

Final Base Closure Team (BCT) Meeting Minutes
Fort Ord Operable Unit 1
Groundwater Remediation, Well Destruction, and Treatment Plant Decommissioning
Marina, California
1:30 p.m., 22 January 2014

OU-1 Treatment Plant Operations

HydroGeoLogic, Inc. (HGL) reported the Northwest Treatment System (NWTS) operated nearly continuously from 1 December 2013 through 13 January 2014. The system shut down for approximately 11.25 hours on 5 December 2013 and 11.5 hours on 9 December 2013. On both occasions, the system automatically shut down due to a low pressure alarm at the transfer pump. The cause of the shutdowns is uncertain, but it is believed to be related to the low outdoor temperature (below freezing) on those dates.

Extraction wells EW-OU1-60-A, EW-OU1-66-A, MW-OU1-87-A, and IW-OU1-10-A operated during the period and total pumping from those wells was approximately 27 gallons per minute (gpm). After completing the December sampling event extraction well IW-OU1-10-A was shutdown on 2 January. The current total pumping rate is approximately 20 gpm. Since system startup in 2006, the NWTS has pumped approximately 206 million gallons of groundwater and removed approximately 6.0 pounds of total volatile organic compounds, primarily trichloroethene (TCE). An estimated 0.07 pound of TCE has been removed since the NWTS 18 September 2013 sampling event.

OU-1 Groundwater Quality Data

HGL informed the regulators that as agreed at the November Base Closure Team meeting, HGL collected the following samples from monitoring wells and the NWTS in December 2013:

- Extraction wells MW-OU1-87-A and IW-OU1-10-A (restarted on 14 October 2013)
- Monitoring wells MW-OU1-88-A and MW-OU1-61-A

Preliminary, unvalidated sampling results for NWTS from December 2013 are presented in attached Tables 1A and 1B. The unvalidated analytical results showed that only TCE, cis-1,2-dichloroethene and chloroform were detected in any sample. TCE was the only chemical with a concentration that exceeded the laboratory reporting limit of 0.5 micrograms per liter ($\mu\text{g/L}$) and it was detected in all four wells. Concentrations of cis-1,2-dichloroethene were detected in three of the four wells and chloroform was detected in two.

HGL reported that the observed TCE concentration in extraction well EW-OU1-87-A continued to decrease to 4.2 $\mu\text{g/L}$ from 4.7 $\mu\text{g/L}$ when last sampled in September 2013. Similarly, the TCE concentration in extraction well IW-OU1-10-A continued to decrease to 2.8 $\mu\text{g/L}$ from 3.7 $\mu\text{g/L}$ when last sampled in March 2012. Overall, concentrations were similar to the previous result at each well and decreased by less than 1 $\mu\text{g/L}$. MW-OU1-61-A and MW-OU1-88-A remained the only two wells where the TCE concentration exceeded the Aquifer Cleanup Level (ACL) of 5 $\mu\text{g/L}$. In December, the TCE concentration at MW-OU1-61-A declined slightly to 6.3 $\mu\text{g/L}$ and MW-OU1-88-A declined

slightly to 6.2 $\mu\text{g/L}$. Because the December data will not alter the TCE concentration contours generated from the September data, Figure 1 presents the TCE concentration contours based on the validated September 2013 data. Figure 1 will be updated after the December data has been validated.

Reporting/Federal Facility Agreement Schedule

All scheduled submittals have been made for primary and secondary deliverables. The status of submitted and anticipated reports for 2013 and 2014 is summarized in Table 2. The Draft OU-1 2013 Annual and Third Quarter Groundwater Monitoring Report was submitted for regulatory and public review on 17 January 2014. HGL is currently responding to comments received for the preliminary draft Unified Federal Program Quality Assurance Project Plan (UFP-QAPP), the preliminary draft Work Plan for the well destruction and treatment plant demolition efforts, the Health and Safety Plan for the OU-1 groundwater remediation projects and, the Health and Safety Plan for the well destruction project.

The chemistry, reporting, and quality control elements of the UFP-QAPP were changed from the current QAPP only to reflect implementation of *DoD 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.

Weed Control and Rare Plant Monitoring

The 2013 Rare Plant Survey and Habitat Impact Report was submitted for Army review on December 30, 2013. The University of California Santa Cruz draft annual report to describe 2013 weed control activities is included as an Appendix therein.

