Former Fort Ord Operable Unit 2 Data and Status

HTW BCT Meeting, January 9, 2019

Table 1: OU2 GWTP Statistics as of December 31, 2018

Monthly Statistics	Volume Treated (gallons)	Average Flow (gallons per minute)	Percent of Time Online	COC Mass Removed (pounds)
December 2018	24,541,728	580-720	93	3.14
Total since October 1995	7.460 billion			843

Table 2: December 2018 – OU2 Analytical Results at SP-EF-01

COC	Discharge Limit (µg/L)	Analytical Results (µg/L)			
		12/1/2018	12/2/2018	12/3/2018	12/27/2018
1,1-dichloroethane (1,1-DCA)	5.0*	ND	ND	ND	ND
1,2-dichloroethane (1,2-DCA)	0.5	ND	ND	ND	ND
1,2-dichloropropane (1,2-DCP)	0.5	ND	ND	ND	ND
Benzene	0.5	ND	ND	ND	ND
Carbon tetrachloride (CT)	0.5	ND	ND	ND	ND
Chloroform	2.0*	ND	ND	ND	ND
Cis-1,2-dichloroethene (cis-1,2-DCE)	6.0*	ND	ND	ND	ND
Methylene Chloride	0.5	ND	ND	ND	ND
Tetrachloroethene (PCE)	0.5	ND	ND	ND	ND
Trichloroethene (TCE)	0.5	ND	ND	ND	ND
Vinyl chloride (VC)	0.1	ND	ND	ND	ND

Notes:
COC: chemical of concern
µg/L: micrograms per liter
ND: The analyte was not detected above the limit of detection (LOD).
NS: not sampled.
J: Estimated results below the limit of quantitation (LOQ).
TS-OU2-INJ: Injection point of compliance, the OU2 effluent pipeline.
*Discharge limits for low carbon affinity compounds were increased to the Aquifer Cleanup Level (ACL).
Results in italics are above the discharge limit, and results in **bold** and shaded are concentrations above the ACL
Results in gray are ND
^Preliminary results

December 2018 Key Events for OU2

- Work with JV on transition period activities.
- Dec 1-11: average flow = 580 gpm
- Dec 12-27: average flow = 720 gpm
- Dec 10-14: Fourth Quarter 2018 GWMP
  - Initial sampling of new monitoring well MW-OU2-83-A.
  - Initial sampling of new extraction wells and new GWTP.
  - PFOA/PFOS screening at 12 monitoring wells and the new GWTP. Samples compromised by laboratory. Resample in the First Quarter 2019 GWMP event.
- Dec 27: Sample GWTP-N effluent, and missed monitoring wells from 4Q event.

January 9019 Key Events for OU2

- Prepare for GWTP decommissioning.
- Prepare for 2019 decommissioning of two OU2 A-Aquifer monitoring wells: MW-OU2-20-A and MW-OU2-41-A.
- Prepare for First Quarter 2019 PFOA/PFOS resample.

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Table 3. OU2 A-Aquifer Select Extraction/Monitoring Well Data

