

FINAL Fort Ord Operable Unit 1 Meeting Minutes
Groundwater Remediation, Well Destruction, and Treatment Plant Decommissioning
Marina, California
Base Closure Team Meeting
1:30 p.m., 23 April 2014
Prepared by HydroGeoLogic, Inc.

Attendees: (to be revised after meeting)

Individual	Attended	Individual	Attended
James Specht, USACE		Edward Ticken, AMEC	X
Teresa Rodgers, USACE		Jeff Fenton, AMEC	X
Chris Goddard, USACE	X	Derek Lieberman, Ahtna	X
Alex Kan, USACE	X	Peter Kelsall, CB&I	X
Bonnie McNeil, USACE		Steve Crane, Gilbane	X
William Collins, BRAC	X	Erin Caruso, Gilbane	X
Melissa Broadston, Chenega ¹	X	Larry Friend, Gilbane	
Marc Edwards, Chenega ¹	X	Kevin Ghalambor, Burleson	
Bart Kowalski, Chenega ¹	X	Roy Evans, HGL	X
Lewis Mitani, EPA	X	Kevin Wierengo, HGL	X
Martin Hausladen, EPA	X	Sean McStay, UCSC	X
Franklin Mark, DTSC	X		
Min Wu, Ph.D., DTSC	X		
Grant Himebaugh, RWQCB	X		
X = attended in person or by telephone; blank indicates absent from the meeting			

USACE = U.S. Army Corps of Engineers
BRAC = Base Realignment and Closure Fort Ord Office
EPA = U.S. Environmental Protection Agency
DTSC = California Department of Toxic Substances Control
RWQCB = Regional Water Quality Control Board
UCSC = University of California Santa Cruz
Ahtna = Ahtna Engineering Services
HGL = HydroGeoLogic, Inc.
CB&I = Chicago Bridge & Iron, Inc.
¹Chenega staff supporting the BRAC

OU-1 Treatment Plant Operations

The Northwest Treatment System (NWTs) operated nearly continuously from 28 February 2014 through 16 April 2014. The system shut down for approximately 10.25 hours on March 9 and 10, 2014, because of a PG&E power failure in the Marina Airport area. Extraction well EW-OU1-60-A went off-line for an unknown reason on approximately 06 April 2014 and was restarted on 21 April 2014.

Extraction wells EW-OU1-60-A, EW-OU1-66-A, and MW-OU1-87-A are operating and total pumping from those wells is approximately 19 gallons per minute. Extraction well EW-OU1-71-A was restarted on 23 March 2014 and shut down on 27 March 2014 after a groundwater sample was collected. Since system startup in 2006, the NWTS has pumped approximately 209 million gallons of groundwater and removed approximately 6.0 pounds of total volatile organic compounds, primarily trichloroethene (TCE). An estimated 0.1 pound of TCE has been removed since the NWTS 18 September 2013 sampling event.

OU-1 Groundwater Quality Data

The validated sampling results from December 2013 for the NWTS are presented in Attachment 1 Tables 1A and 1B. Figure 1 of Attachment 1 presents the TCE concentration contours based on the validated September 2013 data because the December data did not alter the previous TCE concentration contours. HGL collected the following samples from monitoring wells and the NWTS on 27 March 2014 and we are awaiting analytical results:

NWTS-Midpoint	EW-OU1-66-A	MW-OU1-61-A
NWTS-Effluent	EW-OU1-71-A	MW-OU1-88-A
EW-OU1-60-A	MW-OU1-87-A	MW-OU1-26-A

Monitoring wells MW-OU1-69-A2 and MW-OU1-70-A are located on private property and were not accessible during this event, thus samples could not be collected from these wells. Monitoring wells MW-OU1-69-A2 and MW-OU1-70-A are scheduled for destruction in June. If necessary, groundwater samples will be collected from these wells before well destruction activities. HGL recommends no further sampling be performed at wells MW-OU1-69-A2 and MW-OU1-70-A. The basis for this recommendation is as follows:

- TCE has not been detected at MW-OU1-69-A2 since March 2012. The TCE concentration at this well has been decreasing since March 2007 and has been less than 0.5 micrograms per liter ($\mu\text{g/L}$) since March 2008.
- The TCE concentration at MW-OU1-70-A has been decreasing since January 2007. Except for a value of 0.13 $\mu\text{g/L}$ in March 2012, TCE was not detected in any sample from December 2007 through September 2013.

