

**SUBJECT: HTW - BCT Meeting**  
**November 17, 2009**  
**10:00 a.m. BRAC Conference Room**

Check (✓)	Name	Organization	Phone	E-mail address
	Kate Burger	DTSC	916/255-6537	<u><a href="mailto:kburger@dtsc.ca.gov">kburger@dtsc.ca.gov</a></u>
Ⓟ	Franklin Mark	DTSC	916/255-3584	<u><a href="mailto:FMark@dtsc.ca.gov">FMark@dtsc.ca.gov</a></u>
SS	Steve Sterling	DTSC	916/255-3739	<u><a href="mailto:SSterlin@dtsc.ca.gov">SSterlin@dtsc.ca.gov</a></u>
MA	Martin Hausladen	U.S. EPA	415/972-3007	<u><a href="mailto:Hausladen.martin@epamail.epa.gov">Hausladen.martin@epamail.epa.gov</a></u>
LM	Lewis Mitani	U.S. EPA	415/972-3032	<u><a href="mailto:Mitani.lewis@epa.gov">Mitani.lewis@epa.gov</a></u>
BRAC	Grant Himebaugh	RWQCB	805/542-4636	<u><a href="mailto:Ghimebaugh@waterboards.ca.gov">Ghimebaugh@waterboards.ca.gov</a></u>
	Bill Mabey	TechLaw Inc	415/281-8730	<u><a href="mailto:bmabey@techlawinc.com">bmabey@techlawinc.com</a></u>
PS	Gail Youngblood	Fort Ord BRAC	831/242-7918	<u><a href="mailto:gail.youngblood@us.army.mil">gail.youngblood@us.army.mil</a></u>
Phone	Derek Lieberman	Ahtna	831/242-4873	<u><a href="mailto:dlieberman@ahnaes.com">dlieberman@ahnaes.com</a></u>
✓	Bill Collins	Fort Ord BRAC	831/242-7920	<u><a href="mailto:William.K.Collins@us.army.mil">William.K.Collins@us.army.mil</a></u>
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	George Siller	COE	916/557-7418	<u><a href="mailto:George.L.Siller@usace.army.mil">George.L.Siller@usace.army.mil</a></u>

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Check	Name	Organization	Phone	E-mail address
(✓) <i>DE</i>	David Eisen	COE	831/393-9692	David.Eisen@usace.army.mil
	Mark Eldridge	AEC	410/436-6325	<u>Mark.h.eldridge@us.army.mil</u>
	Peter Kelsall	Shaw E&I	831/883-5810 ext. 810	Peter.Kelsall@shawgrp.com
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<i>Jen</i>	Jen Moser	GEM/Shaw E&I	831/883-5812	<u>Jen.moser@shawgrp.com</u>
	Eric Schmidt	Shaw E&I	831/883-5809	<u>Eric.Schmidt@shawgrp.com</u>
<i>BT</i>	Ed Ticken	MACTEC E&C	707/793-3882	ejticken@mactec.com
<i>ME</i>	Marc Edwards	COE	831/242-4828	Marc.A.Edwards@usace.army.mil
	Michael Taraszki	MACTEC E&C	510/628-3222	mdtaraszki@mactec.com
<i>C34</i>	Chuck Holman	Ahna	916/372-2000	<u>chohman@ahnaes.com</u>
	Kelly O'Meara	Ahna	916/372-2000	<u>komeara@ahnaes.com</u>
	Christopher Prescott	USACE	916/557-7227	Christopher.E.Prescott@usace.army.mil
<i>MS</i>	Melissa Broadston	Fort Ord BRAC	831/393-1284	<u>Melissa.broadston@us.army.mil</u>

**SUBJECT: HTW - BCT Meeting**

**November 17, 2009**

**10:00 a.m. BRAC Conference Room**

Check (✓)	Name	Organization	Phone	E-mail address
	Roy Evans	HGL	303/984-1167 xt. 5	<u>revans@hgl.com</u>
	Melinda Garvey	EPA	415-947 4184	garvey.melinda@epa.gov
	Judy Huang	EPA	415-972-3681	huang.judy@epa.gov
	Mary Snow	TeckLaw	415 281 8730	msnow@tecklawinc.com
	CM Chieko Nozati	BRAC	831 8997372	chiekonozati@us.army.mil
	John Jeff Fenton	WASTE	707 793-3832	
	<del>ROY EVANS</del>			