OU2 Hydraulic Zone[1]	Well Identification[2]	Select COC Concentrations (µg/L)									
		3Q 2018					4Q 2018*				
		TCE	PCE	1,1-DCA	1,2-DCA	VC	TCE	PCE	1,1-DCA	1,2-DCA	VC
	ACL:	5.0	3.0	5.0	0.5	0.1	5.0	3.0	5.0	0.5	0.1
1	EW-OU2-16-A	3.1	2.7	**7.5**	**2.4**	**0.96**					
1	MW-OU2-02-A	0.11 J	2.7	**6.1**	**1.2**	**10.7**	0.52	2.3	**5.3**	**1.2**	**9.4**
1	MW-OU2-44-A	**6.2**	**8.6**	**18.8**	**4.2**	**0.72**	4.7	**3.7**	**16.0**	**4.0**	**0.59**
1	MW-OU2-73-A	ND (0.25)	1.7	**5.7**	**0.91**	**10.3**	ND (0.25)	1.1	**6.1**	**0.95**	**10.5**
2	EW-OU2-15-A	0.32 J	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.05)	1.4	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.05)
2	MW-OU2-27-A	ND (0.25)	**4.0**	0.27 J	ND (0.25)	ND (0.05)	ND (0.25)	3.0	0.27 J	ND (0.25)	ND (0.05)
3	EW-OU2-09-A	NS	NS	NS	NS	NS					
3	EW-OU2-10-A	1.6	1.0	0.68	**0.78**	ND (0.05)					
3	EW-OU2-12-A	**7.9**	**4.4**	**6.3**	**1.9**	**0.12**					
3	EW-OU2-13-A	**6.6**	2.3	1.7	**3.3**	ND (0.05)					
3	MW-OU2-25-A	0.63	0.25 J	0.30 J	0.28 J	ND (0.05)	0.90	0.45 J	0.45 J	**0.70**	ND (0.05)
4	EW-OU2-04-A	1.3	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.05)					
4	EW-OU2-05-A	4.4	0.27 J	0.27 J	ND (0.25)	ND (0.05)					
4	EW-OU2-06-A	2.8	0.30 J	0.15 J	ND (0.25)	ND (0.05)					
4	MW-OU2-40-A	**5.6**	0.43 J	0.31 J	ND (0.25)	ND (0.05)	**14.9**	0.61	0.24 J	ND (0.25)	ND (0.05)
5	MW-OU2-04-A	2.6	0.71	0.50	0.34 J	ND (0.05)	2.9	0.77	0.59	0.10 J	ND (0.05)
5	MW-OU2-06AR	1.5	0.25 J	0.25 J	0.32 J	ND (0.05)	3.7	0.78	1.1	0.47 J	ND (0.05)
5	MW-OU2-08-A	**8.8**	**8.9**	**31**	**1.3**	**0.69**	**7.7**	**7.1**	**26.6**	**1.1**	**0.77**
5	MW-OU2-75-A	3.7	**6.6**	**7.3**	ND (0.25)	ND (0.05)	3.7	**6.4**	**7.8**	ND (0.25)	0.087 J
5	MW-OU2-81-A	**7.7**	**12.8**	3.9	0.21 J	ND (0.05)	**13.9**	**12.1**	3.9	0.19 J	ND (0.05)
5	MW-OU2-83-A	NEW WELL (NS)					0.55	0.60	3.0	ND (0.25)	ND (0.05)
5	MW-BW-50-A	1.3	**3.3**	1.9	ND (0.25)	ND (0.05)					

Table 4. OU2 Upper 180-Foot Select Extraction/Monitoring Well Data

OU2 Hydraulic Zone[1]	Well Identification[2]	TCE Concentration (µg/L)	
		3Q 2018	4Q 2018*
	ACL:	5.0	
6	EW-OU2-03-180	**8.1**	
6	MW-OU2-50-180	**10.0**	
6	MW-OU2-55-180	NS	ND (0.25)
7	EW-OU2-06-180	**5.2**	
7	MW-OU2-81-180	**6.3**	**7.0**
7	MW-OU2-44-180	**14.4**	**16.4**
8	EW-OU2-08-180	NS	
8	MW-OU2-28-180	4.7	5.0
8	MW-OU2-62-180	**6.3**	**8.0**
9	EW-OU2-01-180	4.6	3.7
9	MW-OU2-06-180R2	2.0	2.0
9	MW-OU2-43-180	1.8	2.2

