

HTW BCT Meeting

January 2009

Item	Action	Comment
OU1 Groundwater Remediation	Status Update	HGL
OU1 Off-Site	Status Update	
OU2 and 2/12 Treatment Systems	Status Update	Western network
Other Groundwater Issues	Status Update	Quarterly sampling
OUCTP	Status Update	RD/RA Work Plan
Groundwater Treatment System Optimization	Status Update	
OU2 Landfill	Status Update	Landfill gas
Basewide Range Assessment	Status Update	No Action Approval Memos, HA 161 IA Memo
Site 39 FS Addendum/ROD	Status Update	
FFA Schedule	Status Update	
FOST/FOSET Issues	Status Update	
Calendar Update	Update	

SUBJECT: HTW – BCT Meeting
January 15, 2009
1:00 p.m Fort Ord BRAC office

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Check (✓)	Name	Organization	Phone	E-mail address
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<i>RE</i>	Roy Evans	HGL	303/984-1167 xt. 5	revans@hgl.com



Former Fort Ord Groundwater Treatment Systems Operational Data and Status BCT Meeting, January 15, 2009

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

	Volume Treated (gallons)	Average Flow (gallons per minute)	Percent of Time Online	COC Mass Removed (lbs)
OU2				
December 2008	22,111,570	495	100	2.07
Total since October 1995	4.390 billion			609.00
Sites 2/12				
December 2008	7,018,700	157	99	0.76
Total since May 1999	1.169 billion			408.00

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

Key Events for OU2 and Sites 2/12 for December 2008						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5 GAC D carbon removed.	6
7	8 Start of repairs to GAC vessels C & D	9 OU2 & 2/12 quarterly extraction well sampling completed.	10	11	12 Carbon change out at both 2/12 GAC vessels. End of repairs to GAC vessels C & D.	13
14	15	16	17	18	19	20
21	22	23 GAC vessels C & D pressure tests.	24	25	26	27
28	29	30	31	*53 USAN Notices in December. None of these alerts required the personal attention of the Senior GWTP Operator.		

Table 3: December 2008 OU2 Analytical Results at TS-OU2-INJ.

COC	Discharge Limit (µg/L) ‡	Sample Date / Analytical Results	
		12/04/08 **	12/29/08 **
1,1-DCA	5.0*	0.69	0.89
1,2-DCA	0.5	0.17 J	0.21 J
1,2-DCP †	0.5	ND	ND
Benzene	0.5	ND	ND
Carbon Tetrachloride	0.5	ND	ND
Chloroform	2.0*	0.27 J	0.39 J
Cis-1,2-DCE	6.0*	0.29 J	0.59 J
Methylene Chloride	0.5	ND	0.52 B
PCE	0.5	ND	ND
TCE	0.5	ND	ND
Vinyl Chloride	0.5	ND	ND

Table 4: December 2008 Sites 2/12 Analytical Results at TS-212-INJ.

COC	Discharge Limit (µg/L) ‡	Sample Date / Analytical Results		
		12/04/08 **	12/09/08 **	12/12/08 **
1,1-DCE	6	ND	ND	ND
1,2-DCA	0.5	0.12 J	0.13 J	0.17 J
1,3-DCP †	0.5	ND	ND	ND
Chloroform	2	0.17 J	0.19 J	0.20 J
Cis-1,2 DCE	6	0.81	0.67	0.31 J
PCE	3	ND	ND	ND
TCE	5	0.18 J	0.14 J	ND
Vinyl Chloride	0.1	ND	ND	ND

NOTES:

- J The analyte was positively identified, but the associated numerical value is an approximate concentration greater than the Method Detection Limit (MDL) but less than the Practical Quantitation Limit (PQL).
- 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.
- ** Preliminary data; validation has not been completed.
- J± Data are qualified as estimated, with a high (+) or low (-) bias likely to have occurred. False positives or false negatives are unlikely to have been reported.
- B The analyte was present in the field and trip blanks at similar concentrations (1.2 and 0.74 µg/l, respectively). Methylene chloride is a common lab contaminant. The Project Chemist is investigating.

