# SUBJECT: HTW – BCT Meeting
# November 12, 2008
# 1:00 p.m Fort Ord BRAC office

| Check (✓) | Name | Organization | Phone | E-mail address |
|---|---|---|---|---|
| | **Mark Eldridge** | AEC | 410/436-6325 | Mark.h.eldridge@us.army.mil |
| Phone | **Peter Kelsall** | Shaw E&I | 831/883-5810 ext. 810 | Peter.Kelsall@shawgrp.com |
| DSK | **David Kelly** | Shaw E&I | 925/288-2321 | David.kelly@shawgrp.com |
| JM | **Jen Moser** | GEM/Shaw E&I | 831/883-5812 | Jen.moser@shawgrp.com |
| | **Eric Schmidt** | Shaw E&I | 831/883-5809 | Eric.Schmidt@shawgrp.com |
| ET | **Ed Ticken** | MACTEC E&C | 415/884-3176 | ejticken@mactec.com |
| ME | **Marc Edwards** | COE | 831/242-4828 | Marc.A.Edwards@usace.army.mil |
| | **Michael Taraszki** | MACTEC E&C | 415/884-3325 | mdtaraski@mactec.com |
| CJH | **Chuck Holman** | Ahtna | 916/372-2000 | cholman@ahtnagov.com |
| | **Kelly O'Meara** | Ahtna | 916/372-2000 | komeara@ahtnagov.com |
| | **Christopher Prescott** | USACE | | Christopher.E.Prescott@usace.army.mil |
| MB | **Melissa Broadston** | Fort Ord BRAC | 831/393-1284 | Melissa.broadston@us.army.mil |
| Phone | **Roy Evans** | HGL | 303/984-1167 xt. 5 | revans@hgl.com |
| | | | | |

**SUBJECT: HTW – BCT Meeting**
**November 12, 2008**
**1:00 p.m Fort Ord BRAC office**

| Check (✓) | Name | Organization | Phone | E-mail address |
|---|---|---|---|---|
| | Scott Gable | HGL | 916 3353586 | sgable@hgl.com |
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# HTW BCT Meeting

November 2008

| Item | Action | Comment |
|---|---|---|
| OU1 Groundwater Remediation | Status Update | HGL |
| OU1 Off-Site | Status Update | |
| OU2 and 2/12 Treatment Systems | Status Update | |
| Other Groundwater Issues | Status Update | Quarterly sampling |
| OUCTP | Status Update | RD/RA Work Plan |
| OU2 Landfill Gas | Status Update | |
| Basewide Range Assessment | Status Update | No Action Approval Memos, HA 161 IA Memo |
| Site 39 ROD | Status Update | ROD Amendment Comment status |
| FFA Schedule | Status Update | Site 39 revision |
| FOST/FOSET Issues | Status Update | |
| Calendar Update | Update | |