Notes:
*Preliminary results
ACL: Aquifer Cleanup Level
COC: chemical of concern
1,2-DCA: 1,2-dichloroethane
TCE: trichloroethene
PCE: tetrachloroethene
1,1-DCA: 1,1-dichloroethane
µg/L: micrograms per liter
NS: not sampled
ND: The analyte was not detected above the detection limit.
J: Estimated result with a high (+) or low (-) bias.
[1] Hydraulic zones are identified in the Groundwater QAPP.
[2] Extraction wells not listed have met the QAPP decision rules to no longer operate.
Results in **bold** and shaded are concentrations above the ACL
Results in gray are ND
Results in brackets from a second deeper passive diffusion bag

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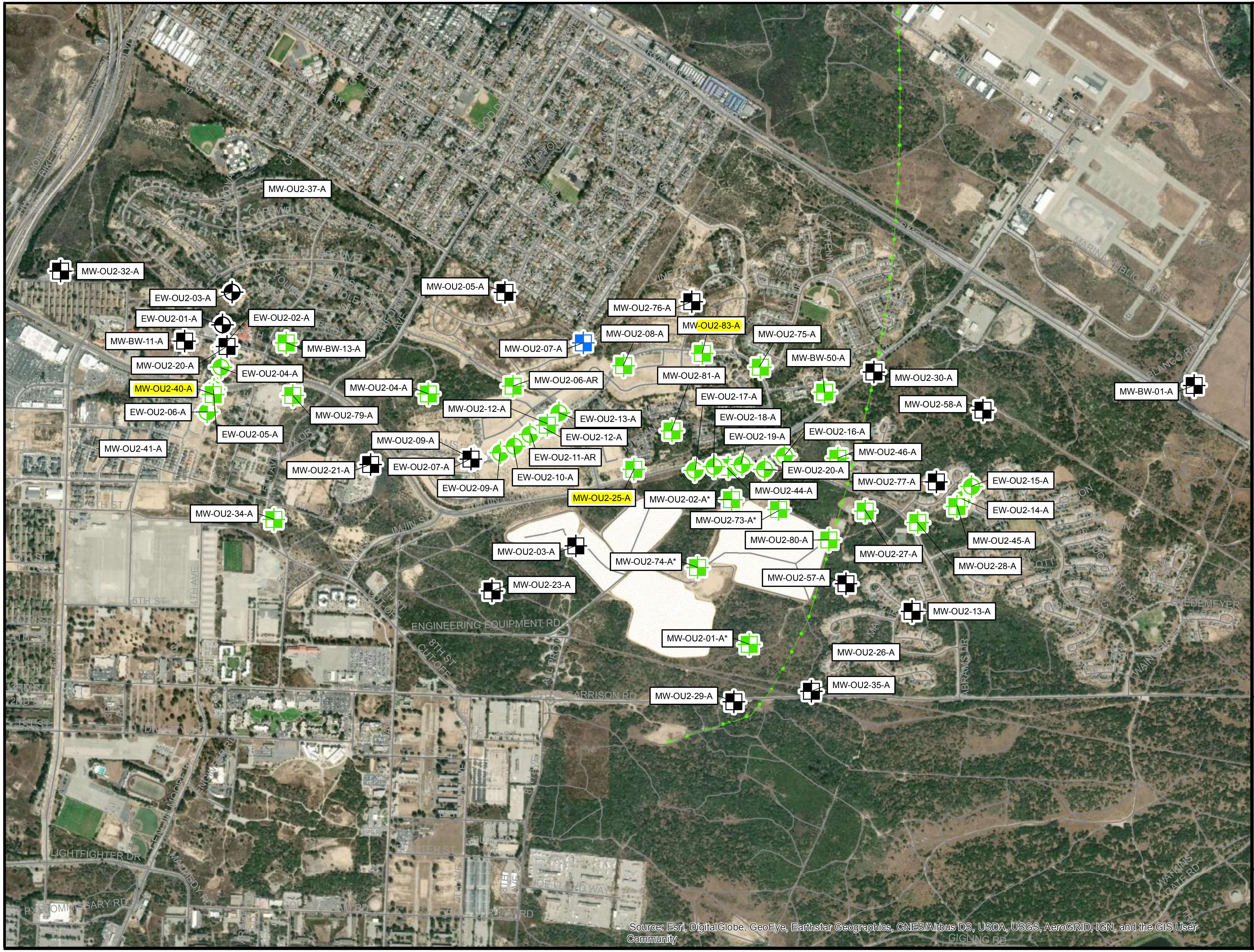