**HTW BCT Meeting**

November 2009

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

Schedule of Field Work

SPONGE	HISTORICAL AREA	CUBIC YARDS	COSTS	EQUIPMENT	STOCKPILE	Date (Standard End Dates)							Sampling		Date Completed	
						Supervise	Big	Mowing	Site Prep	Excavation	Transporting	Dates	Detail of Sample	Dates	Disposition	
1	27	120	0.1	mower, Excavator, 1 A35, WT	HA 27A	10/19	10/28	10/28	11/2	11/2	11/4	see 5				
2	27A	1030	0.6	mower, Excavator, 1 A35, WT	onsite	10/19 10/20	10/29	10/29	11/4	11/4	11/13	sec 5				
3	29	2580	1.0	Mower, Excavator, 2 A35, Klein-tank, 2 WT	onsite	10/21	10/29	11/5, 11/9	11/9 11/12, 11/16	11/16	12/3	sec 5				
4	OU2 Landfill Phase 1			OU2 Landfill Clearing and grubbing of 1/3 Area E and 29 to LF		10/27	NA	11/9 11/12	12/7	12/7	12/17	NA				
5				Transport Soil (3730 cy) from HA27A and 29 to LF		NA	NA	NA	NA	NA	NA	12/21 12/24				
6	33 (Explosives)	20	0.01	Backhoe, 12-yd DT	direct load	10/20			12/21	12/21	12/21	12/21				
7	43	150	0.1	mower, Excavator, 1 A35, WT	direct load	10/20	10/26		12/21	12/21	12/22	12/21 12/22				
8	36 (Explosives) partial	1120	0.51	Mower, Excavator, 1 A35, Klein-tank	direct load	10/22										
9				Prepare Primary Stockpile - Austin		NA										
10	22	80	0.1	Mower, backhoe, 12-yd DT	Primary Stockpile	10/20	10/26									
11	23	440	0.3	mower, Excavator, 1 A35, WT	Primary Stockpile	10/22 & 10/26										
12	18	2730	1.4	Mower, Excavator, 2 A35, Klein-tank	Primary Stockpile	10/26, 10/27 &										
13				Transport Soil from Austin SP to LF		NA										
14	36 (Explosives) partial	1630	0.51	Mower, Excavator, 1 A35, Klein-tank	direct load	10/22										
15	19	26510	13.8	Mower, 2 Excavators, 6 A35, 3 WT, Klein-tank	Primary Stockpile											
16				Transport Soil from Austin SP to LF		NA										
17	39/40	6520	2.5	Mower, 2 Excavators, 4 A35, 2 WT, Klein-tank	onsite											
18				Transport Soil from Austin SP to LF												
Total		49330	21.95													

**Excavated Volume  
(as of 11/10/2009)**

	Summary			
	Plan	to date	% to date	
HA-18	2,730		0%	
HA-22	80		0%	
HA-23	440		0%	
HA-27	120	120	100%	
HA-27A	1,030	1,030	100%	
HA-29	2,580		0%	
HA-33	20		0%	
HA-36	2,750		0%	
HA-43	150		0%	
Total	9,900	4,208	42%	

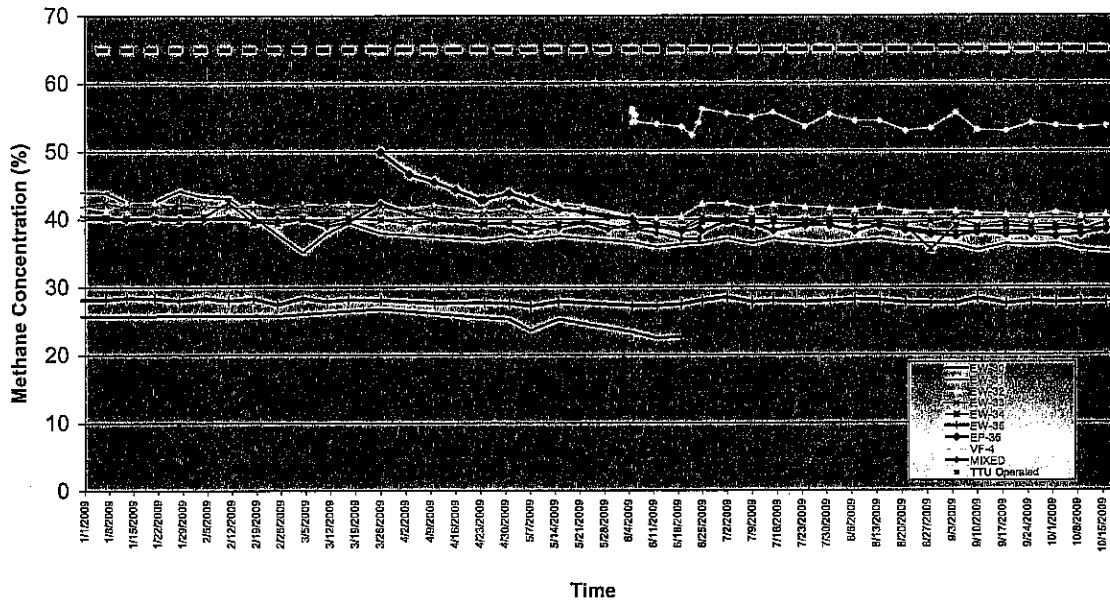
**Thermal Treatment Unit  
Operation Summary  
2007/2008/2009**

