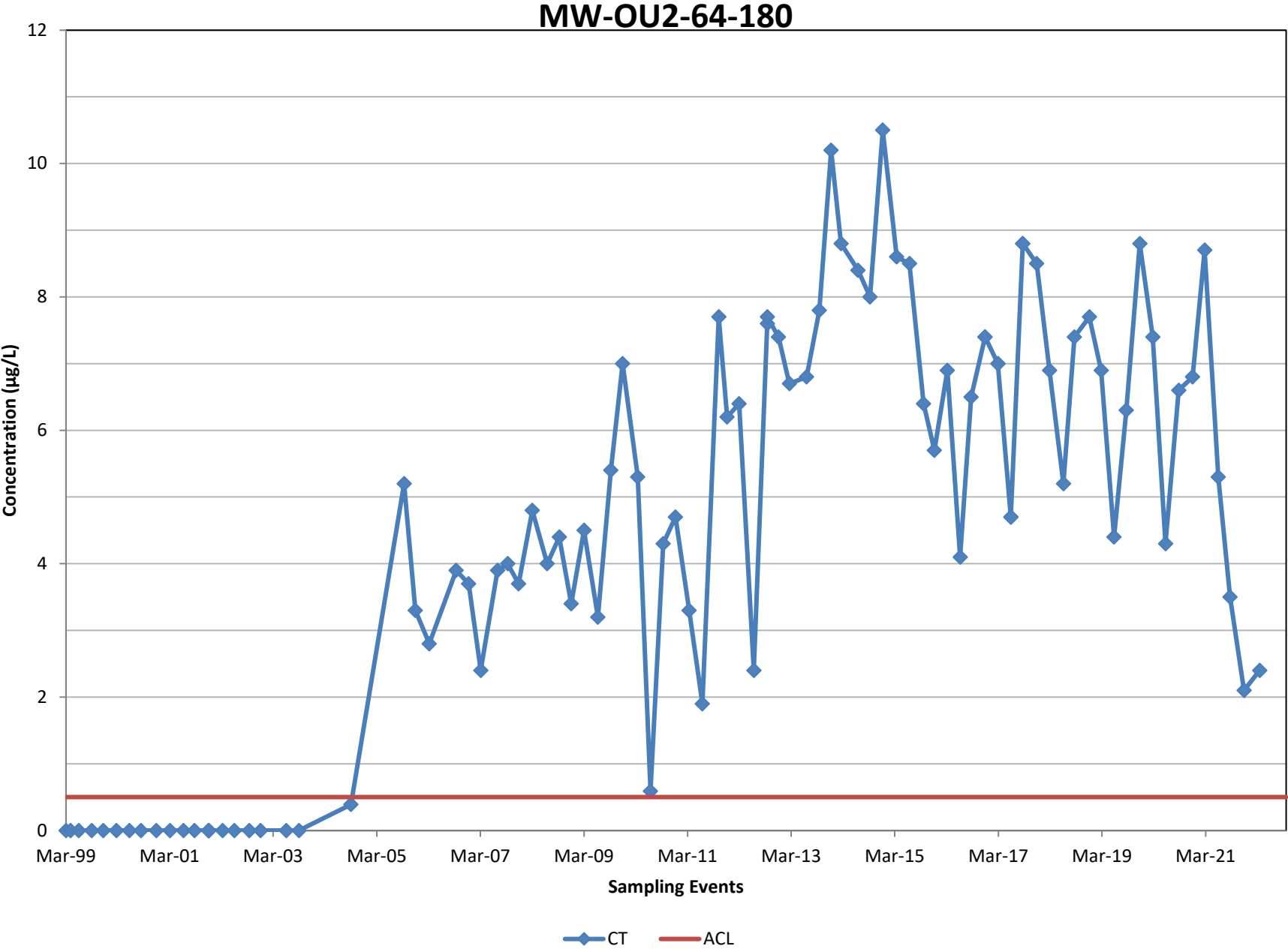


Table 4. OUCTP Lower 180-Foot Aquifer Select Monitoring Well Data

OUCTP Hydraulic Zone ¹	Well Identification	Select COC Concentrations (µg/L) ²							
		2Q 2021	3Q 2021	4Q 2021	1Q 2022	2Q 2021	3Q 2021	4Q 2021	1Q 2022
		CT				TCE ³			
		Limit: ACL 0.5				MCL 5.0			
7	MP-BW-49-316	3.7 J+	3.0	1.6	2.3	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)	4.5 J+	4.0	4.5 J+	4.3
7	MP-BW-50-339	ND (0.25)	1.2	0.39 J	1.3	ND (0.25)	ND (0.25)	0.13 J	ND (0.25)
7	MP-BW-50-384	0.13 J	ND (0.25)	ND (0.25)	ND (0.25)	1.8 J+	2.0	2.1 J+	1.9
7	MP-BW-51-405	0.15 J	0.16 J	0.11 J	0.11 J	1.5	1.5	1.3 J+	1.5
7	MW-OU2-66-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	0.38 J	0.35 J	0.28 J	ND (0.25)
7	MW-OU2-69-180	1.1	1.1 J+	0.86	0.98	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
8	AIRFIELD	ND (0.25)	0.39 J	NS	NS	ND (0.25)	ND (0.25)	NS	NS
N/A	EW-OU2-07-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	3.3	3.6	4.0 J+	3.8
N/A	FO-29	0.22 J	0.17 J	0.18 J	0.19 J	1.8	2.6	2.1	1.8
N/A	FO-30	0.27 J	0.24 J	0.19 J	0.18 J	0.53	0.55	0.57 J+	0.54
N/A	FO-31	0.11 J	NS	0.10 J	0.10 J	0.92	NS	1.0	1.1
N/A	MP-BW-41-318	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	0.32 J	0.37 J	0.22 J	0.36 J
N/A	MP-BW-41-353	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	1.3	1.3	1.2 J+	1.2
N/A	MW-BW-59-180	0.14 J	0.14 J	ND (0.25)	ND (0.25)	10.4 J+	10.0 J+	9.6 J+	8.3
N/A	MW-OU2-72-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	1.3	1.8	1.9	1.6
N/A	MW-OU2-78-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	2.6	2.2 J+	2.6 J+	2.1
N/A	MW-OU2-82-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	4.2 J+	5.9	4.5	4.5