Legend

- Roads
- Groundwater Divide
- Fort Ord Landfills

OU2-A Wells 2018-3Q

Well Type and Sample Schedule

- Extraction Well - Quarterly VOCs
- Monitoring Well - Quarterly VOCs
- Monitoring Well - Annual VOCs
- Extraction Well - Water Levels
- Monitoring Well - Water Levels

*Annual metals (antimony, copper, and lead) sample collected.

N

0 500 1,000 2,000 Feet

OU2 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

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Figure:
5A

Legend

- Roads
- Fort Ord Landfills

OU2-Upper Wells 2018-3Q
Well Type and Sample Schedule

- Extraction Well - Quarterly VOCs
- Monitoring Well - Quarterly VOCs
- Monitoring Well - Annual VOCs
- Extraction Well - Water Levels
- Monitoring Well - Water Levels

N

0 450 900 1,800 Feet

OU2 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
at Operable Unit 2, Sites 2 and 12,
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Figure: **5B**

Table 5. OU2 New Extraction/Monitoring Well Data

OU2 Hydraulic Zone[1]	Well Identification	Sample Depth (ft btoc) [2]	Select COC Concentrations (µg/L)				
			4Q 2018*				
			TCE	PCE	1,1-DCA	1,2-DCA	VC
		ACL:	5.0	3.0	5.0	0.5	0.1
1	EW-OU2-17-A	104					
1	EW-OU2-18-A	104					
1	EW-OU2-19-A	104					
1	EW-OU2-20-A	119					
3	EW-OU2-11-AR	131					
7	EW-OU2-10-180	295					
7	EW-OU2-11-180	231					
7	EW-OU2-12-180	222					
5	MW-OU2-83-A	91	ND (0.25)	0.13 J	0.37 J	ND (0.25)	ND (0.05)
		96	0.17 J	0.25 J	0.89	ND (0.25)	ND (0.05)
		101	0.40 J	0.54	2.3	ND (0.25)	ND (0.05)
		106	0.46 J	0.60	2.6	ND (0.25)	ND (0.05)
		111	0.47 J	0.63	2.7	ND (0.25)	0.054 J
		116	0.55	0.60	3.0	ND (0.25)	ND (0.05)
9	EW-OU2-02-180R	257					

Notes:
*Preliminary results
ACL: Aquifer Cleanup Level
COC: chemical of concern
1,2-DCA: 1,2-dichloroethane
TCE: trichloroethene
PCE: tetrachloroethene
1,1-DCA: 1,1-dichloroethane
µg/L: micrograms per liter
NS: not sampled
ND: The analyte was not detected above the detection limit.
Ft btoc: feet below top of casing
J: Estimated result with a high (+) or low (-) bias.
[1] Hydraulic zones are identified in the Groundwater QAPP.
[2] For extraction wells sample depth = submersible pump intake depth.
Results in **bold** and shaded are concentrations above the ACL
Results in gray are ND
Results in brackets from a second deeper passive diffusion bag