**Table 5:** October 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 | 80.1 | 68 | 3,017,700 | 32.4 | | 12.5 |
| EW-12-06-180M | 96.4 | 99 | 4,432,700 | 47.6 | | 9.6 |
| EW-12-07-180M | 49.6 | 37 | 1,652,200 | 17.7 | | 4.3 |
| EW-12-03-180U | 15.7 | 5 | 216,700 | 2.3 | | 0.48 (0.55) |
| EW-12-03-180M | 0.0 | 0 | 0 | 0.0 | Pumping to re-initiate in November 2008. | 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:*** | | | ***9,319,300*** | ***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 | 27.3 | 15 | 681,030 | 3.2 | | 1.4 |
| EW-OU2-03-A | 0.0 | 0 | 0 | 0.0 | Well offline due to low concentrations. | Not Sampled |
| EW-OU2-04-A | 27.5 | 14 | 627,230 | 2.9 | | 1.9 |
| EW-OU2-05-A | 27.5 | 5 | 222,840 | 1.0 | | 4.2 |
| EW-OU2-06-A | 96.4 | 35 | 1,575,170 | 7.3 | | 0.37 (0.40) |
| EW-OU2-01-180 | 0.0 | 0 | 0 | 0.0 | No pump in well. | Not Sampled |
| *Total gallons extracted:* | | | *3,106,270* | *14.5* | | |
| ***Eastern Network*** | | | | | | |
| EW-OU2-07-A | 0.0 | 0 | 0 | 0.0 | Well offline due to low concentrations. | ND |
| EW-OU2-08-A | 2.7 | 1 | 33,550 | 0.2 | | 0.31 |
| EW-OU2-09-A | 0.0 | 0 | 0 | 0.0 | Pump failed August 16. | Not Sampled |
| EW-OU2-10-A | 27.4 | 6 | 274,590 | 1.3 | | 5.4 |
| EW-OU2-11-A | 0.0 | 0 | 0 | 0.0 | Well offline due to area construction. | 5 |
| EW-OU2-12-A | 0.0 | 0 | 0 | 0.0 | Well offline due to area construction. | Not Sampled |
| EW-OU2-13-A | 53.0 | 17 | 777,910 | 3.6 | | 13.3 |
| EW-OU2-02-180 | 0.0 | 0 | 0 | 0.0 | Well offline pending installation of VFD. | 4.6 |
| *Total gallons extracted:* | | | *1,086,050* | *5.1* | | |
| ***Shoppette*** | | | | | | |
| EW-OU2-05-180 | 27.3 | 41 | 1,837,000 | 8.6 | | 9 |
| EW-OU2-06-180 | 96.5 | 166 | 7,399,400 | 34.5 | | 4.9 |
| EW-OU2-16-A | 62.7 | 13 | 586,700 | 2.7 | | 10.2 |
| *Total gallons extracted:* | | | *9,823,100* | *45.7* | | |
| ***CSUMB*** | | | | | | |
| EW-OU2-14-A | 28.0 | 8 | 372,700 | 1.7 | | 3.8 |
| EW-OU2-15-A | 0.0 | 0 | 0 | 0.0 | Well offline due to low concentrations. | Not Sampled |
| *Total gallons extracted:* | | | *372,700* | *1.7* | | |
| ***Landfill*** | | | | | | |
| EW-OU2-03-180 | 71.6 | 116 | 5,200,000 | 24.2 | | 19.8 (20.1) |
| EW-OU2-04-180 | 0.1 | 0 | 5,200 | 0.0 | Well offline due to low concentrations. | 0.23 |
| *Total gallons extracted:* | | | *5,205,200* | *24.2* | | |
| ***Bunker Hill*** | | | | | | |
| EW-OU2-08-180 | 96.4 | 42 | 1,879,000 | 8.8 | | 1.7 |
| *Total gallons extracted:* | | | *1,879,000* | *8.8* | | |
| ***Total OU2 gallons treated:*** | | | ***21,472,320*** | ***100.0*** | | |