<b>TREATMENT SYSTEM OPERATION SUMMARY</b>	
Treatment System Start Date:	6/4/2001
TTU Start Date:	4/4/2006
Last Reading Date/Time:	11/6/2009 15:00
<b>Historical through 2008 (TTU only):</b>	
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
<b>Current Year 2009</b>	
Total Hours:	7656
Total Hours Operated:	3743
% TTU Operation:	48.9%
Total Pounds of Methane Removed:	378136
<b>Cumulative:</b>	
% TTU Operation:	42.6%
Total Pounds of Methane Removed:	1724791

	Total Pounds Removed	Pounds/week
Pounds of Methane Removed (2007)	540920	10374
Pounds of Methane Removed (2008)	293169	5622
Pounds of Methane Removed (2009)	378136	8298

<b>EXTRACTION SYSTEM (2009)</b>					
Location	Last Methane (%)	Last Flow Rate (scfm)	Current Methane Removal Rate (lbs/day)	2009 % Operation	2009 Methane Removed (Lbs)
<b>Area E</b>					
EP-36	38.4	23	520.9	39.7	67840.1
<b>Area F</b>					
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
<b>Area D</b>					
EW-35	27.8	4	65.6	44.1	17973.2

**Methane Concentration vs. Time  
(after 01-01-2009)  
Interior Extraction Wells**



# OPERABLE UNIT CARBON TETRACHLORIDE PLUME A-AQUIFER REMEDIAL ACTION

STATUS – November 17, 2009

## FIELD WORK

- 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.
- Groundwater recirculation at Area 1A completed – November 12.

## SCHEDULE

- Subsequent quarterly monitoring for EISB pilot study conducted under Groundwater Monitoring Program.
- Preliminary RAWP Appendix B – Upper 180-Foot Aquifer – January 2010.
- Preliminary RAWP Appendix C – Lower 180-Foot Aquifer – January 2010.
- Installation of process equipment at Area 1B ongoing. Preparing to move container from Area 1A to Area 1B.
- Installation of process equipment at Area 1C.

## 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.



**Area 1A OUCTP EISE  
System Operation  
Preliminary Data Summary**

System Start Date: 8/14/2009

Date: 8/15/2009  
1 day

8/22/2009  
8 day

Extraction Well				9/15/2009 1 day				9/22/2009 8 day			
Extraction Well	Model Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)				
EW-BW-85-A	9.3	6,769	4.8	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	60,306	8.3						
EW-BW-92-A	15	21,908	15.2	187,097	14.9						
EW-BW-93-A	20	26,009	17.8	161,359	15.5						
<b>Total</b>	<b>80</b>	<b>100,195</b>	<b>71.2</b>	<b>741,201</b>	<b>66.1</b>						
<b>Total Flow</b>	<b>80</b>	<b>100,511</b>	<b>63.9</b>	<b>728,628</b>	<b>63.3</b>						

Injection Well				9/22/2009 8 day			
Injection Well	Model Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous 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-98-A	30	38,972	24.6	862	8.30	12.58	
P-301					8.19	12.28	
P-303							
IW-BW-99-A	30	23,232	14	545	6.27	9.40	
P-302					7.40	11.00	
P-304							
IW-BW-99-A	30	32,289	21.1	611	7.97	11.82	
P-305					7.37	11.04	
P-307							
<b>Total</b>	<b>80</b>	<b>94,493</b>	<b>59.7</b>	<b>272</b>	<b>1618</b>		

Area 1A OUCTP EISB  
System Operation  
Preliminary Data Summary

System Start Date:

Date: 9/29/2009  
15 day

10/6/2009  
22 day

10/13/2009  
29 day

Extraction Well	9/29/2009 15 day		10/6/2009 22 day		10/13/2009 29 day	
	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
EW-BW-85-A	104,145	5.2	157,889	5.4	210,183	5.2
EW-BW-86-A	227,139	10.7	334,559	10.5	440,852	10.5
EW-BW-87-A	307,191	14.3	451,787	14.4	595,559	14.3
EW-BW-81-A	115,555	5.5	171,495	5.4	225,802	5.4
EW-BW-82-A	315,819	14.7	466,453	14.7	611,232	13.7
EW-BW-83-A	338,842	15.4	493,857	15.7	648,565	15.4
<b>Total</b>	<b>1,408,981</b>	<b>65.8</b>	<b>2,075,849</b>	<b>66.1</b>	<b>2,731,993</b>	<b>64.5</b>
<b>Total Flow</b>	<b>1,959,902</b>	<b>63</b>	<b>1,991,219</b>	<b>63.2</b>	<b>2,577,972</b>	<b>51</b>