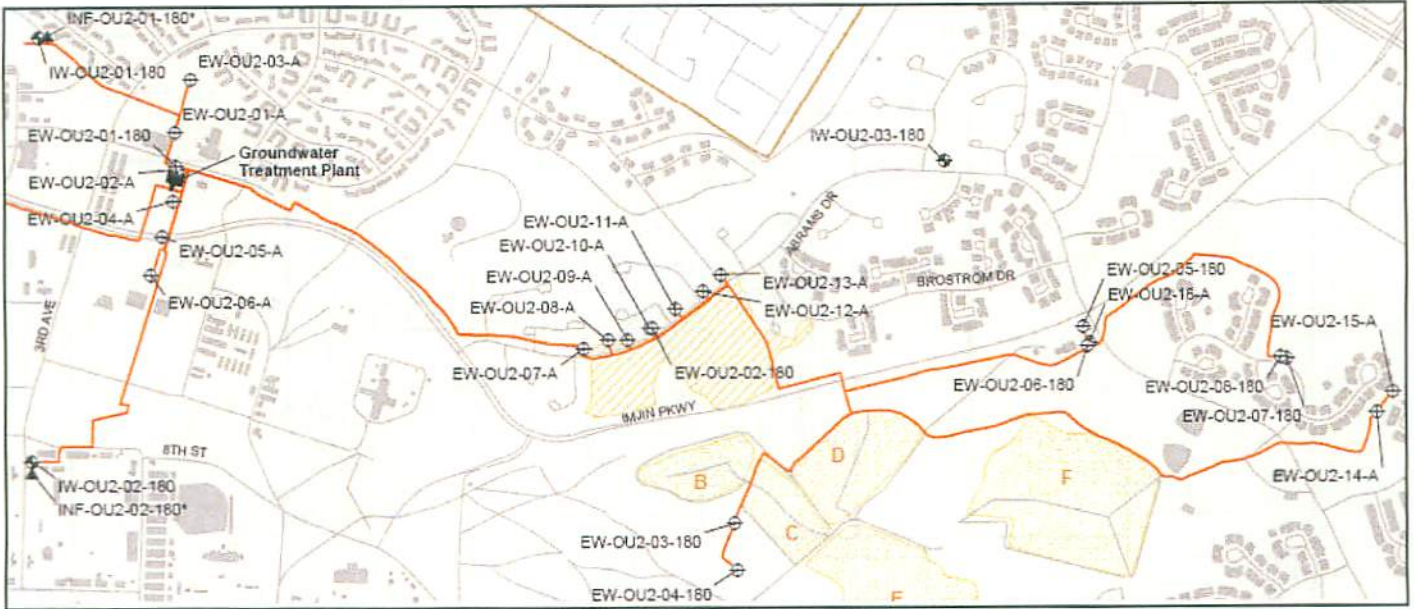


Figure 1: OU2 GWTP Treatment Events December 2008.

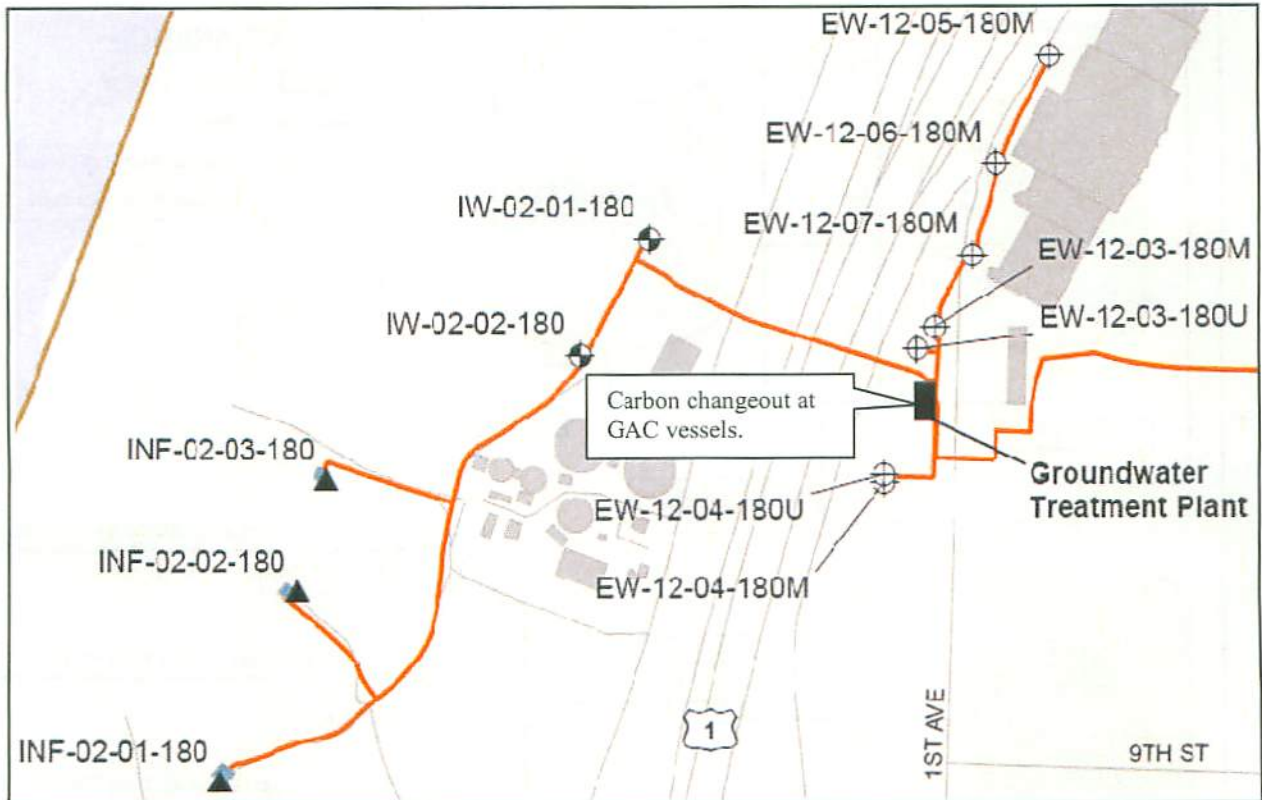


Figure 2: Sites 2/12 GWTP Treatment Events December 2008.

Figure 3: OU2 GWTP Process Flow Diagram, December 2008 Events.

