HTW BCT Meeting
October 2009

Item	Action	Comment
OU1 Groundwater Remediation	Status Update	HGL
OU1 Off-Site	Status Update	Shaw
OU2 and 2/12 Treatment Systems	Status Update	Ahtna
Other Groundwater Issues	Status Update	All
OUCTP	Status Update	Shaw
Groundwater Treatment System Optimization	Status Update	Ahtna
OU2 Landfill	Status Update	Shaw
Interim Action Site	Status Update	Shaw
Site 39 RDRA Work Plan	Status Update	Shaw
FFA Schedule	Status Update	All
FOST/FOSET Issues	Status Update	Chenega
Calendar Update	Update	All

Property Transfer Update 10-22-09 HTW BCT

FOST 10 deeds:

1. July 10 – eight of ten deeds and three CRUPs recorded, 594 acres transferred.
2. Deed for Parcel L3.2 (14.52 acres) is on hold pending agreement between York School (recipient), FORA and Monterey County.
3. Parcel L23.5.2 designated for public benefit conveyance (PBC) to Monterey Peninsula College (FORA not involved in transaction); however, Chartwell School has submitted request to Department of Education for the same property.

FOST 11:

1. Parcels L2.3 and L2.4.1 in Parker Flats MRA.
2. September 28 – Draft FOST issued to Army Environmental Law Division (ELD) and Army BRAC. Comments requested by October 16; none yet received.
3. Draft MEC-related CRUP scheduled to be issued to Army ELD and BRAC for review after receipt of comments on FOST.

FOSET 2 deed amendments:

1. October 2008 – Five deed amendments were issued to FOSET 2 property recipients for signature: Monterey-Salinas Transit, City of Marina, City of Seaside, UC, and CSUMB.
2. Sixth deed amendment for Parcel L37 not drafted.
3. Some recipients expressed concern about deed amendment language, including the "hold harmless" provision.
4. September 23 – USACE began revising/drafting all six deed amendments using FOSET 5 deed amendments as template.

FOSET 4 deed amendments:

1. ROD for Del Rey Oaks MRA complete and signed.
2. One deed amendment issuing the CERCLA Warranty drafted, but finalization pending completion of RD/RAWP (LUCIP).

FOSET 5 deed amendments:

1. June 11 – three deed amendments issuing the CERCLA Warranty for Parker Flats Munitions Response Area drafted and submitted to USACE and FORA for review.
2. July 31 – Kutak Rock completed review and returned one revised deed amendment (Seaside) to USACE.
3. August 4 – USACE accepted Kutak Rock's changes to be used as basis for the other two deed amendments (MoCo and MPC).
4. August 12 – Kutak Rock began additional review under the assumption this would be the template for future deed amendments for Fort Ord early transfer property.
5. September 8 – Kutak Rock submitted revised deed amendment to USACE.
6. September 10 – USACE submitted comments on revised deed amendment to Kutak Rock. Kutak Rock says there must be separate legal descriptions for each deed amendment.
7. September 21 – Kutak Rock says FORA is working on obtaining separate legal descriptions for each deed amendment. Parties agree deed amendment language is acceptable.
8. FORA's Parker Flats Phase I schedule indicates deed amendments to be complete by October 15, 2009.

HGL AGENDA & NOTES

Fort Ord HTW BCT Meeting
1:00 PM, 22 October 2009
Santa Rosa, California

1. *Groundwater Remediation System Update*

The Northwest Treatment System (NWTS) has operated without interruption from 25 July 2009 through preparation of this meeting agenda (15 October). The injection pump and discharge of treated water has operated normally since 24 August 2009.

Extraction well EW-OU1-60-A did not operate from mid-August through 28 September 2009. Since that latter date it has operated intermittently for a few days at a time each week. Possible reasons for the cessation of pumping include interference from nearby well EW-OU1-66-A; declining water table in this area triggering automatic shutdown; and pump and/or flow control malfunction. Trichloroethene (TCE) has been consistently detected at this well since July 2008 but has never exceeded 0.95 micrograms per liter (µg/L) and typically falls in the 0.8 µg/L to 0.9 µg/L range. Groundwater quality data and groundwater elevations in this area since pumping began in July 2006 suggest that pumping from EW-OU1-66-A (approximately 15 gallons per minute [gpm] with TCE between 0.8 µg/L and 1.8 µg/L) and EW-OU1-62-A (approximately 5 gpm; TCE not detected) provide adequate remediation of groundwater. Consequently, intermittent operation of well EW-OU1-60-A is satisfactory as long as EW-OU1-66-A operates normally.

The treatment system flow rate averaged approximately 76 gpm from 07 September through 12 October 2009. For the year through 12 October 2009, the treatment system has averaged 75.5 gpm. The total volume pumped through 12 October 2009 is 110,056,990 gallons.

Validated TCE concentrations at individual extraction wells are presented in Table 1 for the September 2009 performance monitoring samples. TCE concentrations decreased slightly (ranging from 0.1 µg/L to 1.6 µg/L) in all sampled wells. No sample was collected from EW-OU1-60-A because it was not operating during the sample event. The aquifer cleanup level (ACL) was exceeded only at extraction wells EW-OU1-71-A (9.4 µg/L) and MW-OU1-87-A (6.8 µg/L) – this has been the case since July of 2008. TCE was less than 1.7 µg/L at the other five sampled extraction wells and the overall influent concentration was 2.3 µg/L. Through 12 October 2009, the NWTS has removed approximately 3.95 pounds (0.3 gallons) of TCE and 0.35 pounds (0.03 gallons) of cis-1,2-dichloroethene. The next round of performance samples will be collected in December.

TCE was detected in the mid-point sampling location in June and September 2009. Both detections (0.14 µg/L and 0.35 µg/L, respectively) were below the method detection limit. TCE concentration at the mid-point location is expected to continue to increase and HGL anticipates that a carbon change-out will be needed early next year.

2. *Long-term Monitoring Update*

The next long-term monitoring (LTM) sample event will occur during March 2010. The most recent LTM samples taken in September 2009 have not yet been validated but the preliminary results are very similar to those obtained from the March 2009 LTM. The maximum TCE concentration reported in both the first quarter 2009 LTM event and the recent September LTM sampling was 10 µg/L at well EW-OU1-53-A. A comparison of the recent data to the March 2009 data showed:

- TCE concentrations changed by more than 1.0 µg/L at only two wells:

- An increase of 2.9 μg/L (to 9.9 μg/L) at MW-OU1-61-A. This well is screened only in the Channel Fill interval of the A-Aquifer (i.e., the deepest interval; approximately 7 feet thick at this location)
- A decrease of 5.6 μg/L (to 1.0 μg/L) at MW-OU1-50-A. This well is screened throughout the saturated thickness of the A-Aquifer.

- TCE concentrations increased at only five wells. In addition to the increase at EW-OU1-61-A described above, TCE concentration rose at wells EW-OU1-52-A, MW-OU1-22-A, IW-OU1-10-A, and EW-OU1-65-A. The magnitude of change ranged from 0.25 μg/L to 0.8 μg/L.

The TCE concentration contours based on the third quarter (September) 2009 LTM analytical results are shown in the attached Figure 1. The un-validated results for each well are posted on Figure 1.

Sample collection from well MW-OU1-19-A (annual frequency since 2007) was unsuccessful. A new passive diffusion bag was installed in the well and the annual sample will be collected in December concurrently with the fourth quarter NWTS performance monitoring. TCE concentrations at this well have ranged between 2.4 μg/L and 1.5 μg/L since 2005.

3. Report Submittals

Review comments are due next week on the First Quarter 2008 Groundwater Monitoring Report (submitted on 25 August 2009). Final comments from DTSC on the Draft 2008 Annual and Fourth Quarter Groundwater Monitoring Report were received in August - this report will be finalized after comments are received on the First Quarter 2008 Groundwater Monitoring Report.

The DTSC comments on the Final Hydraulic Control Pilot Project Evaluation Report have been resolved. A letter indicating that that no further edits are needed and corrected cover pages was submitted on 11 September 2009. Note that this document was inadvertently referenced as the Final Hydraulic Control Pilot Project Construction Report in the BCT minutes for August.

Table 2 summarizes the status of currently scheduled reports.

4. Other

TCE concentration trends and the locations of the groundwater extraction wells suggest that the ACLs will be met in the region between well EW-OU1-71-A and the northwest boundary of former Fort Ord sooner than in the central portion (between EW-OU1-71-A and MW-OU1-23-A) of the Fort Ord Natural Reserve (FONR). At present, only well MW-OU1-61-A exceeds the ACL in the northern portion of the FONR (Figure 1). TCE concentrations have met the ACL at the other key indicator wells along the northwest boundary for an extended period:

MW-OU1-57-A	ND since January 2007; <1.0 μg/L since September 2006
MW-OU1-58-A	<0.5 μg/L since June 2008; <1.0 μg/L since December 2007
MW-OU1-69-A2	<1.0 μg/L since May 2007
MW-OU1-70-A	ND since December 2007; <1.0 μg/L since May 2007

(Note that MW-OU1-69-A2 and MW-OU1-70-A are located on Armstrong Ranch property).

Once groundwater quality at MW-OU1-61-A meets the ACL, continued pumping from the four extraction wells along the boundary would not be necessary while pumping continued from extraction wells in the central portion of the FONR (assuming no future adverse changes in groundwater quality at other monitoring wells along the boundary). The following operational changes will be implemented if or

when groundwater quality at MW-OU1-61-A and the operating extraction wells on the OU-1 northwest FONR boundary meet the ACL criteria:

A. Pumping from the four OU-1 extraction wells on the former Fort Ord northwest boundary will be suspended
B. MW-OU1-61-A and the four other wells listed above will be added to the quarterly performance monitoring sample collection schedule.
C. Pumping from the OU-1 extraction wells on the former Fort Ord northwest boundary will be resumed if the results from the quarterly performance sample(s) from any of the wells of Item B above do not meet the ACLs.

The pumping rate from MW-OU1-85-A will be reduced from the current rate of approximately 38 gpm to approximately 15 gpm. This operational change is part of the planned management strategy to minimize creation of hydraulic "stagnation zones" within the capture zone.

There are no other planned agenda items.