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

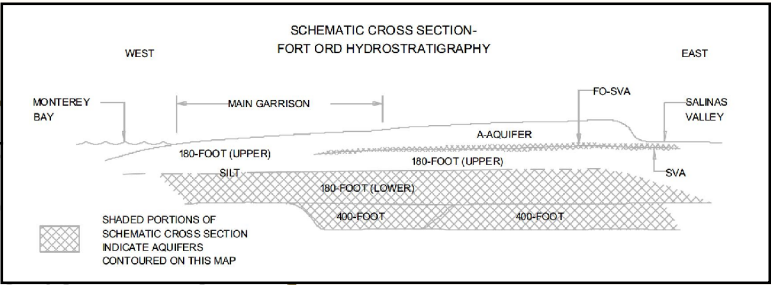
TCE: trichloroethene

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



MP-BW-51-405
Well ID
Concentration in µg/L and validation/lab qualifier.
(blue indicates CT; red indicates TCE)
CT Bold when COC exceeds the ACL.

NOTES:
(1) Groundwater samples were collected between December 6, 2021 and December 14, 2021.
(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 OUCTP Lower 180-Foot Aquifer.

EXPLANATION

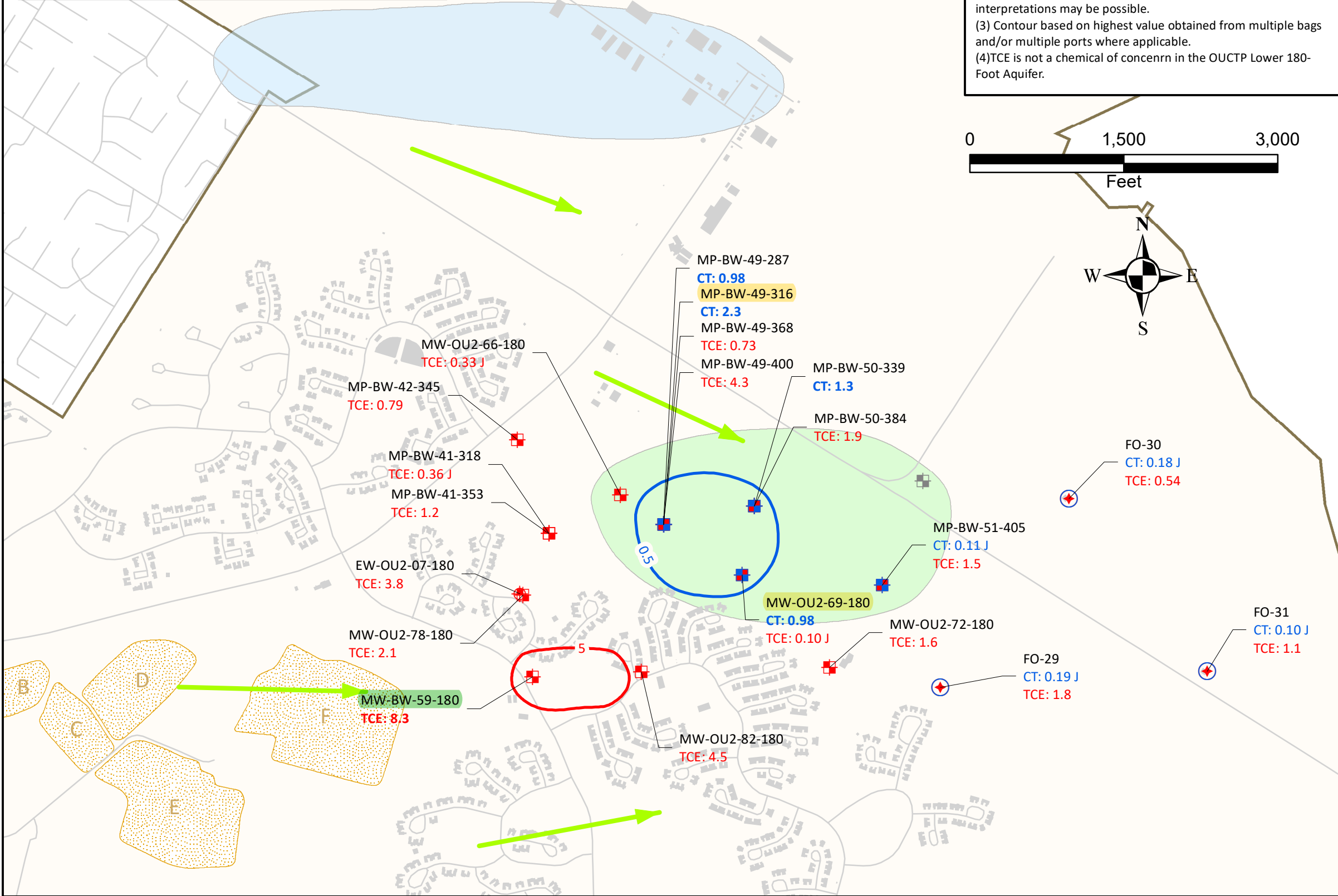
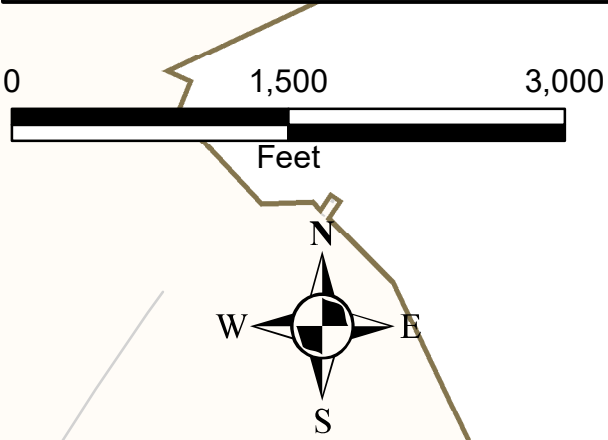
- General groundwater flow direction
- Roads
- Facilities
- Approximate extent of landfill areas (Areas B through F)
- Former Fort Ord boundary
- Well Type and COC Detection**
 - Extraction well with trichloroethene (TCE) detection
 - Monitoring well with TCE detection
 - Monitoring well with CT and TCE detection
 - Marina Coast active supply well with CT and TCE detection
 - Monitoring well not sampled