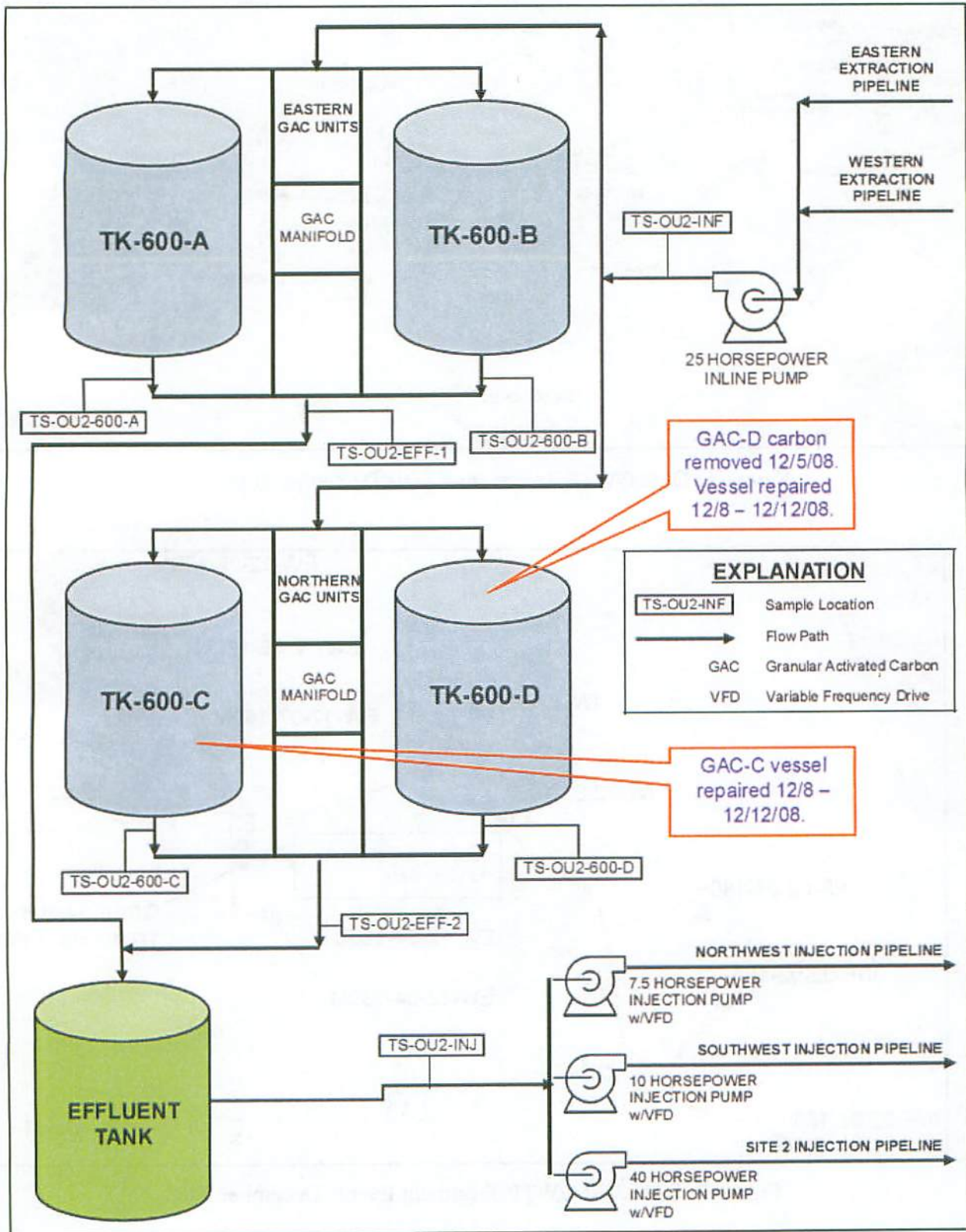
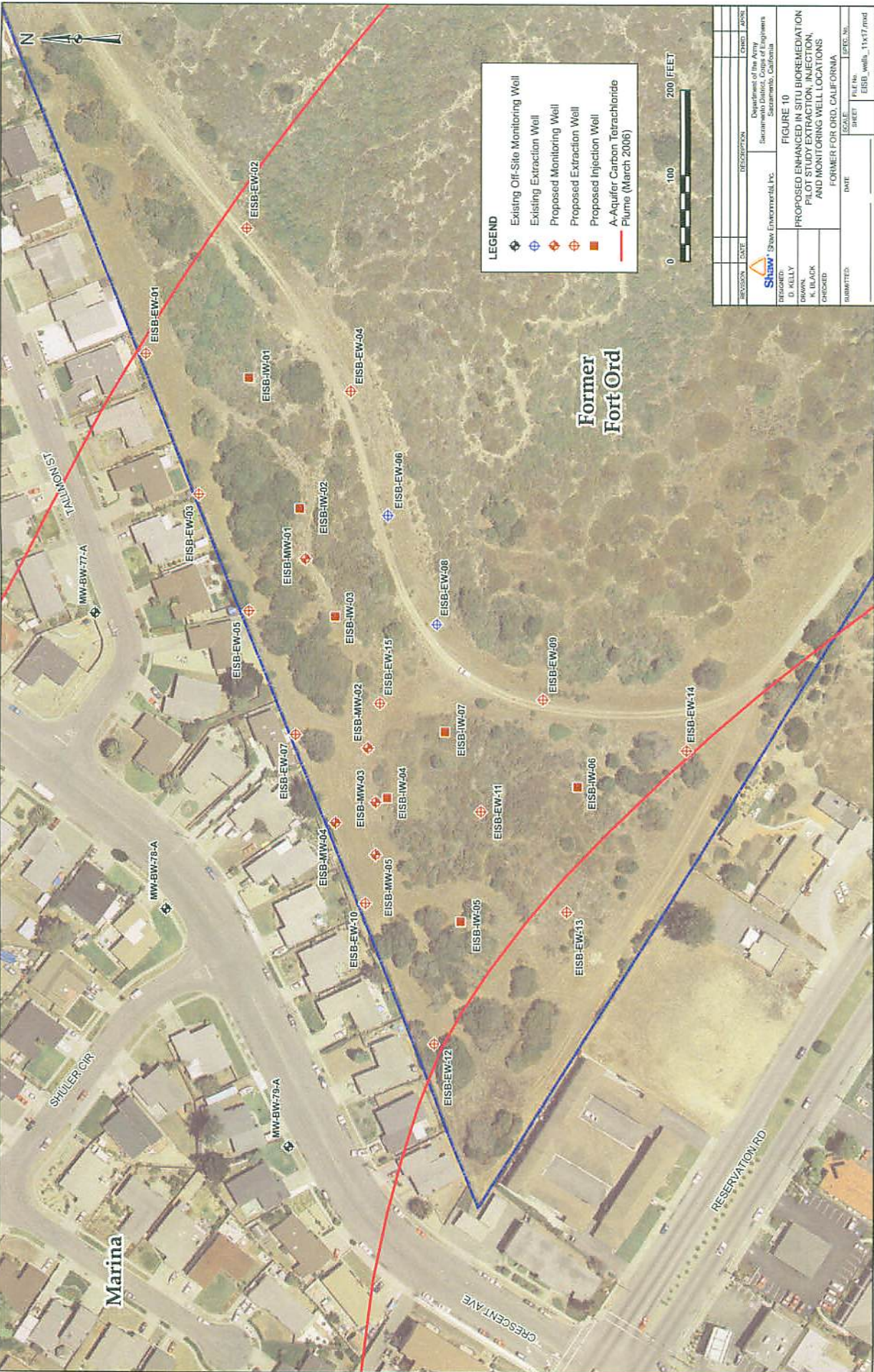


Table 5: December 2008 OU2 and Sites 2/12 Extraction Well Status.