Injection Well	9/29/2009 15 day		10/6/2009 22 day		10/13/2009 29 day	
	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
IW-BW-88-A	460,034	20.1	661,118	20.3	845,896	16.7
P-301	1207	7.79	1645	7.85	1745	7.77
P-302	409,303	20.0	611,361	19.8	789,845	14.5
P-303	1042	7.85	1481	7.85	1582	7.81
P-304	421,754	19.8	625,340	20.6	816,136	14.7
P-306	1135	7.75	1571	7.77	1670	7.75
P-307	3384	7.78	4697	7.78	4997	7.78
<b>Total</b>	<b>1,281,091</b>	<b>69.9</b>	<b>1,897,819</b>	<b>60.7</b>	<b>2,451,787</b>	<b>45.9</b>

Injection Well	9/29/2009 15 day		10/6/2009 22 day		10/13/2009 29 day	
	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
IW-BW-88-A	460,034	20.1	661,118	20.3	845,896	16.7
P-301	1207	7.79	1645	7.85	1745	7.77
P-302	409,303	20.0	611,361	19.8	789,845	14.5
P-303	1042	7.85	1481	7.85	1582	7.81
P-304	421,754	19.8	625,340	20.6	816,136	14.7
P-306	1135	7.75	1571	7.77	1670	7.75
P-307	3384	7.78	4697	7.78	4997	7.78
<b>Total</b>	<b>1,281,091</b>	<b>69.9</b>	<b>1,897,819</b>	<b>60.7</b>	<b>2,451,787</b>	<b>45.9</b>

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IW-BW-88-A	460,034	20.1	661,118	20.3	845,896	16.7
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P-304	421,754	19.8	625,340	20.6	816,136	14.7
P-306	1135	7.75	1571	7.77	1670	7.75
P-307	3384	7.78	4697	7.78	4997	7.78
<b>Total</b>	<b>1,281,091</b>	<b>69.9</b>	<b>1,897,819</b>	<b>60.7</b>	<b>2,451,787</b>	<b>45.9</b>

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	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
IW-BW-88-A	460,034	20.1	661,118	20.3	845,896	16.7
P-301	1207	7.79	1645	7.85	1745	7.77
P-302	409,303	20.0	611,361	19.8	789,845	14.5
P-303	1042	7.85	1481	7.85	1582	7.81
P-304	421,754	19.8	625,340	20.6	816,136	14.7
P-306	1135	7.75	1571	7.77	1670	7.75
P-307	3384	7.78	4697	7.78	4997	7.78
<b>Total</b>	<b>1,281,091</b>	<b>69.9</b>	<b>1,897,819</b>	<b>60.7</b>	<b>2,451,787</b>	<b>45.9</b>

Injection Well	9/29/2009 15 day		10/6/2009 22 day		10/13/2009 29 day	
	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
IW-BW-88-A	460,034	20.1	661,118	20.3	845,896	16.7
P-301	1207	7.79	1645	7.85	1745	7.77
P-302	409,303	20.0	611,361	19.8	789,845	14.5
P-303	1042	7.85	1481	7.85	1582	7.81
P-304	421,754	19.8	625,340	20.6	816,136	14.7
P-306	1135	7.75	1571	7.77	1670	7.75
P-307	3384	7.78	4697	7.78	4997	7.78
<b>Total</b>	<b>1,281,091</b>	<b>69.9</b>	<b>1,897,819</b>	<b>60.7</b>	<b>2,451,787</b>	<b>45.9</b>

Area 1A OUCTP ERSB  
System Operation  
Preliminary Data Summary

System Start Date:

Date: 10/20/2009  
36 day

10/28/2009  
44 day

11/13/2009  
50 day

11/10/2009  
57 day

Extraction Well	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
EW-BW-85-A	281,703	4.9
EW-BW-88-A	548,698	10.1
EW-BW-87-A	699,742	9.8
EW-BW-91-A	278,820	5.1
EW-BW-92-A	738,139	11.6
EW-BW-89-A	751,027	9.7
<b>Total</b>	<b>3,278,129</b>	<b>51.2</b>

Total Flow	Instantaneous Flowrate
2,028,957	23

Extraction Well	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
EW-BW-85-A	318,351	4.8
EW-BW-88-A	663,035	10.0
EW-BW-87-A	811,782	9.5
EW-BW-91-A	328,320	4.5
EW-BW-92-A	861,328	10.3
EW-BW-89-A	857,892	8.4
<b>Total</b>	<b>3,840,499</b>	<b>48.5</b>

Total Flow	Instantaneous Flowrate
3,500,203	8.7

Extraction Well	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
EW-BW-85-A	353,051	4.9
EW-BW-88-A	745,417	6.8
EW-BW-87-A	895,030	5.5
EW-BW-91-A	360,346	3.6
EW-BW-92-A	957,263	10.4
EW-BW-89-A	932,686	8.4
<b>Total</b>	<b>4,257,783</b>	<b>43.8</b>

Total Flow	Instantaneous Flowrate
3,661,582	34.8

Extraction Well	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
EW-BW-85-A	408,790	4.8
EW-BW-88-A	783,555	9.5
EW-BW-87-A	888,043	9.2
EW-BW-91-A	398,989	3.4
EW-BW-92-A	1,099,153	10.2
EW-BW-89-A	1,071,905	7.9
<b>Total</b>	<b>4,652,145</b>	<b>45.1</b>