Table 1

TCE and Cis-1,2-DCE in OU-1 FONR Groundwater Remediation System - Performance Monitoring

BCT Meeting for Former Fort Ord, at Santa Rosa CA - October 2009

Sample Date	Extraction Well																		NWTS					
	Began Operation October 2007								Began Operation July 2006															
	MW-87		EW-71		MW-85		MW-46AD		EW-60		EW-62		EW-63		EW-66		INFLUENT		MIDPOINT		EFFLUENT	
TCE (µg/L)																								
11/9/2007	**16**		**13**		**19**		**14**		ND		ND		ND		1.7		**11**		ND		ND			
1/18/2008	**11**		**11**		**8.9**		**8.2**		ND		ND		ND		1.2		**6.0**		ND		ND			
3/18/2008	**11**		**14**		**6.7**		**5.8**		0.29		ND		ND		1.5		**5.6**		ND		ND			
5/27/2008	**9.7**		**18**		2.5		**6.1**		ND		ND		ND		1.8		3.9		ND		ND			
7/21/2008	**9.1**		**14**		4.4		3.4		0.78		ND		ND		1.4		3.6		ND		ND			
9/29/2008	**9.3**	J	**15**	J	4.3	J	2.9	J	0.90	J	ND		ND		1.7	J	3.8	J	0.19	J	ND			
12/1/2008	**5.8**		**11**		2.6		1.6		0.82		ND		ND		0.91		2.7		0.35	J	ND			
1/26/2009	**5.9**		**10**		2.2		1.2		0.48	J	ND		ND		0.78		2.4		ND		ND			
3/9/2009	**5.8**		**9.9**		2.1		1.2		0.95		ND		ND		0.86		2.7		ND		ND			
6/11/2009	**6.9**		**11**		2.4		1.5		0.88		ND		ND		1.7		2.6		0.14	J	ND			
9/15/2009	*6.8*		*9.4*		*1.7*		*0.78*		inactive		*0.036*	*J*	*ND*		*1.1*		*2.3*		*0.35*	*J*	*ND*			
cis-1,2-DCE (µg/L)																								
11/9/2007	1.9		1.6		2.3		1.70		ND		ND		ND		ND		1.3		ND		ND			
1/18/2008	1.20		1.40		1.00		1.20		ND		ND		ND		0.11		0.66		ND		ND			
3/18/2008	1.20		1.50		0.74		0.63		ND		ND		ND		ND		0.59		0.11		ND			
5/27/2008	0.88		2.10		0.26		0.74		ND		ND		ND		ND		0.36		0.21		ND			
7/21/2008	0.80		1.50		0.52		0.37		ND		ND		ND		ND		0.41		0.34		ND			
9/29/2008	0.99		1.60		0.54		0.30		ND		ND		ND		0.13		0.42		0.42		0.12			
12/1/2008	0.67		1.30		0.33		0.21	J	ND		ND		ND		ND		0.27	J	0.37	J	0.19	J		
1/26/2009	0.63		1.20		0.29	J	0.12	J	ND		ND		ND		ND		0.26	J	0.24	J	ND			
3/9/2009	0.62		1.20		0.29	J	0.13	J	ND		ND		ND		ND		0.23	J	0.26	J	ND			
6/11/2009	0.71		1.10		0.30	J	0.13	J	ND		ND		ND		0.14	J	0.24	J	0.28	J	ND			
9/15/2009	*0.80*		*1.00*		*0.22*	*J*	*0.08*	*J*	inactive		*ND*		*ND*		*0.03*	*J*	0.22	*J*	*0.37*	*J*	*0.03*	*J*		

Italics (if used) indicate data not yet validated

Bold font indicates concentration > ACL

Table 2
Outstanding Deliverables Schedule (2009)
BCT Meeting for Former Fort Ord, Marina CA – September 2009

Deliverable	Scheduled Submittal	Status / Remarks (Bold font indicates submittal)
Primary Deliverables		
Final Interim Hydraulic Control Pilot Project Evaluation Report	**June-2009**	**Submitted 11 September 2009**
Agency Comments	NA	
Draft Final FONR System Construction Report	**May-2009**	**Submitted 28 May 2009**
Agency Comments	**July-2009**	
Final FONR System Construction Report	**August-2009**	**Submitted on 24 August**
Agency Comments	**NA**	
Secondary Deliverables		
Draft 2007 Annual and Fourth Quarter Groundwater Monitoring Report	November-2009	In progress.
Agency Comments	January-2010	
Final 2007 Annual and Fourth Quarter Groundwater Monitoring Report	December-2009	
Agency Comments	NA	
First Quarter 2008 Groundwater Monitoring Report	**July-2009**	**Submitted 25 August 2009**
Agency Comments	Oct-2009	
Third Quarter 2008 Groundwater Monitoring Report	**March-2009**	**Submitted 19 March 2009**
Agency Comments	**May-2009**	**No Comment**
Draft 2008 Annual and Fourth Quarter Groundwater Monitoring Report	**May-2009**	**Comments received on 2nd through 4th Quarter reports**
Agency Comments	**Sept-2009**	**Received**
Final 2008 Annual and Fourth Quarter Groundwater Monitoring Report	November-2009	Awaiting comments on 2009 Q1 Report to finalize Annual Report
Agency Comments	NA	
First Quarter 2009 Groundwater Monitoring Report	**June-2009**	**Submitted 22 June 2009.**
Agency Comments	August-2009	No Comment as of 16 October 2009
Draft 2009 Annual and Fourth Quarter Groundwater Monitoring Report	December-2009	In progress.
Agency Comments	February-2010	
Final 2009 Annual and Fourth Quarter Groundwater Monitoring Report	March-2010	
Agency Comments	NA	
Final Rebound Evaluation Report	November-2009	
Agency Comments	NA	

Ahtna Engineering

Former Fort Ord Groundwater Treatment Systems Operational Data and Status

BCT Meeting, October 22, 2009

Table 1: OU2 and Sites 2/12 GWTP Treatment Statistics.

Monthly Statistics	Volume Treated (gallons)	Average Flow (gallons per minute)	Percent of Time Online	COC Mass Removed (lbs.)
OU2				
September 2009	28,956,465	670	100	1.40
Total since October 1995	4.627 billion			634.34
Sites 2/12				
September 2009	9,280,000	219	98	0.99
Total since June 1999	1.247 billion			419.59

Table 2: OU2 and Sites 2/12 GWTP Calendar of Events.

Key Events for OU2 and Sites 2/12 for September 2009

There were 50 USAN Notices transmitted to Ahtna September 1-30, 2009. None of these alerts required the personal attention of the Senior GWTP Operator.

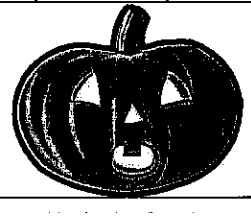
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19 2/12 GWTP shutdown from leak detector flooding by faulty irrigation sprinkler
20 Restarted 2/12 GWTP after pumping out water, 14.5 hrs downtime	21	22	23	24	25	26
27	28 New comms radios ordered (installed October 15)	29	30			

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Table 3: September 2009 - OU2 Analytical Results at TS-OU2-INJ

COC	Discharge Limit (µg/L)	Sample Date / Analytical Results	
		September 1, 2009	**September 17, 2009**
1,1-DCA	5.0*	0.27	0.27
1,2-DCA	0.50	ND	0.14
1,2-DCP	0.50	ND	ND
Benzene	0.50	ND	ND
Carbon Tetrachloride	0.50	ND	ND
Chloroform	2.0*	0.19	0.22
cis-1,2-DCE	6.0*	0.25	0.23
Methylene Chloride	0.50	ND	ND
PCE	0.50	ND	ND
TCE	0.50	ND	ND
Vinyl Chloride	0.10	ND	ND

Table 4: September 2009 - Sites 2/12 Analytical Results at TS-212-INJ

COC	Discharge Limit (µg/L)	Sample Date / Analytical Results
1,1-DCE	6.0	In accordance with the sampling schedule in the SAP, no GWTP sampling was performed at the injection point during September. Next sampling is scheduled for October 28, 2009.
1,2-DCA	0.50	
1,3-DCP †	0.50	
Chloroform	2.0	
cis-1,2 DCE	6.0	
PCE	3.0	
TCE	5.0	
Vinyl Chloride	0.10	

NOTES:

ND The analyte was not detected above MDL.

* Discharge limits for low carbon affinity compounds were increased to the Aquifer Cleanup Level (ACL).

‡ Discharge limits are the ACLs for injection over the plume.

† The reported value is the sum of both cis- and trans-isomers.

Table 5: AES Document Submittals - Status Summary

Document	Submitted	Comments Due
No documents were submitted in September.		

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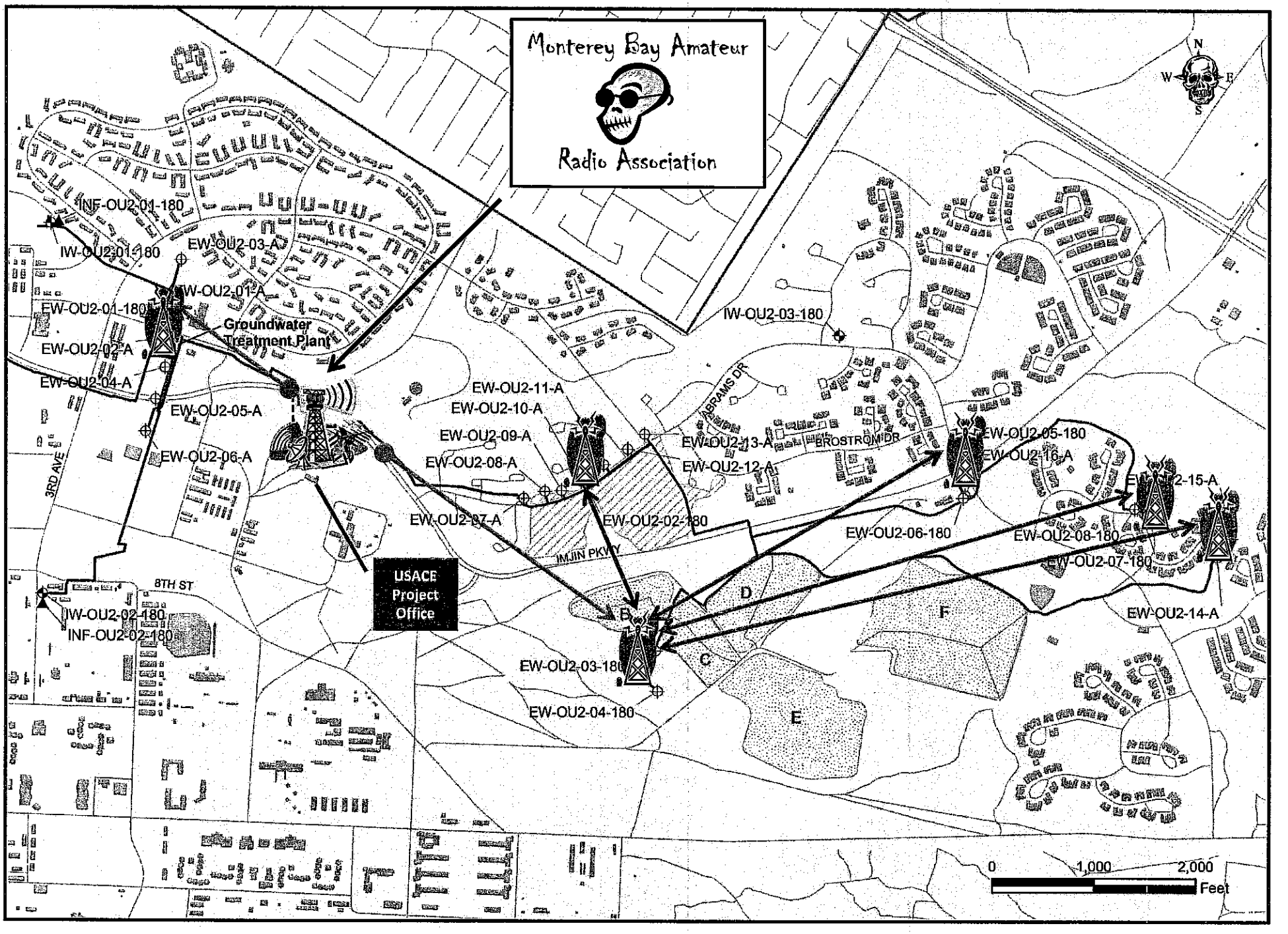
Table 6: September 2009 OU2 and Sites 2/12 Extraction Well Status.