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

- 0.5 Carbon tetrachloride (CT) plume extent
- 5.0 Trichloroethene (TCE) plume extent

OUCTP Lower 180-Foot Aquifer Hydraulic Zone

- 7
- 8

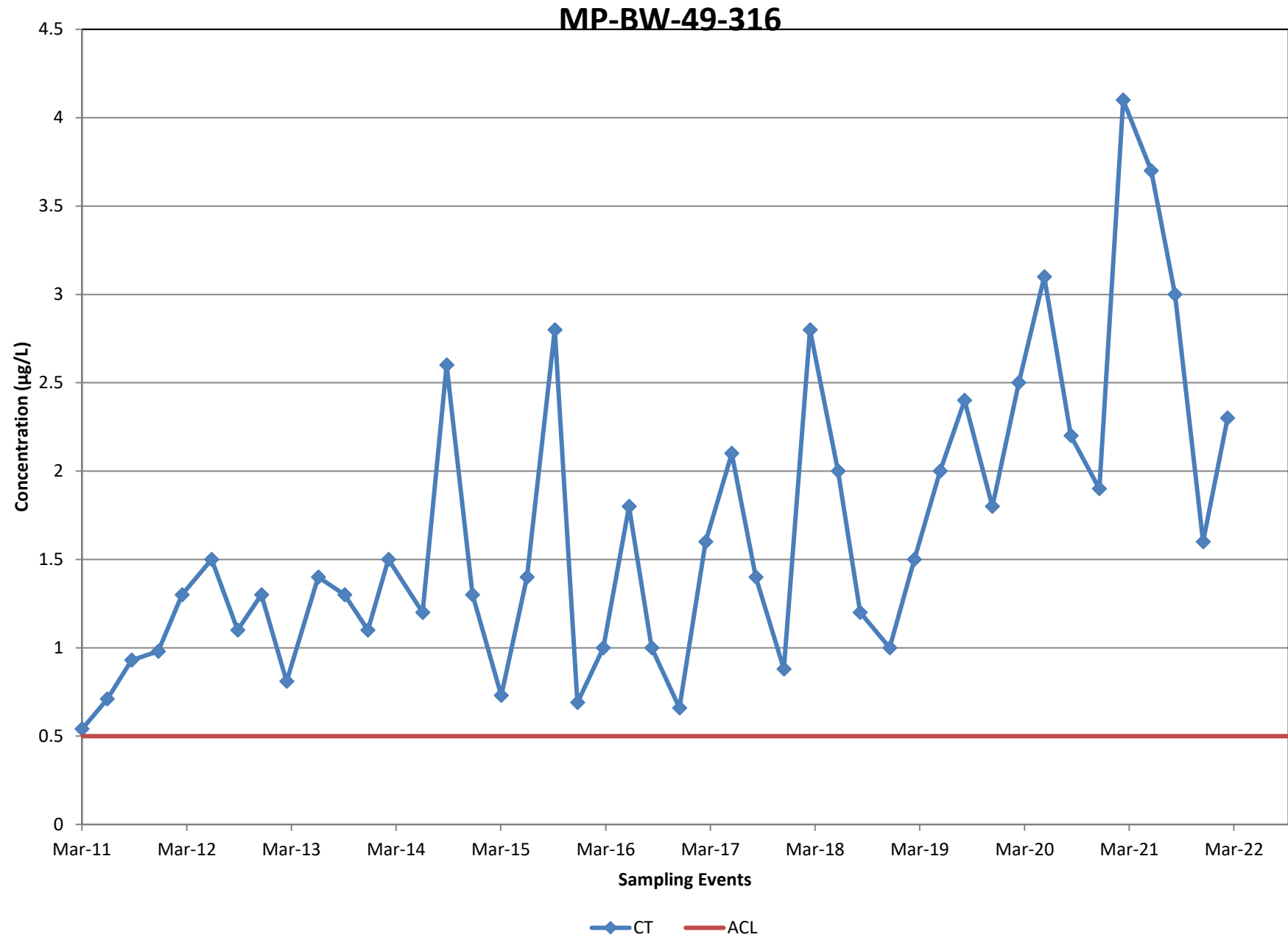