Total Flow	Instantaneous Flowrate
3,861,582	34.8

Injection Well	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
IW-BW-88-A	978,237	10
P-301		
P-303		
IW-BW-89-A	812,293	8.8
P-302		
P-304		
IW-BW-90-A	922,924	4.4
P-305		
P-307		
<b>Total</b>	<b>2,813,454</b>	<b>23.2</b>

Injection Well	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
IW-BW-88-A	1,097,318	4.7
P-301		
P-303		
IW-BW-89-A	1,014,385	5.2
P-302		
P-304		
IW-BW-90-A	984,189	5.2
P-305		
P-307		
<b>Total</b>	<b>3,089,902</b>	<b>15.1</b>

Injection Well	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
IW-BW-88-A	1,135,290	3.6
P-301		
P-303		
IW-BW-89-A	1,060,792	2.6
P-302		
P-304		
IW-BW-90-A	1,013,895	0
P-305		
P-307		
<b>Total</b>	<b>3,209,977</b>	<b>6.2</b>

Injection Well	Total Flow (gallons)	Instantaneous Flowrate (gallons per minute)
IW-BW-88-A	1,205,752	3.7
P-301		
P-303		
IW-BW-89-A	1,069,695	4.1
P-302		
P-304		
IW-BW-90-A	1,022,109	0
P-305		
P-307		
<b>Total</b>	<b>3,317,766</b>	<b>7.8</b>



# Baseline Sample Carbon Tetrachloride Detections

Method\*

Sample ID Well Type	MW-BW-71-A monitoring baseline	MW-BW-71-A monitoring week 1	MW-BW-71-A monitoring week 2	MW-BW-71-A monitoring week 3	MW-BW-71-A monitoring week 4	MW-BW-71-A monitoring week 5	MW-BW-71-A monitoring week 7	MW-BW-71-A monitoring week 8
Date	8/12/2009	9/22/2009	9/29/2009	10/6/2009	10/13/2009	10/20/2009	11/3/2009	11/10/2009
well flowrate (operating)	NA	NA	NA	NA	NA	NA	NA	NA
alkalinity (CaCO <sub>3</sub> total)	44 mg/L	56 mg/L	56 mg/L	62 mg/L	63 mg/L	58 mg/L	61 mg/L	68 mg/L
pH	6.40	6.72	6.69	6.45	6.73	6.63	6.64	6.24
dissolved oxygen	8.59 ppm	9.51 ppm	10.42 ppm	10.4 ppm	10.4 ppm	10.25 ppm	10.28 ppm	10.54 ppm
oxidation reduction potential	271 mV	156 mV	198 mV	245 mV	266 mV	203 mV	236 mV	204 mV
conductivity	40.0 mS/cm	60 mS/cm	42.5 mS/cm	45.9 mS/cm	51.1 mS/cm	53.3 mS/cm	48.8 mS/cm	49.8 mS/cm
turbidity	21.1 NTU	12 NTU	210 NTU	67 NTU	39 NTU	52 NTU	0 NTU	0 NTU
temperature	18.2 °C	18.4 °C	18 °C	17.5 °C	17.4 °C	17.8 °C	17.5 °C	17.6 °C
nitrate	2670 µg/L	4280 µg/L	4840 µg/L	5970(6680) µg/L	5640 µg/L	4160 µg/L	µg/L	µg/L
nitrite	<100 µg/L	<50 µg/L	<100 µg/L	<100(<100) µg/L	<100 µg/L	<100 µg/L	µg/L	µg/L
sulfate	51700 µg/L	26600 µg/L	35600 µg/L	32700(33500) µg/L	35600 µg/L	48400 µg/L	µg/L	µg/L
ortho-phosphate	<500 µg/L	<200 µg/L	<200 µg/L	<200(<200) µg/L	<200 µg/L	<200 µg/L	µg/L	µg/L
dissolved iron	<10 µg/L	<10 µg/L	<10 µg/L	<10(<10) µg/L	<10 µg/L	<10 µg/L	µg/L	µg/L
manganese	<10 µg/L	<10 µg/L	<10 µg/L	<10(<10) µg/L	<10 µg/L	<10 µg/L	µg/L	µg/L
arsenic	<10 µg/L	<10 µg/L	<10 µg/L	<10(<10) µg/L	<10 µg/L	<10 µg/L	µg/L	µg/L
methane	RSK 175 <sup>d</sup>							
ethane	RSK 175 <sup>d</sup>							
lactate	<100 µg/L	<100 µg/L	<100 µg/L	<100 µg/L	<100 µg/L	<100 µg/L	µg/L	µg/L
propionate	<100 µg/L	<100 µg/L	<100 µg/L	<100 µg/L	<100 µg/L	<100 µg/L	µg/L	µg/L
acetate	<100 µg/L	<100 µg/L	<100 µg/L	<100 µg/L	<100 µg/L	<100 µg/L	µg/L	µg/L
carbon tetrachloride	1.6 µg/L	0.52 µg/L	0.26J µg/L	<0.5 µg/L	0.26J µg/L	0.99 µg/L	µg/L	µg/L
chloroform	0.52 µg/L	0.27J µg/L	0.26J µg/L	0.23J(0.20J) µg/L	0.25J µg/L	0.41J µg/L	µg/L	µg/L
dichloromethane	<5.0 µg/L	<5.0 µg/L	<5.0 µg/L	<0.5(<0.5) µg/L	<5.0 µg/L	<5.0 µg/L	µg/L	µg/L
chloromethane	<1.0 µg/L	<1.0 µg/L	<1.0 µg/L	<0.5(<0.5) µg/L	<1.0 µg/L	<1.0 µg/L	µg/L	µg/L
trichloroethene	0.46J µg/L	0.21J µg/L	0.27J	<0.5(<0.5) µg/L	<1.0 µg/L	0.45J µg/L	µg/L	µg/L
acetone	8.260B	6.1J µg/L						



