

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., 22 August 2014
Prepared by HydroGeoLogic, Inc.

Attendees: (to be revised after meeting)

Individual	Attended?	Individual	Attended?
James Specht, USACE		Grant Himebaugh, RWQCB	X
Teresa Rodgers, USACE	X	Edward Ticken, AMEC	X
Alex Kan, USACE	X	Jeff Fenton, AMEC	X
Bonnie McNeil, USACE	X	Derek Lieberman, Ahtna	X
Cory Koger, USACE	X	Brad Clark, Ahtna	X
William Collins, BRAC	X	Holly Dillon, Ahtna	X
Tom Ghigliotto, Chenega ¹	X	Kevin Ghalambor, Burleson	
Melissa Broadston, Chenega ¹	X	Peter Kelsall, CB&I	X
Bart Kowalski, Chenega ¹	X	Steve Crane, Gilbane	X
Cary Stiebel, Chenega ¹		Erin Caruso, Gilbane	X
Lewis Mitani, EPA	X	Lindsay Alexander, Gilbane	X
Martin Hausladen, EPA	X	Larry Friend, Gilbane	
Kimberly Gettman, DTSC	X	Roy Evans, HGL	X
Franklin Mark, DTSC	X	Kevin Wierengo, HGL	X
Min Wu, Ph.D., DTSC	X	Sean McStay, UCSC	X
Edward Walker, DTSC	X	Mike Wade	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
UCSC = University of California, Santa Cruz
DTSC = California Department of Toxic Substances
Control

RWQCB = Regional Water Quality Control Board
Ahtna = Ahtna Engineering Services
HGL = HydroGeoLogic, Inc.
CB&I = Chicago Bridge & Iron, Inc.
¹Chenega staff supporting the BRAC

OU-1 Treatment Plant Operations

HGL reported the Northwest Treatment System (NWTs) operated continuously from 7 July 2014 through 14 August 2014. Extraction wells EW-OU1-60-A and EW-OU1-66-A are operating and total pumping from those wells is approximately 12.5 gallons per minute. EW OU1 71 A, MW-OU1-87-A, and IW-OU1-10-A remain operable and will be temporarily restarted to collect performance monitoring samples in September 2014.

Since system startup in 2006, the NWTs has pumped approximately 211 million gallons of groundwater and removed approximately 6.0 pounds of total volatile organic compounds, primarily

trichloroethene (TCE). An estimated 0.2 pound of TCE has been removed since the NWTs 18 September 2013 sampling event.

OU-1 Groundwater Quality Data

In accordance with the Uniform Federal Policy (UFP)-Quality Assurance Project Plan (QAPP), HGL collected the following samples from monitoring wells and the NWTs on 27 June 2014:

MW-OU1-87-A	MW-OU1-88-A	NWTs Effluent
MW-OU1-61-A	NWTs Midpoint	

Unvalidated sampling results were presented and discussed at the July Base Closure Team (BCT) meeting. Validated results have since been received and the results were unchanged. MW-OU1-61-A remains the only well exceeding the TCE 5.0 micrograms per liter ($\mu\text{g/L}$) Aquifer Cleanup Level (ACL) in OU-1 with a TCE concentration of 5.7 $\mu\text{g/L}$ (and 5.4 $\mu\text{g/L}$ in the duplicate sample from this location). Tables 1A and 1B show the TCE and cis-1,2-dichloroethene concentrations, respectively, found in the extraction wells and treatment system. Figure 1.2 in Attachment 1 shows the TCE concentration contour corresponding to the ACL. The next planned sampling event—see Table 2 for sampling locations—will occur September 2 and 3, 2014.

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 3. The Draft Well Destruction and Treatment Plant Demolition Completion Report was submitted on 11 August 2014 for regulatory agency and public review. Comments are due on 16 September 2014.

OU-1 Weed Control and Rare Plant Monitoring

The U.S. Fish and Wildlife Service required that the third year of rare plant monitoring be completed at the former well destruction sites and this survey was completed between 25 April 2014 and 02 May 2014. Additional monitoring was performed in May and June during the well destruction effort at well sites destroyed within the Fort Ord Natural Reserve. HGL (FONR) is currently preparing the 2014 FONR Impact Assessment and Habitat and Rare Plant Species Survey Results Report.