Reporting/Federal Facility Agreement Schedule

All scheduled submittals have been made for primary and secondary deliverables. The status of submitted and anticipated reports for 2014 is summarized in Table 2. No comments were received for the Draft OU-1 2013 Annual and Third Quarter Groundwater Monitoring Report and the Draft Well Destruction and Former OU-1 Treatment Plant Decommissioning Work Plan. There were no public comments on these submittals. Consequently, HGL submitted the final versions of these documents on 04 April 2014.

Weed Control and Rare Plant Monitoring

The 2013 Rare Plant Survey and Habitat Impact Report was submitted to the Army and the University of California Santa Cruz on 24 February 2014. HGL was notified that the U.S. Fish and Wildlife Service will require that the third year of rare plant monitoring be completed at the former well destruction sites. Initial indications are that the sand gilia will be blooming very soon. HGL is currently working to schedule the rare plant survey at OU-1 and at those well destruction locations where rare plants or sensitive habitat may be present.

Uniform Federal Policy (UFP)-Quality Assurance Project Plan (QAPP)

The Draft UFP-QAPP for OU-1 was submitted 04 March 2014. Comments are due on 05 May 2014. The chemistry, reporting, and quality control elements of the UFP-QAPP differed from those in the current QAPP only to reflect implementation of the U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.0. The update is focused on integrating the current OU-1 QAPP into the Fort Ord-wide UFP-QAPP used to support the other Fort Ord operable units.

Site Exit/Closure Strategy

TCE concentrations have met or are approaching the aquifer cleanup level at all OU-1 monitoring wells. Attachment 2 is as an overview of a possible exit strategy that was presented and discussed at the April Base Closure Team (BCT) meeting and is included for reference. The strategy is based on demonstrating that the cleanup objectives of the Record of Decision (ROD) regarding human health protectiveness have been met and, therefore, the ROD cleanup goals have been attained. There was general agreement that the human health risk has been reduced to an acceptable level for current conditions. However, there is concern that the ROD also stated that all monitoring wells should show that all chemicals of concern (COC) are below the cleanup targets to attain completion. At present, two monitoring wells show TCE concentrations slightly higher than the cleanup target (6.5 $\mu\text{g/L}$ versus 5.0 $\mu\text{g/L}$).

A memorandum will be prepared to present the case for OU-1 closure based on cleanup progress to date. The human health risk corresponding to COC concentrations observed at the site have met the human health protectiveness objectives for several years. Consequently, the closure memorandum will also recommend that the existing site data is sufficient to satisfy the requirements for attainment monitoring. The memorandum will be presented to the regulators for review and comment.

Well Destruction and Treatment Plant Demolition

The Fort Ord BRAC office determined that snowy plover nesting season schedule constraints do not apply to those wells to be destroyed on California State Park land. The well destruction permit applications have been approved and signed by the Monterey County Environmental Health Department. The well destruction effort is scheduled to begin in May 2014. Notification letters and work plans have been sent out to property owners where well destruction activities will be performed.

Other:

- The EPA, DTSC, and RWQCB agreed that no further samples are needed from wells MW-OU1-69-A2 and MW-OU1-70-A before they are destroyed.

Action Items:

- The Army will obtain Right of Entry agreements for those properties where it is needed.
- HGL received concurrence from the BRAC Office and UCSC to begin the 2014 rare plant survey.
- HGL will prepare a technical memorandum to present the case for OU-1 closure in accordance with the strategy described in Attachment 2.
- HGL will provide a certificate of insurance to the Army to include with the ROE and encroachment permit requested by the Transit Agency Monterey County for work at MW-02-16-180. The Army will submit the requested permit.

Ongoing:

- Submit draft minutes for previous BCT meeting — complete through March 2014.
- Submit approved final minutes for previous BCT meeting — complete through February 2014.

**Fort Ord HTW BCT Meeting
23 April 2014**

**Fort Ord Operable Unit 1
Groundwater Remediation, Well Destruction, and Treatment Plant Decommissioning**

ATTACHMENT 1

Table 1A

TCE in OU-1 FONR Groundwater Remediation System – Performance Monitoring
 BCT Meeting for Former Fort Ord – 23 April 2014