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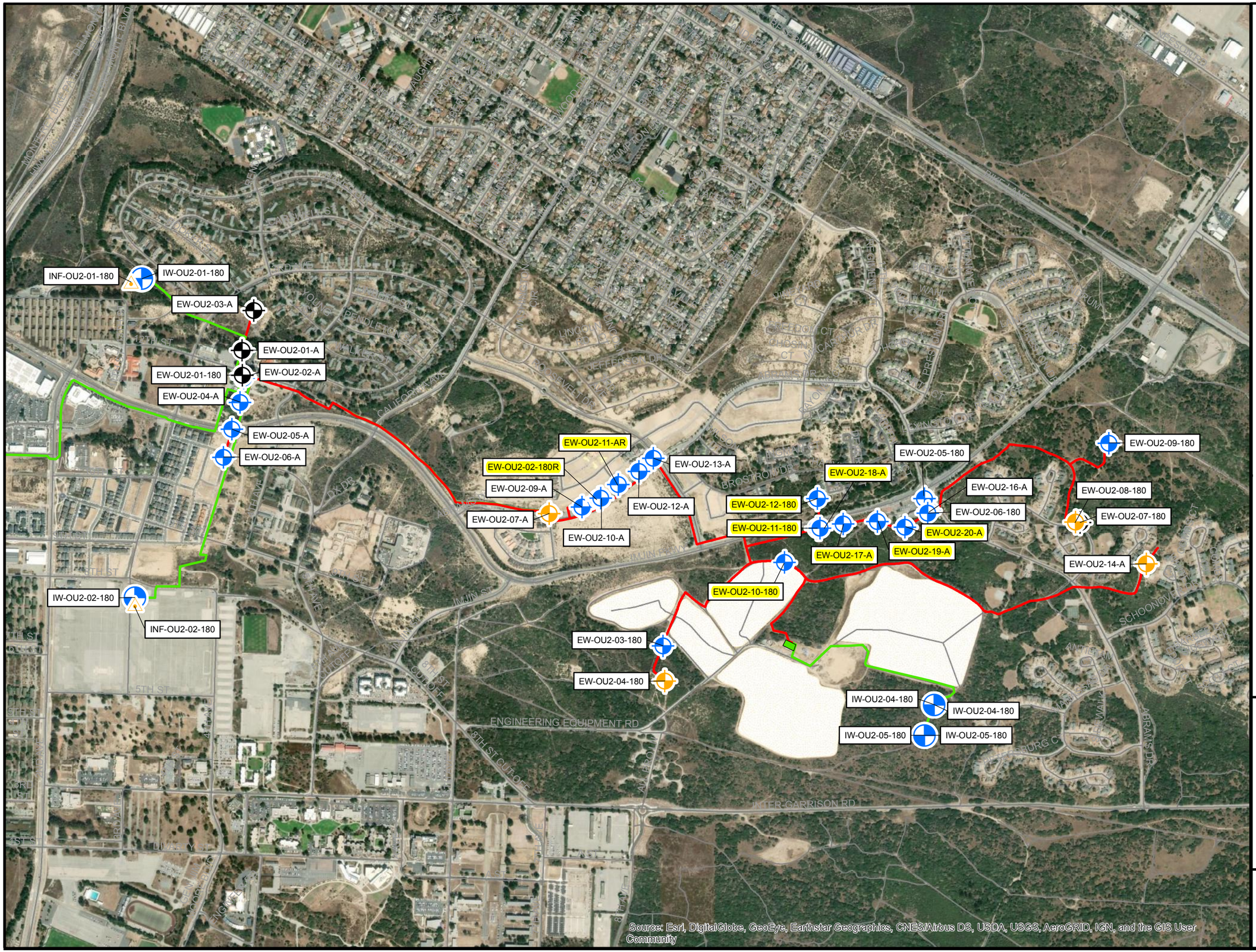

Legend

- Roads
- Fort Ord Landfills
- OU2 GWTP

Extraction Well Status

- Extraction Well - Operated
- Extraction Well - Not Operated
- Extraction Well - No Pump

Groundwater Pipeline

- Groundwater Extraction
- OU2 Treated Water Discharge

- Injection Well - Operated
- Infiltration Gallery - Not Used

N

0 375 750 1,500 Feet

OU2 and OUCTP Upper 180-Foot Aquifer Groundwater Remedies Map

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

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Figure: 6