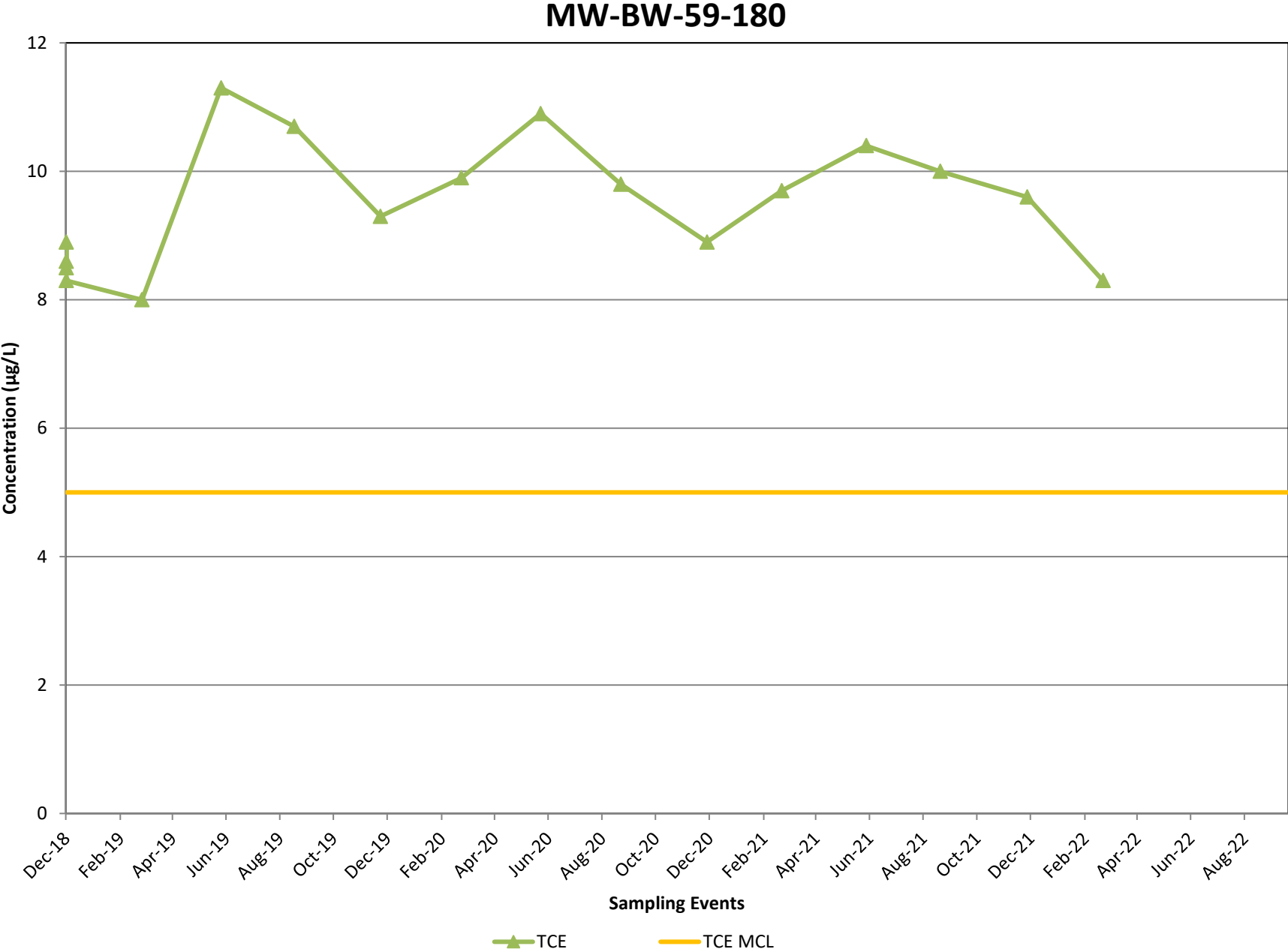
CT AND TCE CONCENTRATIONS
LOWER 180-FOOT/400-FOOT AQUIFERS
FIRST QUARTER 2021
Operable Unit Carbon Tetrachloride Plume
First Quarter 2021 Groundwater Monitoring Report
Former Fort Ord, California

