

Former Fort Ord Operable Unit Carbon Tetrachloride Plume Data and Status

HTW BCT, February 10, 2023

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				
			4Q 2021	1Q 2022	2Q 2022	3Q 2022	4Q 2022
ACL:			0.5				
1	1C	EW-BW-109-A	0.94	0.67	0.79	0.98	1.5 J
1	N/A	MW-BW-24-A	NS	NS	NS	ND (0.25)	NS
2	3A	MW-BW-58-A	0.14 J	0.17 J	NS	0.46 J	NS
2	3A	MW-BW-87-A	2.0 J+	2.3	3.0 J+	2.2	1.9
2	3A	MW-BW-91-A	0.56 J+	0.43 J	0.50	0.40 J	0.27 J
2	N/A	MW-BW-94-AR	0.30 J	0.32 J	0.48 J	0.42 J	0.41 J
N/A	3A	MW-BW-90-A	0.95	1.0	1.3 J+	1.2 J+	0.87
2	3A	EW-BW-160-A	1.5 J+	1.1	1.9 J+	1.3	1.1
3	3A	EW-BW-166-A	NS	NS	NS	ND (0.25)	NS
3	N/A	MW-BW-88-A	0.82	1.2	1.7 J+	1.7 J+	1.4
3	N/A	MW-BW-93-A	0.29 J	0.30 J	0.51	0.41 J	0.43 J
3	N/A	MW-BW-95-A	1.0 J+	1.1	1.4	1.3	1.1
N/A	N/A	MW-40-01-A	ND (0.25)	ND (0.25)	ND (0.25)	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

Dec-Jan Key Events

- Dec 21-22: Completed Fourth Quarter 2022 Groundwater Monitoring event (3 PFAS wells and 1 well where the rope fell).

Future Key Events

- Feb 13-17: First Quarter 2023 Groundwater Monitoring event.

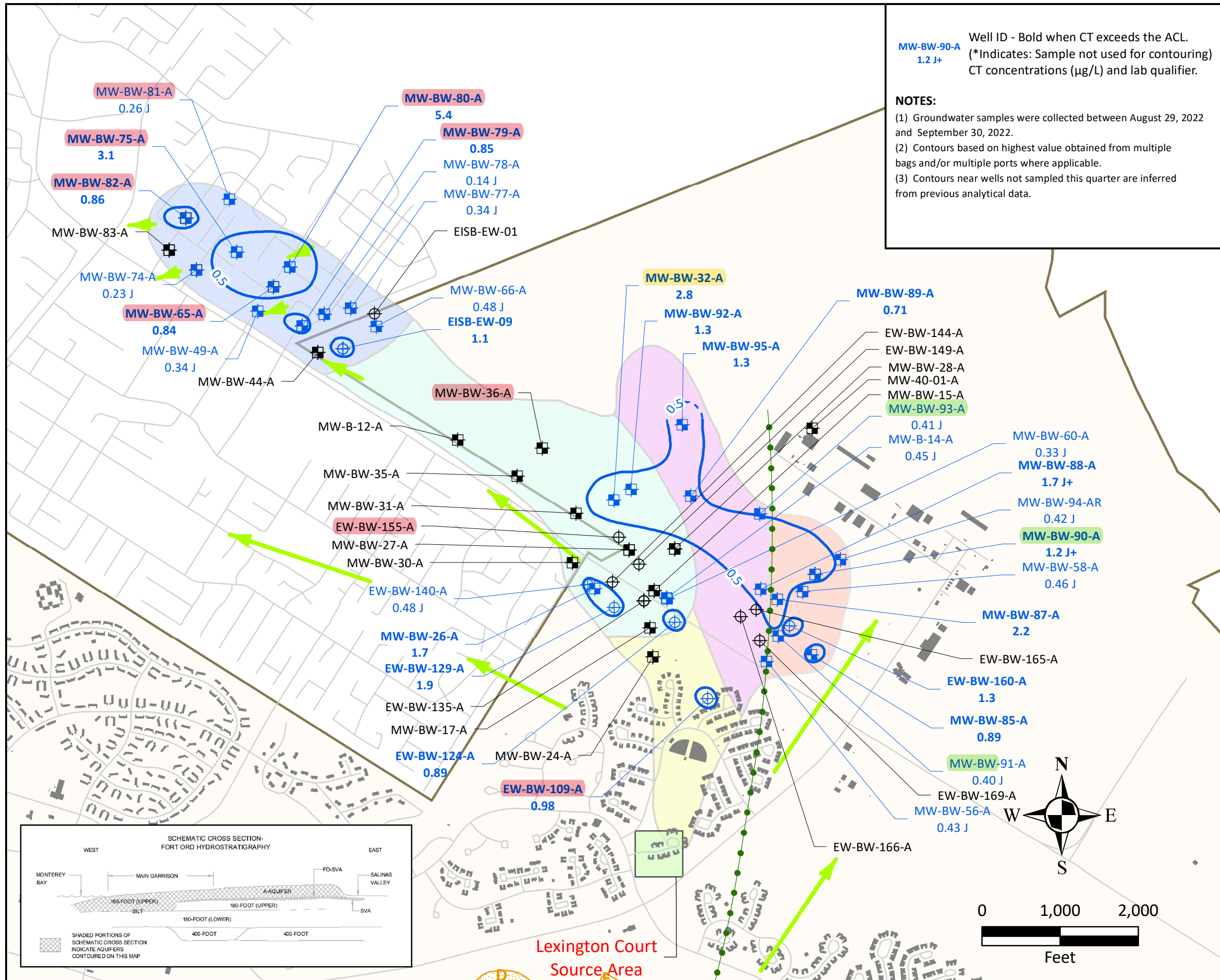


Table 2. OUCTP A-Aquifer Select Monitoring Well Data – Hydraulic Zones 4 and 5

OUCTP Hydraulic Zone ¹	EISB Deployment Area	Well Identification	CT Concentrations (µg/L) ²				
			4Q 2021	1Q 2022	2Q 2022	3Q 2022	4Q 2022*
ACL:			0.5				
4	2A	EW-BW-124-A	0.59 J+	0.67	0.55	0.89	0.80 J+
4	2A	EW-BW-129-A	1.7	1.2	1.8	1.9	1.4 J+
4	2A	EW-BW-140-A	0.49 J	0.41 J	0.50	0.48 J	0.48 J
4	2A	MW-BW-26-A [^]	2.4	2.1	2.2	1.7	1.6 J+
4	N/A	MW-B-12-A	0.15 J	0.17 J	NS	ND (0.25)	NS
4	2B	MW-B-14-A	0.24 J	0.33 J	0.30 J	0.45 J	0.33 J
4	2B	EW-BW-155-A	0.26 J	0.14 J	0.15 J	ND (0.25)	0.41 J
4	N/A	MW-BW-31-A	0.43 J	0.15 J	ND (0.25)	ND (0.25)	0.23 J
4	N/A	MW-BW-32-A	2.0	2.7	2.7	2.8	2.8
4	N/A	MW-BW-35-A	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
4	N/A	MW-BW-36-A	0.12 J	ND (0.25)	ND (0.25)	ND (0.25)	1.1
4	N/A	MW-BW-89-A	0.50 J+	0.53	0.64	0.71	0.56
4	N/A	MW-BW-92-A	1.0	1.1	0.99	1.3	1.4
5	Pilot	EISB-EW-01	0.20 J	0.19 J	0.17 J	ND (0.25)	0.17 J
5	Pilot	EISB-EW-09	1.2 J+	0.92	0.99	1.1	1.2
5	N/A	MW-BW-49-A	0.26 J	0.18 J	NS	0.34 J	NS
5	N/A	MW-BW-65-A	0.66	ND (0.25) [0.59]	ND (0.25) [0.82]	ND (0.25) [0.84]	ND (0.25) [1.3 J+]
5	Pilot	MW-BW-66-A	0.31 J	0.17 J	0.27 J	0.48 J	0.25 J
5	N/A	MW-BW-74-A	NS	NS	NS	ND (0.25) [0.23 J]	ND (0.25) [0.44 J]
5	N/A	MW-BW-75-A	0.29 J [2.0]	0.27 J [1.8]	0.60 J+ [2.3]	0.14 J [3.1]	0.95 J [4.7 J]
5	N/A	MW-BW-78-A	NS	NS	NS	0.12 J [0.14 J]	NS
5	N/A	MW-BW-79-A	1.3 J+	ND (0.25) [0.68]	1.2 [1.0]	0.35 J [0.85]	0.62 J+ [1.5 J+]
5	N/A	MW-BW-80-A	5.5 [5.1]	5.1 [4.2]	3.9 [4.1]	5.4 [5.3 J-]	8.9 J+ [8.5 J+]
5	N/A	MW-BW-81-A	0.18 J	0.22 J	0.27 J	0.26 J	0.52 J
5	N/A	MW-BW-82-A	0.84 J+	ND (0.25) [0.88]	ND (0.25) [0.72]	ND (0.25) [0.86]	ND (0.25) [1.1 J]

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





EXPLANATION

- General groundwater flow direction
- Approximate location of the A-Aquifer groundwater divide
- Roads
- Facilities
- Approximate extent of landfill areas (Areas B through F)
- Lexington Court source area
- Former Fort Ord boundary

Well Type and COC Detection

- Extraction well with carbon tetrachloride (CT) detection
- Extraction well with no CT detection
- Monitoring well with CT detection
- Monitoring well with no CT detection

3Q2022 Chemical of Concern (COC) Aquifer Cleanup Level (ACL) Exceedance Contour in µg/L.

- 0.5 — Carbon tetrachloride (CT) plume extent
- 0.5 - - - Estimated CT plume extent

OUCTP A-Aquifer Hydraulic Zone

- 1
- 2
- 3
- 4
- 5

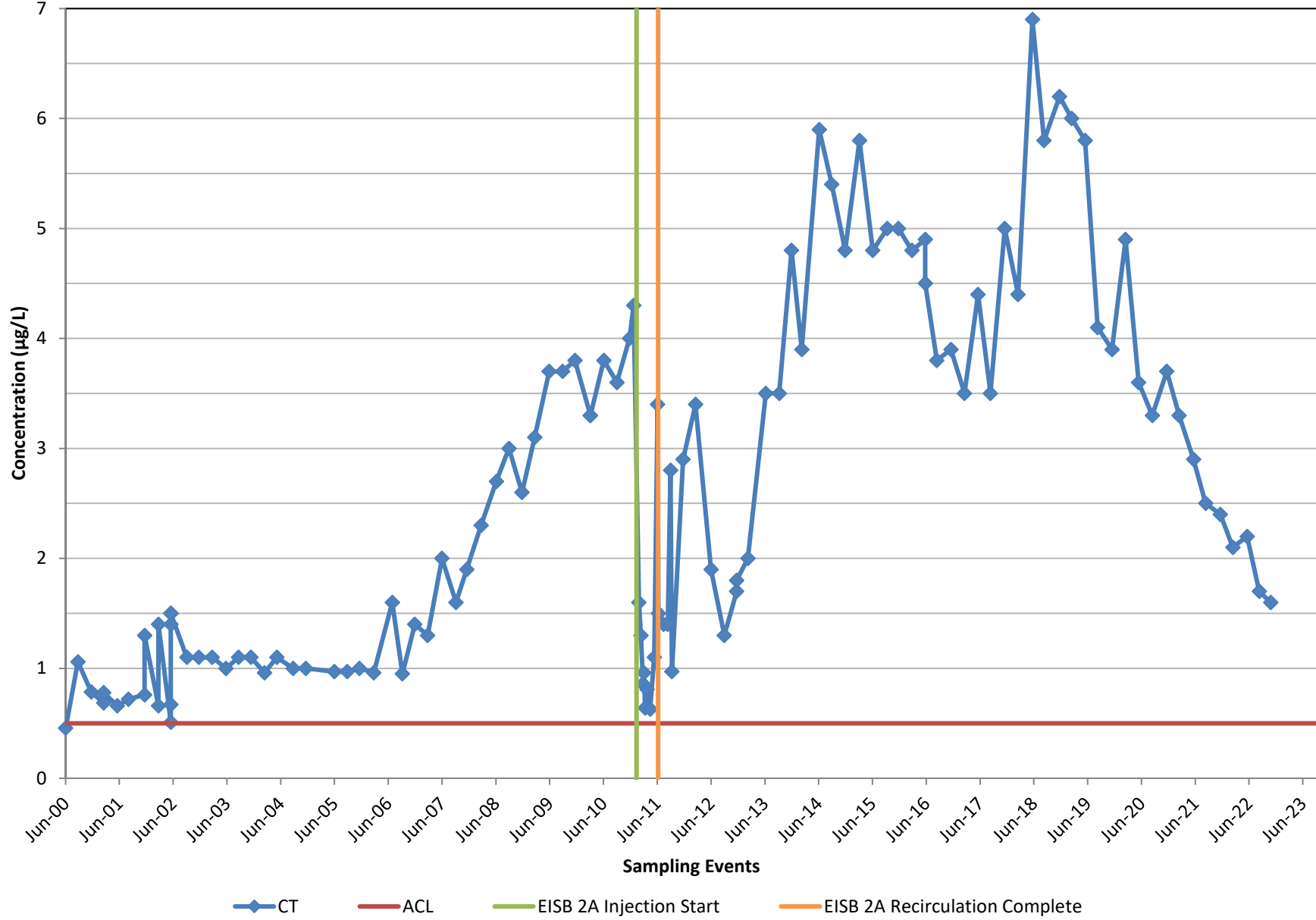
CT CONCENTRATIONS
 A-AQUIFER
 THIRD QUARTER 2022
 Operable Unit Carbon Tetrachloride Plume
 Fourth Quarter 2021 - Third Quarter 2022
 Groundwater Monitoring Report
 Former Fort Ord, California