Method<sup>d</sup>

Sample ID	Well Type	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	EW-BW-92-A extraction week 6 10/28/2009	EW-BW-92-A extraction week 7 11/3/2009	EW-BW-92-A extraction week 8
	well flowrate (operating)	NA	15.2 gpm	14.9 gpm	14.7 gpm	14.7 gpm	13.7 gpm	11.6 gpm	10.3 gpm	10.4 gpm	10.2 gpm
	alkalinity (CaCO <sub>3</sub> total)	37 mg/L	56 mg/L	47 mg/L	44 mg/L	47 mg/L	45 mg/L	57 mg/L	69 mg/L	81 mg/L	94 mg/L
	pH	6.55	6.79	6.71	6.69	6.56	6.66	6.63	6.69	6.68	6.71
	dissolved oxygen	7.84 ppm	10.64 ppm	10.39 ppm	10.26 ppm	10.46 ppm	9.34 ppm	8.84 ppm	6.87 ppm	6.96 ppm	5.45 ppm
	oxidation reduction potential	210 mV	193 mV	185 mV	199 mV	208 mV	248 mV	141 mV	87 mV	27 mV	-2 mV
	conductivity	46.3 mS/cm	45 mS/cm	43.8 mS/cm	46.6 mS/cm	43.9 mS/cm	49.7 mS/cm	51.8 mS/cm	54 mS/cm	56.7 mS/cm	64.8 mS/cm
	turbidity	110 NTU	11 NTU	26 NTU	2 NTU	0 NTU	3 NTU	0 NTU	0 NTU	7 NTU	0 NTU
	temperature	17.6 °C	17.3 °C	17.2 °C	17.1 °C	17.1 °C	17.0 °C	17.1 °C	17.1 °C	17.4 °C	17.3 °C
	nitrate	300.0	2570 µg/L			1890(1880) µg/L	1320 µg/L	1740 µg/L			µg/L
	nitrite	300.0	<100 µg/L			<100(<100) µg/L	<100 µg/L	<100(<100) µg/L			µg/L
	sulfate	300.0	46900 µg/L			31300(31300) µg/L	32000 µg/L	33200(33600) µg/L			µg/L
	ortho-phosphate	300.0	<500 µg/L								
	dissolved iron	6010B	<200 µg/L			<200 µg/L	<200 µg/L	<200(<200) µg/L			µg/L
	manganese	6010B	<10 µg/L			<10 µg/L	47.5 µg/L	200(203) µg/L			µg/L
	arsenic	6010B	<10 µg/L			<10 µg/L	<10 µg/L	<10(<10) µg/L			µg/L
	methane	RSK 175 <sup>a</sup>	2.0 µg/L								
	ethane	RSK 175 <sup>d</sup>	<2.0 µg/L								
	lactate	300.0M	<100 µg/L								µg/L
	propionate	300.0M	<100 µg/L								µg/L
	acetate	300.0M	<100 µg/L								µg/L
	carbon tetrachloride	8260B	1.4 µg/L			0.69 µg/L	0.66 µg/L	0.88 µg/L			µg/L
	chloroform	8260B	0.31J µg/L			0.28 µg/L	0.28J µg/L	0.26J µg/L			µg/L
	dichloromethane	8260B	<0.5 µg/L			<0.5 µg/L	<0.5 µg/L	<0.5 µg/L			µg/L
	chloromethane	8260B	<1.0 µg/L			<1.0 µg/L	<1.0 µg/L	<1.0 µg/L			µg/L
	tetrachloroethene	8260B	0.49J µg/L			0.38J µg/L	0.36J µg/L	0.33J µg/L			µg/L
	trichloroethene	8260B	0.26J µg/L			0.28J µg/L	0.23J µg/L	0.23J µg/L			µg/L
	methyl tert butyl ether	8260B	0.32J µg/L			0.72J µg/L	0.51J µg/L	0.65J µg/L			µg/L