Well Identification	% On	Avg. gpm	Total Gallons	% of Total	Comments	TCE (µg/L) 3Q 2009
Site 12 Extraction Wells						
EW-12-05-180M	95%	87	3,770,228	41%		10.8
EW-12-06-180M	98%	68	2,924,456	32%		9.0
EW-12-07-180M	50%	7	292,470	3%		2.8
EW-12-03-180U	0%	0	0	0%	Well offline due to low concentrations	0.16
EW-12-03-180M	98%	53	2,292,846	25%		2.3
EW-12-04-180U	0%	0	0	0%	Well offline due to low concentrations	0.53
EW-12-04-180M	0%	0	0	0%	Non-operational, pump removed, convert to MW	not sampled
Total 2/12 gallons treated:			*9,280,000*	*100%*		
OU2 Extraction Wells						
Western Network						
EW-OU2-01-A	0%	0	0	0%	Well offline due to low concentrations	not sampled
EW-OU2-02-A	100%	57	2,462,457	9%		0.80
EW-OU2-03-A	0%	0	0	0%	Well offline due to low concentrations	0.82
EW-OU2-04-A	100%	51	2,203,251	8%		1.4
EW-OU2-05-A	100%	50	2,160,050	7%		3.3
EW-OU2-06-A	100%	37	1,598,437	6%		5.7
EW-OU2-01-180	0%	0	0	0%	No pump in well	11
Total gallons extracted:			*8,424,195*	*29%*		
Eastern Network						
EW-OU2-07-A	0%	0	0	0%	Well offline due to low concentrations	0.11
EW-OU2-08-A	0%	0	3,530	0%	Well offline due to low concentrations	0.17
EW-OU2-09-A	0%	0	5,670	0%	Wells offline due to communications and PLC problems (possible interference from neighboring communications system).	5.1
EW-OU2-10-A	0%	0	5,600	0%		4.9
EW-OU2-11-A	0%	0	30	0%		2.7
EW-OU2-12-A	1%	0	5,290	0%		9.4
EW-OU2-13-A	1%	0	6,250	0%		13.1
EW-OU2-02-180	1%	0	14,000	0%		8.8
Total gallons extracted:			*40,370*	*0%*		
Shoppette						
EW-OU2-05-180	99%	71	3,069,900	11%	Operating at low flow	8.3
EW-OU2-06-180	98%	113	4,868,200	17%		7.8
EW-OU2-16-A	0%	0	0	0%	Runs in manual only, high drawdown	13.2
Total gallons extracted:			*7,938,100*	*27%*		
CSUMB						
EW-OU2-14-A	7%	2	84,800	0%	Runs in manual, tested- sufficient water	3.0
EW-OU2-15-A	0%	0	0	0%	Well offline due to low concentrations	not sampled
Total gallons extracted:			*84,800*	*0%*		
Landfill						
EW-OU2-03-180	100%	236	10,195,000	35%		13.5
EW-OU2-04-180	0%	0	0	0%	Well offline due to low concentrations	ND
Total gallons extracted:			*10,195,000*	*35%*		
Bunker Hill						
EW-OU2-07-180	0%	0	0	0%	No pump in well	pending
EW-OU2-08-180	100%	53	2,274,000	8%		1.7
Total gallons extracted:			2,274,000	*8%*		
Total OU2 gallons treated:			*28,956,465*	*100%*		


Monterey Bay Amateur
Radio Association
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INF-OU2-01-180
IW-OU2-01-180
EW-OU2-03-A
IW-OU2-01-A
EW-OU2-01-180
Groundwater
Treatment Plant
EW-OU2-02-A
EW-OU2-04-A
EW-OU2-05-A
EW-OU2-06-A
3RD AVE
EW-OU2-11-A
EW-OU2-10-A
EW-OU2-09-A
EW-OU2-08-A
EW-OU2-07-A
EW-OU2-02-180
IMJIN PKWY
USACE
Project
Office
8TH ST
IW-OU2-02-180
INF-OU2-02-180
EW-OU2-03-180
EW-OU2-04-180
IW-OU2-03-180
ABRAMS DR
EW-OU2-13-A
BROSTROM DR
EW-OU2-12-A
EW-OU2-05-180
EW-OU2-16-A
EW-OU2-15-A
EW-OU2-06-180
EW-OU2-08-180
EW-OU2-07-180
EW-OU2-14-A
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OPERABLE UNIT 1
OFF-SITE GROUNDWATER EXTRACTION PILOT STUDY

STATUS – October 22, 2009

FIELD WORK

- Well construction complete – December 21, 2007
- Draft Final OU1 Pilot Study Work Plan distributed – April 22, 2008
- Baseline sampling and analysis – June 14, 2008
- System construction completed – July 16, 2008
- Monitoring well (City of Marina) installation – July 28, 2008
- System start-up – August 5, 2008
- Extraction Well EW-OU1-92-A shut off – December 11, 2008
- Field Work Variance (FWV) issued to document system shut-off – February 16, 2009
- Groundwater extraction system shut off and rebound testing initiated – February 17, 2009
- Sampled GAC for waste profiling – March 24, 2009
- System restarted (EW-OU1-93-A operating) – April 7, 2009
- Second rebound study initiated – July 13, 2009
- Quarterly sampling of monitoring and extraction wells – September 14, 2009
- January to March 2009, Quarterly Report – August 27, 2009.

SCHEDULE

- Conduct second rebound testing starting July 13 – GWETS shut off July 13, sampled EW-OU1-93-A every other week. System restarted on August 10. System shut off again on September 11, sampling EW-OU1-93-A monthly.

DATA (Preliminary)

- Preliminary data through September 11.

PROBLEMS/CHANGES

- Treated groundwater is being discharged to a discharge basin within the MCWD property. An injection well was not installed.
- One monitoring well has been installed in the City of Marina to determine the downgradient extent of the plume.
- Extraction Well EW-OU1-92-A shut off due to concerns of potential impact to OU1 On-Site GWETS plume capture.
- GWETS was shut off and rebound testing initiated because concentrations of TCE in all off-site wells are below Aquifer Cleanup Levels.
- GWETS restarted because TCE concentration in EW-OU1-93-A rebounded to 7.4 µg/L. TCE concentration in all other monitoring wells below detection limit.
- A second round of rebound testing was initiated because concentrations of TCE in all off-site wells are below Aquifer Cleanup Levels.

Summary of Operable Unit 1 Off-Site Monitoring Well Analytical Results

Well Identification	Elevation (ft amsl)	TCE[a] March 28-30, 2006 (µg/L)	TCE May 4, 2006 (µg/L)	TCE May 23, 2006 (µg/L)	TCE September 25, 2006 (µg/L)	TCE Feb 2 & 6, 2007 (µg/L)	TCE April 3, 2007 (µg/L)	TCE May 22, 2007 (µg/L)	TCE September 25, 2007 (µg/L)	TCE December 26, 2007 (µg/L)	TCE February 27, 2008 (µg/L)	TCE July 14, 2008 (µg/L)
MW-OU1-75A	35.87		2.1	1.7	0.26J	<0.5	<0.5	<0.5J	<0.5	<0.5	NS	NS
MW-OU1-75A	30.87		14	9.8	2.4	0.64	1.6	0.82	0.69	0.45J	NS	NS
MW-OU1-75A	25.87	18.6	15	9.5	2.5	0.58	1.7	0.9	0.75	0.46J	NS	NS
MW-OU1-75A	20.87		17	9.5	2.6	15	1.6	0.69	0.76	0.47J	NS	NS
MW-OU1-75A	15.87		20	25(26)	18(18)	0.75	11	12	3.1	2	1.9	1.4
MW-OU1-76A	32.33		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS
MW-OU1-76A	27.33		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS
MW-OU1-76A	22.33	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS
MW-OU1-76A	17.33		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS
MW-OU1-76A	12.33		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-OU1-77A	29.1		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5J[d]	<0.5	<0.5	<0.5	<0.5
MW-OU1-77A	24.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5J	<0.5	<0.5	NS	NS
MW-OU1-77A	19.1		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-OU1-78A	29.91		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5J	0.54	0.38J	NS	NS
MW-OU1-78A	24.91	1.9	3.2	2.1J[b]	1.4	1.5	0.85	0.6J	0.56	0.46J	NS	NS
MW-OU1-78A	19.91		2.7	2.3(2.1)	1.1(1.2)	1.7	0.94	0.81J	0.91	0.47J	0.37J	0.67
MW-OU1-79A	29.72		<0.5	<0.5J[c]	<0.5	<0.5	<0.5	<0.5J	<0.5	<0.5	<0.5	<0.5
MW-OU1-79A	24.72	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5J	<0.5	<0.5	NS	NS
MW-OU1-79A	19.72		<0.5	<0.5	0.59	0.67(0.85)	3.5(3.6)	3.8J(4.0J)	2.9(4.5)	1.3(1.9)	3.0(4.1)[e]	10(2.0)[f]
MW-OU1-80A	25.32		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS
MW-OU1-80A	20.32	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS
MW-OU1-80A	15.32		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS
MW-OU1-80A	10.32		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-OU1-81A	21.39		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-OU1-81A	16.39		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS
MW-OU1-81A	11.39	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS
MW-OU1-81A	6.39		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NS	NS
MW-OU1-81A	1.39		<0.5	<0.5	<0.5	<0.5	<0.5(<0.5)	<0.5	<0.5	<0.5	<0.5	<0.5
MW-OU1-89A	31.18	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5[g]	<0.5
MW-OU1-89A	24.68	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-89A	18.18	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-90A	27.31	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-90A	22.31	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-90A	17.31	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-90A	12.31	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-90A	7.27	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-91A	26.72	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-91A	21.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-91A	16.89	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-91A	11.97	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-91A	7.01	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.5	<0.5
MW-OU1-94A	18.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-94A	13.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-94A	8.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-94A	3.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-94A	-2.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-94A	-7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

[a] *There is no associated descrete depth with the well development samples. These are composites.*

[b] *Data qualified as "J-" is estimated with low bias.*

[c] *Data qualified as "UJ" is estimated non-detect due to quality control outliers.*

[d] *An estimated concentration of carbon disulfide detected in this sample (0.75J).*

[e] *cis-1,2-dichloroethylene also detected at 0.26J µg/L*

[f] *cis-1,2-dichloroethylene also detected at 0.35J µg/L.*

[g] *tetrachloroethylene also detected at 0.27J µ g/L.*

Detections are shown in bold.