Ahtna Date: 11/11/2022 Figure: 11

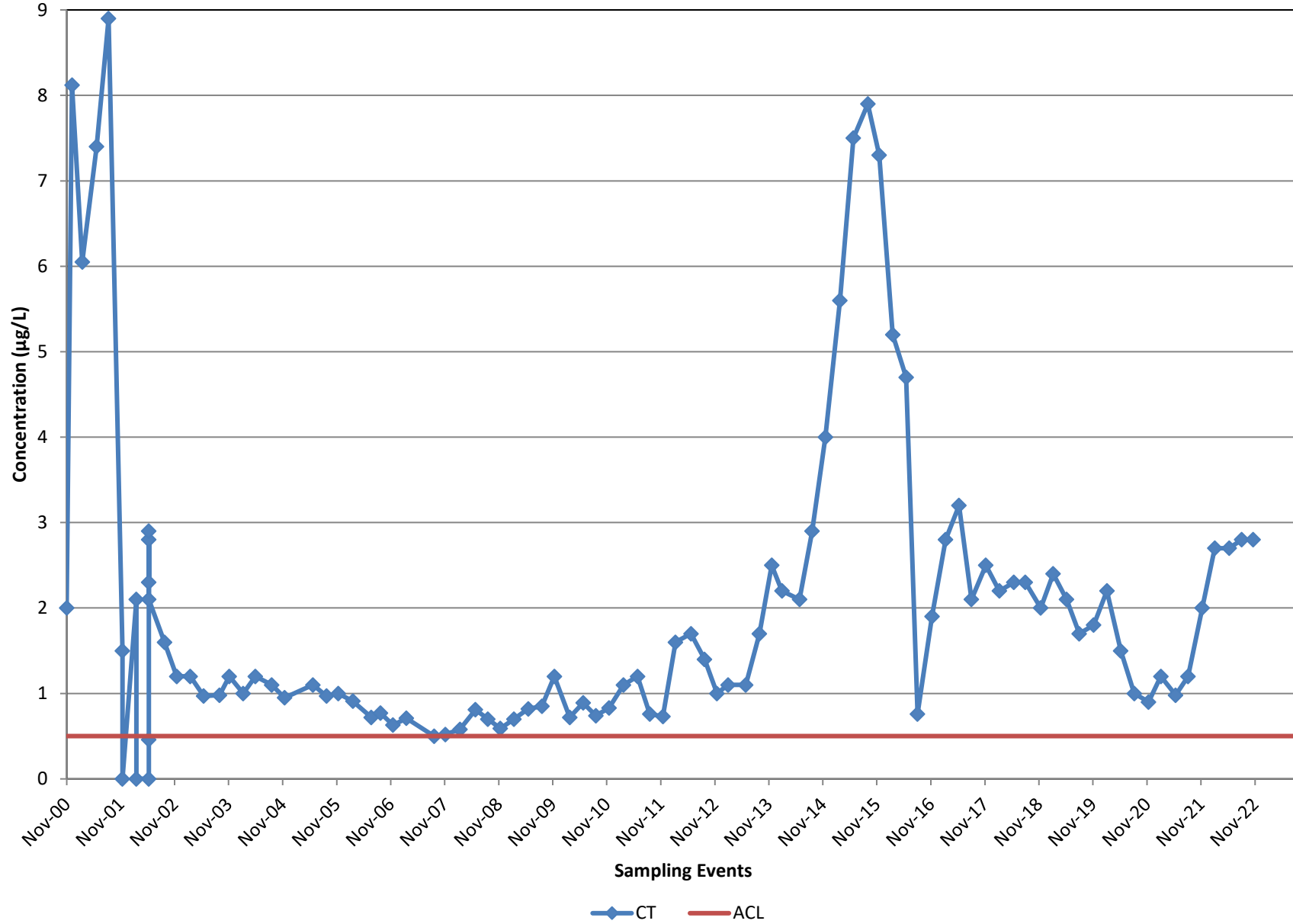
Table 3. OUCTP A-Aquifer Select Monitoring Well Data – New Monitoring Wells

Well Identification	Sample Location	Concentrations (µg/L) ²		
	Station #	CT	TCE	Chloroform
ACL:		0.5	5.0	2.0
MW-BW-96-A	1	NS	NS	NS
	2	NS	NS	NS
	3	ND (0.25)	2.1	0.24 J
	4	ND (0.25)	2.5	0.25 J
	5	ND (0.25)	2.5	0.24 J
	6	ND (0.25)	2.5	0.25 J
MW-BW-97-A	1	ND (0.25)	0.39 J	ND (0.25)
	2	ND (0.25)	0.48 J	0.10 J
	3	ND (0.25)	0.46 J	ND (0.25)
	4	ND (0.25)	0.45 J	ND (0.25)
	5	ND (0.25)	0.51	ND (0.25)
	6	ND (0.25)	0.42 J	ND (0.25)

MW-BW-26-A



MW-BW-32-A



MW-BW-91-A

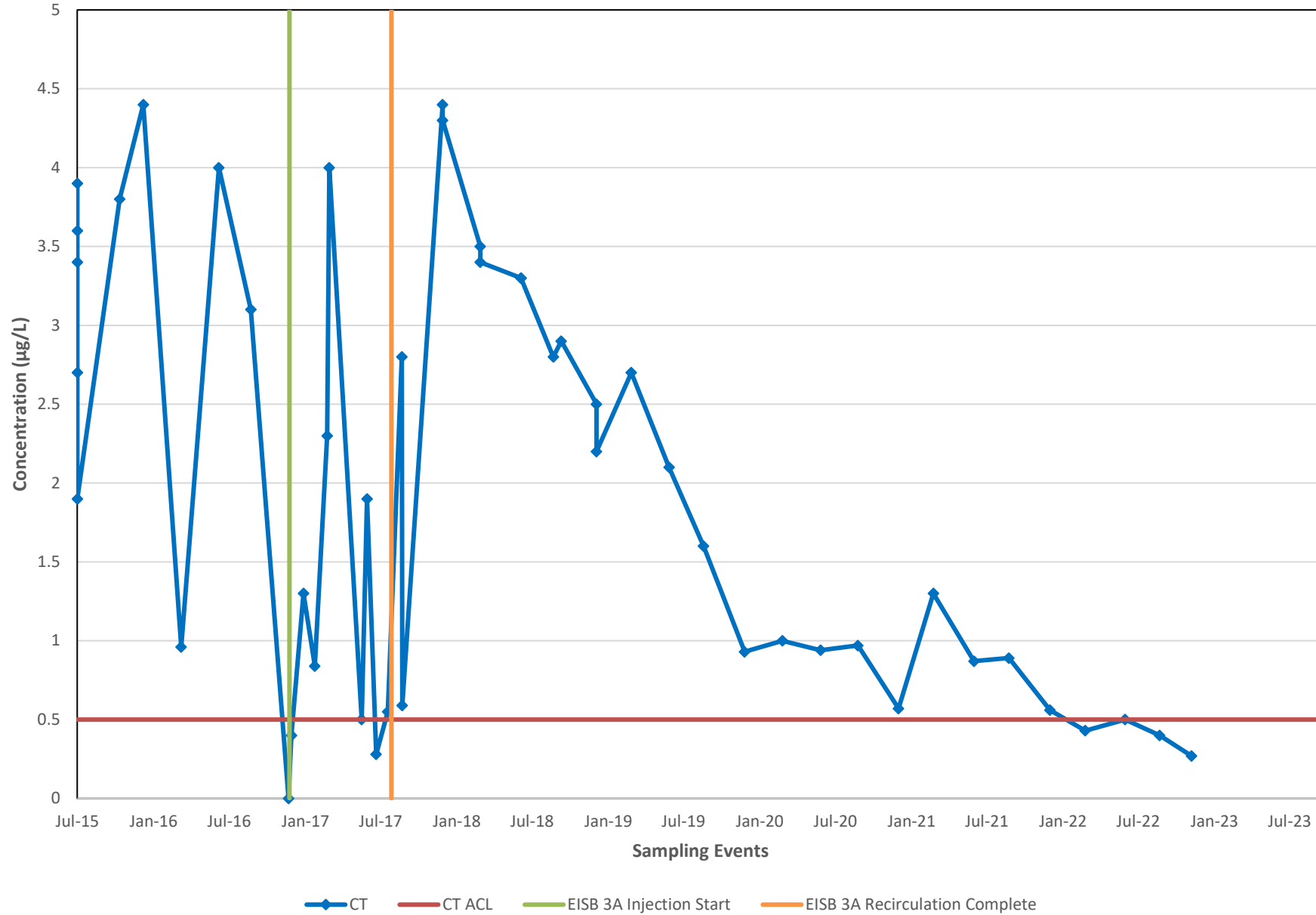


Table 4. OUCTP Upper 180-Foot Aquifer Select Monitoring Well Data

OUCTP Hydraulic Zone ¹	Well Identification	CT Concentrations (µg/L) ²				
		4Q 2021	1Q 2022	2Q 2022	3Q 2022	4Q 2022
ACL:		0.5				
6	EW-OU2-09-180 ³	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
6	MP-BW-46-170	5.4	5.0	4.3	4.6	7.3 J+
N/A	MW-BW-21-180	ND (0.25)	0.17 J	0.17 J	ND (0.25)	ND (0.25)
N/A	MW-BW-43-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
6	MW-BW-52-180	0.47 J	0.49 J	0.59 J+	0.79	0.76 J+
6	MW-BW-57-180	0.17 J	0.11 J	0.10 J	ND (0.25)	ND (0.25)
6	MW-BW-58-180	NS	NS	NS	ND (0.25)	NS
6	MW-OU2-64-180	2.1 J+	2.4	3.1	2.1	2.8 J+
6	MW-OU2-67-180 ⁴	ND (0.25)	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.