Site Exit/Closure Strategy

TCE concentrations have met or are approaching the aquifer cleanup level at all OU-1 monitoring wells. 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. A technical memorandum will be prepared to present the case for OU-1 closure based on cleanup progress to date. The human health risk corresponding to Chemical of Concern concentrations observed at the site have met the human health protectiveness objectives for several years. The technical memorandum will include recommendations for performing attainment monitoring that incorporate existing data to the maximum extent. The memorandum will be presented to the regulators for review and comment.

Well Destruction and Treatment Plant Demolition

As of 17 July 2014, all wells for which right of entry (ROE) was obtained have been destroyed (81 wells in total) and the two inactive OU-1 groundwater treatment plants have been demolished. As discussed at previous meetings, the ROE for the Armstrong Ranch property has not yet been obtained—consequently the timetable for destroying these 14 wells and removing approximately 1,500 feet of associated pipeline remains uncertain. Figure 1.2 in Attachment 1 shows the locations of the destroyed wells within OU-1. The Draft Well Destruction and Treatment Plant Demolition Completion Report was submitted on 11 August 2014 for regulatory agency and public review.

Action Items:

- The Army will obtain ROE agreements for Armstrong Ranch
- HGL will prepare a technical memorandum (TM) to present the case for OU-1 closure in accordance with the strategy described above. The deliverables schedule will be updated to include this TM after the HGL contract is modified for this task.
- HGL will prepare and submit the draft 2014 FONR Impact Assessment and Habitat and Rare Plant Species Survey Results report.

Ongoing:

- Submit draft minutes for previous BCT meeting(s)—complete through July 2014.
- Submit approved final minutes for previous BCT meeting(s) — complete through July 2014.

**Fort Ord HTW BCT Meeting
22 August 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 – 22 August 2014

	FONR Extraction Well (listed from south to north)								Boundary Extraction Well (from west to east)						NWTS								
Began:	Nov-10	Oct-07								Jul-06													
Date	IW-10	MW-87	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	--		3.4	A	0.89	A	--		--		discontinued		0.22	J/A	0.29	J/A	inactive		1.7		0.92	J/A	ND
6/27/14	--		3.7		--		--		--		discontinued		--		--		inactive		0.28		0.39	J	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
OU-1 Sampling Schedule for September 2014

Sample Point	Location	Notes
Treatment plant		
NWTS-Influent	Treatment Plant	
NWTS-Midpoint	Treatment Plant	
NWTS-Effluent	Treatment Plant	
Extraction wells		
EW-OU1-60-A*	NW Boundary	
EW-OU1-66-A*	NW Boundary	
EW-OU1-71-A*	Central FONR	Temporarily restarted for sample collection
MW-OU1-87-A*	Central FONR	
IW-OU1-10-A*	Central FONR	
Monitoring wells		
MW-OU1-58-A	NW Boundary	
MW-OU1-57-A	NW Boundary	
MW-OU1-61-A	NW Boundary	Duplicate collected
EW-OU1-72-A	Central FONR	
MW-OU1-86-A	Central FONR	
PZ-OU1-49-A1	Central FONR	
MW-OU1-88-A	Central FONR	
MW-OU1-26-A	Central FONR	
PZ-OU1-10-A1	Central FONR	
EW-OU1-52-A	Central FONR	
EW-OU1-53-A	Central FONR	

* Operating extraction well - samples collected from port on discharge pipe.

Table 3
Current Deliverable Schedule
Former Fort Ord, Marina, California – 22 August 2014

Deliverable Title	Submittal	Review Comments Due	Status/Remarks
<i>Primary Deliverables</i>			
Final UFP-QAPP	May 2014	Received	Submitted 29 May 2014
<i>Secondary Deliverables</i>			
Final 2014 Semiannual Groundwater Monitoring Report	June 2014	August 2014	Submitted 25 June 2014
Draft Well Destruction and Treatment Plant Demolition Completion Report	August 2014	September 2014	Submitted 11 August 2014.
Draft Health & Safety Plan – OU-1 O&M/LTM	May 2014	Received	Draft accepted as Final.
<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.
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
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 1.2
OU-1 FONR A-Aquifer
TCE Concentration in Groundwater
June 2014