Well Identification	% On	Avg. gpm	Total Gallons	% of Total	Comments	TCE (µg/L) Sep 08
Site 12 Extraction Wells						
EW-12-05-180M	0.0	0	0	0.0	Well offline due to pump failure.	12.5
EW-12-06-180M	99.3	91	4,063,600	57.9		9.6
EW-12-07-180M	0.0	0	0	0.0	Well offline due to pump failure.	4.3
EW-12-03-180U	0.1	0	800	0.0	Well offline due to low concentrations.	0.48 (0.55)
EW-12-03-180M	98.8	66	2,954,300	42.1		6.5
EW-12-04-180U	0.0	0	0	0.0	Well offline due to low concentrations.	0.94
EW-12-04-180M	0.0	0	0	0.0	Ceased operating on 11/21/2005.	Not Sampled
Total 2/12 gallons treated:			70,18,700	100.0		
OU2 Extraction Wells						
Western Network						
EW-OU2-01-A	0.0	0	0	0.0	Well offline due to low concentrations.	Not Sampled
EW-OU2-02-A	13.2	7	322,600	1.5		1.4
EW-OU2-03-A	0.0	0	0	0.0	Well offline due to low concentrations.	0.82
EW-OU2-04-A	18.9	9	422,750	1.9		1.9
EW-OU2-05-A	19.4	10	427,590	1.9		4.2
EW-OU2-06-A	99.6	36	1,608,870	7.3		0.37 (0.40)
EW-OU2-01-180	0.0	0	0	0.0	No pump in well.	9.4 (9.0)
Total gallons extracted:			2,781,810	12.6		
Eastern Network						
EW-OU2-07-A	0.0	0	0	0.0	Well offline due to low concentrations.	ND
EW-OU2-08-A	86.1	27	1,194,720	5.4		0.31
EW-OU2-09-A	0.0	0	0	0.0	Well offline due to pump failure.	Not Sampled
EW-OU2-10-A	100.0	23	1,035,450	4.7		5.4
EW-OU2-11-A	64.9	7	312,160	1.4		5
EW-OU2-12-A	0.0	0	0	0.0	Well offline due to area construction.	Not Sampled
EW-OU2-13-A	100.0	30	1,327,830	6.0		13.3
EW-OU2-02-180	0.0	0	0	0.0	Well offline pending installation of VFD.	4.6
Total gallons extracted:			3,870,160	17.5		
Shoppette						
EW-OU2-05-180	79.8	119	5,312,900	24.0		9
EW-OU2-06-180	5.6	10	447,300	2.0		4.9
EW-OU2-16-A	79.8	16	712,300	3.2		10.2
Total gallons extracted:			6,472,500	29.3		
CSUMB						
EW-OU2-14-A	0.1	0	1,100	0.0		3.8
EW-OU2-15-A	0.0	0	0	0.0	Well offline due to low concentrations.	Not Sampled
Total gallons extracted:			1,100	0.0		
Landfill						
EW-OU2-03-180	99.0	158	7,068,000	32.0		19.8 (20.1)
EW-OU2-04-180	0.4	1	23,000	0.1	Well offline due to low concentrations.	0.23
Total gallons extracted:			7,091,000	32.1		
Bunker Hill						
EW-OU2-08-180	79.5	42	1,895,000	8.6		1.7
Total gallons extracted:			1,895,000	8.6		
Total OU2 gallons treated:			22,111,570	100.0		



LEGEND

- ◆ Existing Off-Site Monitoring Well
- Existing Extraction Well
- ◆ Proposed Monitoring Well
- Proposed Extraction Well
- Proposed Injection Well
- A-Aquifer Carbon Tetrachloride Plume (March 2006)



REVISION	DATE	DESCRIPTION	CMO	ADSR

		Department of the Army Sacramento District, Corps of Engineers Sacramento, California	
DESIGNED:	D. KELLY	FIGURE 10 PROPOSED ENHANCED IN SITU BIOREMEDIATION PILOT STUDY EXTRACTION, INJECTION, AND MONITORING WELL LOCATIONS FORMER FOR ORD, CALIFORNIA	
CHECKED:	K. BLACK	SCALE:	SHEET: EISB_wells_11x17.mxd
SUBMITTED:		DATE:	
		SPEC. NO.:	

OPERABLE UNIT 1 OFF-SITE GROUNDWATER EXTRACTION PILOT STUDY

STATUS – January 14, 2009

FIELD WORK

- Well construction complete – December 21
 - 2 extraction wells
 - 3 monitoring wells
- Draft Final OU1 Pilot Study Work Plan distributed – April 22
- Baseline sampling and analysis – June 14
- System construction completed – July 16
- Monitoring well (City of Marina) installation – July 28
- System start-up – August 5
- Monitoring well (City of Marina) development – August 8
- System switched from generator to permanent power (MCWD) – August 13.
- Preliminary Draft Quarterly Report (July to September) USACE comments received.
- Extraction Well EW-OU1-92-A shut off – December 11 .

SCHEDULE

- Draft Final Quarterly Report – January.
- Quarterly sampling of monitoring wells – March.
- Evaluate system shutdown and rebound testing.