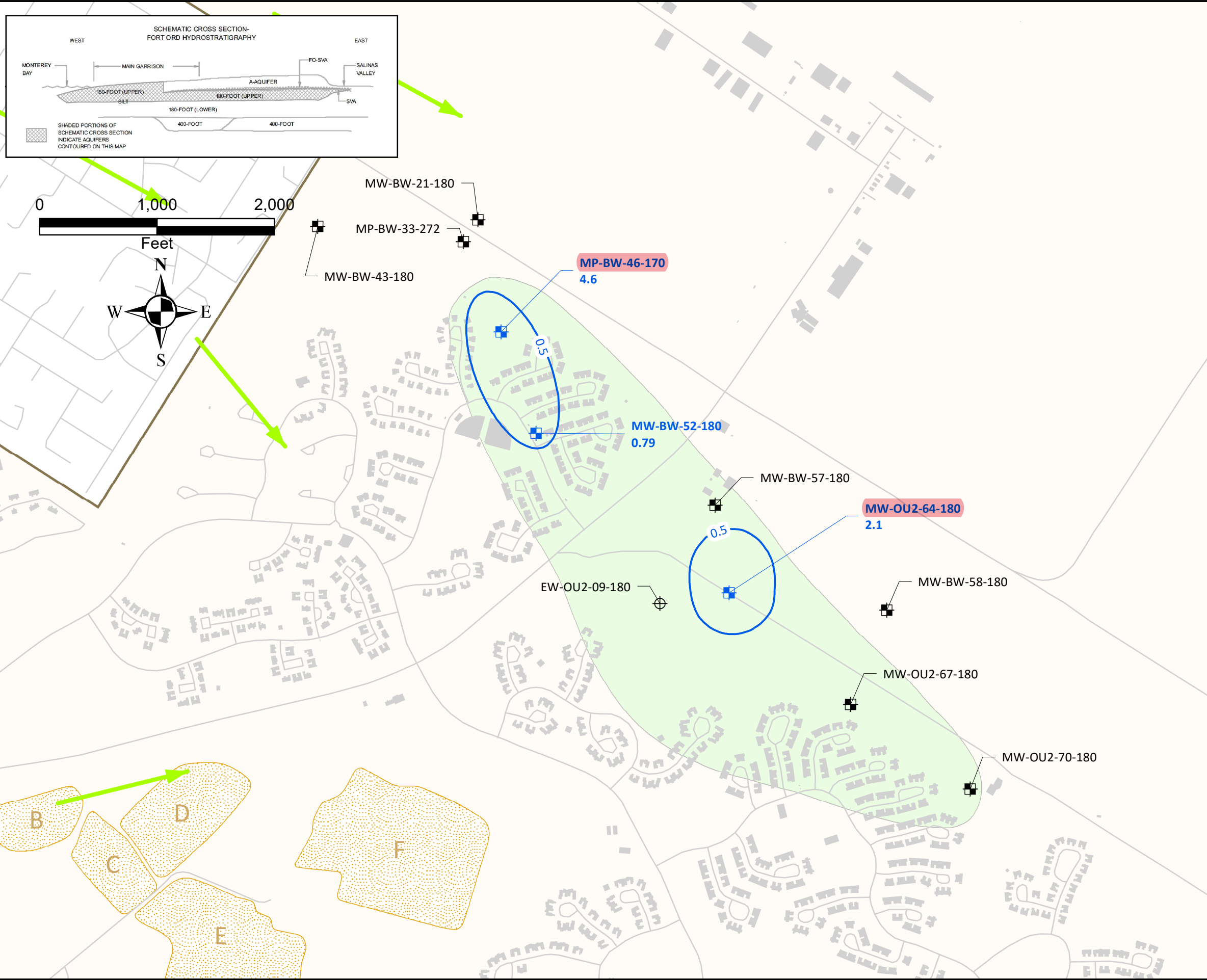
² Concentration in **bold** and shaded cell exceeds the Aquifer Cleanup Level (ACL) for CT and the Maximum Contaminant Level (MCL) for TCE. Results in gray are ND.

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

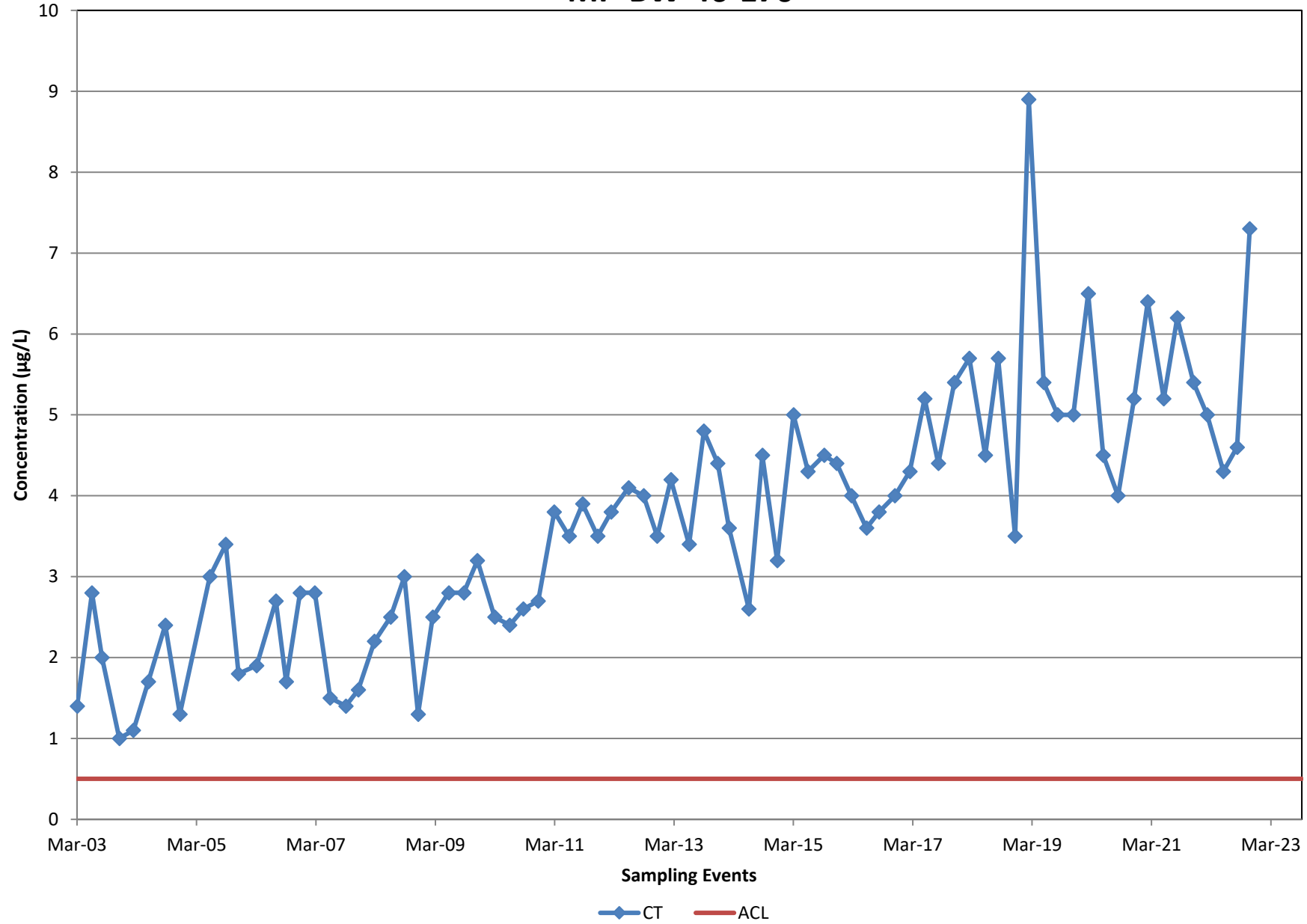
- Well Type and COC Detection**
- Extraction well with no carbon tetrachloride (CT) detected
 - Monitoring well with CT detected
 - Monitoring well no CT detected
 - Monitoring well not sampled
 - General groundwater flow direction
 - Roads
 - Facilities
 - Approximate extent of landfill areas (Areas B through F)
 - Former Fort Ord boundary
- Chemical of Concern (COC) Aquifer Cleanup Level (ACL) exceedance contour in µg/L.**
- 0.5 Carbon Tetrachloride (CT)
- OUCTP Upper 180-Foot Aquifer Hydraulic Zone**
- 6

Well ID - Bold When Concentration Exceeds the ACL for CT
MW-OU2-64-180 2.1
 CT Concentrations (µg/L) and validation/lab qualifier.

- NOTES:**
- (1) Samples were collected between August 29, 2022 and September 30, 2022.
 - (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 2022
 Operable Unit Carbon Tetrachloride Plume
 Fourth Quarter 2021 - Third Quarter 2022
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MP-BW-46-170



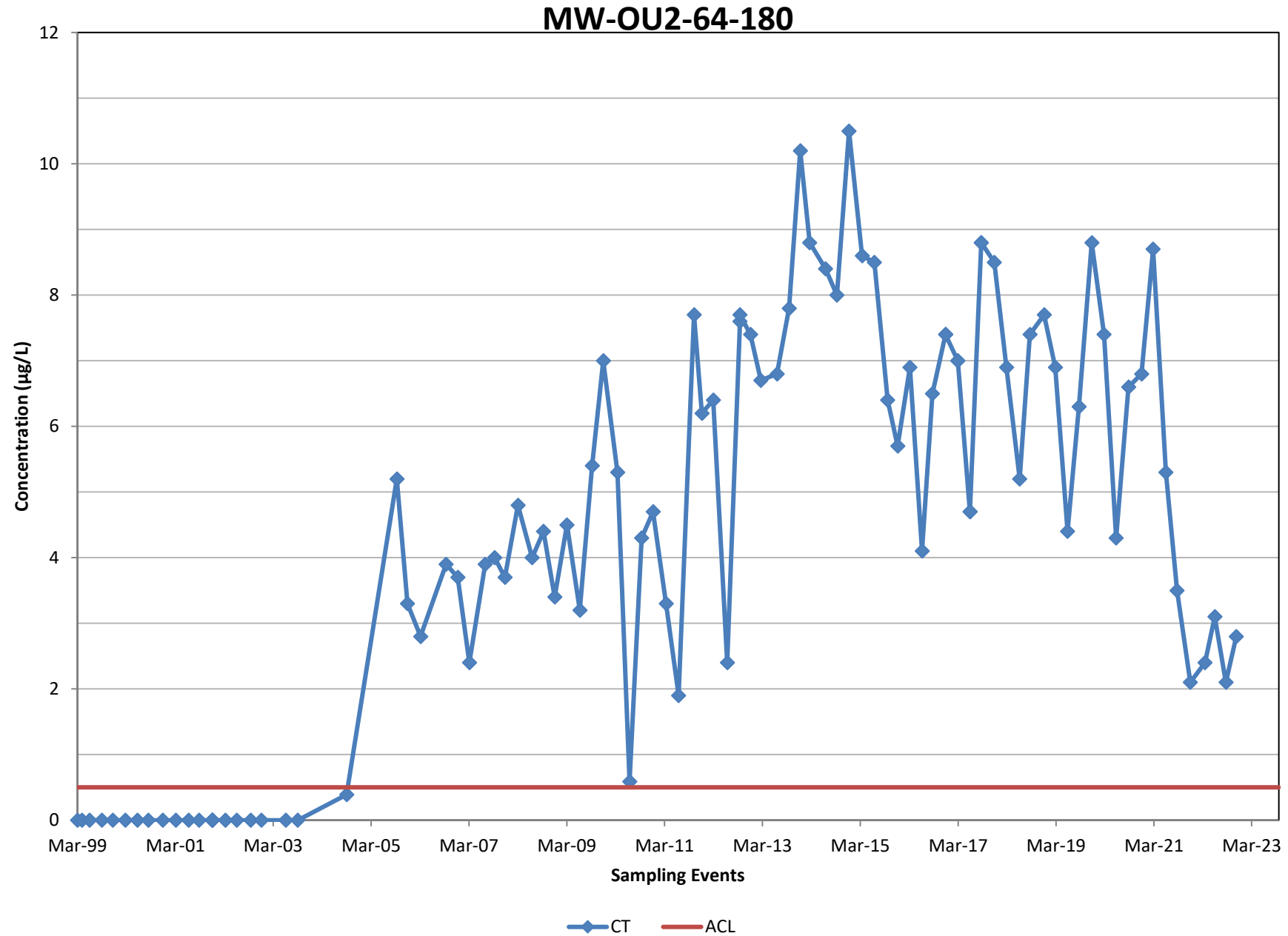


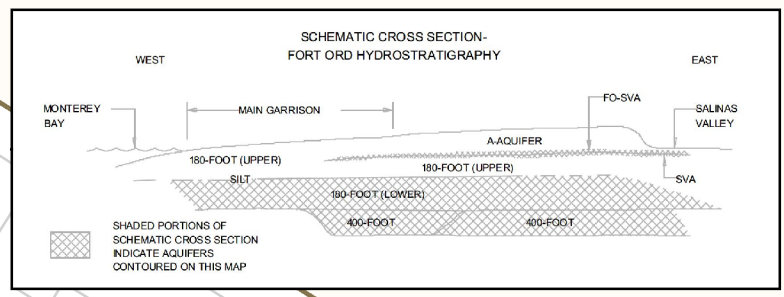
Table 5. OUCTP Lower 180-Foot Aquifer Select Monitoring Well Data