Began: Date	FONR Extraction Well (listed from south to north)					Boundary Extraction Well (from west to east)				NWTS			
	Nov-10 IW-10	MW-87	Oct-07 EW-71 MW-85		MW-46AD	EW-63	EW-60	EW-66	EW-62	INFLUENT	MIDPOINT	EFFLUENT	
TCE (µg/L)													
11/9/07	Used as monitoring well until pump installed in October 2010. Pumping began 03 November 2010.	16	13	19	14	ND	ND	1.7	ND	11	ND	ND	
1/18/08		11	11	8.9	8.2	ND	ND	1.2	ND	6.0	ND	ND	
3/18/08		11	14	6.7	5.8	ND	0.29	1.5	ND	5.6	ND	ND	
5/27/08		9.7	18	2.5	6.1	ND	ND	1.8	ND	3.9	ND	ND	
7/21/08		9.1	14	4.4	3.4	ND	0.78	1.4	ND	3.6	ND	ND	
9/29/08		9.3	J 15	J 4.3	J 2.9	J ND	0.90	J 1.7	J ND	3.8	J 0.19	J ND	
12/1/08		5.8	11	2.6	1.6	ND	0.82	0.91	ND	2.7	0.35	J ND	
1/26/09		5.9	10	2.2	1.2	ND	0.48	J 0.78	ND	2.4	ND	ND	
3/9/09		5.8	9.9	2.1	1.2	ND	0.95	0.86	ND	2.7	ND	ND	
6/11/09		6.9	11	2.4	1.5	ND	0.88	1.7	ND	2.6	0.14	J ND	
9/15/09		6.8	9.4	1.7	0.78	ND	inactive	1.1	0.036	J 2.3	0.35	J ND	
12/14/09		6.9	7.5	0.84	not sampled	not sampled	inactive	0.94	not sampled	2.3	0.65	J ND	
3/22/10		7.2	8.5	0.62	0.55	inactive	ND	0.90	inactive	2.3	ND	ND	
6/21/10		7.4	6.5	0.90	0.40	J inactive	0.86	0.58	inactive	2.1	ND	ND	
9/20/10		7.7	6.6	0.83	0.35	J discontinued	0.63	0.49	J inactive	2.3	not sampled	ND	
12/16/10		5.2	6.9	5.2	0.58	0.28	J discontinued	0.72	0.42	J inactive	2.6	0.18	J ND
3/7/11	5.1	6.0	4.6	0.55	0.60	discontinued	0.87	0.42	J inactive	2.5	0.59	ND	
6/7/11	4.2	6.1	4.0	0.78	0.63	discontinued	0.76	0.36	J inactive	2.6	1.0	ND	
9/20/11	4.5	6.2	4.2	1.10	0.38	J discontinued	0.57	0.36	J inactive	2.5	1.7	ND	
12/7/11	3.8	5.1	3.7	not sampled		discontinued	inactive	0.27	J inactive	1.8	2.1	0.13	J
3/15/12	3.7	5.5	3.8	0.70	0.23	J discontinued	inactive	0.38	J inactive	0.81	0.32	J ND	
9/25/12	--	5.3	4.4	--	--	discontinued	inactive	0.19	J inactive	1.8	0.72	J ND	
1/8/13	--	5.4	--	--	--	discontinued	ND	0.19	J inactive	1.5	--	ND	
3/27/13	--	4.8	--	--	--	discontinued	ND	0.23	J inactive	1.5	--	ND	
6/26/13	--	4.4	--	--	--	discontinued	--	--	inactive	1.7	--	ND	
9/18/13	--	4.7	1.9	--	--	discontinued	0.17	J 0.31	J inactive	2.0	--	ND	
12/17/13	2.8	4.2	--	--	--	discontinued	--	--	inactive	2.1	--	--	
3/27/14	<i>Awaiting laboratory results</i>												
Notes:	Italics (if used) indicate data not yet validated					Bold font indicates concentration > ACL							
ACL - aquifer cleanup level	--- Not sampled					µg/L - micrograms per liter				J - Data qualified as estimated			
ND - nondetect	TCE - trichloroethene					NWTS - Northwest Treatment System				FONR - Fort Ord Natural Reserve			
Blue font indicates the concentration is calculated using the weighted average of the active pumping wells.													