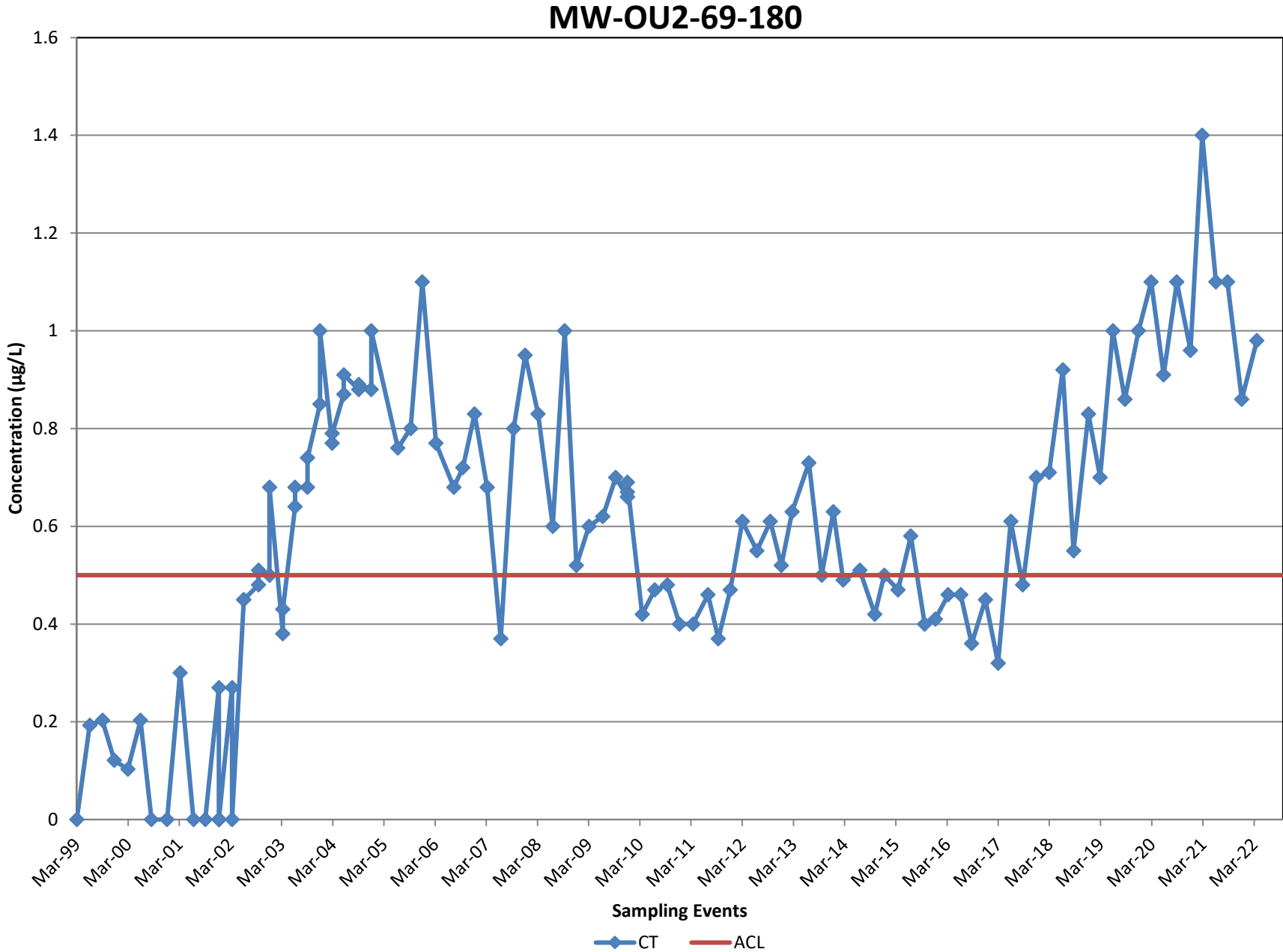
Ahtna

Date: 5/1/2022

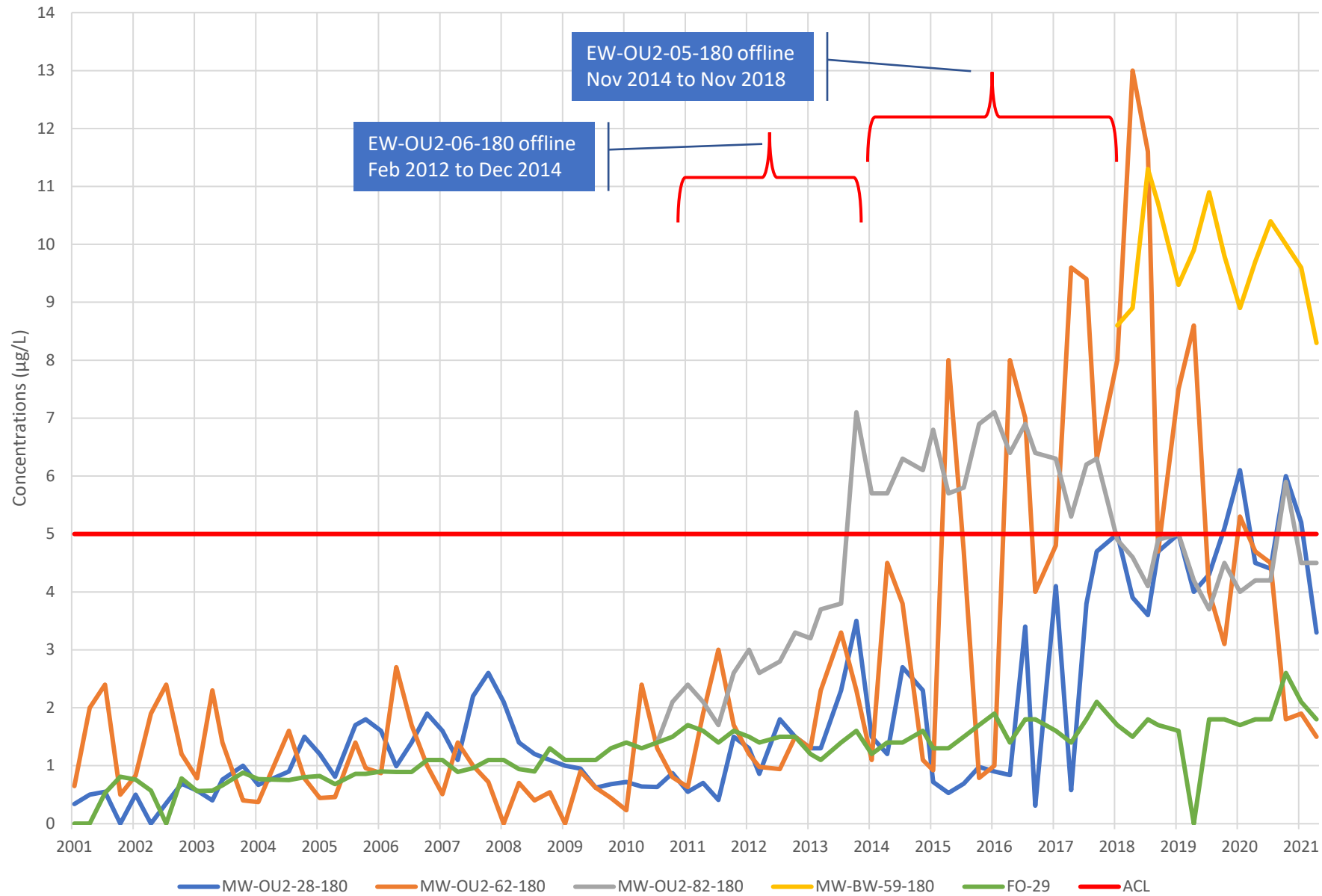
Figure: 9

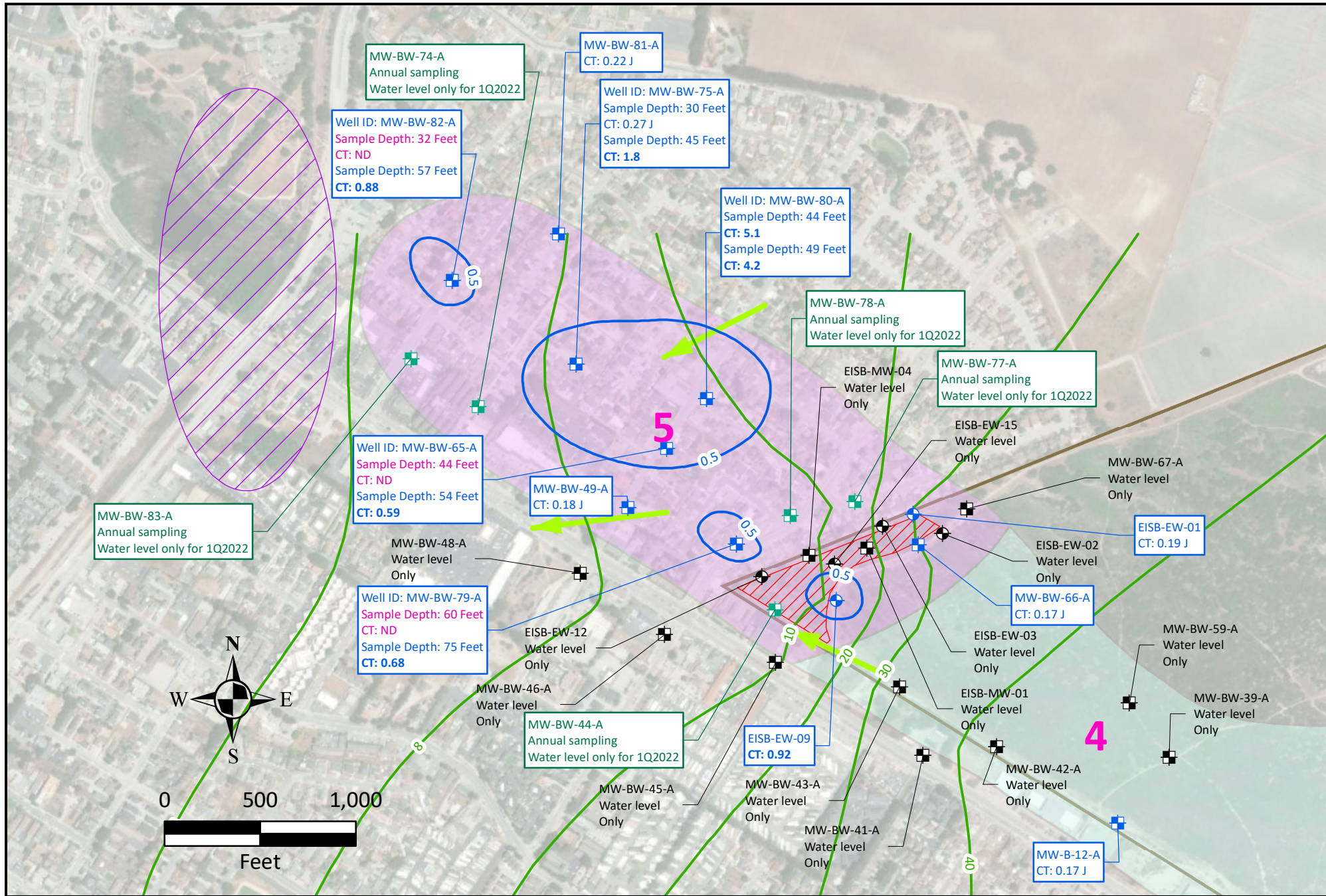






TCE in the Lower 180-Footer Aquifer





EXPLANATION

- General groundwater flow direction
- 1Q2022 Groundwater
- Proposed New A-Aquifer Groundwater Monitoring Well Area
- Enhanced In-Situ Bioremediation (EISB) deployment pilot study area
- Former Fort Ord boundary

- ### Well Type and Sample Information
- Extraction well: Carbon tetrachloride (CT) detected
 - Extraction well: Depth to water measurement only
 - Monitoring well: CT
 - Monitoring well: No CT detected
 - Monitoring well: Annual sampling (Water level only for 1Q)
 - Monitoring well: Depth to water measurement only