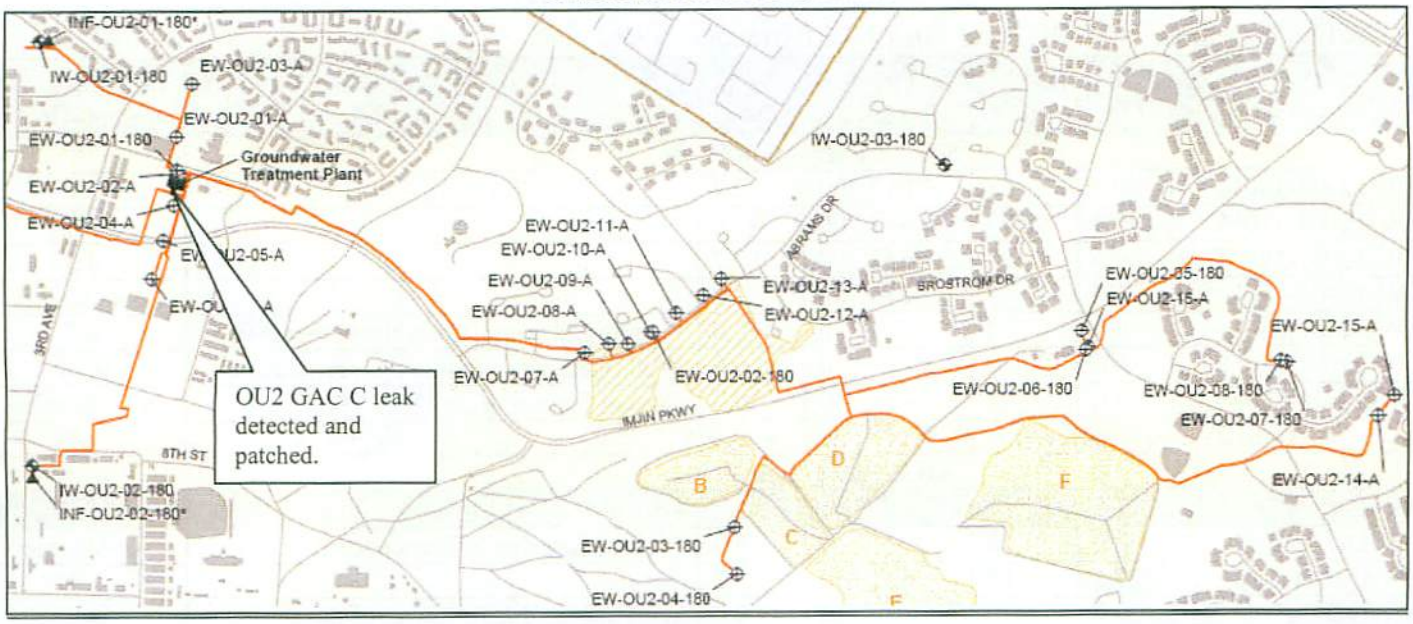



**Figure 1:** OU2 GWTP Treatment Events October 2008.

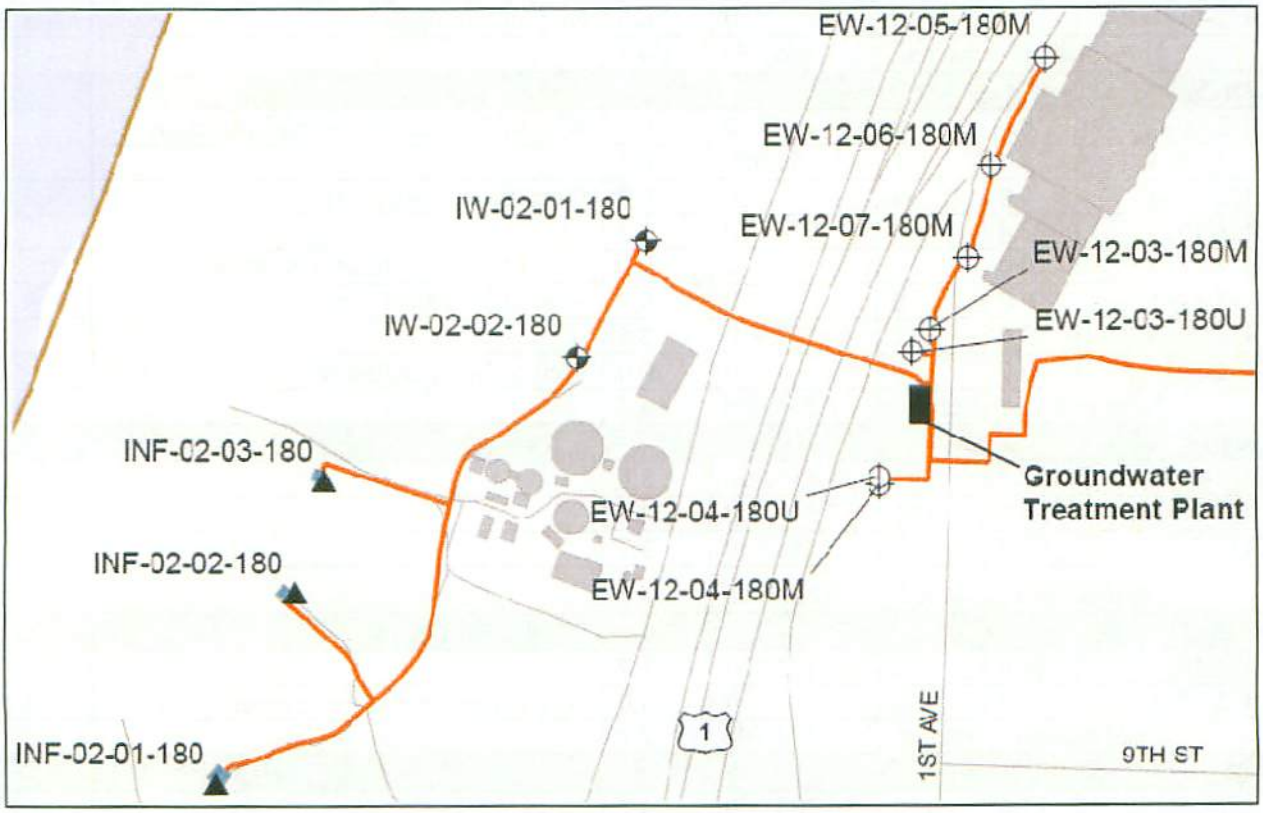



**Figure 2:** Sites 2/12 GWTP Treatment Events October 2008.

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

| COC | Discharge Limit (µg/L)‡ | Sample Date / Analytical Results | |
|---|---|---|---|
| | | 10/02/2008** | 10/11/2008** |
| 1,1-DCA | 5.0* | 1.5 | ND |
| 1,2-DCA | 0.5 | 0.15 J | ND |
| 1,2-DCP † | 0.5 | ND | ND |
| Benzene | 0.5 | ND | ND |
| Carbon Tetrachloride | 0.5 | ND | ND |
| Chloroform | 2.0* | 0.86 | ND |
| Cis-1,2-DCE | 6.0* | 2.0 | ND |
| Methylene Chloride | 0.5 | ND | ND |
| PCE | 0.5 | ND | ND |
| TCE | 0.5 | **0.83** | ND |
| Vinyl Chloride | 0.5 | ND | ND |

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

| COC | Discharge Limit (µg/L)‡ | Sample Date / Analytical Results | | | |
|---|---|---|---|---|---|
| | | 10/02/2008** | 10/09/2008** | 10/16/2008** | 10/22/2008** |
| 1,1-DCE | 6 | ND | ND | ND | ND |
| 1,2-DCA | 0.5 | ND | 0.23 J | ND | ND |
| 1,3-DCP † | 0.5 | ND | ND | ND | ND |
| Chloroform | 2 | 0.55 | 0.46 J | ND | ND |
| Cis-1,2 DCE | 6 | 3.6 | 3.0 | 1.9 | 1.7 |
| PCE | 3 | ND | ND | ND | ND |
| TCE | 5 | 0.61 | 0.45 J | 0.28 J | 0.37 J |
| Vinyl Chloride | 0.1 | ND | 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.

AHTNA
Government Services Corporation

# Former Fort Ord Groundwater Treatment Systems Operational Data and Status

## BCT Meeting, November 12, 2008

**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** | | | | |
| October 2008 | 21,472,320 | 481 | 97 | 1.18 |
| Total since October 1995 | 4.347 billion | | | 574.12 |
| **Sites 2/12** | | | | |
| October 2008 | 9,319,300 | 209 | 97 | 1.49 |
| Total since May 1999 | 1.153 billion | | | 397.83 |