Well Destruction and Treatment Plant Demolition

HGL reported that we measured total well depth at wells to be destroyed within OU-1 and at locations where right of entry has been secured. HGL also visited these sites to identify access constraints and assisted the Base Realignment and Closure (BRAC) Office in preparing information to submit to the U.S. Fish and Wildlife Service (USFWS) regarding the well destruction schedule. The Army concluded that snowy plover nesting season restrictions do not apply at the proposed well destruction sites. HGL also conducted a site reconnaissance to identify potential property ownership and access issues at wells located on non-BRAC land. Work is continuing on preparation of the well destruction permits and coordination with the USFWS.

Action Items:

No new action items.

Ongoing:

- Submit draft minutes for previous BCT meeting(s)—complete.
- Submit approved final minutes for previous BCT meeting(s) — approval complete through December 2013 minutes.
- Prepare update for the next BCT meeting.

**Fort Ord HTW BCT Meeting
22 January 2014**

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

ATTACHMENT 1

Reference Table(s) and Figure(s)

Table 1A
TCE in OU-1 FONR Groundwater Remediation System – Performance Monitoring
BCT Meeting for Former Fort Ord – 22 January 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								
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	15	4.3	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	1.54	--	ND				
3/27/13	--	4.8	--	--	--	discontinued	ND	0.23	J	inactive	1.48	--	ND				
6/26/13	--	4.4	--	--	--	discontinued	--	--	inactive	1.90	--	ND					
9/18/13	--	4.7	1.9	--	--	discontinued	0.17	J	0.31	J	inactive	2.00	--	ND			
12/17/13	2.8	4.2	--	--	--	discontinued	--	--	inactive	1.48	--	--					
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.																	

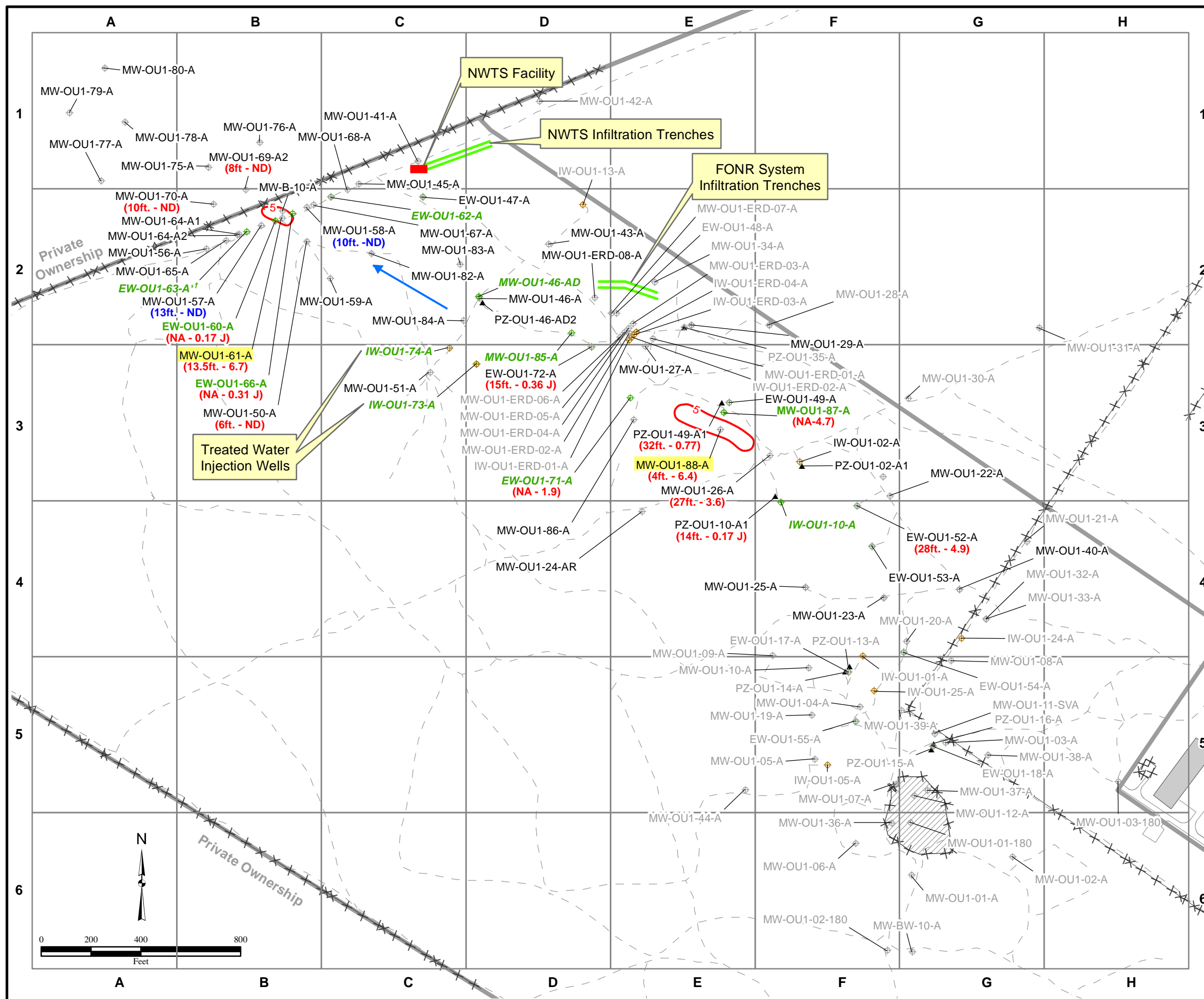
Table 1B
cis-1,2-DCE in OU-1 FONR Groundwater Remediation System – Performance Monitoring
BCT Meeting for Former Fort Ord – 22 January 2014