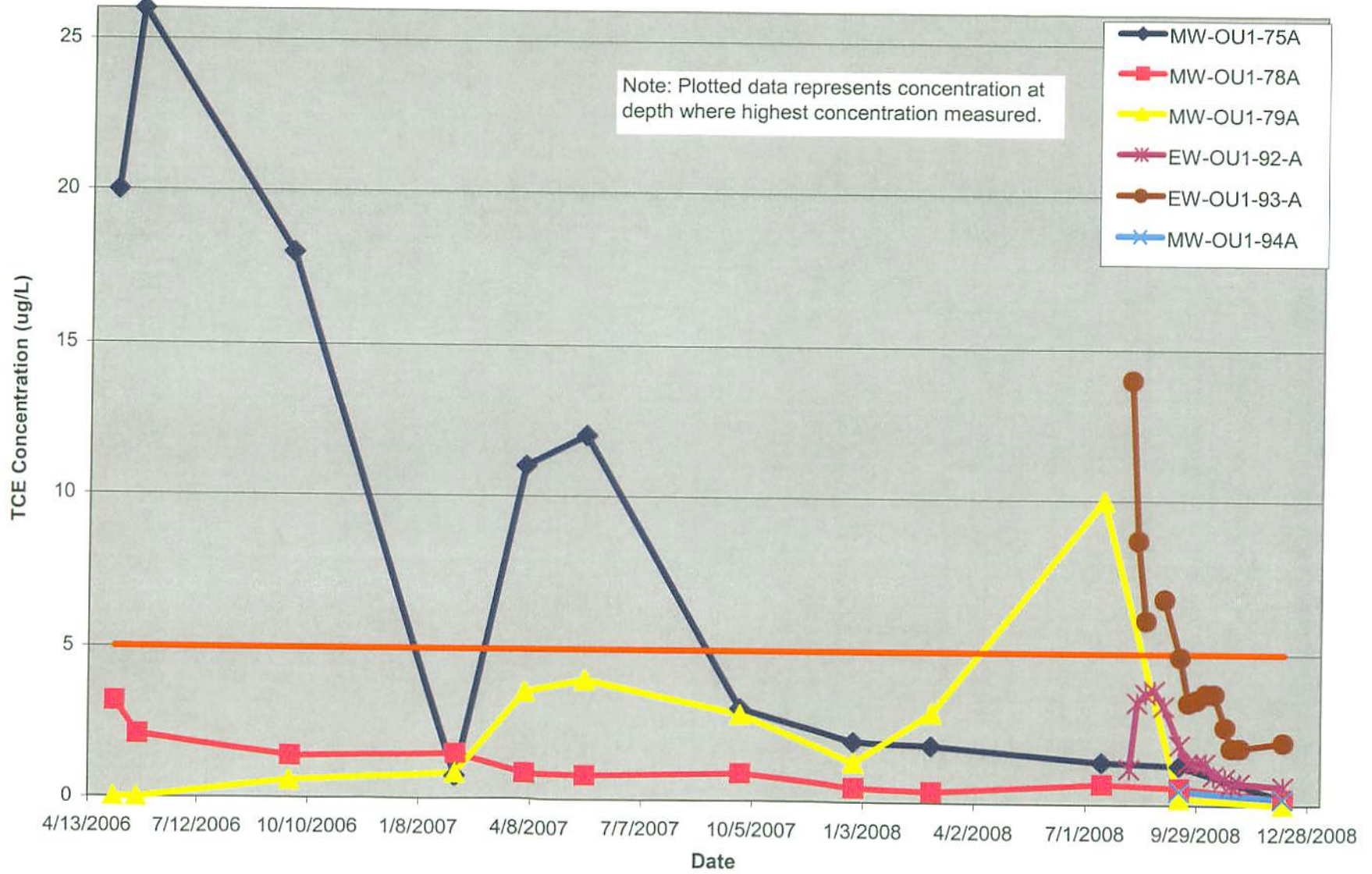
DATA (Preliminary)

- December analytical results and operating summary.

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. Well number and location is based on the decision criteria in the Draft Work Plan.
- Extraction Well EW-OU1-92-A shut off due to concerns of potential impact to OU1 On-Site GWETS plume capture.

Change in TCE Concentration Over Time
OU1 Off-Site Wells



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 $\mu\text{g/L}$	14 ^b $\mu\text{g/L}$			
August 11, 2008 ^a	3.4 $\mu\text{g/L}$	8.7 ^c $\mu\text{g/L}$	5.4 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
August 18, 2008 ^a	3.7 $\mu\text{g/L}$	6.1 ^d $\mu\text{g/L}$	4.7 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
August 25, 2008 ^a	3.8 $\mu\text{g/L}$	not operating	3.6 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
September 2, 2008 ^a	3.3 $\mu\text{g/L}$	6.8 ^e $\mu\text{g/L}$	4.7 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
September 8, 2008 ^a			4.1 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
September 15, 2008 ^a	2 $\mu\text{g/L}$	4.9 ^f $\mu\text{g/L}$	3.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
September 22, 2008 ^a	1.4 $\mu\text{g/L}$	3.4 $\mu\text{g/L}$	1.3 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
September 29, 2008 ^a	1.4 $\mu\text{g/L}$	3.5 $\mu\text{g/L}$	1.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
October 6, 2008 ^a	1.4 $\mu\text{g/L}$	3.7 $\mu\text{g/L}$	2.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
October 13, 2008 ^a	0.98 $\mu\text{g/L}$	3.7 $\mu\text{g/L}$	2.0 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
October 22, 2008 ^a	0.90 $\mu\text{g/L}$	2.6 $\mu\text{g/L}$	1.6 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
October 27, 2008	0.68 $\mu\text{g/L}$	1.9 $\mu\text{g/L}$	1.2 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
November 3, 2008	0.74 $\mu\text{g/L}$	1.9 $\mu\text{g/L}$	1.3 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
November 17, 2008			1.1 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
November 24, 2008			1.2 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
December 1, 2008			1.3 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
December 8, 2008	0.62 $\mu\text{g/L}$	2.1 $\mu\text{g/L}$	1.3 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
December 16, 2008			2.8 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
December 22, 2008			2.2 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$
December 29, 2008			2.2 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$	<0.5 $\mu\text{g/L}$