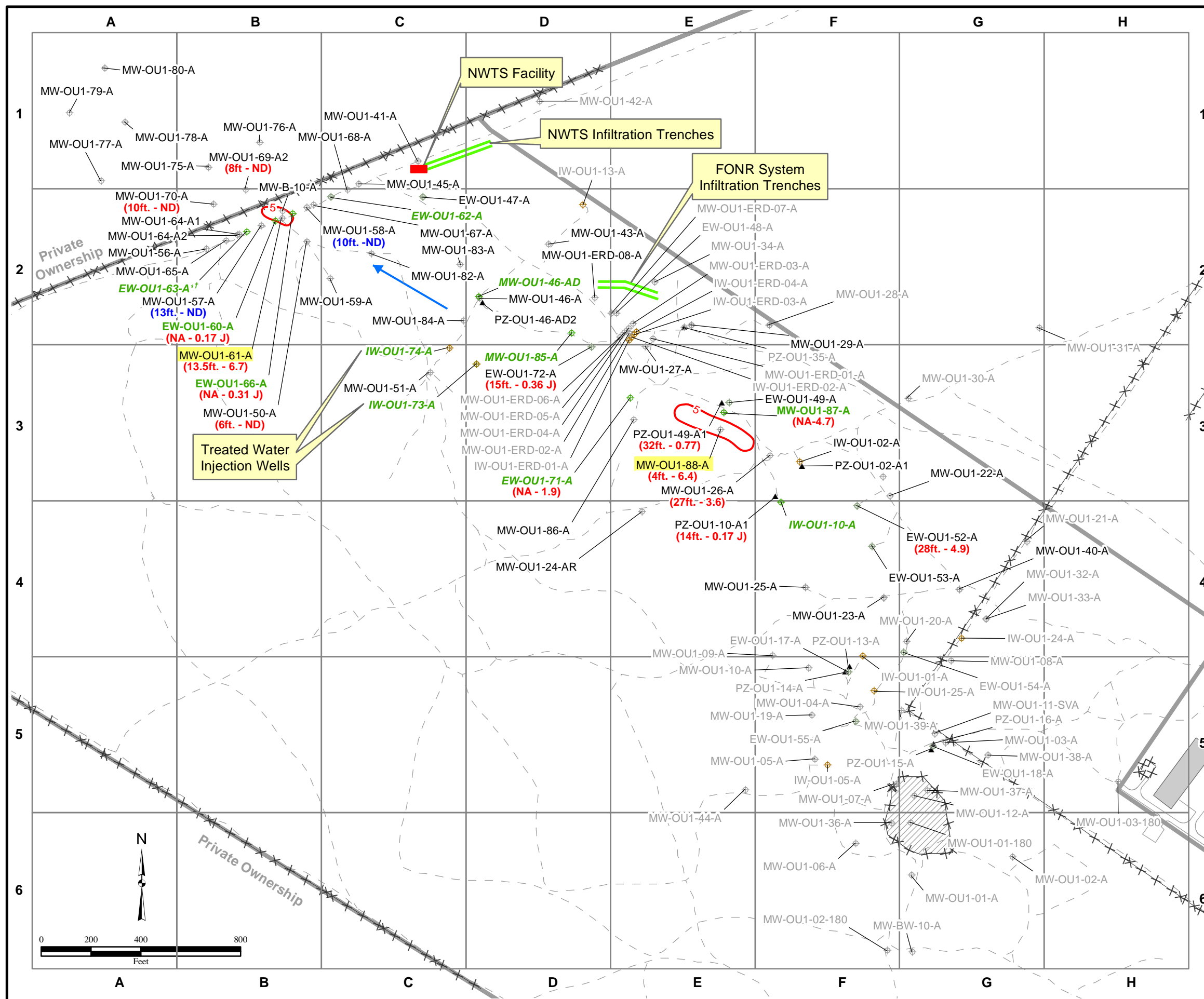
Table 1B
cis-1,2-DCE in OU-1 FONR Groundwater Remediation System – Performance Monitoring
BCT Meeting for Former Fort Ord – 23 April 2014