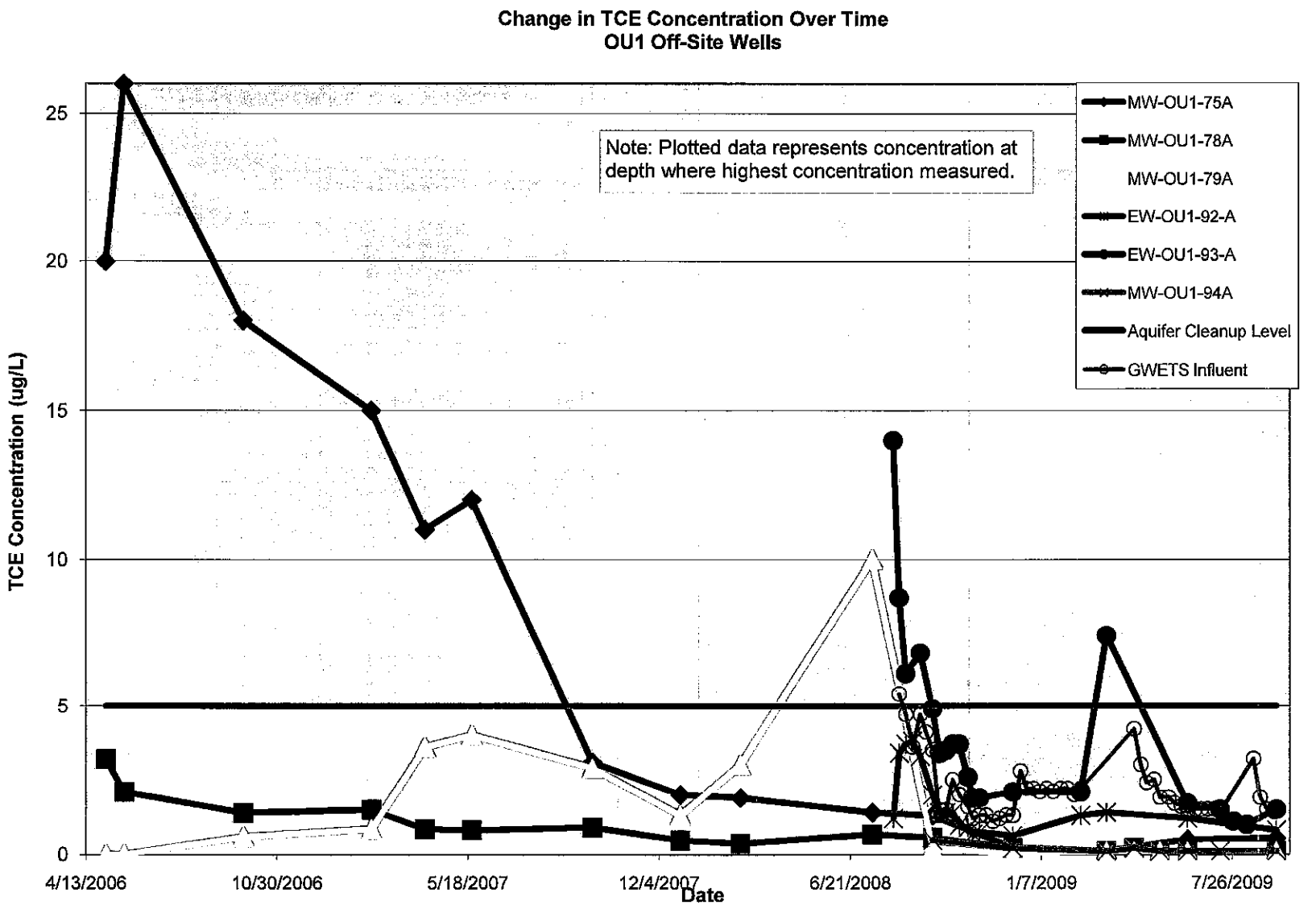
ft amsl denotes feet above mean sea level.

µ g/L denotes micrograms per liter.

TCE denotes trichloroethene.

Summary of Operable Unit 1 Off-Site Monitoring Well Analytical Results

Well Identification	Elevation (ft amsl)	TCE September 15, 2008 (µg/L)	TCE December 8, 2008 (µg/L)	TCE March 16, 2009 (µg/L)	TCE April 14, 2009 (µg/L)	TCE May 11, 2009 (µg/L)	TCE June 9, 2009 (µg/L)	TCE June 13, 2009 (µg/L)	TCE September 10, 2009 (µg/L)
MW-OU1-75A	35.87	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-75A	30.87	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-75A	25.87	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-75A	20.87	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-75A	15.87	1/1.3	0.21J(0.22J)	<0.5	NS	NS	0.46J(0.49J)	NS	0.53
MW-OU1-76A	32.33	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-76A	27.33	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-76A	22.33	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-76A	17.33	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-76A	12.33	<0.5	<0.5	<0.5	NS	NS	<0.5	NS	<0.5
MW-OU1-77A	29.1	<0.5	<0.5	<0.5	NS	NS	<0.5	NS	<0.5
MW-OU1-77A	24.1	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-77A	19.1	<0.5	<0.5	<0.5	NS	NS	<0.5	NS	<0.5
MW-OU1-78A	29.91	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-78A	24.91	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-78A	19.91	0.56	0.21J	<0.5	0.21J	<0.5	<0.5	NS	<0.5
MW-OU1-79A	29.72	<0.5	<0.5	<0.5	<0.5 (<0.5)	<0.5	<0.5	NS	<0.5
MW-OU1-79A	24.72	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-79A	19.72	0.22J	<0.5	<0.5	<0.5	<0.5 (<0.5)	<0.5 (<0.5)	NS	<0.5 (<0.5)
MW-OU1-80A	25.32	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-80A	20.32	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-80A	15.32	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-80A	10.32	<0.5	<0.5	<0.5	NS	NS	<0.5	NS	<0.5
MW-OU1-81A	21.39	<0.5	<0.5	<0.5	NS	NS	<0.5	NS	<0.5
MW-OU1-81A	16.39	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-81A	11.39	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-81A	6.39	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-81A	1.39	<0.5	<0.5	<0.5	NS	NS	<0.5	NS	<0.5
MW-OU1-89A	31.18	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-89A	24.68	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-89A	18.18	<0.5	<0.5	<0.5	NS	NS	<0.5	NS	<0.5
MW-OU1-90A	27.31	<0.5	<0.5	<0.5	NS	NS	<0.5	NS	<0.5
MW-OU1-90A	22.31	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-90A	17.31	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-90A	12.31	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-90A	7.27	<0.5	<0.5	<0.5	NS	NS	<0.5	NS	<0.5
MW-OU1-91A	26.72	<0.5	<0.5	<0.5	NS	NS	<0.5	NS	<0.5
MW-OU1-91A	21.8	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-91A	16.89	NS	NS	NS	NS	NS	NS	NS	NS
MW-OU1-91A	11.97	NS	NS	NS	NS	NS	<0.5	NS	<0.5
MW-OU1-91A	7.01	<0.5	<0.5	<0.5	NS	NS	NS	NS	NS
MW-OU1-94A	18.6	0.33J	0.21J	<0.5	0.21J	<0.5	<0.5	NS	<0.5
MW-OU1-94A	13.5	0.36J	NS	NS	NS	NS	NS	<0.5	NS
MW-OU1-94A	8.3	0.36J	NS	NS	NS	NS	NS	NS	NS
MW-OU1-94A	3.1	0.38J	NS	NS	NS	NS	NS	NS	NS
MW-OU1-94A	-2.1	0.36J	NS	NS	NS	NS	NS	NS	NS
MW-OU1-94A	-7.3	0.47J	<0.5	<0.5	0.21J	<0.5	<0.5	<0.5	<0.5


Change in TCE Concentration Over Time
OU1 Off-Site Wells
Note: Plotted data represents concentration at depth where highest concentration measured.
MW-OU1-75A
MW-OU1-78A
MW-OU1-79A
EW-OU1-92-A
EW-OU1-93-A
MW-OU1-94A
Aquifer Cleanup Level
GWETS Influent
TCE Concentration (ug/L)
25
20
15
10
5
0
4/13/2006
10/30/2006
5/18/2007
12/4/2007
6/21/2008
1/7/2009
7/26/2009
Date