## Former Fort Ord Groundwater Treatment Systems Operational Data and Status

BCT Meeting, November 17, 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.)
<b>OU2</b>				
October 2009	34,191,940	766	96.6	3.45
Total since October 1995	4.661 billion			637.78
<b>Sites 2/12</b>				
October 2009	9,996,232	224	98.6	1.24
Total since June 1999	1.247 billion			420.83

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

Key Events for OU2 and Sites 2/12 for October 2009						
There were 61 USAN Notices transmitted to Ahtna October 1-31, 2009. One 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 Windstorm knocked out comms, OU2 GWTP down	14 OU2 GWTP online, downtime 16 hrs	15	16 New radios, antennas and GPS units installed	17
18	19 2/12 GWTP shut down due to power surge	20 2/12 GWTP restarted, downtime 10.25 hrs	21 OU2 down, loss of comms at TTU	22 OU2 online, downtime 9.5 hrs	23	24
25	26	27	28	29	30	31

**Table 3: October 2009 - OU2 Analytical Results at TS-OU2-INJ**

COC	Discharge Limit (ug/L)	Sample Date / Analytical Results	
		October 15, 2009	October 26, 2009
1,1-DCA	5.0*	0.33	0.34
1,2-DCA	0.50	0.20	0.22
1,2-DCP	0.50	ND	ND
Benzene	0.50	ND	ND
Carbon Tetrachloride	0.50	ND	ND
Chloroform	2.0*	0.34	0.41
cis-1,2-DCE	6.0*	0.36	0.55
Methylene Chloride	0.50	ND	ND
PCE	0.50	ND	ND
TCE	0.50	ND	ND
Vinyl Chloride	0.10	ND	ND

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

COC	Discharge Limit (ug/L)	Sample Date / Analytical Results
		October 26, 2009
1,1-DCE	6.0	ND
1,2-DCA	0.50	0.17
1,3-DCP †	0.50	ND
Chloroform	2.0	0.27
cis-1,2 DCE	6.0	0.95
PCE	3.0	ND
TCE	5.0	ND
Vinyl Chloride	0.10	ND

**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 October.		

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

Well Identification	% On	Avg. gpm	Total Gallons	% of Total	Comments	TCE (µg/L) 3Q 2009
<b>Site 12 Extraction Wells</b>						
EW-12-05-180M	92.5	82	3,650,725	36.5		10.8
EW-12-06-180M	98.2	78	3,480,136	34.8		9.0
EW-12-07-180M	46.3	8	368,064	3.7		2.8
EW-12-03-180U	0.0	0	0	0.0	Well offline due to low concentrations	0.16
EW-12-03-180M	89.6	56	2,497,307	25.0		2.3
EW-12-04-180U	0.0	0	0	0.0	Well offline due to low concentrations	0.53
EW-12-04-180M	0.0	0	0	0.0	Pump removed, PDB bags installed, sample Dec	not sampled
<b>Total 2/12 gallons treated:</b>			<b>9,996,232</b>	<b>100.0</b>		
<b>OU2 Extraction Wells</b>						
<b>Western Network</b>						
EW-OU2-01-A	0.0	0	0	0.0	Well offline due to low concentrations	not sampled
EW-OU2-02-A	43.9	171	3,357,720	9.8		0.80
EW-OU2-03-A	0.0	0	0	0.0	Well offline due to low concentrations	0.82
EW-OU2-04-A	74.7	135	4,484,900	13.1		1.4
EW-OU2-05-A	43.9	131	2,572,000	7.5		3.3
EW-OU2-06-A	74.7	95	3,152,710	9.2		5.7
EW-OU2-01-180	0.0	0	0	0.0	No pump in well	11.0
<b>Total gallons extracted:</b>			<b>13,567,330</b>	<b>39.7</b>		
<b>Eastern Network</b>						
EW-OU2-07-A	0.0	0	0	0.0	Well offline due to low concentrations	0.11
EW-OU2-08-A	27.7	29	356,610	1.0		0.17
EW-OU2-09-A	30.8	32	446,340	1.3		5.1
EW-OU2-10-A	30.7	26	357,670	1.0		4.9
EW-OU2-11-A	0.0	0	0	0.0	Low yield due to biofouling	2.7
EW-OU2-12-A	30.8	25	345,240	1.0	Low yield; running at reduced capacity	9.4
EW-OU2-13-A	30.8	29	405,150	1.2		13.1
EW-OU2-02-180	8.5	62	235,000	0.7		8.8
<b>Total gallons extracted:</b>			<b>2,146,010</b>	<b>6.3</b>		
<b>Shoppette</b>						
EW-OU2-05-180	92.3	58	2,388,100	7.0	Operating at low flow	8.3
EW-OU2-06-180	86.6	107	4,119,300	12.0		7.8
EW-OU2-16-A	0.0	0	0	0.0	Runs in manual only, high drawdown	13.2
<b>Total gallons extracted:</b>			<b>6,507,400</b>	<b>19.0</b>		
<b>GSUMB</b>						
EW-OU2-14-A	46.9	28	579,200	1.7	Adjusted low water level shutoff	3.0
EW-OU2-15-A	0.0	0	0	0.0	Well offline due to low concentrations	not sampled
<b>Total gallons extracted:</b>			<b>579,200</b>	<b>1.7</b>		
<b>Landfill</b>						
EW-OU2-03-180	92.2	224	9,219,000	27.0		13.5
EW-OU2-04-180	0.0	0	0	0.0	Well offline due to low concentrations	ND
<b>Total gallons extracted:</b>			<b>9,219,000</b>	<b>27.0</b>		
<b>Bunker Hill</b>						
EW-OU2-07-180	0.0	0	0	0.0	No pump in well	5.0
EW-OU2-08-180	94.7	51	2,173,000	6.4		1.7
<b>Total gallons extracted:</b>			<b>2,173,000</b>	<b>6.4</b>		
<b>Total OU2 gallons treated:</b>			<b>34,191,940</b>	<b>100.0</b>		