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

| Key Events for OU2 and Sites 2/12 for October 2008 | | | | | | |
|---|---|---|---|---|---|---|
| **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** | **Saturday** |
| *17 USAN Notices in September. None of these alerts required the personal attention of the Senior GWTP Operator. | | | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 OU2 & 2/12 shut down due to discharge limit exceedence. GAC C leak detected. | 10 GAC A carbon change out. OU2 & 2/12 restarted. | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | 31 GAC C spent carbon removal. | |

# OPERABLE UNIT CARBON TETRACHLORIDE PLUME
# A-AQUIFER REMEDIAL ACTION

## STATUS – November 12, 2008

### FIELD WORK

- EISB pilot study system construction complete – October 25
- EISB pilot study substrate injection initiated - January 29
- 7000 gallons substrate injected – March 27
- EISB pilot study system shut off – April 11
- EISB pilot study monitoring completed – July 24
- Equipment demobed from site – September 26

### SCHEDULE

- Subsequent quarterly monitoring for EISB pilot study conducted under Groundwater Monitoring Program.
- Draft RA Work Plan/RD (Attachment 1 – A-Aquifer) [Agency Comments Due] – November 17
- Preston Park Sports Complex shut down November 17 through February 1
- Well installation at Deployment Areas 1A and 1B – November 11

### DATA (Preliminary)

- Quarterly Groundwater Monitoring Data

### PROBLEMS/CHANGES

- None

# EISB-EW-01

| Sample ID<br>Well Type<br>Date | Method | baseline<br>1/2/2008 | week 0<br>1/30/2008 | week 1<br>2/7/2008 | week 2<br>2/13/2008 | week 3<br>2/21/2008 | week 4<br>2/28/2008 | week 5<br>3/4/2008 | week 6<br>3/11/2008 | extraction<br>week 7<br>3/20/2008 | week 8<br>3/25/2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| alkalinity ($CaCO_3$ total) | HACH | 36 mg/L | 36 mg/L | 32 mg/L | 33 mg/L | 33 mg/L | 33 mg/L | 38.3 mg/L | 51 mg/L | 80 mg/L | 113 mg/L |
| pH | meter | 6.55 | | 6.6 | 6.6 | 6.2 | 5.99 | 6.01 | | 6.32 | |
| dissolved oxygen | meter | 6.78 ppm | | 8.24 ppm | 7.69 ppm | 7.83 ppm | 9.23 ppm | 11.55 ppm | | 5.37 ppm | |
| oxidation reduction potential | meter | 51 mV | | 102 mV | 104 mV | 94 mV | 93 mV | 48 mV | | -6 mV | |
| conductivity | meter | 45.9 uS/cm | | 53.4 uS/cm | 52.9 uS/cm | 50.3 uS/cm | 53 uS/cm | 57.6 uS/cm | | 62.3 uS/cm | |
| turbidity | meter | 45.4 NTU | | 71.1 NTU | 5.1 NTU | 30.3 NTU | 11 NTU | 5.4 NTU | | 4.8 NTU | |
| temperture | meter | 18.3 °C | | 16.8 °C | 17.5 °C | 16.6 °C | 17.7 °C | 17.05 °C | | 17.03 °C | |
| nitrate | 300.0 | 8430 µg/l | | | | | | | | | |
| nitrite | 300.0 | <100 µg/l | | | | | | | | | |
| sulfate | 300.0 | 37600 µg/l | | | | | | | | | |
| ortho-phosphate | 300.0 | <500 µg/l | | | | | | | | | |
| dissolved iron | 6010B | <200 µg/l | | | | | | | | | |
| manganese | 6010B | 70.5 µg/l | | | | | | | | | |
| arsenic | 6010B | <10 µg/l | | | | | | | | | |
| methane | RSK 175 | | | | | | | | | | |
| ethane | RSK 175 | | | | | | | | | | |
| lactate | 300.0M | | | | | | | | | | |
| propionate | 300.0M | | | | | | | | | | |
| acetate | 300.0M | | | | | | | | | | |
| carbon tetrachloride | 8260B | 0.87 µg/l | | | | | | | | 1.5 µg/l | |
| chloroform | 8260B | 0.26J µg/l | | | | | | | | <0.5 µg/l | |
| dichloromethane | 8260B | <5.0 µg/l | | | | | | | | <5.0 µg/l | |
| chloromethane | 8260B | <1.0 µg/l | | | | | | | | <1.0 µg/l | |
| acetone | 8260B | | | | | | | | | | |
| 2-butanone | 8260B | | | | | | | | | | |
| carbon disulfide | 8260B | | | | | | | | | | |
| total organic carbon | 415.1 | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric value is an estimate.