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

^b additional compounds detected: *cis*-1,2-dichloroethylene - 0.43J $\mu\text{g/L}$

^c additional compounds detected: *cis*-1,2-dichloroethylene - 0.31J $\mu\text{g/L}$

^d additional compounds detected: *cis*-1,2-dichloroethylene - 0.21J $\mu\text{g/L}$

^e additional compounds detected: *cis*-1,2-dichloroethylene - 0.21J $\mu\text{g/L}$

^f additional compounds detected: *cis*-1,2-dichloroethylene - 0.26J $\mu\text{g/L}$

Detections are shown in bold.

$\mu\text{g/L}$ denotes micrograms per liter.

Data qualified as "J" is estimated.

Summary of Operable Unit 1 Process System
 Operating Parameters
 December 1, 2008 - December 29, 2008

	Volume Treated (gallons)	Average Flowrate (gallons per minute)	Percent of Month Online	Mass TCE Removed (pounds)	Notes
EW-OU1-92-A					EW-OU1-92-A taken offline on 12/11/08 at Army Corp request. Average operating flowrate: 19.1 gallons per minute.
December 2008	270,824	7.0	36.4	0.0014	
Total	3,575,791			0.0501	
EW-OU1-93-A					
December 2008	374,827	9.4	100	0.0066	
Total	2,156,926			0.0770	
System					
December 2008	637,709	15.5	100	0.0069	
Total	5,630,277			0.1183	

OPERABLE UNIT CARBON TETRACHLORIDE PLUME A-AQUIFER REMEDIAL ACTION

STATUS – January 14, 2009

FIELD WORK

- Deployment Area 1A extraction/injection well installation complete – January 12
- Deployment Area 1A well development – 4 of 9 complete
- Deployment Area 1B extraction/injection well installation complete – December 16
- Deployment Area 1B well development complete – January 9

SCHEDULE

- Subsequent quarterly monitoring for EISB pilot study conducted under Groundwater Monitoring Program.
- Preliminary Draft EISB Pilot Study Report - February.
- Draft RA Work Plan/RD (Attachment 1 -- A-Aquifer) – Comments received from DTSC, RWQCB, EPA, FOEJN, and UCSC.
- Preston Park Sports Complex shut down November 17 through February 1.
- Well installation/development at Deployment Area 1A ongoing.
- Well vault and underground pipe installation in Deployment Area 1B ongoing.

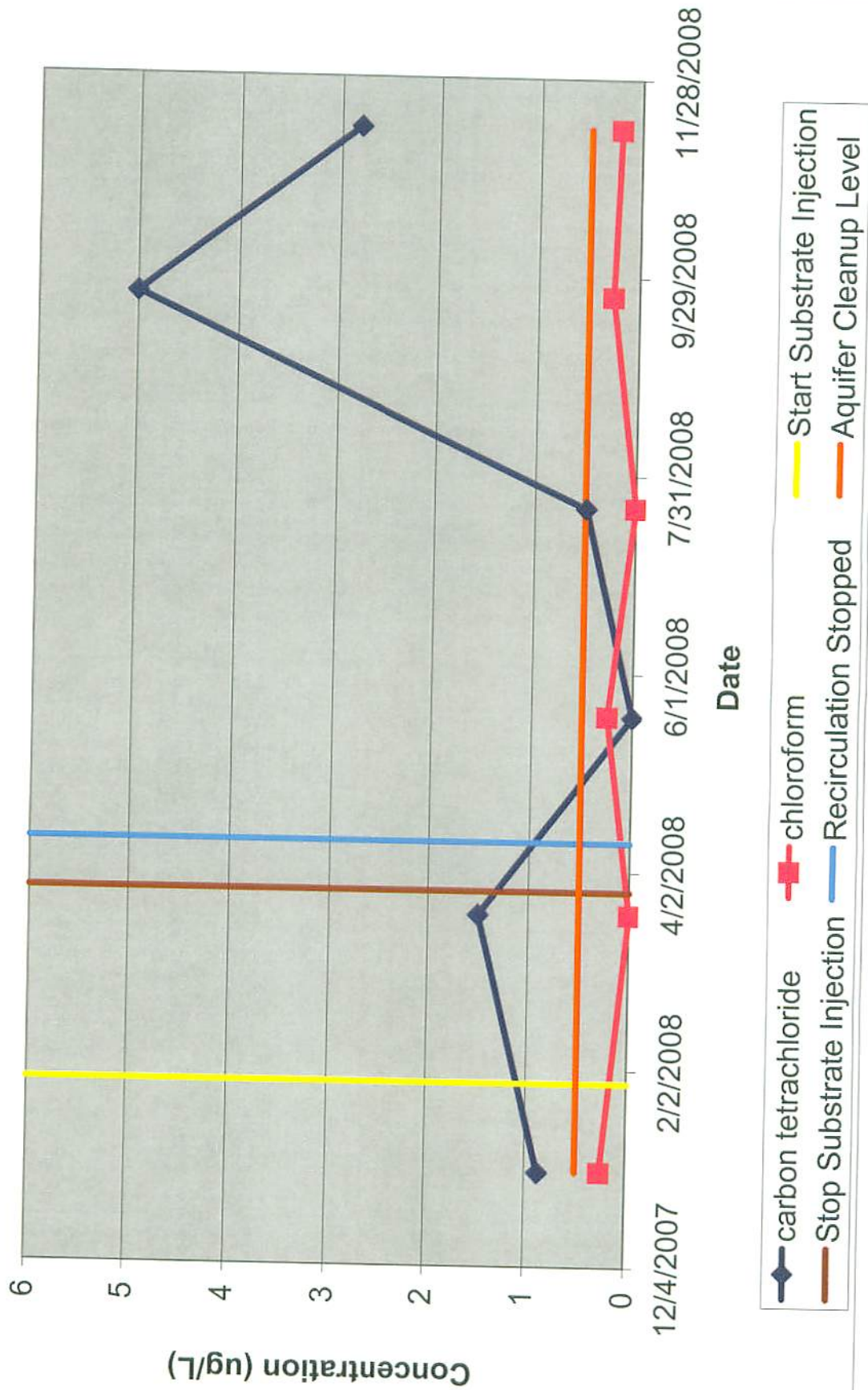
DATA (Preliminary)