**OPERABLE UNIT 1  
OFF-SITE GROUNDWATER EXTRACTION PILOT STUDY**

**STATUS – November 17, 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

**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. System restarted on November 10.

**DATA (Preliminary)**

- Preliminary data through October 8.

**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 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 <sup>a</sup>	1.2 µg/L	14 <sup>b</sup> µg/L				
August 11, 2008 <sup>a</sup>	3.4 µg/L	8.7 <sup>c</sup> µg/L	5.4 µg/L	<0.5 µg/L	<0.5 µg/L	
August 18, 2008 <sup>a</sup>	3.7 µg/L	6.1 <sup>d</sup> µg/L	4.7 µg/L	<0.5 µg/L	<0.5 µg/L	
August 25, 2008 <sup>a</sup>	3.8 µg/L	not operating	3.6 µg/L	<0.5 µg/L	<0.5 µg/L	
September 2, 2008 <sup>a</sup>	3.3 µg/L	6.8 <sup>a</sup> µg/L	4.7 µg/L	<0.5 µg/L	<0.5 µg/L	
September 8, 2008 <sup>a</sup>			4.1 µg/L	<0.5 µg/L	<0.5 µg/L	
September 15, 2008 <sup>a</sup>	2 µg/L	4.9 <sup>f</sup> µg/L	3.5 µg/L	<0.5 µg/L	<0.5 µg/L	
September 22, 2008 <sup>a</sup>	1.4 µg/L	3.4 µg/L	1.3 µg/L	<0.5 µg/L	<0.5 µg/L	
September 29, 2008 <sup>a</sup>	1.4 µg/L	3.5 µg/L	1.5 µg/L	<0.5 µg/L	<0.5 µg/L	
October 6, 2008 <sup>a</sup>	1.4 µg/L	3.7 µg/L	2.5 µg/L	<0.5 µg/L	<0.5 µg/L	
October 13, 2008 <sup>a</sup>	0.98 µg/L	3.7 µg/L	2.0 µg/L	<0.5 µg/L	<0.5 µg/L	
October 20, 2008 <sup>a</sup>	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 <sup>g</sup> 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 <sup>h</sup> 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 <sup>i</sup>			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				
October 8, 2009		0.68 µg/L				

## Summary of Operable Unit 1 Process System Trichlorethene Analytical Results

- <sup>a</sup> Low level detections of benzene, bromoform, chloromethane, dibromochloromethane, isopropylbenzene and/or acetone in several samples.
- <sup>b</sup> additional compound detected: *cis*-1,2-dichloroethylene - 0.43J  $\mu$ g/L
- <sup>c</sup> additional compound detected: *cis*-1,2-dichloroethylene - 0.31J  $\mu$ g/L
- <sup>d</sup> additional compound detected: *cis*-1,2-dichloroethylene - 0.21J  $\mu$ g/L
- <sup>e</sup> additional compound detected: *cis*-1,2-dichloroethylene - 0.21J  $\mu$ g/L
- <sup>f</sup> additional compound detected: *cis*-1,2-dichloroethylene - 0.26J  $\mu$ g/L
- <sup>g</sup> additional compound detected: chloromethane - 0.39J  $\mu$ g/L
- <sup>h</sup> additional compound detected: *cis*-1,2-dichloroethylene - 0.34J  $\mu$ g/L
- <sup>i</sup> Low level detections of chloromethane and/or acetone in all samples.

Detections are shown in bold.  
 $\mu$ g/L denotes micrograms per liter.  
Data qualified as "J" is estimated.

# Change in Concentration of Trichloroethene Over Time System Monitoring