[1] Field parameters collected by meter on January 29, 2008 when stable flow could be achieved.

[2] Samples and field parameters collected on January 30, 2008. Working pump installed on January 22 and pump tested and well purged on January 24.

# EISB-EW-01

| Sample ID<br>Well Type<br>Date | Method | week 9<br>4/2/2008 | week 10<br>4/8/2008 | week 11<br>4/15/2008 | week 16<br>5/19/2008 | week 21<br>5/23/2008 | week 25<br>7/21/2008 | monitoring<br>9/23/2008<br>62 ft bgs | 68 ft bgs | 74 ft bgs | 80 ft bgs |
|---|---|---|---|---|---|---|---|---|---|---|---|
| alkalinity ($CaCO_3$ total) | HACH | 57 mg/L | 190 mg/L | 76 mg/L | 135 mg/L | 93 mg/L | 105 mg/L | | | | |
| pH | meter | 6.33 | | 6.19 | 7.55 | 9.3 | 8.51 | | | | |
| dissolved oxygen | meter | 2.3 ppm | | 2.17 ppm | 0 ppm | 6.72 ppm | 0 ppm | | | | |
| oxidation reduction potential | meter | -4 mV | | -78 mV | -240 mV | -331 mV | -252 mV | | | | |
| conductivity | meter | 66.2 uS/cm | | 51.7 uS/cm | 50.6 uS/cm | 50.2 uS/cm | 44.5 uS/cm | | | | |
| turbidity | meter | 0 NTU | | 48.8 NTU | 0 NTU | 617 NTU | 0 NTU | | | | |
| temperture | meter | 16.58 °C | | 17.03 °C | 17.8 °C | 16.87 °C | 18.21 °C | | | | |
| nitrate | 300.0 | | | | | | | | | | |
| nitrite | 300.0 | | | | | | | | | | |
| sulfate | 300.0 | | | | | | | | | | |
| ortho-phosphate | 300.0 | | | | | | | | | | |
| dissolved iron | 6010B | | | | | | | | | | |
| manganese | 6010B | | | | | | | | | | |
| arsenic | 6010B | | | | | | | | | | |
| methane | RSK 175 | | | | | | | | | | |
| ethane | RSK 175 | | | | | | | | | | |
| lactate | 300.0M | | | | | | | | | | |
| propionate | 300.0M | | | | | | | | | | |
| acetate | 300.0M | | | | | | | | | | |
| carbon tetrachloride | 8260B | | | | <0.5(<2.5) µg/l | | 0.49J µg/l | 5.0 µg/l | 4.3 µg/l | 4.5 µg/l | 4.2 µg/l |
| chloroform | 8260B | | | | 0.25J(<2.5) µg/l | | <0.5 µg/l | 0.26J µg/l | 0.25J µg/l | 0.28J µg/l | 0.26J µg/l |
| dichloromethane | 8260B | | | | 0.69J(<25.0) µg/l | | <5.0 µg/l | | | | |
| chloromethane | 8260B | | | | <1.0(<5.0) µg/l | | <1.0 µg/l | | | | |
| acetone | 8260B | | | | 100E(97) µg/l | | 250E(270) µg/l | | | | |
| 2-butanone | 8260B | | | | 410E(360) µg/l | | 970E(910) µg/l | | | | |
| carbon disulfide | 8260B | | | | 1.2(<5.0) µg/l | | 2 µg/l | | | | |
| total organic carbon | 415.1 | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric

[1] Field parameters collected by meter on Janua

[2] Samples and field parameters collected on Ja

# EISB-EW-03

| Sample ID / Well Type / Date | Method | baseline 12/20/2007 | week 0 1/30/2008 | week 1 2/6/2008 | week 2 2/12/2008 | week 3 2/21/2008 | week 4 2/28/2008 | week 5 3/4/2008 | extraction week 6 3/11/2008 | week 7 3/20/2008 | week 8 3/25/2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| alkalinity ($CaCO_3$ total) | HACH | 45 mg/L | 34 mg/L | 32 mg/L | 32 mg/L | 29 mg/L | 38 mg/L | 55 mg/L | 116 mg/L | 118 mg/L | 145 mg/L |
| pH | meter | 6.4 | | 6.5 | 6.38 | 6 | 6 | 6.07 | | 6.41 | |
| dissolved oxygen | meter | 8.17 ppm | | 7.7 ppm | 8.5 ppm | 7.13 ppm | 8.31 ppm | 5.65 ppm | | 0 ppm | |
| oxidation reduction potential | meter | 119 mV | | 136 mV | 142 mV | 134 mV | 113 mV | 39 mV | | -51 mV | |
| conductivity | meter | 50.9 uS/cm | | 51.3 uS/cm | 52.1 uS/cm | 50 uS/cm | 48.7 uS/cm | 55 uS/cm | | 62.7 uS/cm | |
| turbidity | meter | 0.9 NTU | | 0 NTU | 0 NTU | 0 NTU | 2.6 NTU | 4 NTU | | 7.3 NTU | |
| temperture | meter | 16.9 °C | | 17 °C | 16.79 °C | 17.7 °C | 18.3 °C | 19.88 °C | | 14.4 °C | |
| nitrate | 300.0 | 9450 µg/l | | | | 9430 µg/l | | 5930 µg/l | | 660 µg/l | |
| nitrite | 300.0 | <100 µg/l | | | | <100 µg/l | | <100 µg/l | | 106 µg/l | |
| sulfate | 300.0 | 38700 µg/l | | | | 37800 µg/l | | 38400 µg/l | | 42000 µg/l | |
| ortho-phosphate | 300.0 | <500 µg/l | | | | <500 µg/l | | <500 µg/l | | <500 µg/l | |
| dissolved iron | 6010B | 2500 µg/l | | | | <200 µg/l | | 76.7J µg/l | | 449 µg/l | |
| manganese | 6010B | 7.87J µg/l | | | | <10 µg/l | | 115 µg/l | | 459 µg/l | |
| arsenic | 6010B | <10 µg/l | | | | <10 µg/l | | <10 µg/l | | <10 µg/l | |
| methane | RSK 175 | <2.0 µg/l | | | | | | | | <2.0 µg/l | |
| ethane | RSK 175 | <2.0 µg/l | | | | | | | | <2.0 µg/l | |
| lactate | 300.0M | | | | | <100 µg/l | | <100 µg/l | | <100 µg/l | |
| propionate | 300.0M | | | | | <100 µg/l | | <100 µg/l | | <100 µg/l | |
| acetate | 300.0M | | | | | <100 µg/l | | <100 µg/l | | <100 µg/l | |
| carbon tetrachloride | 8260B | 3.9 µg/l | | 5.8 µg/l | 4.3 µg/l | 3.7 µg/l | 4.1 µg/l | 3.4 µg/l | | 0.51 µg/l | |
| chloroform | 8260B | 0.26J µg/l | | 0.24 µg/l | 0.21J µg/l | 0.20J µg/l | 0.26J µg/l | 0.35J µg/l | | 0.68 µg/l | |
| dichloromethane | 8260B | <5.0 µg/l | | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | | <5.0 µg/l | |
| chloromethane | 8260B | <1.0 µg/l | | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | | <1.0 µg/l | |
| isoproylbenzene | 8260B | 0.21J µg/l | | | | | | | | | |
| acetone | 8260B | | | | | | | | | | |
| 2-butanone | 8260B | | | | | | | | | | |
| carbon disulfide | 8260B | | | | | | | | | | |
| total organic carbon | 415.1 | 770J µg/l | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | $1x10^4$ cfu/ml | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric value is an estimate.