OUCTP Hydraulic Zone ¹	Well Identification	Select COC Concentrations (µg/L) ²									
		4Q 2021	1Q 2022	2Q 2022	3Q 2022	4Q 2022	4Q 2021	1Q 2022	2Q 2022	3Q 2022	4Q 2022
		CT					TCE ³				
Limit:		ACL 0.5					MCL 5.0				
7	MP-BW-49-316	1.6	2.3	3.0	3.2	4.3 J	ND (0.25)	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)	ND (0.25)	4.5 J+	4.3	4.0	4.5	4.4 J-
7	MP-BW-50-339	0.39 J	1.3	0.86	1.1	1.2 J+	0.13 J	ND (0.25)	0.11 J	ND (0.25)	0.14 J
7	MP-BW-50-384	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	2.1 J+	1.9	2.0	2.0	1.9 J+
7	MP-BW-51-405	0.11 J	0.11 J	ND (0.25)	ND (0.25)	0.23 J	1.3 J+	1.5	1.3	1.4	1.2 J+
7	MW-OU2-66-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	0.28 J	ND (0.25)	0.28 J	0.23 J	0.19 J
7	MW-OU2-69-180	0.86	0.98	1.1	0.91	1.3 J+	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
8	AIRFIELD	NS	NS	NS	0.44 J	NS	NS	NS	NS	ND (0.25)	NS
N/A	EW-OU2-07-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	4.0 J+	3.8	5.3	5.5	4.5 J+
N/A	FO-29	0.18 J	0.19 J	0.18 J	ND (0.25)	0.32 J	2.1	1.8	2.5 J+	2.8	2.4
N/A	FO-30	0.19 J	0.18 J	0.26 J	ND (0.25)	0.37 J	0.57 J+	0.54	0.38 J	0.43 J	0.47 J
N/A	FO-31	0.10 J	0.10 J	0.11 J	ND (0.25)	0.24 J	1.0	1.1	1.2	1.4	1.3
N/A	MP-BW-41-318	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	0.22 J	0.36 J	0.37 J	0.45 J	0.23 J
N/A	MP-BW-41-353	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	1.2 J+	1.2	1.2	1.2	1.1 J-
N/A	MW-BW-59-180	ND (0.25)	ND (0.25)	0.12 J	0.14 J	ND (0.25)	9.6 J+	8.3	10.6	11.1	0.76
N/A	MW-OU2-72-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	1.9	1.6	1.9	2.4	2.7 J
N/A	MW-OU2-78-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	2.6 J+	2.1	3.0	2.5	2.1 J+
N/A	MW-OU2-82-180	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	4.5	4.5	0.81	3.4	4.7

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





Well ID
 MW-BW-59-180
 Concentration in $\mu\text{g/L}$ and validation/lab qualifier.
 (blue indicates CT; red indicates TCE)
 CT Bold when COC exceeds the ACL.

NOTES:
 (1) Groundwater samples were collected between August 29, 2022 and September 30, 2022.
 (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

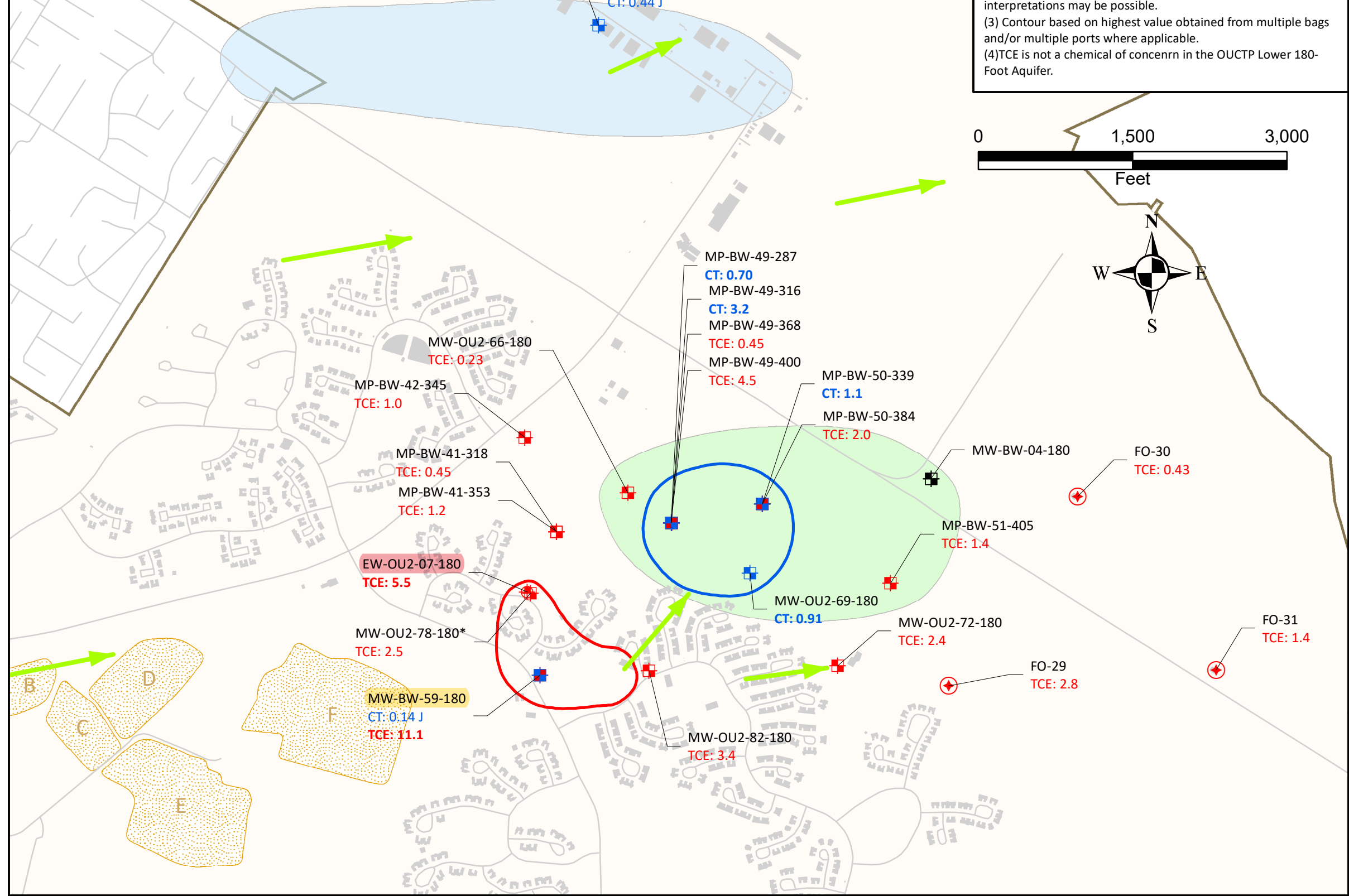
- Marina Coast active supply well with trichloroethene (TCE) detected
- Extraction well with TCE detected
- Monitoring well with TCE detected
- Monitoring well with carbon tetrachloride (CT) detected
- Monitoring well with CT and TCE detected
- Monitoring well with no CT or TCE detected

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

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

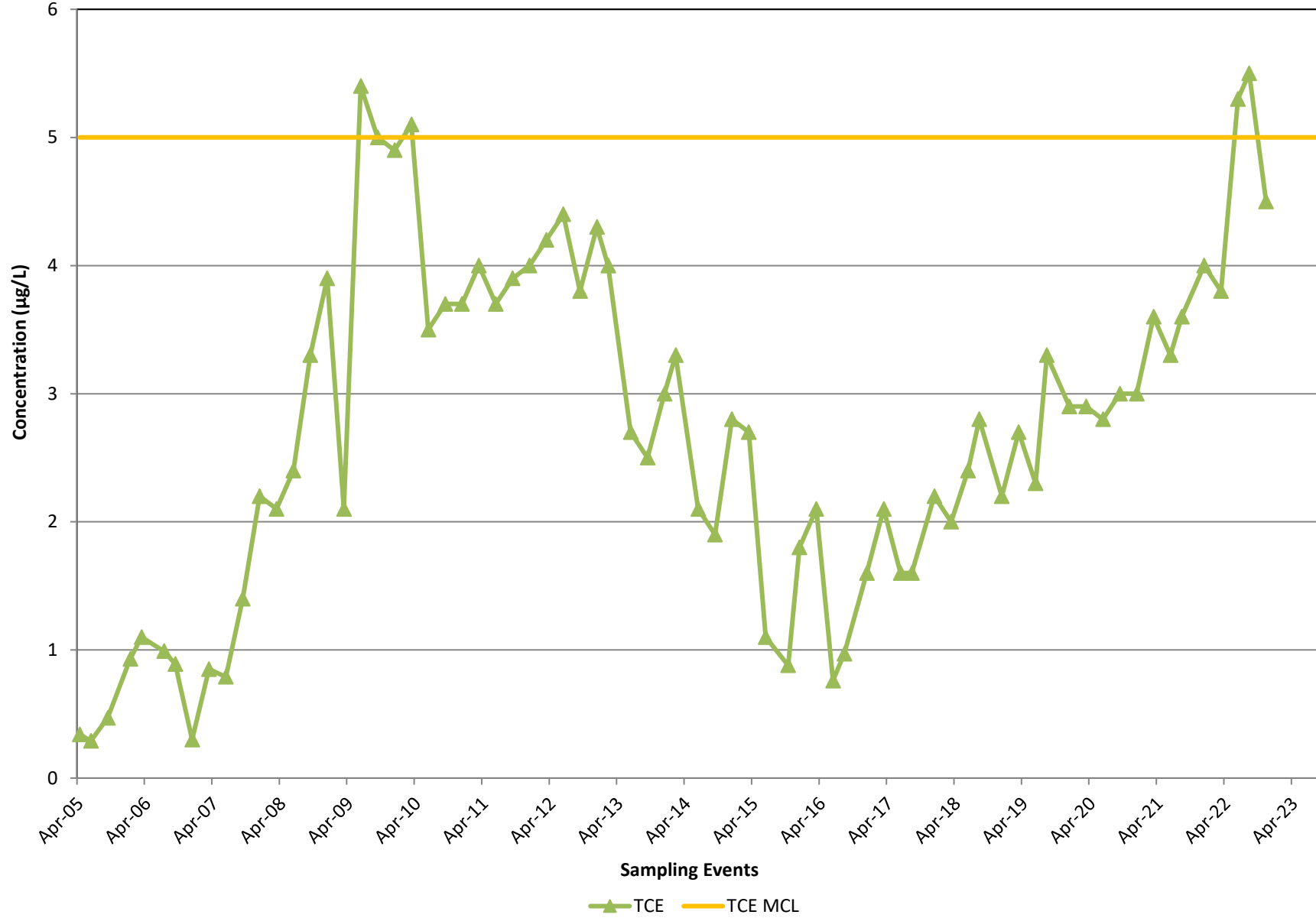
OUCTP Lower 180-Foot Aquifer Hydraulic Zone