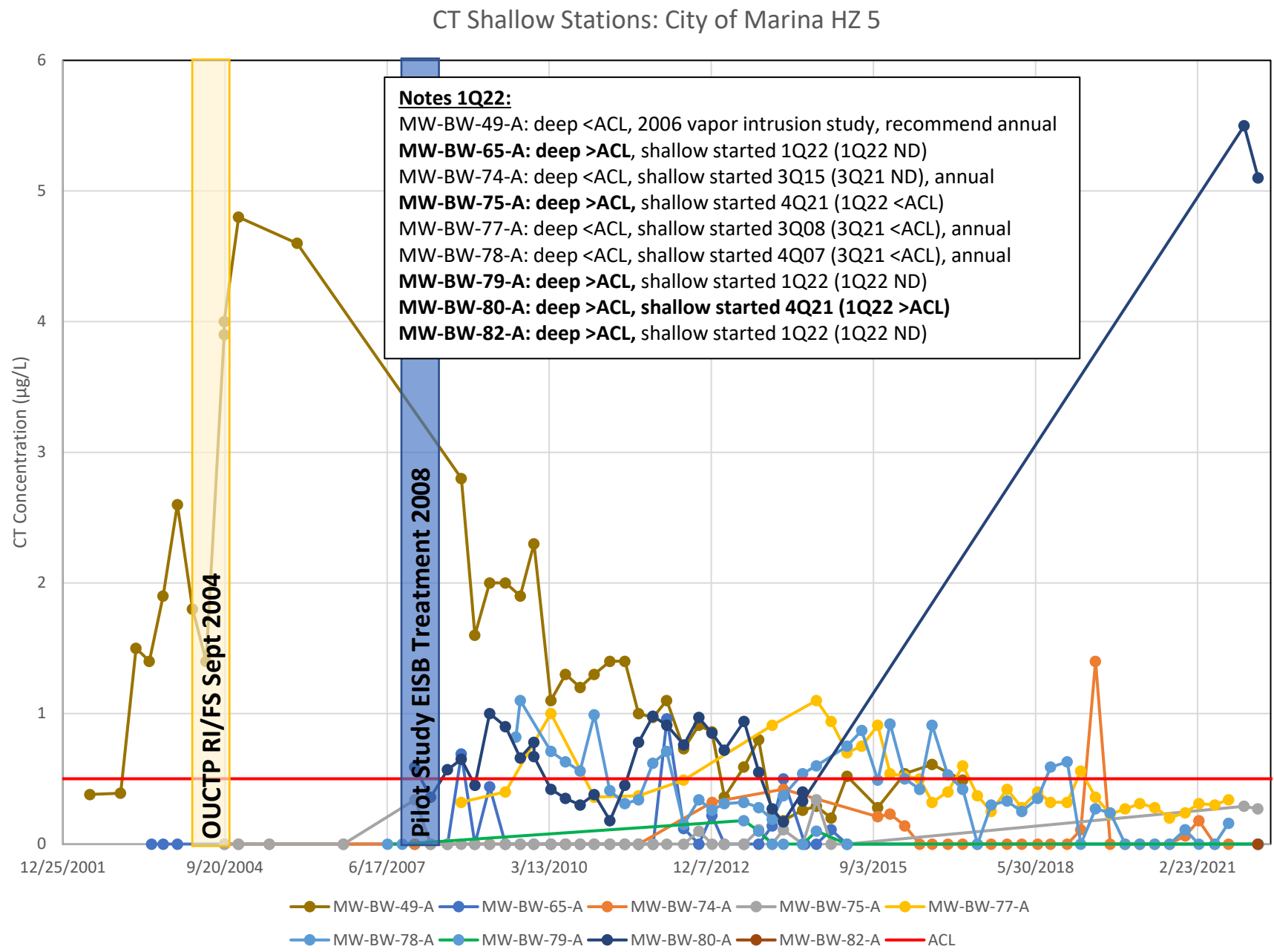
1Q2022 Chemical of Concern (COC) Aquifer Cleanup Level (ACL) Exceedance Contour in µg/L.

CT plume extent (0.5 µg/L)