Began:	FONR Extraction Well (listed from south to north)					Boundary Extraction Well (from west to east)				NWTS								
	Nov-10	Oct-07				Jul-06				INFLUENT	MIDPOINT	EFFLUENT						
Date	IW-10	MW-87	EW-71	MW-85	MW-46AD	EW-63	EW-60	EW-66	EW-62									
cis-1,2-DCE (µg/L)																		
11/09/07	Used as monitoring well until pump installed in October 2010. Pumping began 03 November 2010.	1.9	1.6	2.3	1.70	ND	ND	ND	ND	1.3	ND	ND						
01/18/08		1.20	1.40	1.00	1.20	ND	ND	0.11	ND	0.66	ND	ND						
03/18/08		1.20	1.50	0.74	0.63	ND	ND	ND	ND	0.59	0.11	ND						
05/27/08		0.88	2.10	0.26	0.74	ND	ND	ND	ND	0.36	0.21	ND						
07/21/08		0.80	1.50	0.52	0.37	ND	ND	ND	ND	0.41	0.34	ND						
09/29/08		0.99	1.60	0.54	0.30	ND	ND	0.13	ND	0.42	0.42	0.12						
12/01/08		0.67	1.30	0.33	0.21	J	ND	ND	ND	ND	0.27	J	0.37	J	0.19	J		
01/26/09		0.63	1.20	0.29	J	0.12	J	ND	ND	ND	ND	0.26	J	0.24	J	ND		
03/09/09		0.62	1.20	0.29	J	0.13	J	ND	ND	ND	ND	0.23	J	0.26	J	ND		
06/11/09		0.71	1.10	0.30	J	0.13	J	ND	ND	0.14	J	ND	0.24	J	0.28	J	ND	
09/15/09		0.80	1.00	0.22	J	0.08	J	ND	inactive	0.03	J	ND	0.22	J	0.37	J	0.03	J
12/14/09		0.67	0.65	0.10	J	not sampled	not sampled	inactive	ND	J	not sampled	0.21	J	0.30	J	0.11	J	
03/22/10		0.67	0.79	ND	ND	inactive	ND	ND	inactive	0.20	J	0.11	J	0.13	J	0.13	J	
06/21/10		0.67	0.53	0.14	J	ND	inactive	ND	ND	inactive	0.20	J	0.23	J	ND	ND		
9/20/10		0.66	0.46	J	ND	ND	discontinued	ND	ND	inactive	0.23	J	not sampled	ND	ND			
12/16/10		0.55	0.66	0.35	J	ND	J	ND	discontinued	ND	ND	inactive	0.27	J	0.28	J	ND	
3/7/11		0.37	J	0.52	0.28	J	0.11	J	ND	discontinued	ND	ND	inactive	0.23	J	0.30	J	ND
6/7/11	0.35	J	0.55	0.29	J	ND	ND	discontinued	ND	ND	inactive	0.18	J	0.31	J	0.15	J	
9/20/11	0.25	J	0.46	J	0.21	J	ND	discontinued	ND	ND	inactive	0.17	J	0.19	J	0.30	J	
12/7/11	0.27	J	0.48	J	0.19	J	not sampled	discontinued	inactive	ND	inactive	0.16	J	0.17	J	0.23	J	
3/15/12	0.15	J	0.40	J	0.22	J	0.15	J	ND	discontinued	inactive	ND	inactive	ND	0.24	J	ND	
9/25/12	--	0.39	J	0.23	J	--	--	discontinued	inactive	ND	inactive	ND	0.24	J	ND	ND		
1/8/13	--	0.35	J	--	--	--	--	discontinued	ND	ND	inactive	0.12	--	--	--	--		
3/27/13	--	0.34	J	--	--	--	--	discontinued	ND	ND	inactive	0.12	--	--	--	--		
6/26/13	--	0.31	J	--	--	--	--	discontinued	--	--	inactive	0.27	--	--	--	--		
9/18/13	--	ND	ND	--	--	--	--	discontinued	ND	ND	inactive	ND	--	--	ND	ND		
12/17/13	ND	0.19	J	--	--	--	--	discontinued	--	--	inactive	0.23	--	--	--	--		
3/27/14	<i>Awaiting laboratory results</i>																	
Notes:	Italics (if used) indicate data not yet validated					Bold font indicates concentration > ACL												
ACL - aquifer cleanup level	-- - Not sampled					µg/L - micrograms per liter				J - Data qualified as estimated								
ND - nondetect	TCE - trichloroethene					NWTS - Northwest Treatment System				FONR - Fort Ord Natural Reserve								
Blue font indicates the concentration is calculated using the weighted average of the active pumping wells.																		

Table 2
Current Deliverable Schedule
Former Fort Ord, Marina, California – 23 April 2014

Deliverable Title	Submittal	Review Comments Due	Status/Remarks
<i>Primary Deliverables</i>			
Draft UFP-QAPP	March 2014	May 2014	Submitted 04 March 2014
<i>Secondary Deliverables</i>			
Draft 2014 Semiannual Groundwater Monitoring Report	June 2014	August 2014	Sampling completed in March 2014. Awaiting analytical results.
Draft Well Destruction and Treatment Plant Demolition Completion Report	August 2014	September 2014	Fieldwork to be completed in June 2014.
Draft Health & Safety Plan – OU-1 O&M/LTM	February 2014	May 2014	Awaiting comments
<i>Completed Recent Submittals</i>			
Final Memorandum for Record for Optimizing Remediation Pumping	March 2012	February 2012	Accepted as final during July 2012 BCT meeting.
Draft 2012 Annual and 3 rd Quarter Groundwater Monitoring Report	December 2012	NA	Submitted 31 December 2012. Waiting for agency comments.
Final 2012 Annual and 3 rd Quarter Groundwater Monitoring Report	March 2013	NA	Submitted 21 March 2013.
2013 First Quarter Groundwater Monitoring Report	June 2013	August 2013	Submitted 1 July 2013.
Preliminary Draft Work Plan for Well Destruction and Treatment Plant Demolition	5 November 2013	19 November 2013	Army comments addressed.
Preliminary Draft Health & Safety Plan – Well Destruction and Treatment Plant Demolition	5 November 2013	19 November 2013	Army comments addressed.
Preliminary Draft Health & Safety Plan – OU-1 O&M / LTM	5 November 2013	19 November 2013	Army comments addressed
Draft 2013 Annual and 3 rd Quarter Groundwater Monitoring Report	January 2014	March 2014	Submitted 17 January 2014.
Preliminary Draft UFP-QAPP	26 November 2013	10 December 2013	Army comments addressed.
Draft UFP-QAPP	March 2014	May 2014	Submitted 04 March 2014
Draft Work Plan for Well Destruction and Treatment Plant Demolition	February 2014	April 2014	Submitted 11 February 2014
Final 2013 Annual and 3 rd Quarter Groundwater Monitoring Report	April 2014	NA	Submitted 04 April 2014
Final Work Plan for Well Destruction and Treatment Plant Demolition	April 2014	NA	Submitted 04 April 2014