- 7
- 8

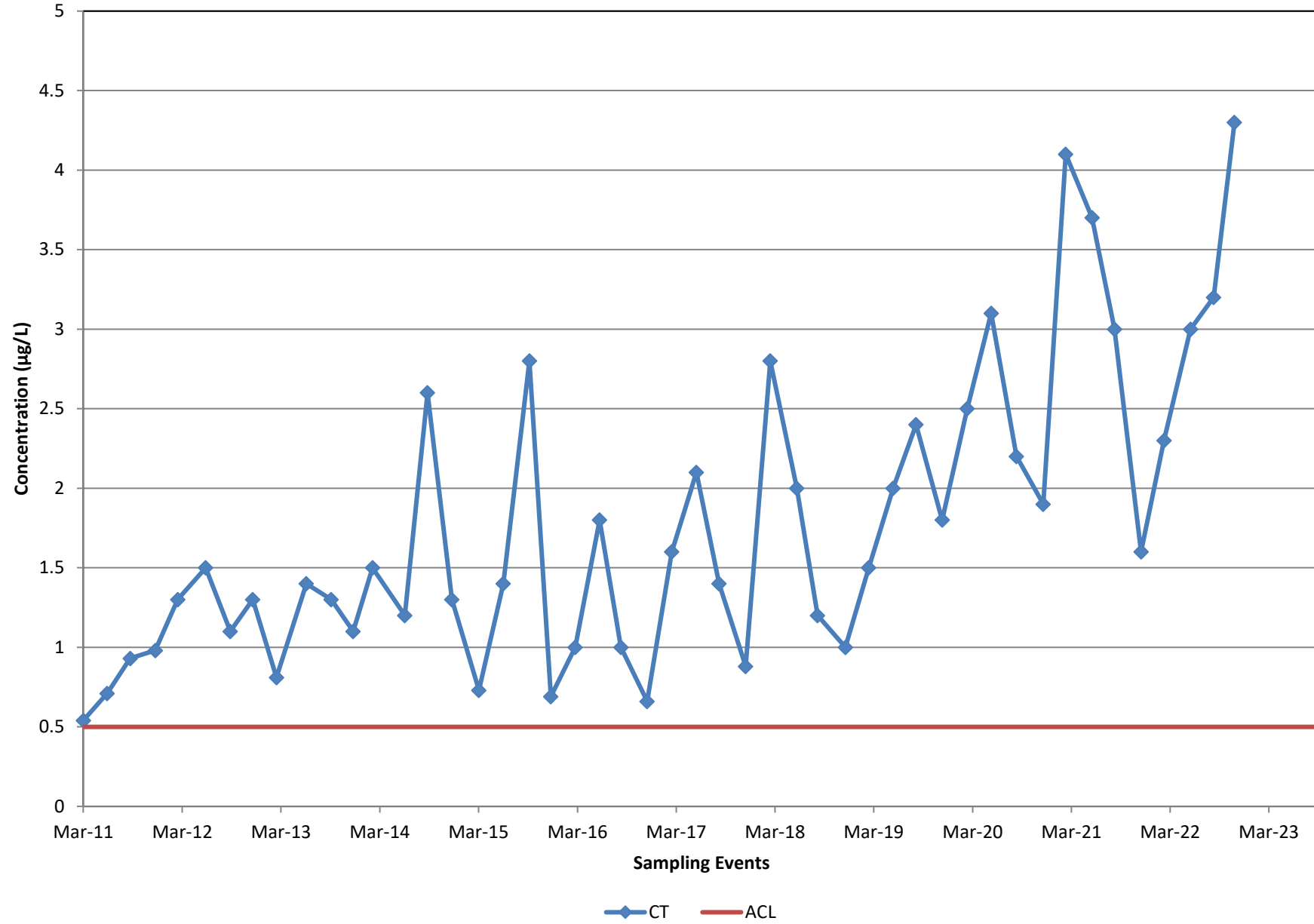


CT AND TCE CONCENTRATIONS
 LOWER 180-FOOT/400-FOOT AQUIFERS
 THIRD QUARTER 2022
 Operable Unit Carbon Tetrachloride Plume
 Fourth Quarter 2021 - Third Quarter 2022
 Groundwater Monitoring Report
 Former Fort Ord, California