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	0.26	J	0.24	J	ND	
03/09/09		0.62	1.20	0.29	J	0.13	J	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	0.28	J	ND	
09/15/09		0.80	1.00	0.22	J	0.08	J	ND	inactive	0.03	J	ND	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	0.30	J	0.11	J
03/22/10		0.67	0.79	ND		ND		inactive	ND	ND		inactive	0.11	J	0.13	J
06/21/10		0.67	0.53	0.14	J	ND		inactive	ND	ND		inactive	0.23	J	ND	
9/20/10		0.66	0.46	J	ND	ND		discontinued	ND	ND		inactive	not sampled		ND	
12/16/10		0.55	0.66	0.35	J	ND	J	ND	discontinued	ND	ND	inactive	0.28	J	ND	
3/7/11	0.37	J	0.52	0.28	J	0.11	J	ND	discontinued	ND	inactive	0.30	J	ND		
6/7/11	0.35	J	0.55	0.29	J	ND		ND	discontinued	ND	inactive	0.31	J	0.15	J	
9/20/11	0.25	J	0.46	J	0.21	J	ND	ND	discontinued	ND	inactive	0.19	J	0.30	J	
12/7/11	0.27	J	0.48	J	0.19	J	not sampled		discontinued	inactive	ND	inactive	0.17	J	0.23	J
3/15/12	0.15	J	0.40	J	0.22	J	0.15	J	ND	discontinued	inactive	ND	J	ND		
9/25/12	--	J	0.39	J	0.23	J	--		--	discontinued	inactive	ND	J	ND		
1/8/13	--	J	0.35	J	--		--		--	discontinued	ND	ND	inactive	0.12	--	--
3/27/13	--	J	0.34	J	--		--		--	discontinued	ND	ND	inactive	0.12	--	--
6/26/13	--	J	0.31	J	--		--		--	discontinued	--	--	inactive	0.27	--	--
9/18/13	--		ND		ND		--		--	discontinued	ND	ND	inactive	ND	--	ND
12/17/13	ND	J	0.19	J	--		--		--	discontinued	--	--	inactive	ND	--	--
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, CA – 22 January 2014

Deliverable Title	Submittal	Review Comments Due	Status/Remarks
<i>Primary Deliverables</i>			
None scheduled			
<i>Secondary Deliverables</i>			
Draft 2013 Annual and 3 rd Quarter Groundwater Monitoring Report	January 2014	March 2014	Submitted 17 January 2014.
Draft UFP-QAPP	January 2014	March 2014	In preparation.
Draft Work Plan for Well Destruction and Treatment Plant Demolition	January 2014	February 2014	In preparation.
Draft 2014 Semiannual Groundwater Monitoring Report	June 2014	August 2014	Sampling to be completed in March 2014.
Draft Well Destruction and Treatment Plant Demolition Completion Report	August 2014	September 2014	Fieldwork to be completed in June 2014.
Preliminary Draft Health & Safety Plan – OU-1 O&M / LTM	5 November 2013	19 November 2013	Response to Army comments to be submitted by 31 January 2014.
<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 received.
Preliminary Draft Health & Safety Plan	5 November 2013	19 November 2013	Army comments received.
Preliminary Draft 2013 Annual and 3 rd Quarter Groundwater Monitoring Report	19 November 2013	19 December 2013	Army comments received. Draft Submitted 17 January 2014
Preliminary Draft UFP-QAPP	26 November 2013	10 December 2013	Army comments received.

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