Figure 1
OU-1 FONR A-Aquifer
TCE Concentration in Groundwater
September 2013
Former Fort Ord, CA



Legend

- ⊕ Well
- ⊕ Extraction Well
- ⊕ Injection Well
- ▲ Piezometer or 2-Inch Well
- Groundwater Flow Direction
- ⊕ MW-OU1-21-A Well Destroyed
- ⊕ MW-OU1-88-A Location with March 2013 TCE Concentrations at or above ACL (5 µg/L)
- MW-OU1-57-A Well ID
- (13.5ft. - 6.7) September 2013 TCE Result (µg/L)
- Sample Elevation (feet above mean sea level)
- (13ft. - ND) Jan/Feb/March 2013 Latest TCE Result (µg/L)
- Sample Elevation (feet above mean sea level)
- 5 TCE contour based on September 2013 Data
- - - Trail/Unimproved Road
- × Fence
- Treated Water Infiltration Trench
- Property Boundary
- Building
- ▨ Former Fire Drill Area

Notes:
Units of TCE concentration are in micrograms per liter.
FONR = Fort Ord Natural Reserve
NWTS = Northwest Treatment System
ACL = Aquifer Cleanup Level
ND = nondetect
NA = Depth is not applicable - sample is from pumping well
µg/L = micrograms per liter
Wells shown with an asterisk were not used to develop contour boundaries.
Wells for which no data are posted were not sampled.
J = Estimated value
Green font indicates extraction or injection well.
Italicized font shows pumping suspended.
† = Disconnected extraction well. No longer operable.

\\gst-srv-01\hglgis\Ft_Ord_MSIW\O&M_H10203\
(1)TCE_2013-09.mxd
11/12/2013 CNL
Source: HGL

**Fort Ord HTW BCT Meeting
23 April 2014**

**Fort Ord Operable Unit 1
Groundwater Remediation, Well Destruction, and Treatment Plant Decommissioning**

ATTACHMENT 2

Potential OU-1 Exit/Closure Strategy

**Fort Ord HTW BCT Meeting
19 March 2014**

**Fort Ord Operable Unit 1
Groundwater Remediation, Well Destruction, and Treatment Plant Decommissioning**

Attachment 2

Introduction

Groundwater sampling results from the Operable Unit 1 (OU-1) groundwater long term monitoring (LTM) network have shown the following:

- Since March 2008, trichloroethene (TCE) is the only chemical of concern (COC) that has exceeded the Aquifer Cleanup Level (ACL) specified in the Record of Decision (ROD).
- In 2013, the TCE concentrations measured in OU-1 groundwater exceeded the ACL at only two monitoring wells and are trending lower with time.
- The maximum TCE concentration detected during the December 2013 sampling effort was 6.3 micrograms per liter ($\mu\text{g/L}$) in well MW-OU1-61-A.

The decreasing TCE concentration throughout OU-1 groundwater has resulted in a corresponding decrease in the amount of total volatile organic compounds, primarily TCE, that is being removed by the active extraction wells each year. At the two extraction wells located near MW-OU1-61-A, for example, TCE has not been detected above 0.5 $\mu\text{g/L}$ since September 2011—the ACL for TCE is 10 times greater (5.0 $\mu\text{g/L}$) than the maximum detected TCE concentration at these wells during that interval. These factors prompted the Army to assess the progress of the OU-1 groundwater cleanup in comparison to the groundwater cleanup goals identified in the ROD.