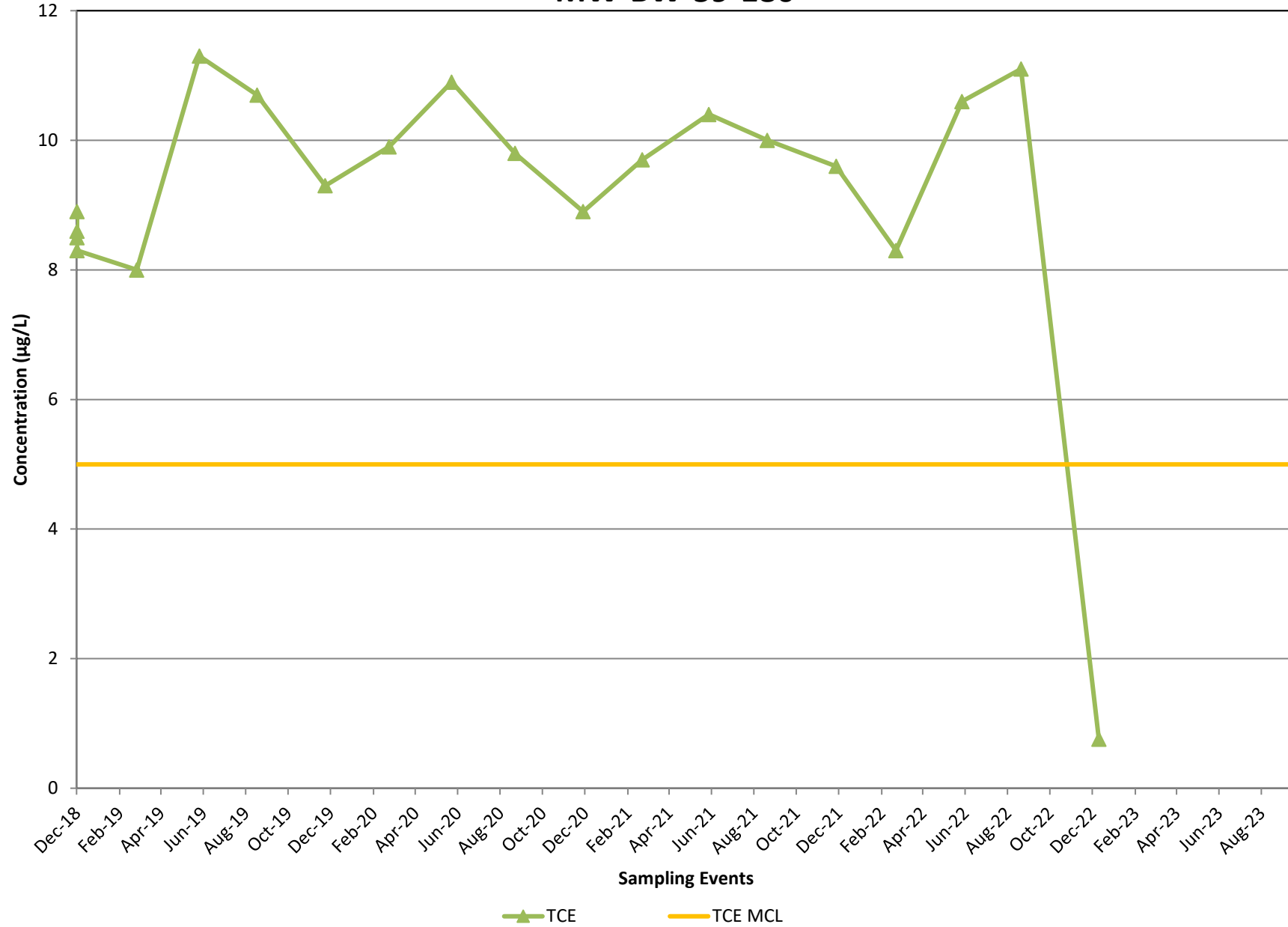
EW-OU2-07-180



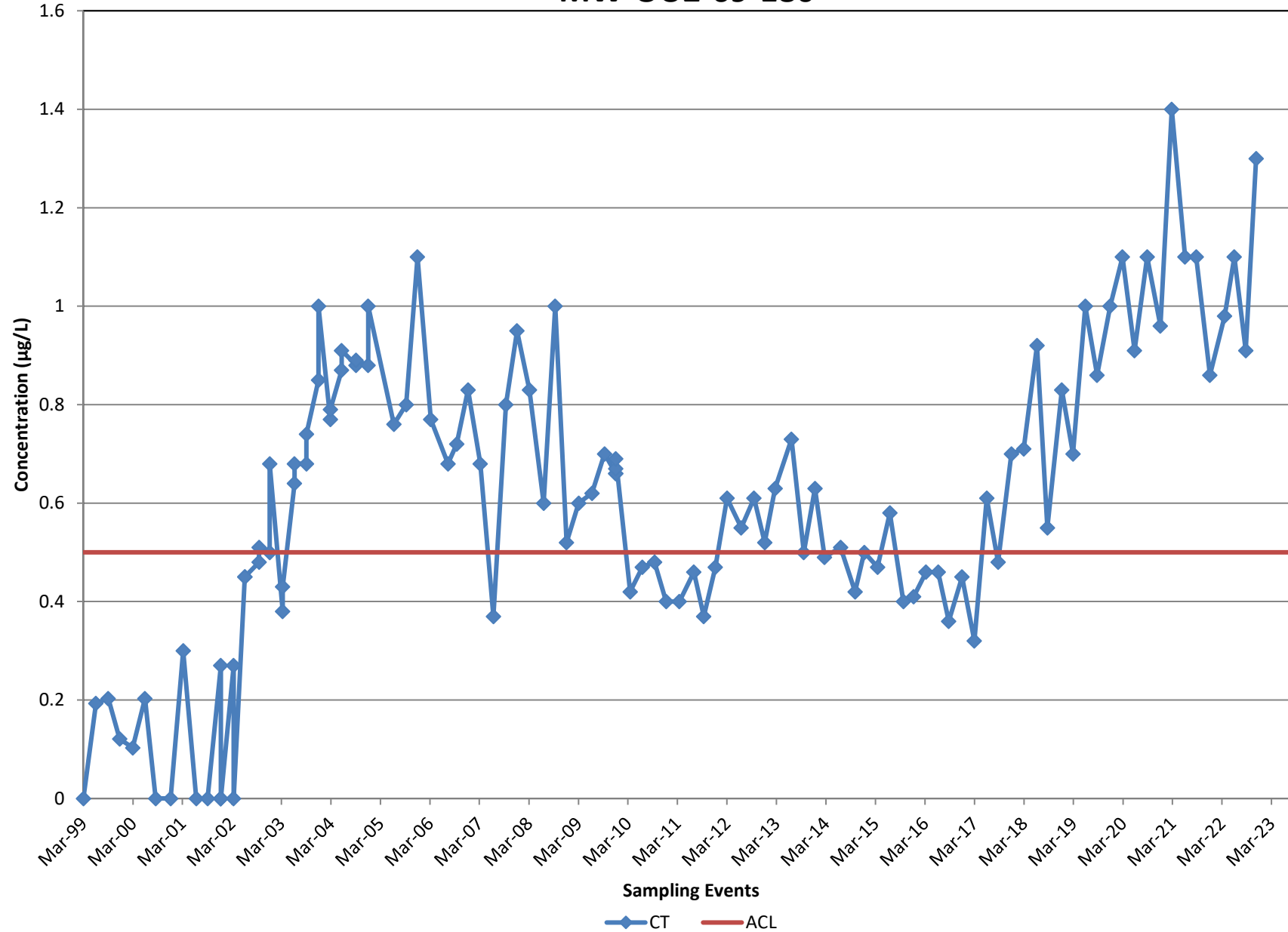
MP-BW-49-316



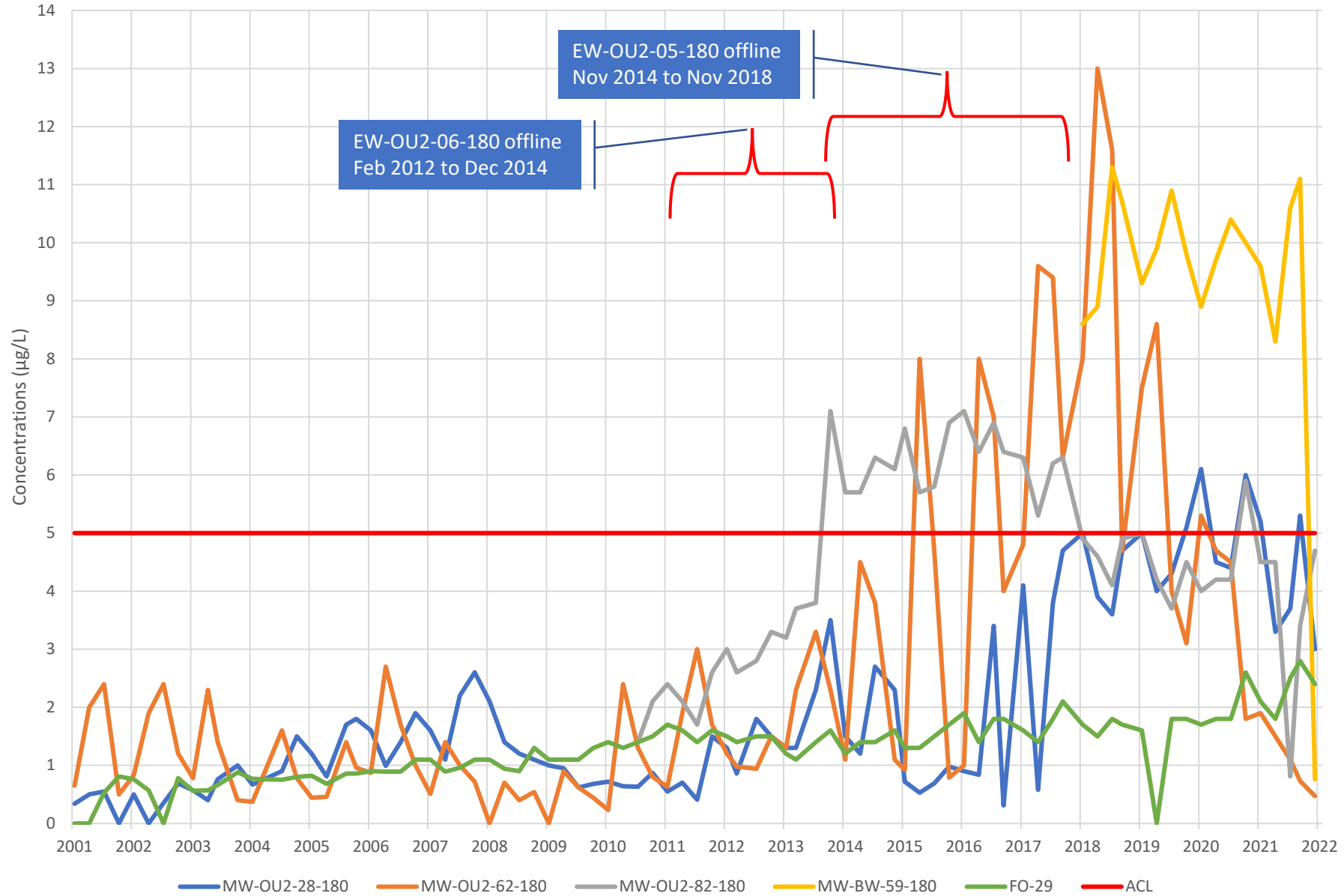
MW-BW-59-180



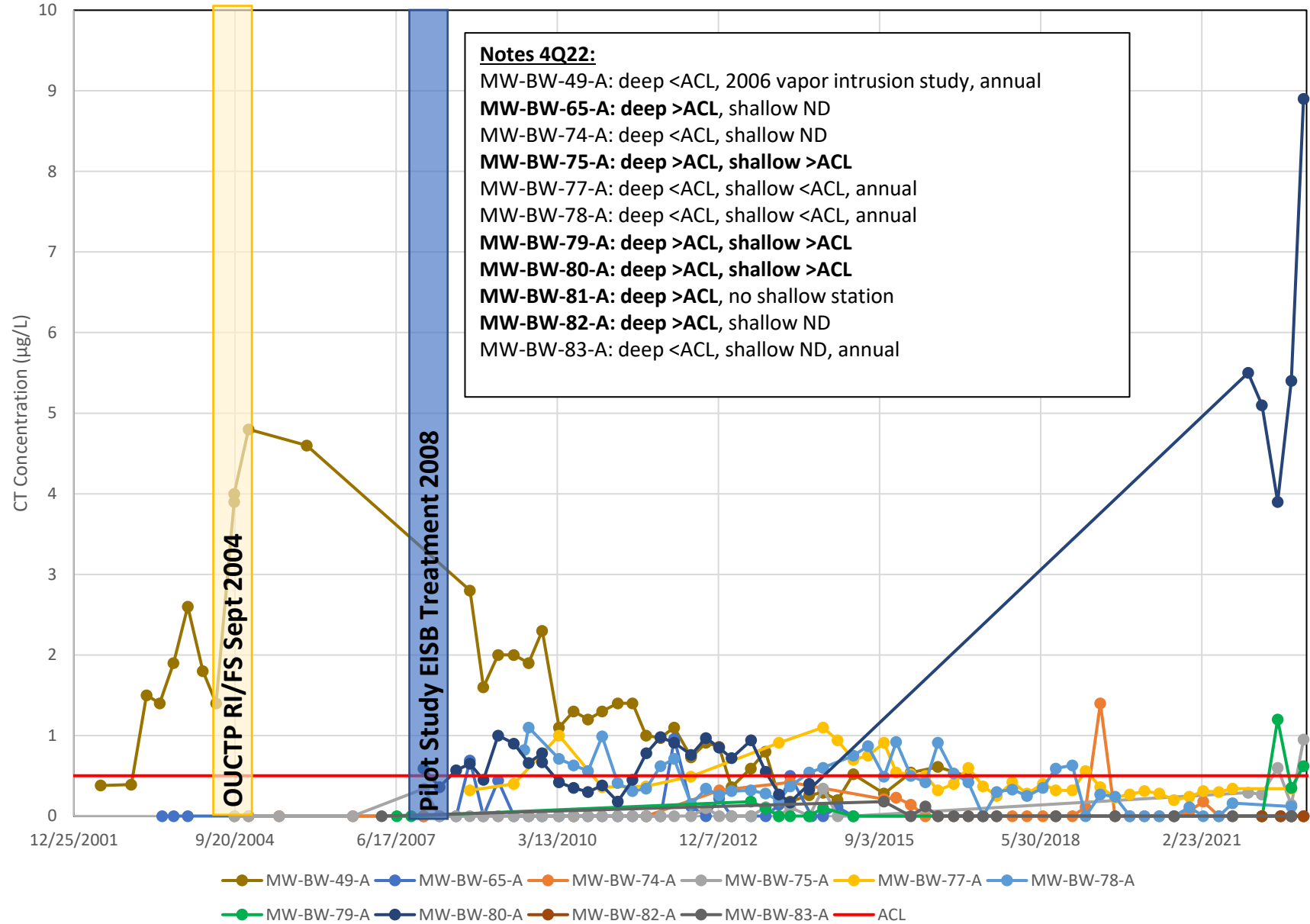