- Rebound in EISB pilot study well EISB-EW-01.

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.

EISB-EW-01

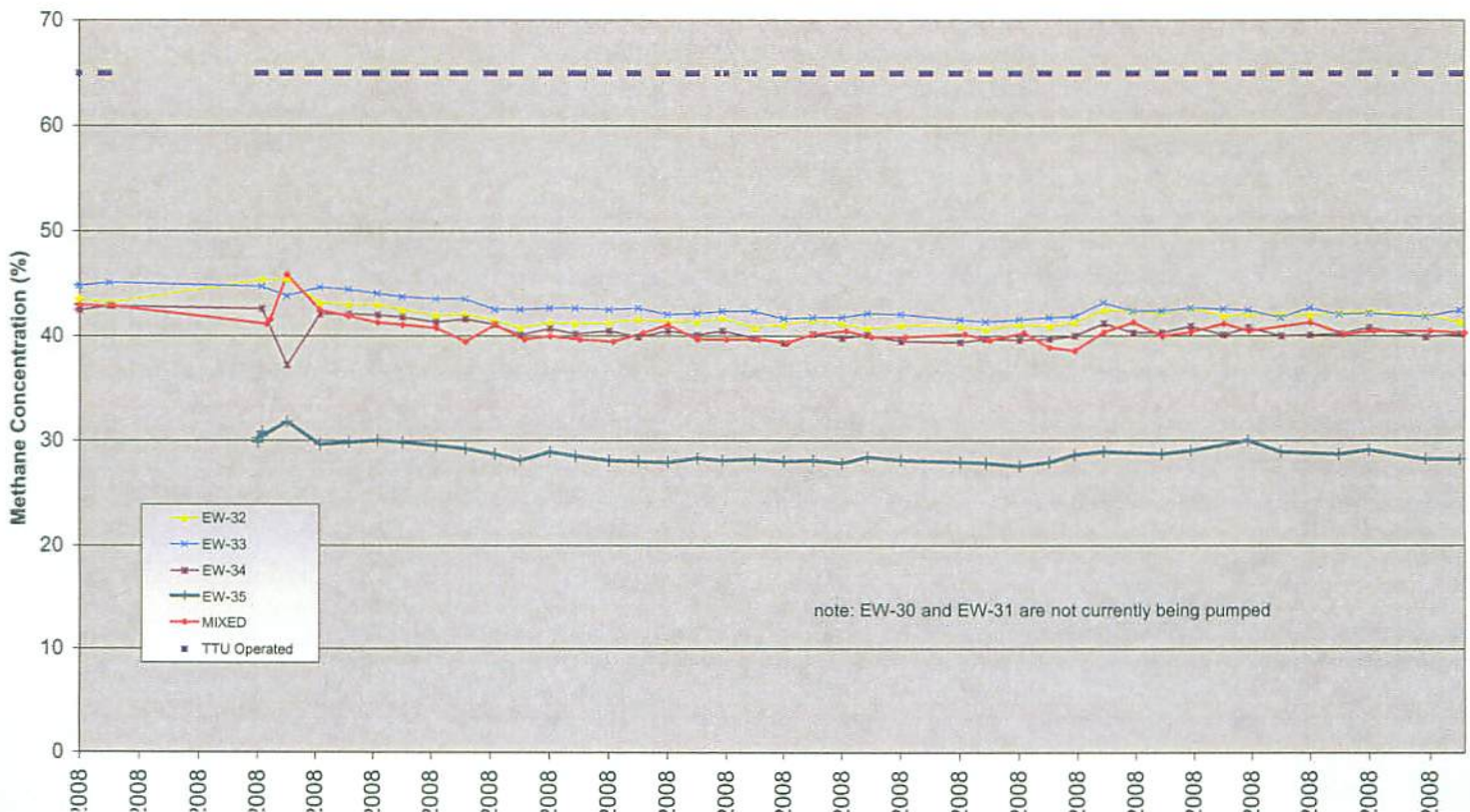


Thermal Treatment Unit
 Operation Summary
 2007/2008/2009

Start Date/Time:	4/4/2006
Last Reading Date/Time:	1/7/2009 16:30
Total Hours (2006):	6528
Total Hours Operated (2006):	2891.50
% Operation (2006):	44.3%
Total Hours (2007):	8760
Total Hours Operated (2007):	4035.4
% Operation (2007):	48.7%
Total Hours (2008):	8760
Total Hours Operated (2008):	2816.4
% Operation (2008):	32.2%
Total Hours (2009):	160.5
Total Hours Operated (2009):	57.5
% Operation (2009):	35.8%
Cumulative % Operation (since 4/4/2006):	40.5%

Pounds of Methane Removed (2007)	532135
Pounds of Methane Removed (2008)	286095
Pounds of Methane Removed (2009)	5467

Methane Concentration vs. Time
 (after 02-13-08)
 Interior Extraction Wells



HGL AGENDA & NOTES

Fort Ord HTW BCT Meeting
1:00 PM, 15 January 2009
Monterey, California

1. Groundwater Remediation System Update

Northwest Treatment System (NWTs) has operated nearly continuously since last update on 12 November 2008. Total volume pumped through 05 January 2009 is 79,689,730 gallons. The average treatment rate over the last eight weeks has been 78.5 gallons per minute. To date, the NWTs has removed approximately 3.2 pounds (0.26 gallons) of TCE and 0.3 pounds of cis-1,2-DCE.