ROD Cleanup Goals

Several statements in the ROD are relevant to determining when the cleanup goals have been met:

- Section 2.5 states as follows:
 - “The primary remedial objectives for the A-Aquifer are hydraulic control and containment of contaminated groundwater in the A-Aquifer, and extraction and treatment of groundwater exceeding aquifer cleanup levels. Remedial actions for these two components are intended to be final remedial solutions to risks posed by COCs present within these units. The risks are described in Section 2.7.”
- Section 2.7.2 states as follows:
 - “A post cleanup human health risk assessment (HHRA) was performed for the groundwater at the FDA [the Fire Drill Area is the OU-1 COC source area]...The

exposure pathway evaluated was a child and adult receptor that might be exposed to the COCS through ingestion of tapwater (groundwater).

- The resulting excess cancer risk estimated for site conditions at the time that Aquifer Cleanup Goals are achieved is 2×10^{-6} to 3×10^{-5} ...These excess cancer risks are within the 10^{-4} to 10^{-6} identified in the NCP as acceptable residual risks for Federal Superfund sites.
- In summary, even if unlimited use occurred at this site, the resultant risks from exposure to soils and groundwater at remediation would be no greater than that described above for groundwater, and no institutional controls (i.e., deed restrictions) are needed. However, actual or threatened releases of hazardous substances for this site, if not addressed by continued implementation of the groundwater remedy, may present an imminent and substantial endangerment to public health, welfare, and the environment.”
- Section 2.9 states as follows:
 - “To protect human health and comply with federal and state applicable or relevant and appropriate requirements (ARARs), groundwater must be returned through cleanup to a condition that will allow beneficial uses to occur, including future potential use as a drinking water source, without unacceptable risks to the users. Thus, the remedial cleanup goals for groundwater include cleaning up the contaminated groundwater to at least maximum contaminant levels (MCLs), as shown on Table 1.
 - The estimated maximum total aggregate excess cancer risk for all chemicals at their respective remediation goals is 3×10^{-5} . This cumulative risk is within acceptable range, and is health protective.”

The last bullet time showing text extracted from Section 2.7.2 of the ROD includes the statement “However, actual or threatened releases of hazardous substances for this site, if not addressed...” There are no longer any threatened releases because soils and groundwater have been remediated in the source area.

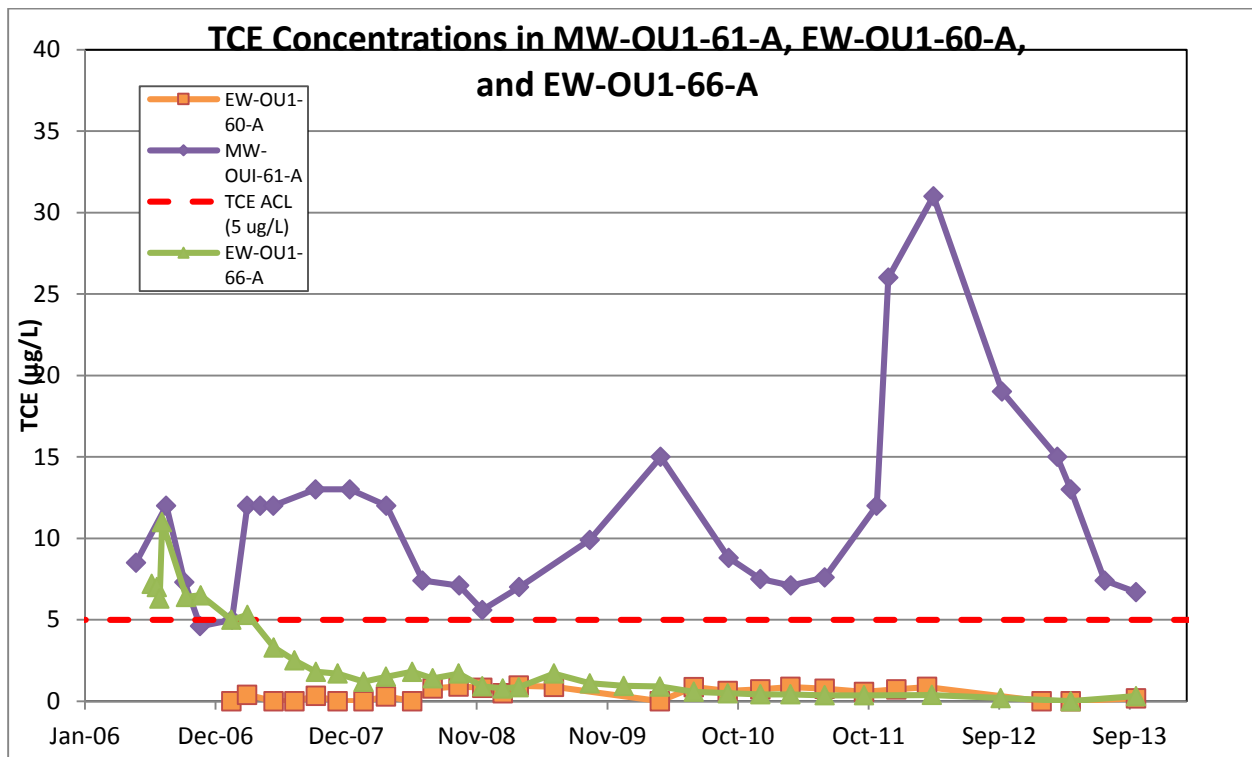
The rationale expressed throughout the ROD is that the ACLs were set to achieve a groundwater quality that would allow beneficial uses to occur, including future potential use of the groundwater as a drinking water source, without unacceptable risks to the users. The U.S. Environmental Protection Agency (EPA) Maximum Contaminant Levels (MCLs) corresponding to the COCs were selected as target values that would accomplish this goal and indicate that remediation is complete.