MW-OU2-69-180



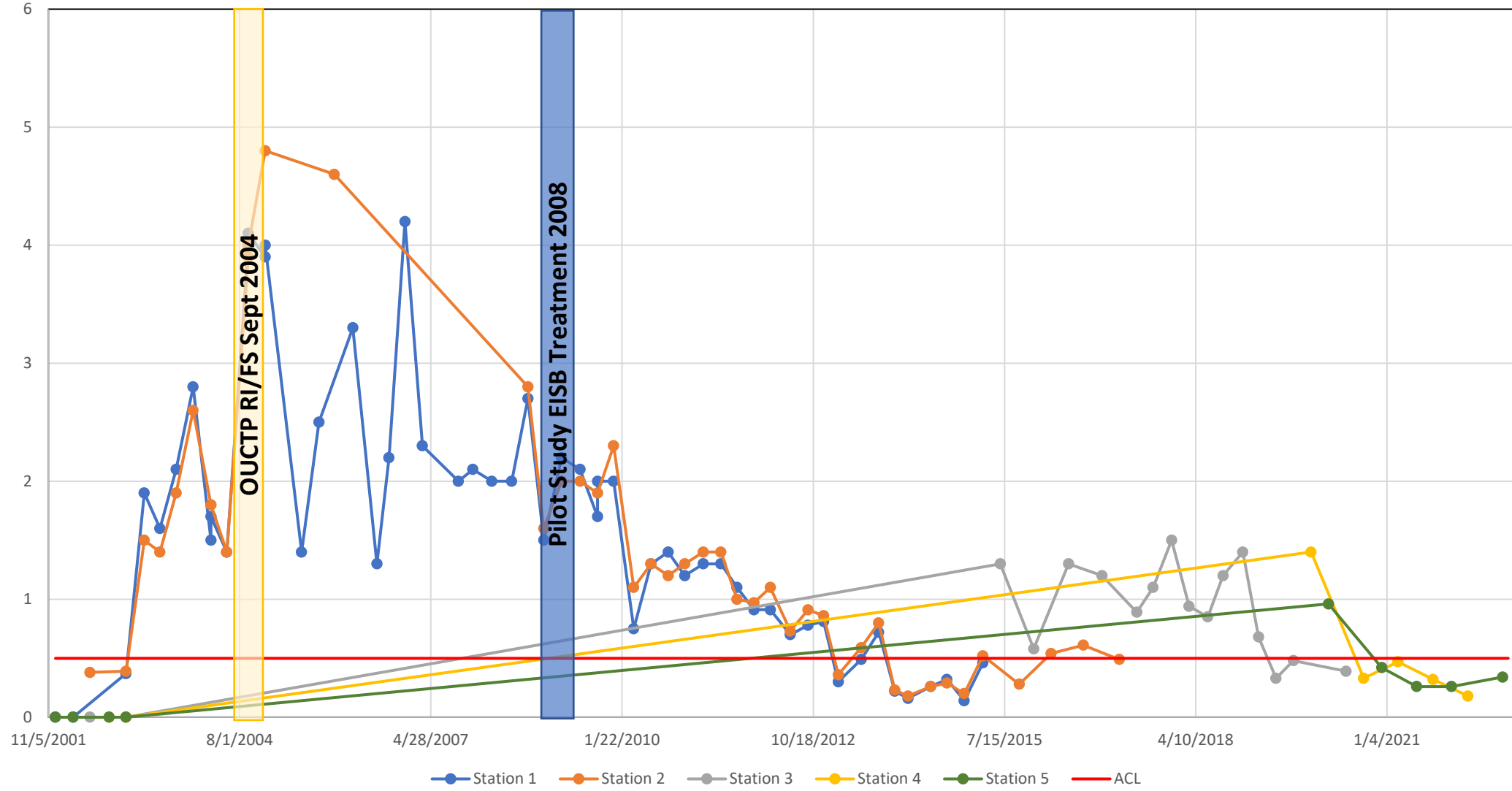
TCE in the Lower 180-Foot Aquifer



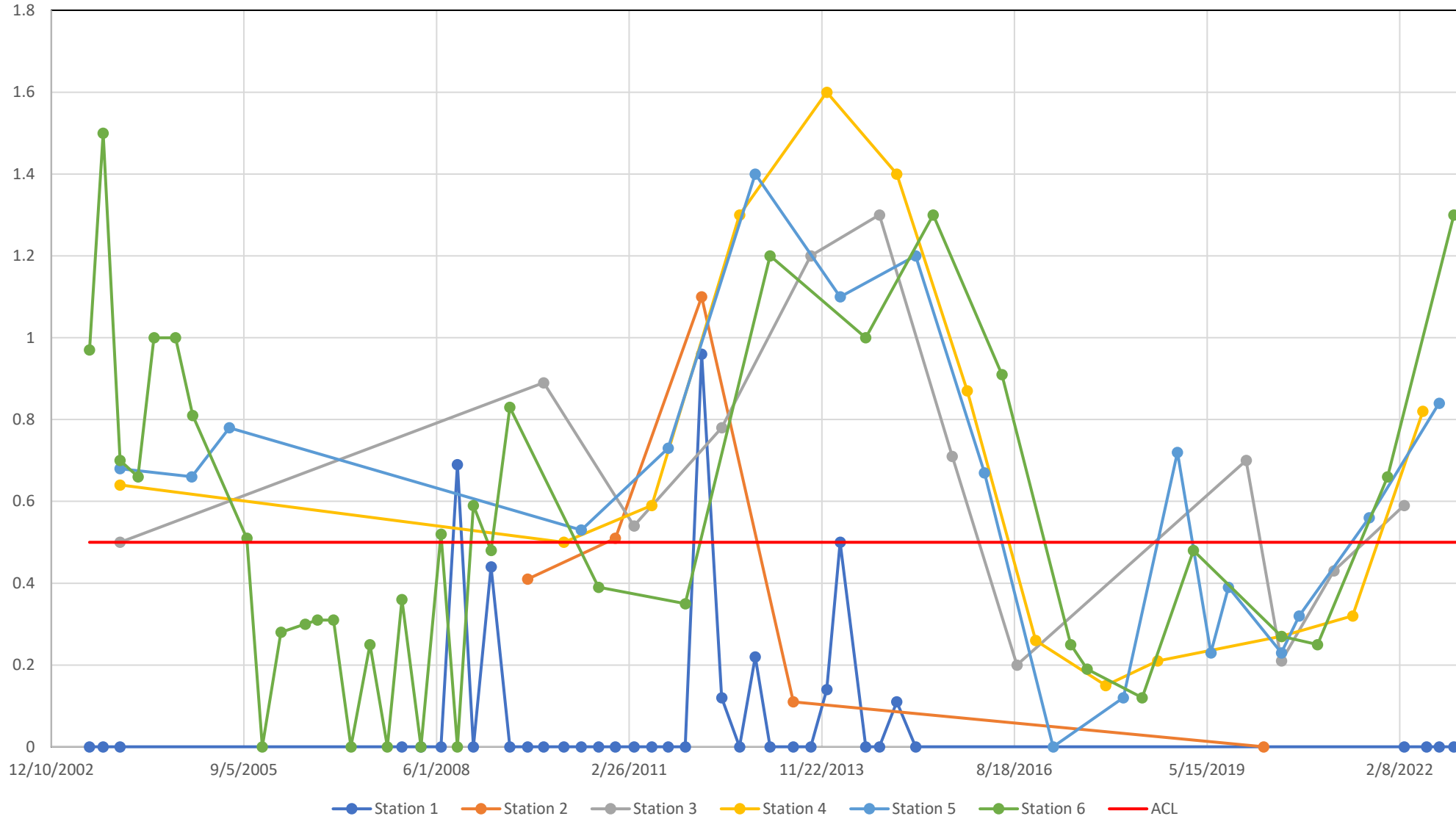
CT Shallow Stations: City of Marina HZ 5