The routine bi-monthly performance samples from the treatment system and extraction wells were collected on 01 December 2008. Validated results are not yet available. The preliminary analytical results are summarized below:

- System influent TCE concentration decreased to 2.7 µg/L (from 3.8 µg/L in September).
- System influent cis-1,2-DCE concentration decreased to 0.27 µg/L (from 0.42 µg/L in September).
- In the system effluent, Cis-1,2-DCE was reported below the method detection limit at 0.19 µg/L. The other compounds of concern were not detected in the system effluent
- TCE was estimated in the mid-point sample in September at 0.19 µg/L and detected again in the December mid-point sample at 0.35 µg/L. Based on these data the carbon in the lead GAC vessels will be changed out in January or February, depending on vendor availability.
- TCE concentrations at individual extraction wells are summarized as follows:
 - TCE concentrations decreased at all extraction wells (except EW-OU1-60-A) by approximately 25% to 45%
 - TCE at EW-OU1-60-A dropped by approximately 10% from 0.90 µg/L to 0.82 µg/L
 - Similar declines were observed in cis-1,2-DCE concentrations (20% to 30%)
- All extraction wells showed TCE concentrations ≤ 2.6 µg/L except the two wells located in the central portion of the plume: MW-87 (5.8 µg/L versus 9.1 µg/L in September) and EW-71 (11 µg/L versus 14 µg/L in previous sample). TCE concentrations reported in 2008 for all extraction wells are summarized in Table 2.

The system has operated continuously except for short-term shutdowns to replace filters and re-calibrate the flow meters (less than 8 hours). The injection pump was off-line for an uncertain duration between four and eleven days and all treated water was discharged to the NWTs infiltration trenches during that period.

A leak was discovered on 13 January 2009 at the flow measurement meter on EW-OU1-63-A (the westernmost extraction well on the northwest boundary). This well was shut down on 14 January 2009 pending repair. The pumping rate from this well has been approximately 1 gallon per minute in recent months. TCE has not been detected in this extraction well since September 2007.

The late September groundwater elevations collected during the 3rd Quarter LTM showed a dramatic drop in water levels in some of the monitoring wells located on the northwest boundary of Former Fort Ord. Groundwater elevations have declined throughout the OU-1 area in a relatively consistent manner over the last four years – typically 0.2 to 0.4 feet per quarter. However, those wells closest to the recently initiated off-Post GWETS expansion (~ 6 weeks before the groundwater measurements) showed water elevation declines of 1 to 2 feet during the third quarter. The wells showing the greatest declines were located on the Armstrong Ranch (MW-OU1-69-A2 and MW-OU1-70-A). Consequently, HGL discussed with the Army possible revisions to

the off-Post pumping rates to minimize adverse hydraulic impacts to the ongoing NWTS operation. Pumping was subsequently suspended at the off-Post extraction well nearest to the NWTS.

2. Long Term Monitoring Update

4th Quarter LTM samples were collected during the week of 15 December. Only those wells located along the northwest boundary are sampled during the 4th quarter. Preliminary data results have been reported and are described below.

Boundary Wells Extraction Region (Between MW-OU1-46-AD and boundary road extraction wells)

- TCE was detected at concentrations greater than the detection limit only at the two wells screened only in the Channel Fill (MW-OU1-61-A and MW-OU1-67-A) and well MW-OU1-50-A.
- Only MW-OU1-50 (11 µg/L) and MW-OU1-61-A (5.6 µg/L) exceeded the ACL. The most recent data showed stability or continued decline in TCE concentrations at these locations. In the previous sample (September), TCE was also 11 µg/L at MW-OU1-50-A and was 7.1 µg/L at MW-OU1-61-A.
- The other wells sampled in this quarter were:
 - MW-OU1-57-A; MW-OU1058-A; MW-OU1-64-A1; MW-OU1-64-A2, and MW-OU1-B-10A located along the northwest boundary road.
 - MW-OU1-69-A2 and MW-OU1-70-A on the Armstrong Ranch.

The postponed 3rd quarter sample from MW-OU1-04-A was attempted but was again not successful. HGL discovered that a previously installed sample line holding a PDB sampler had broken and the bag and line had MW-POU1-04-A blocked well at approximately the water table. The PDB installed to collect the 4th quarter sample after the LLNL pumping equipment was removed was not fully submerged. HGL was able to clear the well, remove the blockage and re-install the PDB for sample collection in January.

3. Report Submittals

The 2008 Second Quarter (April – June) Groundwater Long Term Monitoring Report was submitted on 24 November 2008. HGL submitted the 2008 FONR Impact Assessment and Rare Plant Survey Report on 07 January 2009.

The lagging 2008 quarterly (1st and 3rd) and 2007 Annual LTM reports are in preparation. These reports are secondary deliverables. To provide the most current validated data to the BCT in a timely manner, HGL proposes to submit the LTM reports in the following sequence:

1. 2008 Third Quarter Report (July – September) to be submitted in January 2009
2. 2008 Annual and Fourth Quarter Report to be submitted in February 2009
3. 2008 First Quarter Report (January – March) to be submitted in March 2009
4. 2007 Annual and Fourth Quarter Report to be submitted in March 2009

A letter indicating that the DTSC comments on the Final Hydraulic Control Pilot Project Construction Report have been resolved will be submitted upon confirmation that no further edits are needed to the water level contour map showing the concurrent on- and off-Post OU-1 plume. This water level contour map was provided to the DTSC by the Army.