ROD Cleanup Goals Achieved in OU-1

If the current data were used to conduct the HHRA, TCE would very likely be the only COC to contribute an incremental cancer risk greater than 1×10^{-6} because the other nine COCs either have not been detected or have been found only at concentrations well below their corresponding ACLs. The parameters used in assessing TCE risk have grown more conservative since the ROD was established. Nonetheless, a preliminary estimate of the excess

cancer risk resulting from residential ingestion of groundwater containing TCE at $6.5 \mu\text{g/L}$. TCE, which is slightly greater than the current maximum value detected in the December 2013 sampling, is 6×10^{-6} . This value is nearly an order of magnitude less than the risk level used in the ROD to define completion of the remedial action.

Site data also demonstrate that the OU-1 site cleanup meets the ROD goal that "... groundwater must be returned through cleanup to a condition that will allow beneficial uses to occur, including future potential use as a drinking water source, without unacceptable risks to the users." Well MW-OU1-61-A is located within approximately 100 feet or less of extraction wells EW-OU1-60-A and EW-OU1-66-A. These wells pump approximately 2 gallons per minute (gpm) and 13 gpm, respectively, and are representative of residential use scenarios for drinking water. As illustrated in the chart below, TCE has not been detected above $0.9 \mu\text{g/L}$ in either extraction well since December 2009 and has not exceeded the drinking water MCL since early in 2007.



Furthermore, pumping from MW-OU1-61-A cannot be sustained for more than a few minutes without dewatering the well casing.

The assessment described above indicates that the OU-1 groundwater remediation effort has met the cleanup goals identified in the ROD. There could be objections to this conclusion based on the fact that two wells within the OU-1 LTM network had, as of the latest sampling event, TCE concentrations slightly above the ACL even though remediation has been defined as complete.

A counter argument to such an objection is that the ACLs were selected to achieve an acceptable risk to human health—in this case, an excess cancer risk of 3×10^{-5} or less—if the OU-1 groundwater were to be used as a residential water supply, even though such use is prohibited by County regulation. However, the preliminary risk estimate described previously shows that meeting the ACLs at all wells is not necessary to meet the ROD goal of restoring the potential beneficial use of the aquifer as a drinking water source with a corresponding excess cancer risk of 3×10^{-5} . In fact, the current site condition corresponds to a cancer risk that is much less than that identified in the ROD when the ACLs are met. Furthermore, attainment monitoring will be performed to ensure that the remediation goal is met after the groundwater extraction and treatment operation is discontinued.

Potential Operable Unit 1 Closure Strategy

The above findings suggest that a potential closure strategy for OU-1 would be to perform the following actions:

- Update the HHRA to determine the current excess cancer risk and demonstrate that it is less than that used to define a completed remediation effort in the ROD.
- Demonstrate through site data that OU-1 groundwater could be used—theoretically, as such use is prohibited by County regulation—for residential drinking water and would meet the MCL standards for the COCs.
- Show through individual well data analyses and subsequent attainment monitoring that COC concentrations will continue to meet ACLs.
- Summarize cleanup progress to date to show that there will be no future or “threatened” releases from the source area.
- Propose to the EPA, the California Department of Toxic Substances Control, and the California Regional Water Quality Control Board that the requirements of the OU-1 ROD have been met and that remediation is complete based on the available site evidence.
- Propose an attainment groundwater monitoring program to verify that remediation is complete.
- Initiate the proper actions to obtain the necessary approvals to close OU-1.

The Army requests input from the EPA, the California Department of Toxic Substances Control, and the California Regional Water Quality Control Board regarding the feasibility of the closure strategy described above.