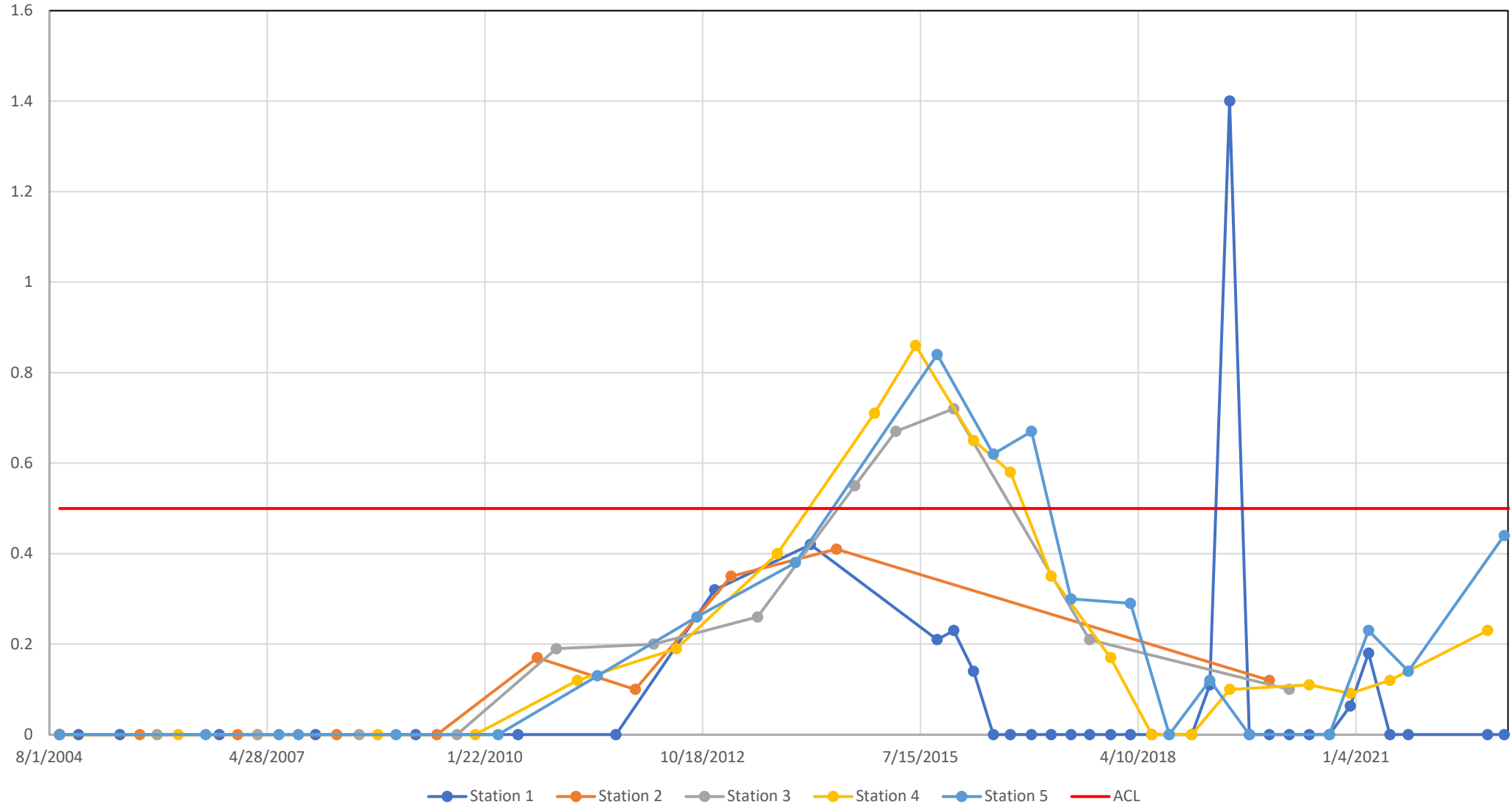
MW-BW-49-A CT



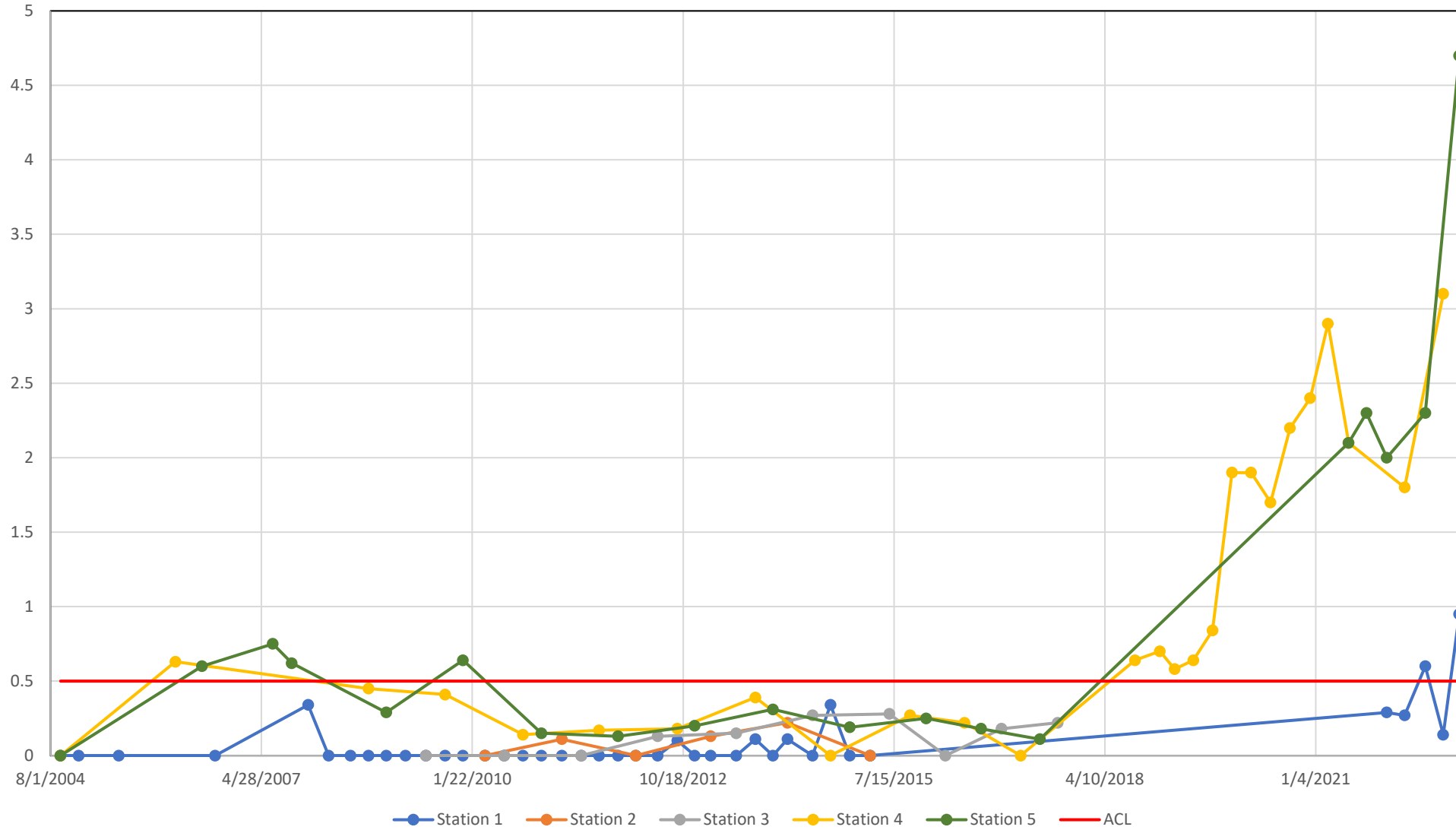
MW-BW-65-A CT



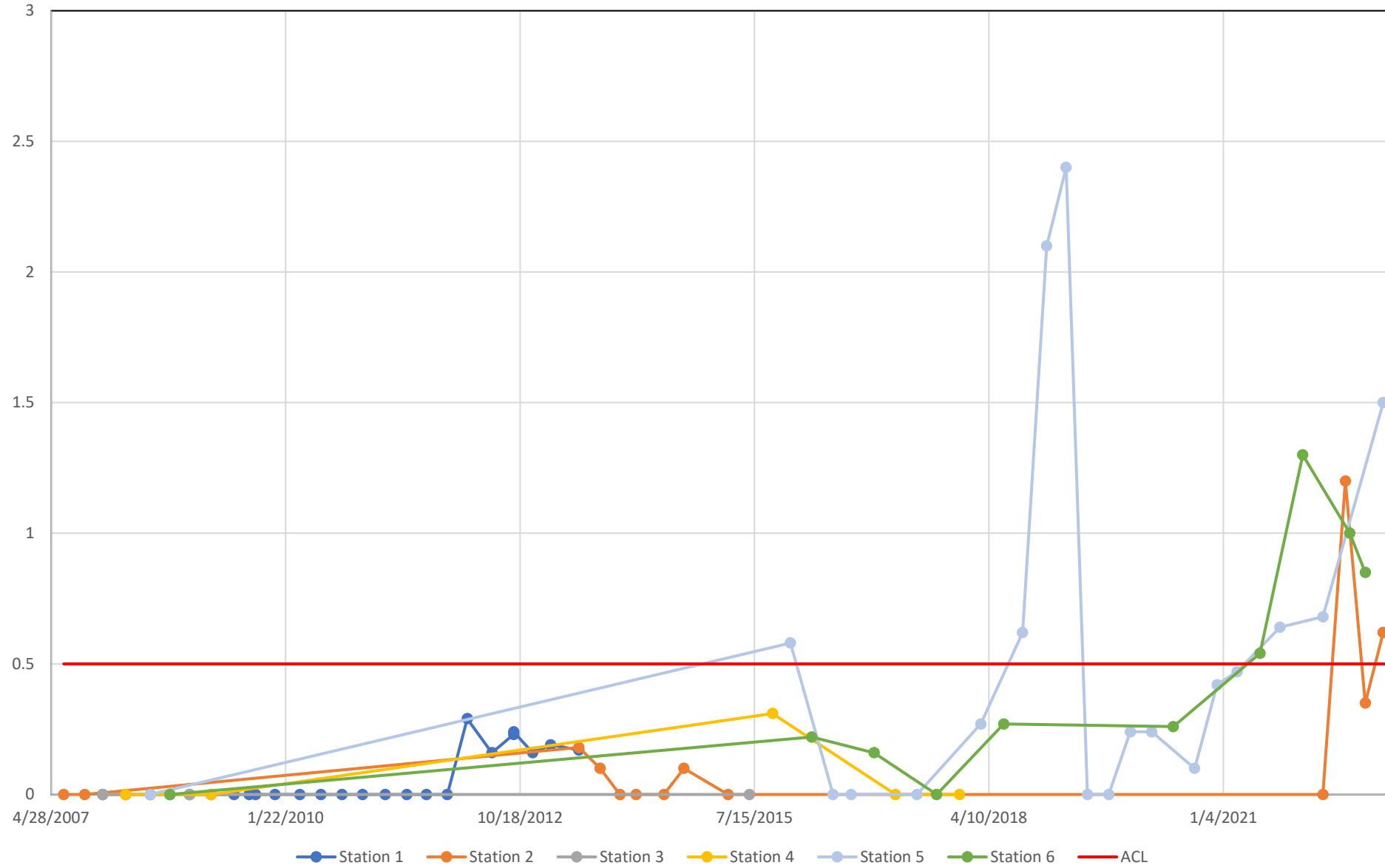
MW-BW-74-A



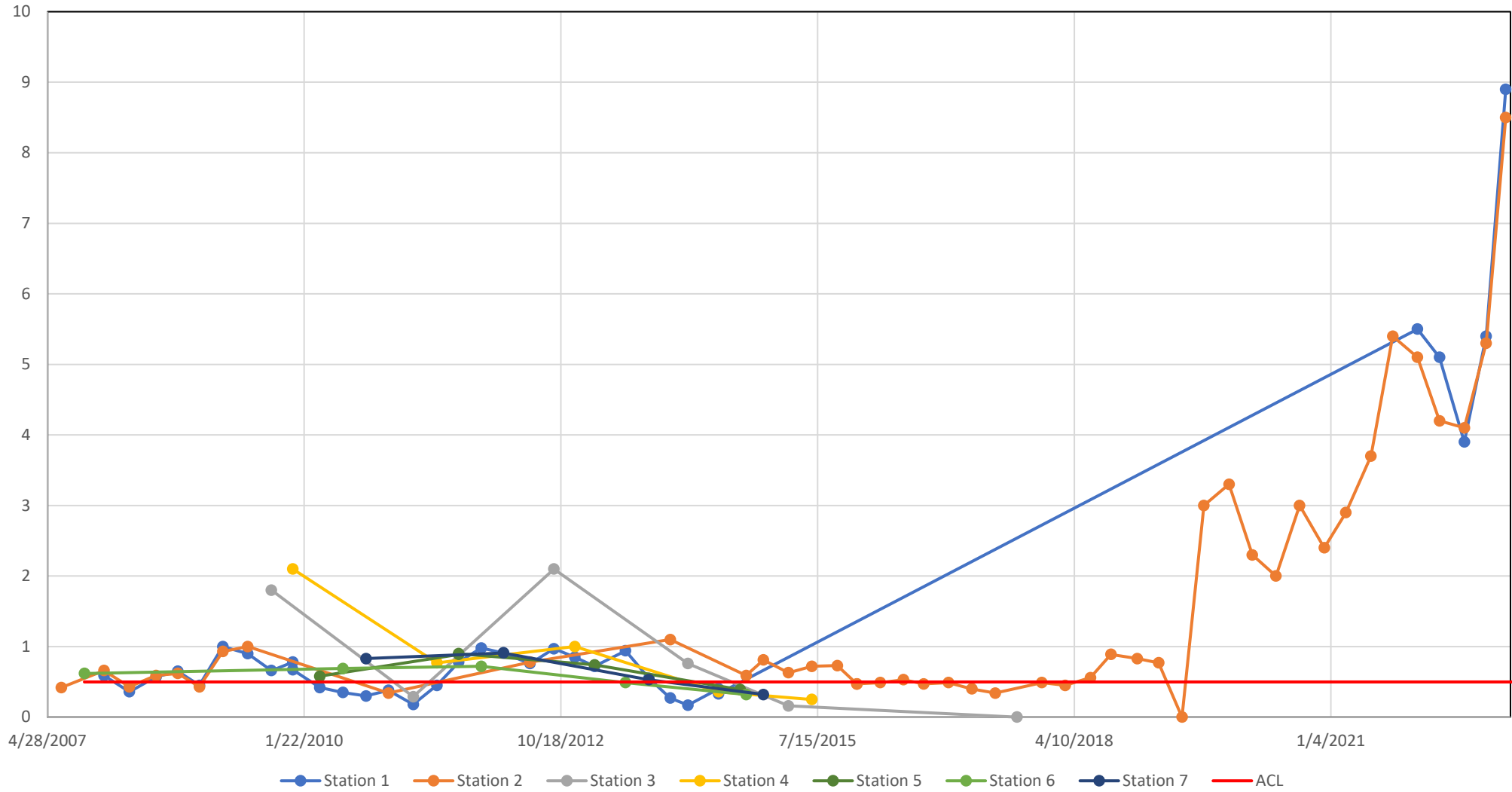
MW-BW-75-A CT



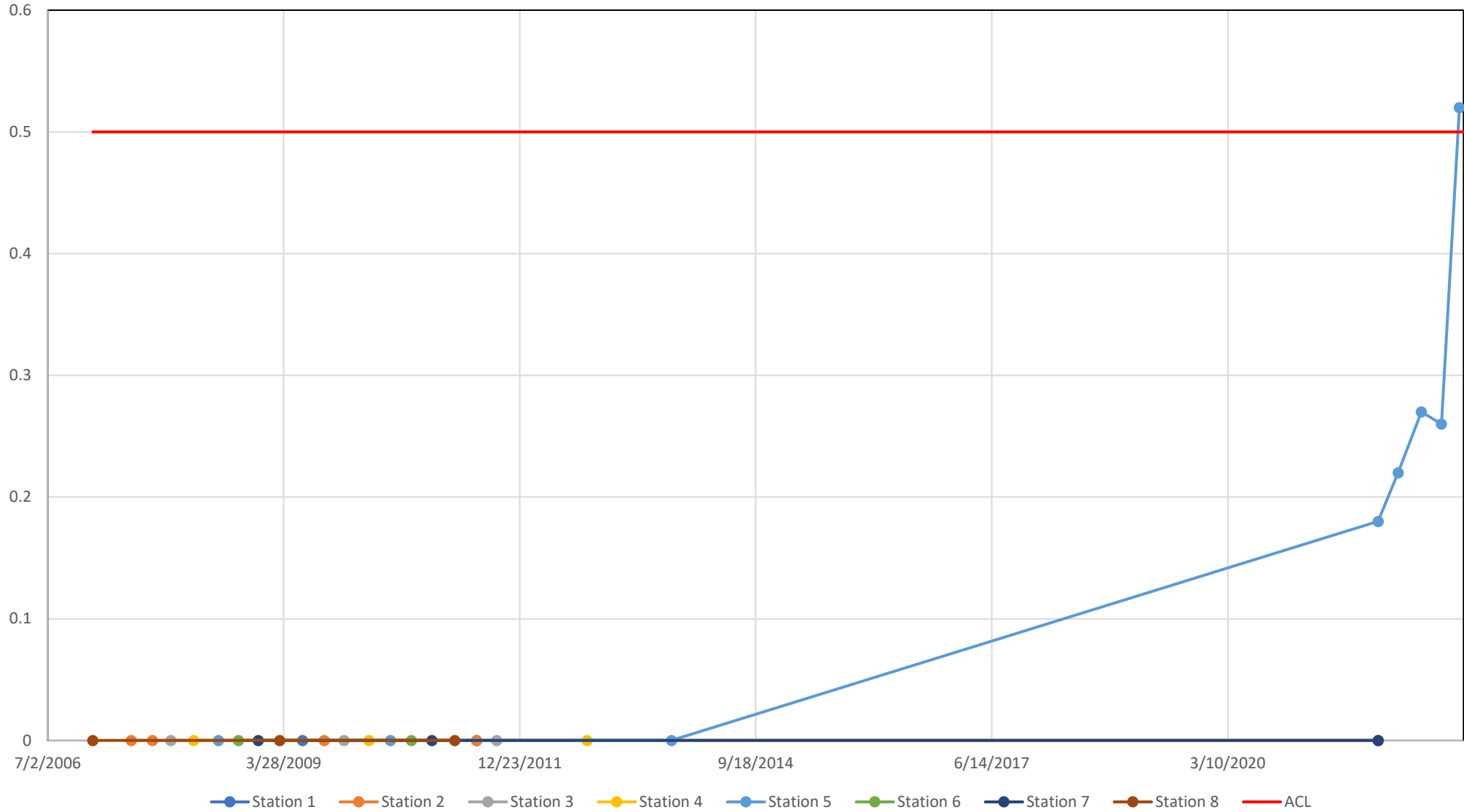
MW-BW-79-A CT



MW-BW-80-A CT

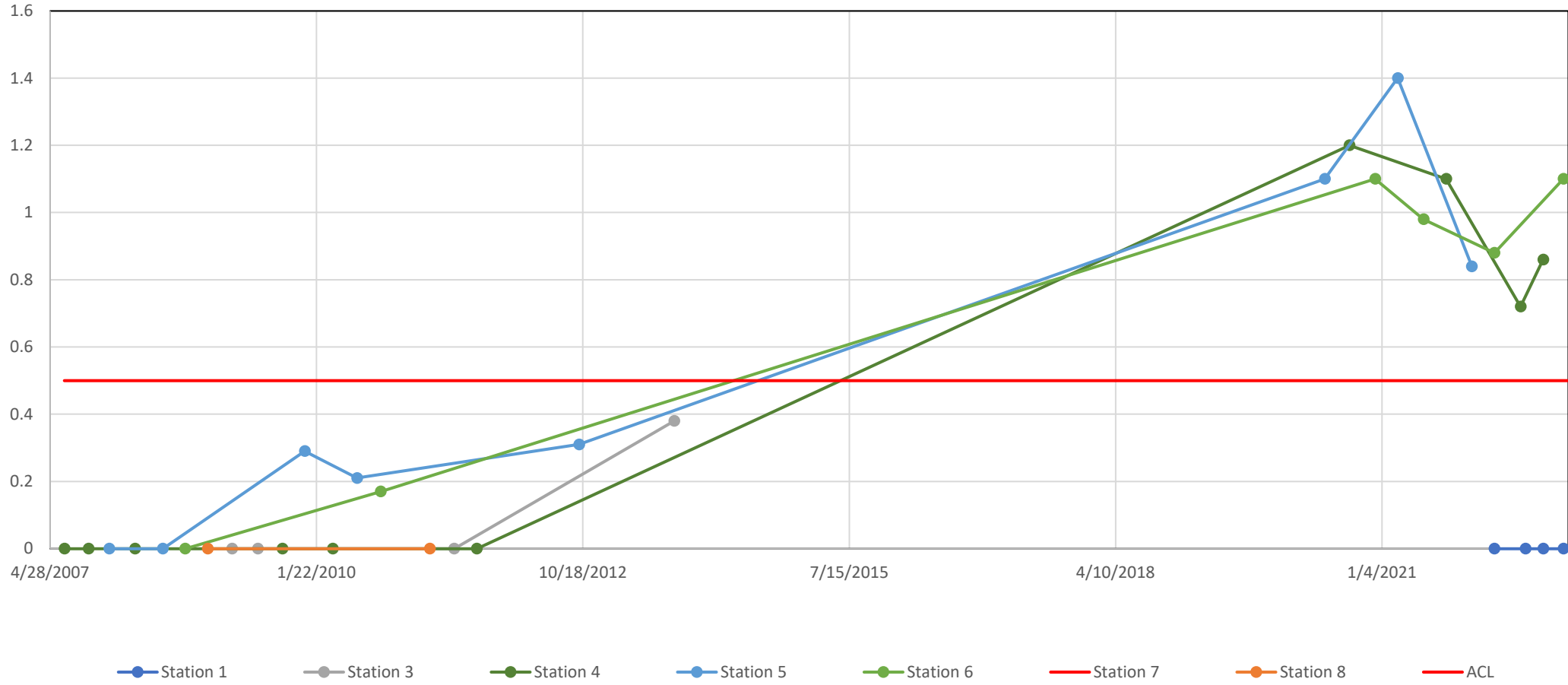


MW-BW-81-A



no shallow samples

MW-BW-82-A CT



no samples at Station 2