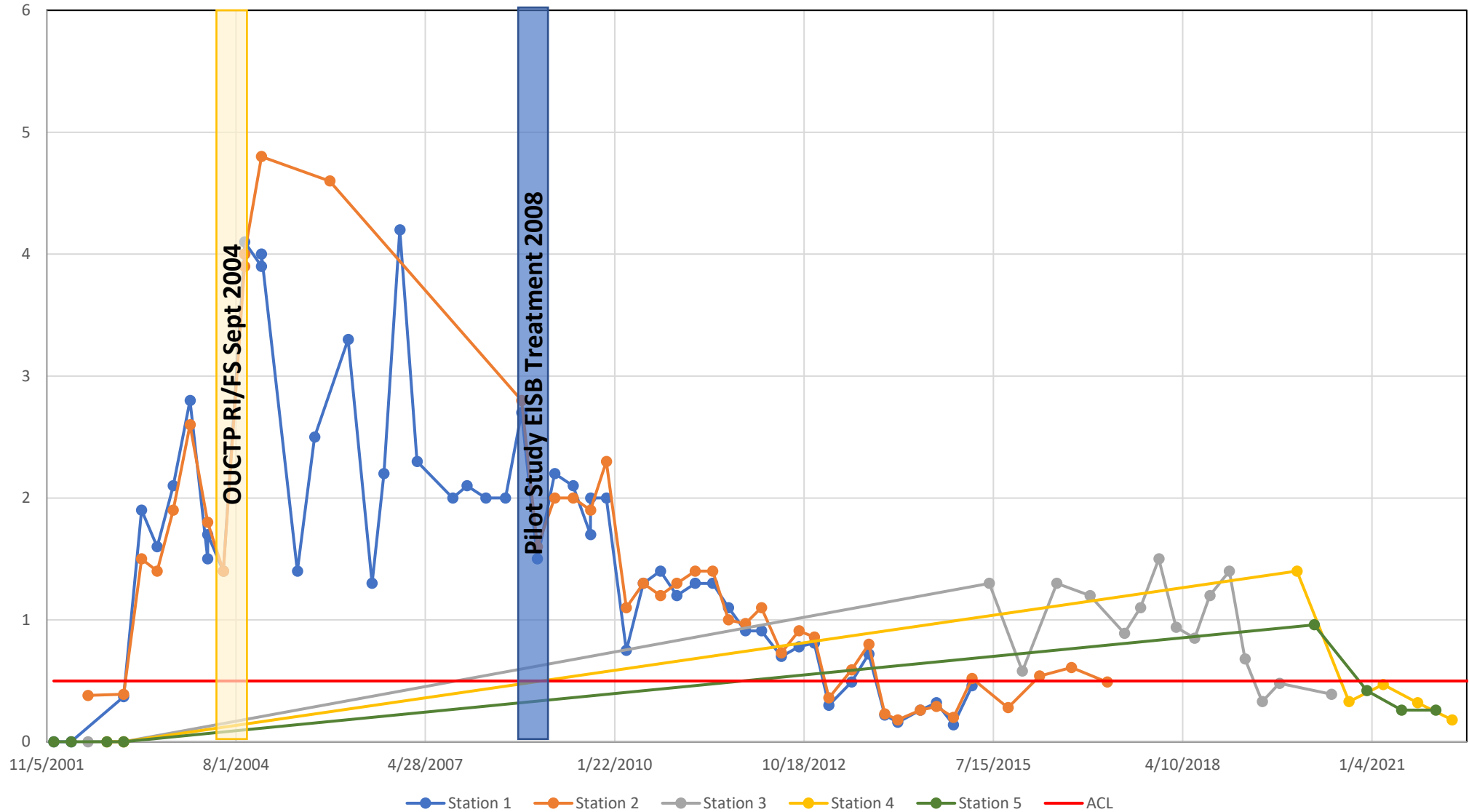
OUCTP A-Aquifer Hydraulic Zone

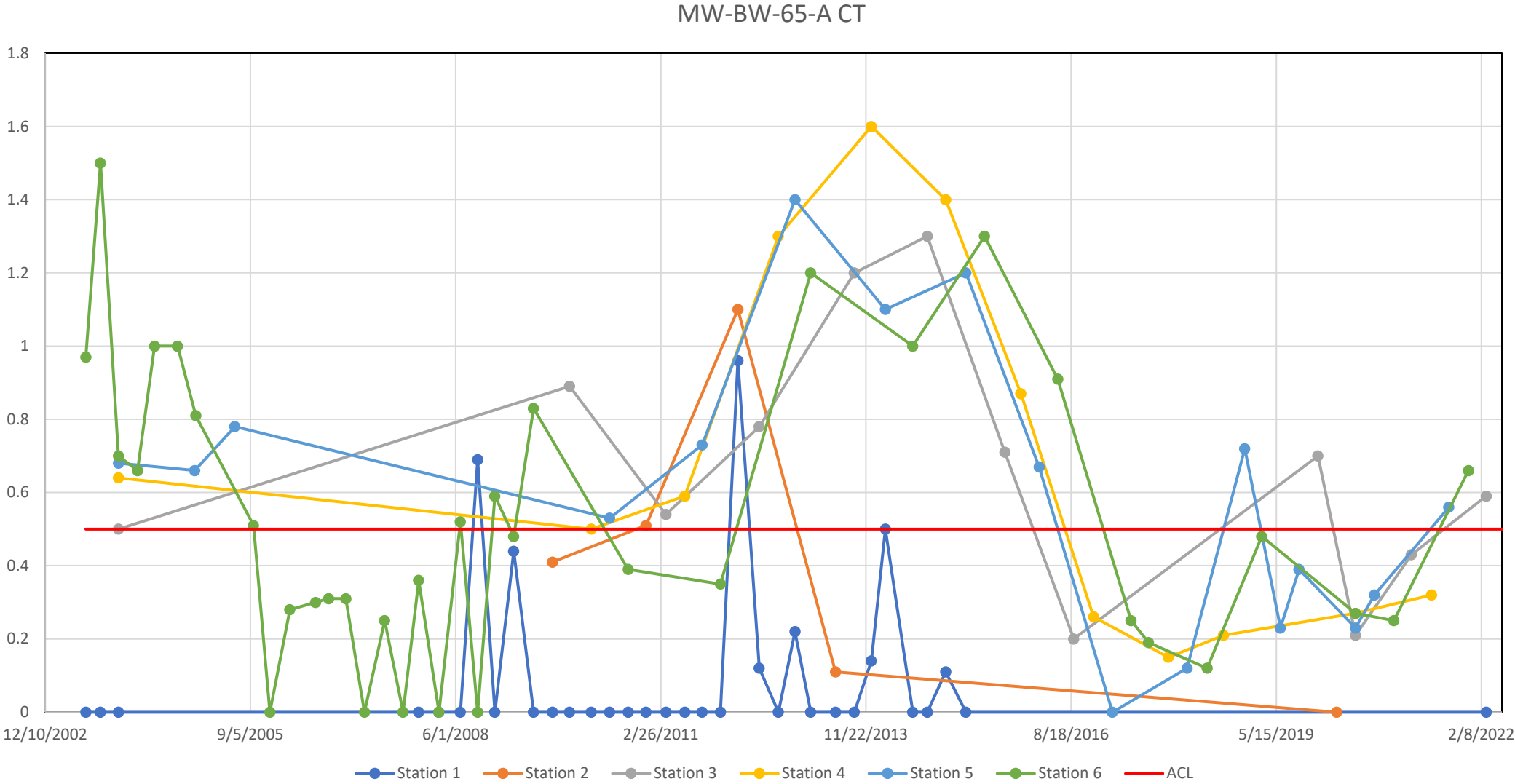


1Q2022 CT CONCENTRATIONS OPERABLE UNIT CARBON TETRACHLORIDE PLUME HYDRAULIC ZONE 5 A-AQUIFER IPM/BCT Former Fort Ord, California



MW-BW-49-A CT





MW-BW-75-A CT