Summary of Operable Unit 1 Process System
Trichlorethene Analytical Results

Date	Sample Location									
	Extraction Wells				Granular Activated Carbon Beds					
	OU1PS-EW-92		OU1PS-EW-93		OU1PS-INF		OU1PS-BTW		OU1PS-EFF	
August 5, 2008[a]	**1.2**	µg/L	**14**[b]	µg/L						
August 11, 2008[a]	**3.4**	µg/L	**8.7**[c]	µg/L	**5.4**	µg/L	<0.5	µg/L	<0.5	µg/L
August 18, 2008[a]	**3.7**	µg/L	**6.1**[d]	µg/L	**4.7**	µg/L	<0.5	µg/L	<0.5	µg/L
August 25, 2008[a]	**3.8**	µg/L	not operating		**3.6**	µg/L	<0.5	µg/L	<0.5	µg/L
September 2, 2008[a]	**3.3**	µg/L	**6.8**[e]	µg/L	**4.7**	µg/L	<0.5	µg/L	<0.5	µg/L
September 8, 2008[a]					**4.1**	µg/L	<0.5	µg/L	<0.5	µg/L
September 15, 2008[a]	**2**	µg/L	**4.9**[f]	µg/L	**3.5**	µg/L	<0.5	µg/L	<0.5	µg/L
September 22, 2008[a]	**1.4**	µg/L	**3.4**	µg/L	**1.3**	µg/L	<0.5	µg/L	<0.5	µg/L
September 29, 2008[a]	**1.4**	µg/L	**3.5**	µg/L	**1.5**	µg/L	<0.5	µg/L	<0.5	µg/L
October 6, 2008[a]	**1.4**	µg/L	**3.7**	µg/L	**2.5**	µg/L	<0.5	µg/L	<0.5	µg/L
October 13, 2008[a]	**0.98**	µg/L	**3.7**	µg/L	**2.0**	µg/L	<0.5	µg/L	<0.5	µg/L
October 20, 2008[a]	**0.90**	µg/L	**2.6**	µg/L	**1.6**	µg/L	<0.5	µg/L	<0.5	µg/L
October 27, 2008	**0.68**	µg/L	**1.9**	µg/L	**1.2**	µg/L	<0.5	µg/L	<0.5	µg/L
November 3, 2008	**0.74**	µg/L	**1.9**	µg/L	**1.3**	µg/L	<0.5	µg/L	<0.5	µg/L
November 10, 2008					**1.3**	µg/L	<0.5	µg/L	<0.5[g]	µg/L
November 17, 2008					**1.1**	µg/L	<0.5	µg/L	<0.5	µg/L
November 24, 2008					**1.2**	µg/L	<0.5	µg/L	<0.5	µg/L
December 1, 2008					**1.3**	µg/L	<0.5	µg/L	<0.5	µg/L
December 8, 2008	**0.62**	µg/L	**2.1**	µg/L	**1.3**	µg/L	<0.5	µg/L	<0.5	µg/L
December 16, 2008					**2.8**	µg/L	<0.5	µg/L	<0.5	µg/L
December 22, 2008					**2.2**	µg/L	<0.5	µg/L	<0.5	µg/L
December 29, 2008					**2.2**	µg/L	<0.5	µg/L	<0.5	µg/L
January 5, 2009					**2.1**	µg/L	<0.5	µg/L	<0.5	µg/L
January 12, 2009					**2.2**	µg/L	<0.5	µg/L	<0.5	µg/L
January 19, 2009					**2.1**	µg/L	<0.5	µg/L	<0.5	µg/L
January 27, 2009					**2.2**	µg/L	<0.5	µg/L	<0.5	µg/L
February 3, 2009					**2.2**	µg/L	<0.5	µg/L	<0.5	µg/L
February 10, 2009					**2.0**	µg/L	<0.5	µg/L	<0.5	µg/L
February 17, 2009	**1.3**	µg/L	**2.1**	µg/L	**2.2**	µg/L	<0.5	µg/L	<0.5	µg/L
March 16, 2009	**1.4**	µg/L	**7.4**[h]	µg/L						
April 14, 2009					**4.2**	µg/L	<0.5	µg/L	<0.5	µg/L
April 21, 2009					**3.0**	µg/L	<0.5	µg/L	<0.5	µg/L
April 27, 2009					**2.4**	µg/L	<0.5	µg/L	<0.5	µg/L
May 5, 2009					**2.5**	µg/L	<0.5	µg/L	<0.5	µg/L
May 11, 2009					**1.9**	µg/L	<0.5	µg/L	<0.5	µg/L
May 20, 2009					**1.9**	µg/L	<0.5	µg/L	<0.5	µg/L
May 26, 2009					**1.7**	µg/L	<0.5	µg/L	<0.5	µg/L
June 2, 2009					**1.6**	µg/L	<0.5	µg/L	<0.5	µg/L
June 9, 2009	**1.2**	µg/L	**1.7**	µg/L	**1.4**	µg/L	<0.5	µg/L	<0.5	µg/L
June 17, 2009					**1.5**	µg/L	<0.5	µg/L	<0.5	µg/L
June 23, 2009					**1.5**	µg/L	<0.5	µg/L	<0.5	µg/L
June 30, 2009					**1.5**	µg/L	<0.5	µg/L	<0.5	µg/L
July 7, 2009					**1.5**	µg/L	<0.5	µg/L	<0.5	µg/L
July 13, 2009			**1.5**	µg/L	**1.4**	µg/L	<0.5	µg/L	<0.5	µg/L
July 27, 2009			**1.1**	µg/L						
August 10, 2009			**1.0**	µg/L						
August 17, 2009					**3.2**	µg/L	<0.5	µg/L	<0.5	µg/L
August 24, 2009					**1.9**	µg/L	<0.5	µg/L	<0.5	µg/L
August 31, 2009					**1.5**	µg/L	<0.5	µg/L	<0.5	µg/L
September 8, 2009					**1.4**	µg/L	<0.5	µg/L	<0.5	µg/L
September 10, 2009	**0.8**	µg/L	**1.5**	µg/L						

[a] *Low level detections of benzene, bromoform, chloromethane, dibromochloromethane, isopropylbenzene and/or acetone in several samples.*

[b] *additional compound detected: cis-1,2-dichloroethylene - 0.43J µg/L*

[c] *additional compound detected: cis-1,2-dichloroethylene - 0.31J µg/L*

[d] *additional compound detected: cis-1,2-dichloroethylene - 0.21J µg/L*

[e] *additional compound detected: cis-1,2-dichloroethylene - 0.21J µg/L*

[f] *additional compound detected: cis-1,2-dichloroethylene - 0.26J µg/L*

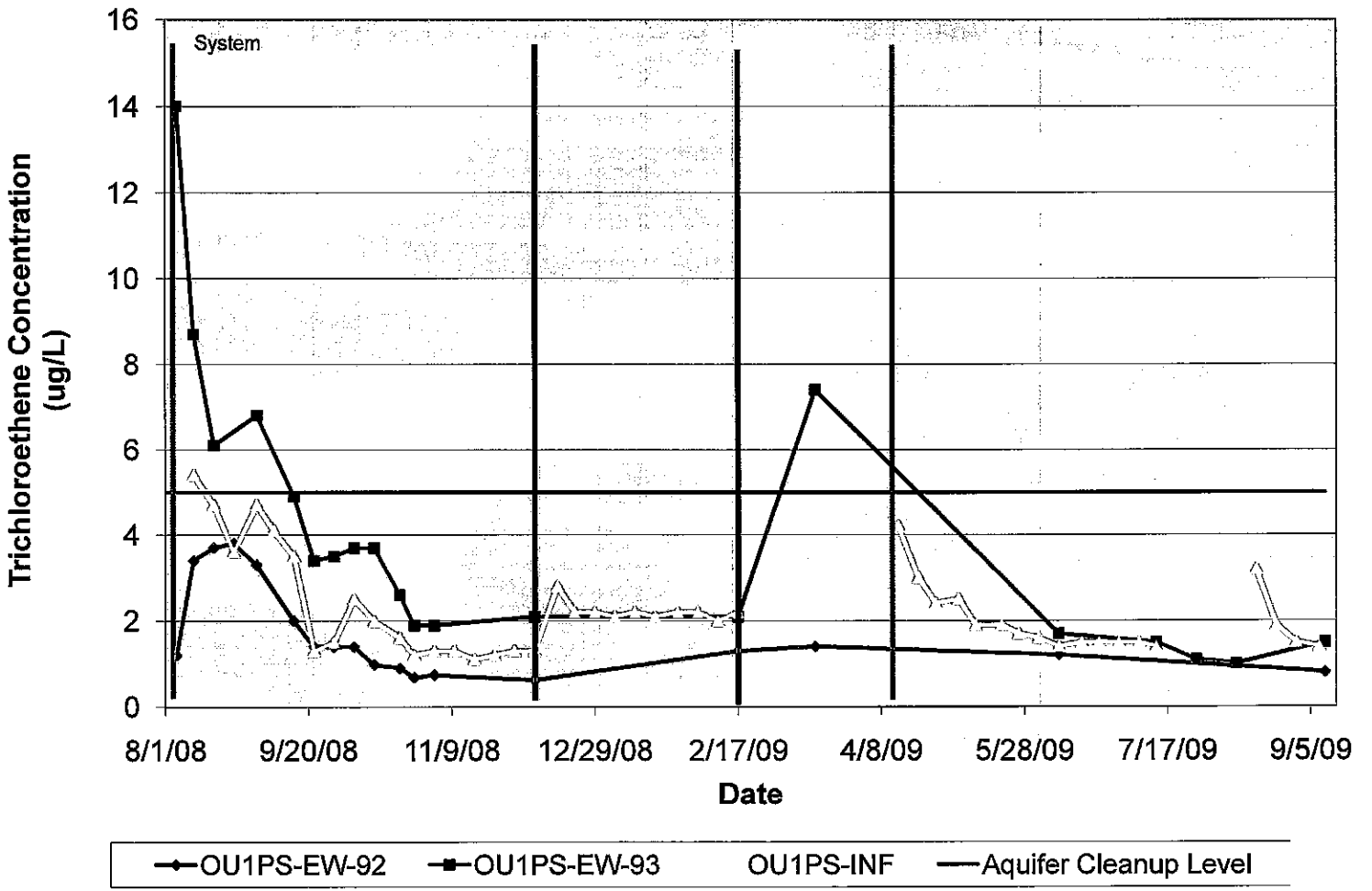
[g] *additional compound detected: chloromethane - 0.39J µg/L*

[h] *additional compound detected: cis-1,2-dichloroethylene - 0.34J µg/L*

[i] *Low level detections of chloromethane and/or acetone in all samples.*

Detections are shown in bold.
µg/L denotes micrograms per liter.
Data qualified as "J" is estimated.

Change in Concentration of Trichloroethene Over Time
System Monitoring



OPERABLE UNIT CARBON TETRACHLORIDE PLUME
A-AQUIFER REMEDIAL ACTION

STATUS – October 22, 2009

FIELD WORK

- Final EISB Pilot Study Report complete – August 21.
- Final RA Work Plan/RD (appendix A – A-Aquifer) complete – August 28.
- Installation and development of wells at Areas 1A and 1B complete – January 16
- Installation of process equipment at Area 1A complete – July 10.
- Baseline sampling at Area 1A complete – August 12.
- Start-up testing at Area 1A complete – September 4.
- Installation and development of wells at Area 1C complete - September 4.
- Substrate injection at Area 1A initiated – September 14.
- Substrate injection at Area 1A completed – October 8.

SCHEDULE

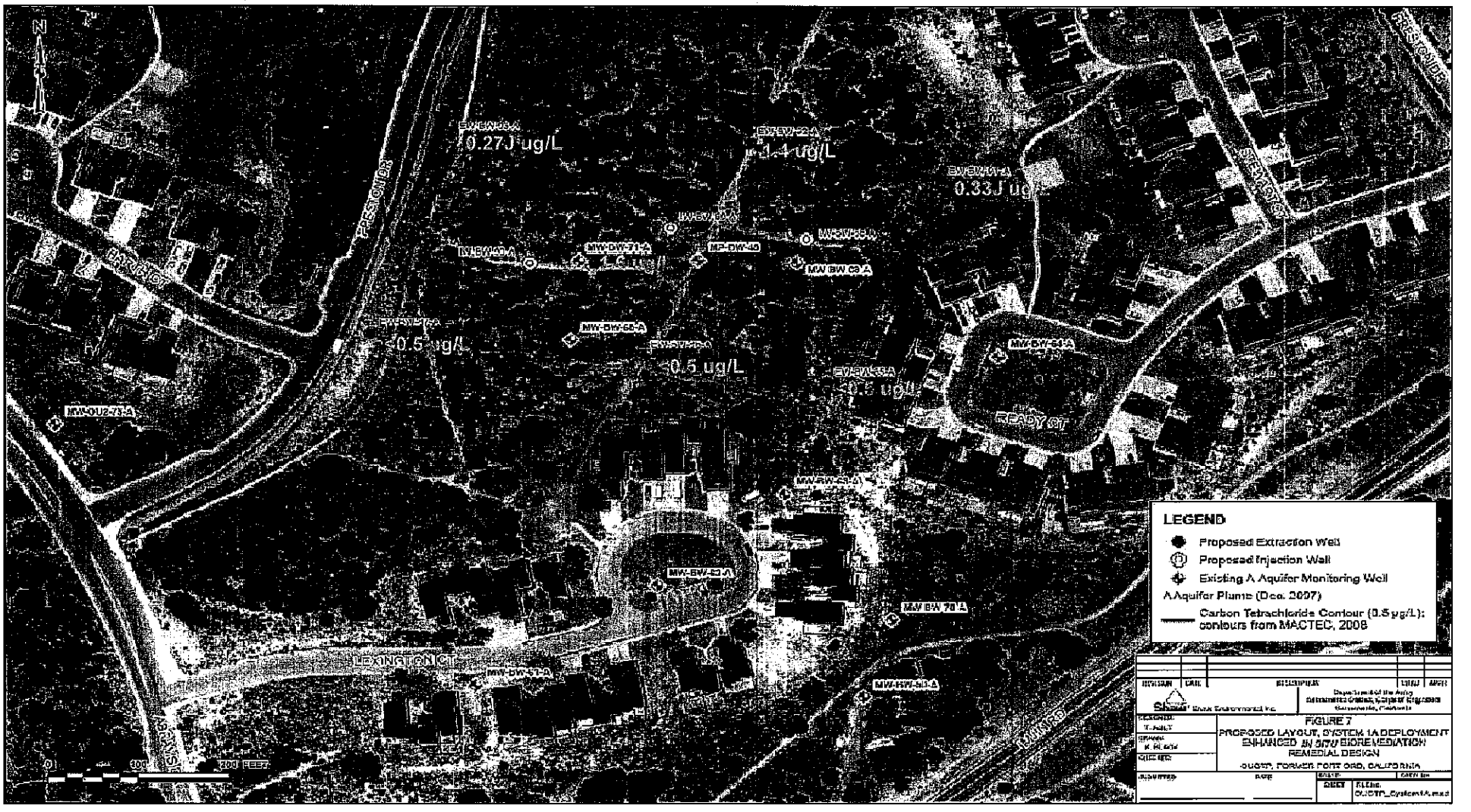
- Subsequent quarterly monitoring for EISB pilot study conducted under Groundwater Monitoring Program.
- Preliminary RAWP Appendix B – Upper 180-Foot Aquifer – January 2010. Awaiting evaluation of existing extraction system.
- Preliminary RAWP Appendix C – Lower 180-Foot Aquifer – January 2010.
- Installation of process equipment at Area 1B ongoing.
- Continue recirculating groundwater at Area 1A.

DATA (Preliminary)

- Preliminary EISB Data Area 1A

PROBLEMS/CHANGES

- Drill casing locked up while installing injection well IW-BW-90-A (Deployment Area 1A). Approximately 60 feet of drill casing was lost in the boring. Boring (with steel casing) was grouted to ground surface. New well was installed adjacent to proposed location.
- Increased backpressure in injection well IW-BW-90-A and low injection flowrates relative to extraction rates noted between October 13 and 20. System stopped on October 21 and flowmeters at process area cleaned. Extraction and injection flows balanced after flowmeter cleaning.



Baseline Sample
Carbon Tetrachloride Detections

Area 1A OUCTP EISB
System Operation
Preliminary Data Summary

System Start Date: 9/14/2009

Extraction Well	Model Flowrate (gallons per minute)	9/15/2009 1 day Total Flow (gallons)	Instantanous Flowrate (gallons per minute)	9/22/2009 8 day Total Flow (gallons)	Instantanous Flowrate (gallons per minute)
EW-BW-85-A	9.5	6,769	4.6	51,294	5.2
EW-BW-86-A	15	16,453	11.0	120,247	10.7
EW-BW-87-A	15.5	21,140	14.5	160,926	14.3
EW-BW-91-A	15	7,918	8.0	60,208	5.5
EW-BW-92-A	15	21,906	15.2	157,167	14.9
EW-BW-93-A	20	26,009	17.9	181,359	15.5
Total	90	100,195	71.2	741,201	66.1
Total Flow	90	100,511	63.9	728,828	63.3

Injection Well	Model Flowrate (gallons per minute)	Total Flow (gallons)	Instantanous Flowrate (gallons per minute)	Estimated Substrate Injected Day 1 (gallons)	Substrate Injection Rate 9/14 to 9/17 (gallons per hour)	Total Flow (gallons)	Instantanous Flowrate (gallons per minute)	Estimated Substrate Injected Day 8 (gallons)	Substrate Injection Rate 9/17 to 9/21 (gallons per hour)	Substrate Injection Rate 9/21 to 9/24 (gallons per hour)
IW-BW-88-A	30	38,972	24.6			254,569	20.7			
P-301				99	12.45			662	8.30	12.58
P-303					12.28				8.19	12.28
IW-BW-89-A	30	23,232	14			206,214	20.1			
P-302				82	9.40			545	6.27	9.40
P-304					11.01				7.40	11.00
IW-BW-90-A	30	32,289	21.1			228,118	19.5			
P-306				92	11.89			611	7.97	11.82
P-307					11.04				7.37	11.04
Total	90	94,493	59.7	272		688,901	60.3	1818		

System Start Date:

Date:	9/29/2009 15 day				10/6/2009 22 day			
Extraction Well	Total Flow (gallons)	Instantanous Flowrate (gallons per minute)			Total Flow (gallons)	Instantanous Flowrate (gallons per minute)		
EW-BW-85-A	104,145	5.2			157,699	5.4		
EW-BW-86-A	227,139	10.7			334,558	10.5		
EW-BW-87-A	307,191	14.3			451,787	14.4		
EW-BW-91-A	115,555	5.5			171,495	5.4		
EW-BW-92-A	315,819	14.7			466,453	14.7		
EW-BW-93-A	338,842	15.4			493,857	15.7		
Total	1,408,691	65.8			2,075,849	66.1		
Total Flow	1,359,902	63			1,991,219	63.2		
Injection Well	Total Flow (gallons)	Instantanous Flowrate (gallons per minute)	Estimated Substrate Injected Day 16 (gallons)	Substrate Injection Rate 9/24 to 9/29 (gallons per hour)	Total Flow (gallons)	Instantanous Flowrate (gallons per minute)	Estimated Substrate Injected Day 22 (gallons)	Substrate Injection Rate 9/29 to 10/6 (gallons per hour)
IW-BW-88-A	460,034	20.1			661,118	20.3		
P-301			1207	7.79			1645	7.85
P-303				7.80				7.80
IW-BW-89-A	409,303	20.0			611,361	19.8		
P-302			1042	7.85			1481	7.85
P-304				7.88				7.85
IW-BW-90-A	421,754	19.8			625,340	20.6		
P-306			1135	7.75			1571	7.77
P-307				7.78				7.78
Total	1,291,091	59.9	3384		1,897,819	60.7	4697	

System Start Date:

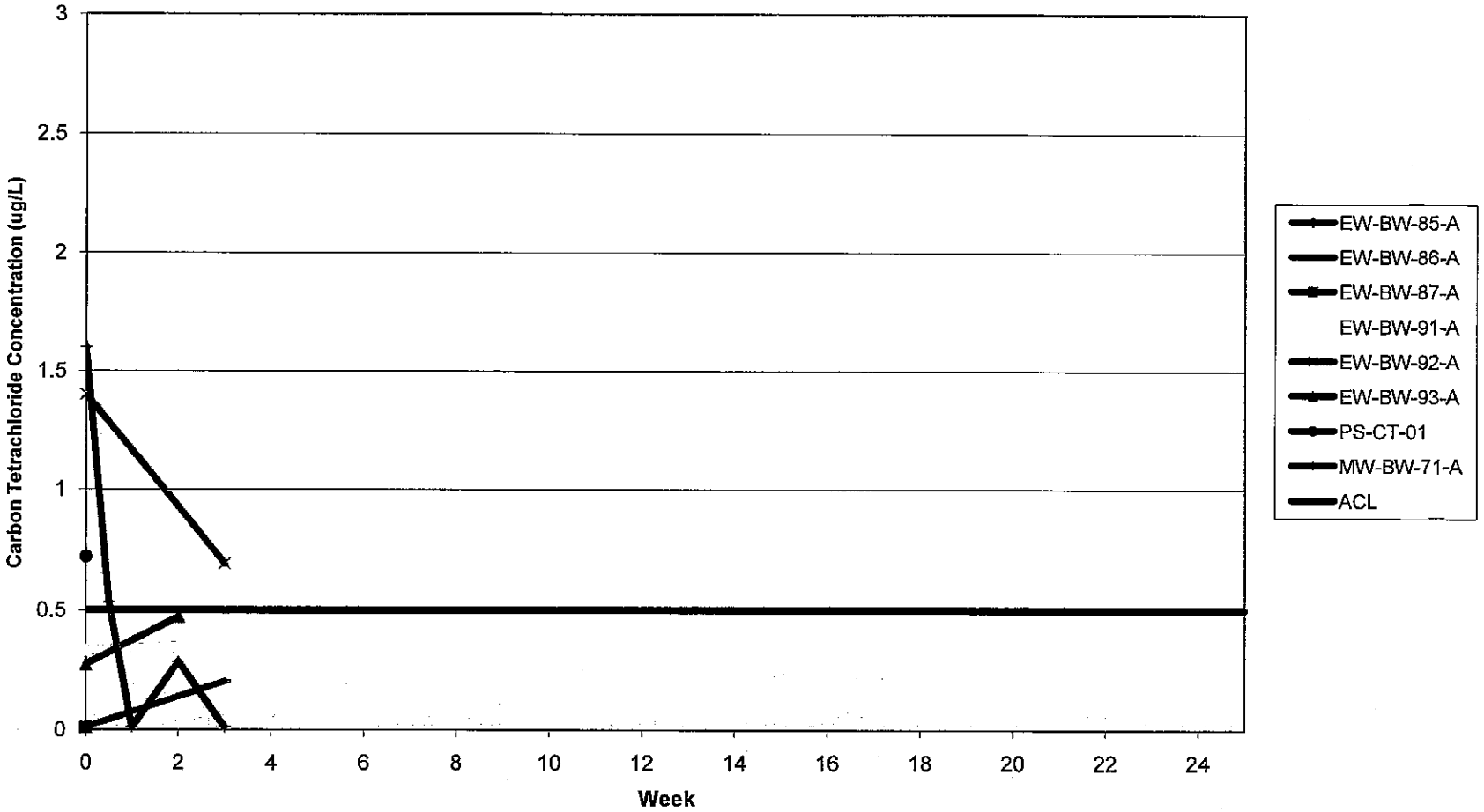
Date:	10/13/2009 29 day				10/20/2009 36 day	
Extraction Well	Total Flow (gallons)	Instantanous Flowrate (gallons per minute)			Total Flow (gallons)	Instantanous Flowrate (gallons per minute)
EW-BW-85-A	210,183	5.2			261,703	4.9
EW-BW-86-A	440,652	10.5			548,698	10.1
EW-BW-87-A	595,559	14.3			699,742	9.8
EW-BW-91-A	225,802	5.4			278,820	5.1
EW-BW-92-A	611,232	13.7			738,139	11.6
EW-BW-93-A	648,565	15.4			751,027	9.7
Total	2,731,993	64.5			3,278,129	51.2
Total Flow	2,577,972	51			2,928,957	23
Injection Well	Total Flow (gallons)	Instantanous Flowrate (gallons per minute)	Estimated Substrate Injected Day 24 (gallons)	Substrate Injection Rate 10/6 to 10/8 (gallons per hour)	Total Flow (gallons)	Instantanous Flowrate (gallons per minute)
IW-BW-88-A	845,986	16.7			978,237	10
P-301			1745	7.77		
P-303				7.80		
IW-BW-89-A	789,645	14.5			912,293	8.8
P-302			1582	7.81		
P-304				7.86		
IW-BW-90-A	816,136	14.7			922,924	4.4
P-306			1670	7.75		
P-307				7.78		
Total	2,451,767	45.9	4997		2,813,454	23.2

Sample ID Well Type Date	Method[a]	MW-BW-71-A monitoring baseline 8/12/2009	MW-BW-71-A monitoring week 0 9/15/2009	MW-BW-71-A monitoring week 1 9/22/2009	MW-BW-71-A monitoring week 2 9/29/2009	MW-BW-71-A monitoring week 3 10/6/2009	MW-BW-71-A monitoring week 4 10/13/2009	MW-BW-71-A monitoring week 5 10/20/2009
well flowrate (operating)		NA	NA	NA	NA	NA	NA	NA
alkalinity ($CaCO_3$ total)	HACH[b]	44 mg/L	56 mg/L	51 mg/L	58 mg/L	62 mg/L	63 mg/L	58 mg/L
pH	meter[c]	6.40	6.72	6.54	6.69	6.45	6.73	6.63
dissolved oxygen	meter[c]	8.59 ppm	9.51 ppm	10.15 ppm	10.42 ppm	10.4 ppm	10.01 ppm	10.25 ppm
oxidation reduction potential	meter[c]	271 mV	156 mV	195 mV	198 mV	245 mV	256 mV	203 mV
conductivity	meter[c]	40.0 mS/cm	50 mS/cm	42.9 mS/cm	47.2 mS/cm	45.9 mS/cm	51.1 mS/cm	53.3 mS/cm
turbidity	meter[c]	21.1 NTU	12 NTU	210 NTU	32 NTU	67 NTU	39 NTU	52 NTU
temperture	meter[c]	18.2 °C	18.4 °C	18 °C	18 °C	17.5 °C	17.4 °C	17.8 °C
nitrate	300.0	2670 µg/L		4280 µg/L	4840 µg/L	5910(5890) µg/L	µg/L	µg/L
nitrite	300.0	<100 µg/L		<50 µg/L	<100 µg/L	<100(<100) µg/L	µg/L	µg/L
sulfate	300.0	51700 µg/L		25600 µg/L	35800 µg/L	32700(33500) µg/L	µg/L	µg/L
ortho-phosphate	300.0	<500 µg/L		<500 µg/L				
dissolved iron	6010B	<200 µg/L		<200 µg/L	<200 µg/L	<200(<200) µg/L	µg/L	µg/L
manganese	6010B	<10 µg/L		<10 µg/L	<10 µg/L	<10(<10) µg/L	µg/L	µg/L
arsenic	6010B	<10 µg/L		<10 µg/L	<10 µg/L	<10(<10) µg/L	µg/L	µg/L
methane	RSK 175[d]						µg/L	
ethane	RSK 175[d]						µg/L	
lactate	300.0M	<100 µg/L			<100 µg/L		µg/L	
propionate	300.0M	<100 µg/L			<100 µg/L		µg/L	
acetate	300.0M	<100 µg/L			<100 µg/L		µg/L	
carbon tetrachloride	8260B	1.6 µg/L	0.52 µg/L	<0.5 µg/L	0.28J µg/L	<0.5(<0.5) µg/L	µg/L	µg/L
chloroform	8260B	0.52 µg/L	0.27J µg/L	<0.5 µg/L	0.26J µg/L	0.23J(0.20J) µg/L	µg/L	µg/L
dichloromethane	8260B	<5.0 µg/L	<5.0 µg/L	<5.0 µg/L	<5.0 µg/L	<0.5(<0.5) µg/L	µg/L	µg/L
chloromethane	8260B	<1.0 µg/L	<1.0 µg/L	<1.0 µg/L	<1.0 µg/L	<0.5(<0.5) µg/L	µg/L	µg/L
trichloroethene	8260B	0.46J µg/L	0.21J µg/L		0.27J			
acetone	8260B		6.1J µg/L					

Sample ID Well Type Date	Method[a]	EW-BW-86-A extraction baseline 8/3/2009	EW-BW-86-A extraction week 0 9/15/2009	EW-BW-86-A extraction week 1 9/22/2009	EW-BW-86-A extraction week 2 9/29/2009	EW-BW-86-A extraction week 3 10/6/2009	EW-BW-86-A extraction week 4 10/13/2009	EW-BW-86-A extraction week 5 10/20/2009
well flowrate (operating)		NA	11.0 gpm	10.7 gpm	10.7 gpm	10.5 gpm	10.5 gpm	1.1 gpm
alkalinity ($CaCO_3$ total)	HACH[b]	47 mg/L	61 mg/L	51 mg/L	57 mg/L	53 mg/L	52 mg/L	53 mg/L
pH	meter[c]	6.32	6.7	6.75	6.58	6.66	6.67	6.61
dissolved oxygen	meter[c]	7.84 ppm	10.2 ppm	9.85 ppm	9.68 ppm	9.67 ppm	9.36 ppm	9.74 ppm
oxidation reduction potential	meter[c]	270 mV	198 mV	188 mV	186 mV	213 mV	254 mV	219 mV
conductivity	meter[c]	42.4 mS/cm	44 mS/cm	43.9 mS/cm	47.1 mS/cm	45.2 mS/cm	48.3 mS/cm	48.2 mS/cm
turbidity	meter[c]	57.2 NTU	3 NTU	0 NTU	0 NTU	0 NTU	0 NTU	0 NTU
temperture	meter[c]	17.8 °C	17.9 °C	17.3 °C	17.4 °C	17.7 °C	17.3 °C	17.4 °C
nitrate	300.0	5620 µg/L				4300 µg/L		µg/L
nitrite	300.0	<100 µg/L				<100 µg/L		µg/L
sulfate	300.0	33500 µg/L				32800 µg/L		µg/L
ortho-phosphate	300.0	<500 µg/L						
dissolved iron	6010B	<200 µg/L		<200 µg/L		<200 µg/L		µg/L
manganese	6010B	12.6 µg/L		<10 µg/L		<10 µg/L		µg/L
arsenic	6010B	<10 µg/L		<10 µg/L		<10 µg/L		µg/L
methane	RSK 175[d]							
ethane	RSK 175[d]							
lactate	300.0M	<100 µg/L						
propionate	300.0M	<100 µg/L						
acetate	300.0M	<100 µg/L						
carbon tetrachloride	8260B	<0.5 µg/L				0.20J µg/L		µg/L
chloroform	8260B	<0.5 µg/L				<0.5 µg/L		µg/L
dichloromethane	8260B	<0.5 µg/L				<0.5 µg/L		µg/L
chloromethane	8260B	<1.0 µg/L				<1.0 µg/L		µg/L

Sample ID Well Type Date	Method[a]	EW-BW-92-A extraction baseline 7/30/2009	EW-BW-92-A extraction week 0 9/15/2009	EW-BW-92-A extraction week 1 9/22/2009	EW-BW-92-A extraction week 2 9/29/2009	EW-BW-92-A extraction week 3 10/6/2009	EW-BW-92-A extraction week 4 10/13/2009	EW-BW-92-A extraction week 5 10/20/2009
well flowrate (operating)		NA	15.2 gpm	14.9 gpm	14.7 gpm	14.7 gpm	13.7 gpm	11.6 gpm
alkalinity ($CaCO_3$ total)	HACH[b]	37 mg/L	56 mg/L	47 mg/L	44 mg/L	47 mg/L	45 mg/L	57 mg/L
pH	meter[c]	6.55	6.79	6.71	6.59	6.59	6.56	6.63
dissolved oxygen	meter[c]	7.84 ppm	10.64 ppm	10.39 ppm	10.26 ppm	10.45 ppm	9.34 ppm	8.84 ppm
oxidation reduction potential	meter[c]	210 mV	193 mV	185 mV	199 mV	208 mV	246 mV	141 mV
conductivity	meter[c]	40.3 mS/cm	45 mS/cm	43.8 mS/cm	45.6 mS/cm	43.9 mS/cm	49.7 mS/cm	51.8 mS/cm
turbidity	meter[c]	110 NTU	11 NTU	26 NTU	2 NTU	0 NTU	3 NTU	0 NTU
temperture	meter[c]	17.5 °C	17.3 °C	17.2 °C	17.1 °C	17.1 °C	17.0 °C	17.1 °C
nitrate	300.0	2570 µg/L				1990(1980) µg/L	µg/L	µg/L
nitrite	300.0	<100 µg/L				<100(<100) µg/L	µg/L	µg/L
sulfate	300.0	45900 µg/L				31300(31300) µg/L	µg/L	µg/L
ortho-phosphate	300.0	<500 µg/L						
dissolved iron	6010B	<200 µg/L				<200 µg/L	µg/L	µg/L
manganese	6010B	<10 µg/L				<10 µg/L	µg/L	µg/L
arsenic	6010B	<10 µg/L				<10 µg/L	µg/L	µg/L
methane	RSK 175[d]	2.0 µg/L						
ethane	RSK 175[d]	<2.0 µg/L						
lactate	300.0M	<100 µg/L						
propionate	300.0M	<100 µg/L						
acetate	300.0M	<100 µg/L						
carbon tetrachloride	8260B	1.4 µg/L				0.69 µg/L	µg/L	µg/L
chloroform	8260B	0.31J µg/L				0.28 µg/L	µg/L	µg/L
dichloromethane	8260B	<0.5 µg/L				<0.5 µg/L	µg/L	µg/L
chloromethane	8260B	<1.0 µg/L				<1.0 µg/L	µg/L	µg/L
tetrachloroethene	8260B	0.49J µg/L				0.29J µg/L		
trichloroethene	8260B	0.25J µg/L						
methyl tert butyl ether	8260B	0.82J µg/L				0.72J µg/L		

Change in Carbon Tetrachloride Concentration Over Time



Thermal Treatment Unit
Operation Summary
2007/2008/2009

TREATMENT SYSTEM OPERATION SUMMARY	
Treatment System Start Date:	**6/4/2001**
TTU Start Date:	**4/4/2006**
Last Reading Date/Time:	**10/16/2009 16:45**
Historical through 2008 (TTU only):	
Total TTU Hours:	**24048**
Total TTU Hours Operated:	**9767**
% TTU Operation:	**40.6%**
Total Pounds of Methane Removed:	**1346654**
Total Pounds of VOCs Removed:	**168.7**
Current Year 2009	
Total Hours:	**7056**
Total Hours Operated:	**3436**
% TTU Operation:	**48.7%**
Total Pounds of Methane Removed:	**347205**
Cumulative:	
% TTU Operation:	**42.4%**
Total Pounds of Methane Removed:	**1693860**

			Total Pounds Removed	Pounds/week
Pounds of Methane Removed (2007)			**540920**	**10374**
Pounds of Methane Removed (2008)			**293169**	**5622**
Pounds of Methane Removed (2009)			**347205**	**8267**

EXTRACTION SYSTEM (2009)					
Location	**Last Methane (%)**	**Last Flow Rate (scfm)**	**Current Methane Removal Rate (lbs/day)**	**2009 % Operation**	**2009 Methane Removed (Lbs)**
Area E					
EP-36	38.4	23	520.9	39.7	67840.1
Area F					
EW-30	20.3	0	0.0	11.4	2510.5
EW-31	35.2	3	62.3	41.4	18784.1
EW-32	40.7	16	384.1	47.6	64760.4
EW-33	38.6	22	500.9	46.5	70824.2
EW-34	39.5	29	675.7	47.6	93098.5
VF-4	53.7	4	126.7	20.7	14631.6
Area D					
EW-35	27.8	4	65.6	44.1	17973.2

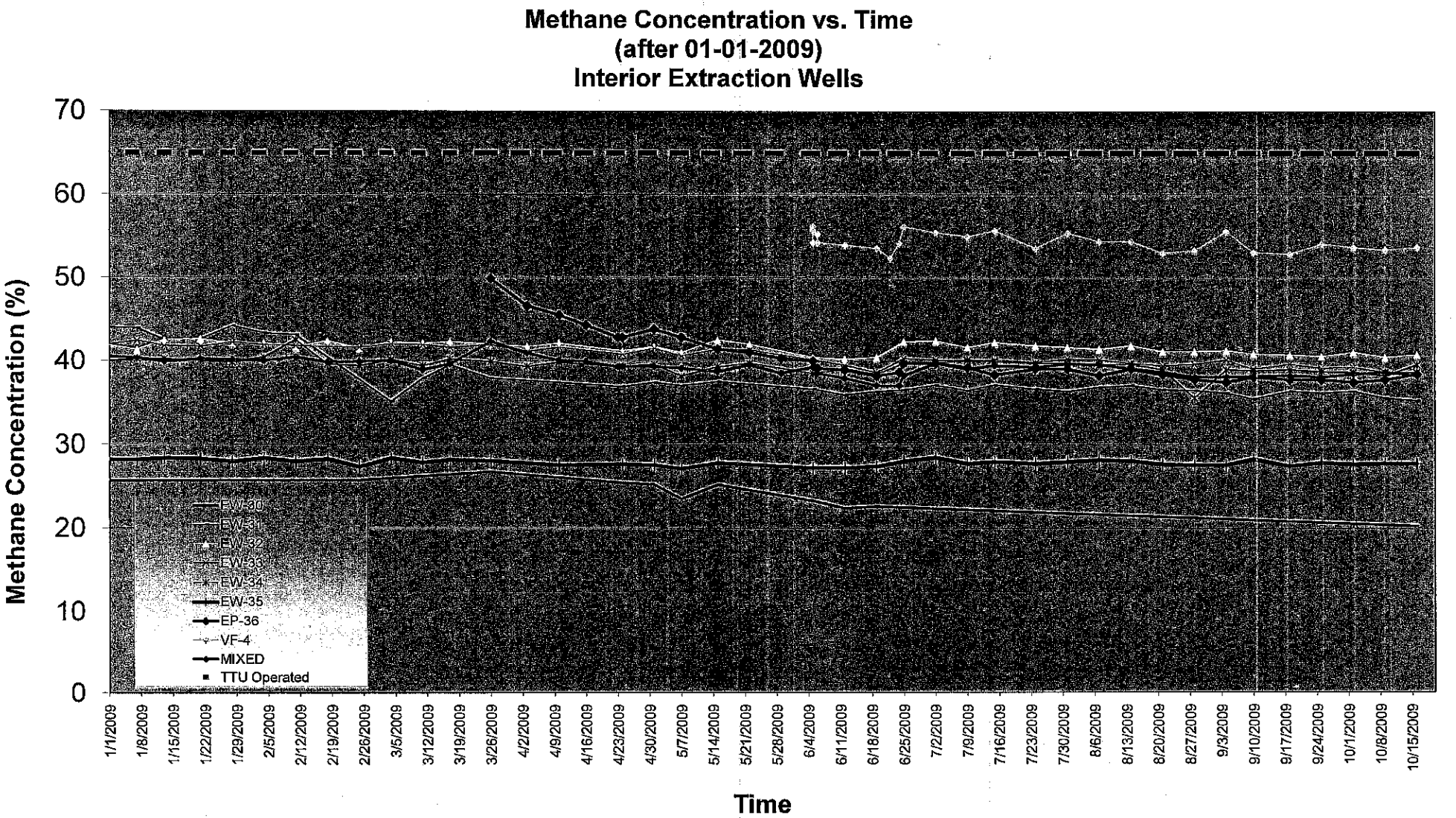
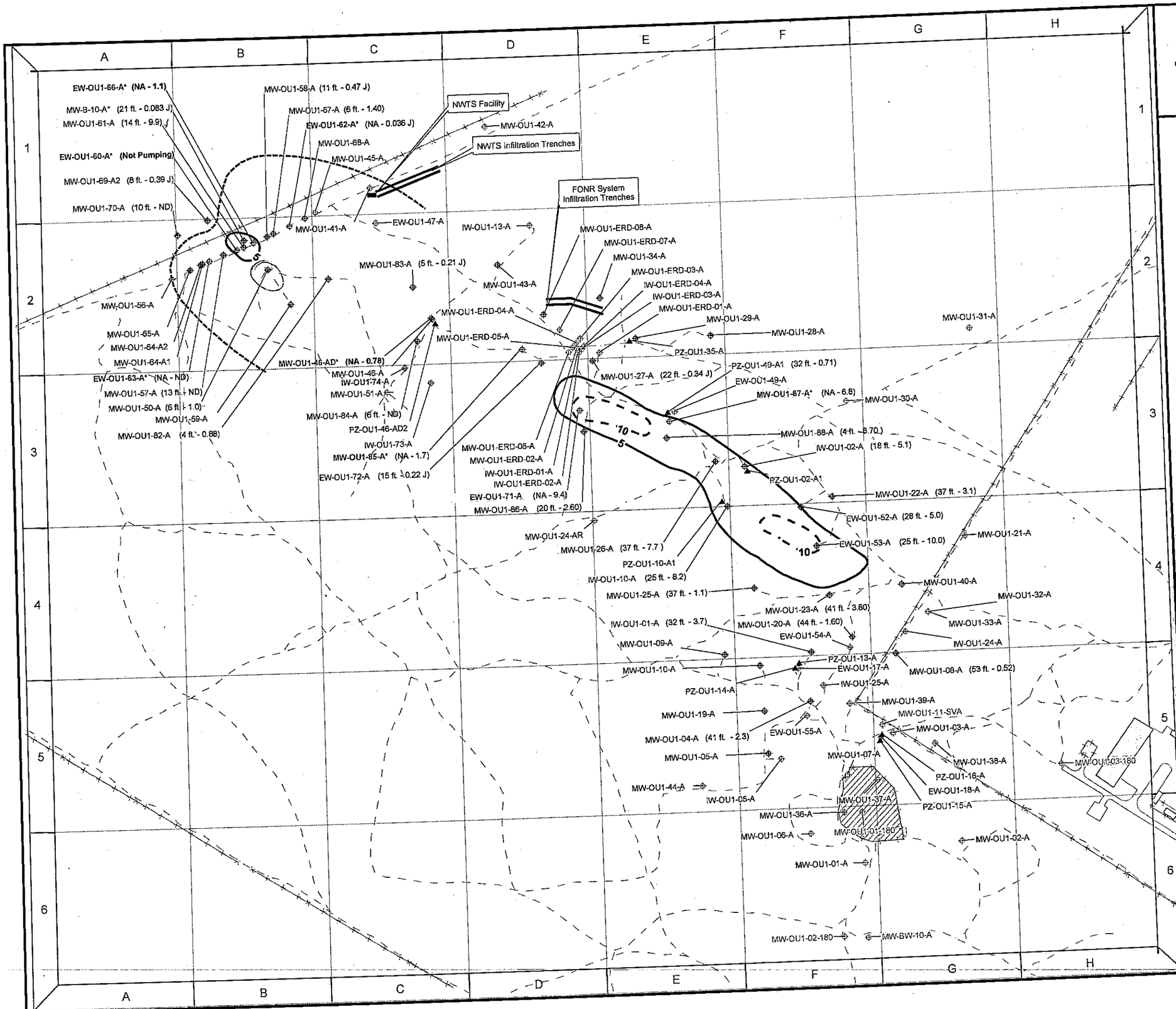

Methane Concentration vs. Time
(after 01-01-2009)
Interior Extraction Wells
Methane Concentration (%)
70
60
50
40
30
20
10
0
EW-30
EW-31
EW-32
EW-33
EW-34
EW-35
EP-36
VF-4
MIXED
TTU Operated
1/1/2009
1/8/2009
1/15/2009
1/22/2009
1/29/2009
2/5/2009
2/12/2009
2/19/2009
2/26/2009
3/5/2009
3/12/2009
3/19/2009
3/26/2009
4/2/2009
4/9/2009
4/16/2009
4/23/2009
4/30/2009
5/7/2009
5/14/2009
5/21/2009
5/28/2009
6/4/2009
6/11/2009
6/18/2009
6/25/2009
7/2/2009
7/9/2009
7/16/2009
7/23/2009
7/30/2009
8/6/2009
8/13/2009
8/20/2009
8/27/2009
9/3/2009
9/10/2009
9/17/2009
9/24/2009
10/1/2009
10/8/2009
10/15/2009
Time

Figure 7
OU-1 FONR
TCE Concentrations in Groundwater
September 2009



Legend

- Monitoring Well
- Extraction Well
- Bold green font indicates active well.
- Injection Well
- Bold green font indicates active well.
- Well Not Sampled
- Piezometer
- MW-OU1-87-A — Locations With September 2009 TCE Concentration At Or Above ACL (5 µg/L)
- —5— TCE Contour (µg/L) Based on September 2009 Data
- Inferred Extent – See Notes Below
- MW-OU1-87-A — Well ID
- (42 ft. - 9.30) — September 2009 TCE Result (µg/L)
- Sample Elevation (feet above mean sea level)
- Trail/Unimproved Road
- Fence
- Estimated Northwest Treatment System Capture Zone
- Former Fire Drill Area

Notes:
Units of TCE concentrations are in ppb
ND = Non-detect
NA = Depth is not applicable - sample is from pumping well
J = Estimated Value
µg/L = Micrograms per liter
Wells shown with an asterisk were not used to develop contour boundaries. Active extraction wells were typically not included because the data is not location-specific. Data from extraction well EW-OU1-71-A was used to infer the 10 µg/L TCE contour (shown as dashed line) because the results at that well (9.4 µg/L) and at nearby wells suggest higher TCE concentrations in that vicinity. The TCE concentration at EW-OU1-53-A was 10 µg/L and nearby well data was less than 10 µg/L. Consequently, the 10 µg/L contour enclosing well EW-OU1-53-A was also dashed because the extent is inferred from recent results. Data from MW-B-10-A was excluded because the well does not fully penetrate the A-Aquifer.
Well names appearing in gray were not included in OU1-Groundwater Monitoring Program.
Wells for which no data are posted were not sampled.

0 200 400 800
SCALE IN FEET

N

Y:/Ft_Ord/TO_201/OM9/GW_monitoring_Y6Q3/(7)TCE_in_GW_September_2009.mxd
Source: HGL
04/17/09 CLimoges
Revised 10/19/09 CLimoges

HGL HydroGeoLogic, Inc