[1] Field parameters collected by meter on January 29, 2008 when stable flow could be achieved.

[2] Samples and field parameters collected on January 30, 2008. Working pump installed on January 22 and pump tested and well purged on January 24.

# EISB-EW-03

| Sample ID / Well Type / Date | Method | week 9 4/1/2008 | week 10 4/8/2008 | week 11 4/15/2008 | week 16 5/20/2008 | week 21 6/26/2008 | week 25 7/22/2008 | monitoring 9/23/2008 64 ft bgs | 69 ft bgs | 74 ft bgs | 78 ft bgs | 84 ft bgs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **alkalinity ($CaCO_3$ total)** | HACH | 203 mg/L | 231 mg/L | 340 mg/L | 400 mg/L | 428 mg/L | 500 mg/L | | | | | |
| **pH** | meter | 6.35 | | 6.24 | 6.56 | 7.23 | 6.69 | | | | | |
| **dissolved oxygen** | meter | 1.42 ppm | | 3.23 ppm | 3.21 ppm | 8.53 ppm | 0 ppm | | | | | |
| **oxidation reduction potential** | meter | -60 mV | | -90 mV | -30 mV | -92 mV | -135 mV | | | | | |
| **conductivity** | meter | 70.1 uS/cm | | na uS/cm | na uS/cm | na uS/cm | na uS/cm | | | | | |
| **turbidity** | meter | 0 NTU | | 14.4 NTU | 16.8 NTU | 168 NTU | 743 NTU | | | | | |
| **temperture** | meter | 18.28 °C | | 17.95 °C | 17.9 °C | 17.4 °C | 17.63 °C | | | | | |
| **nitrate** | 300.0 | 206 µg/l | | 259 µg/l | 1090 µg/l | 583 µg/l | 142J µg/l | | | | | |
| **nitrite** | 300.0 | <100 µg/l | | <100 µg/l | <100 µg/l | <100 µg/l | <200 µg/l | | | | | |
| **sulfate** | 300.0 | 18300 µg/l | | 4760 µg/l | 9530 µg/l | 6830 µg/l | 4130 µg/l | | | | | |
| **ortho-phosphate** | 300.0 | <500 µg/l | | <500 µg/l | <500 µg/l | <500 µg/l | <1000 µg/l | | | | | |
| **dissolved iron** | 6010B | 794 µg/l | | 3060 µg/l | 4880 µg/l | 9920 µg/l | 10200 µg/l | | | | | |
| **manganese** | 6010B | 2360 µg/l | | 6140 µg/l | 8010 µg/l | 9930 µg/l | 8980 µg/l | | | | | |
| **arsenic** | 6010B | <10 µg/l | | 8.22J µg/l | 13.6 µg/l | 62.4 µg/l | 8.33J µg/l | | | | | |
| **methane** | RSK 175 | | | | 0.88J µg/l | | 74E(97) µg/l | | | | | |
| **ethane** | RSK 175 | | | | <2.0 µg/l | | <2.0 µg/l | | | | | |
| **lactate** | 300.0M | <100 µg/l | | <1000 µg/l | 8100 µg/l | <100 µg/l | 386 µg/l | | | | | |
| **propionate** | 300.0M | 14800 µg/l | | 145000 µg/l | 175000 µg/l | 408000 µg/l | 405000 µg/l | | | | | |
| **acetate** | 300.0M | 12700 µg/l | | 103000 µg/l | 183000 µg/l | 246000 µg/l | 237000 µg/l | | | | | |
| **carbon tetrachloride** | 8260B | 1.2 µg/l | | 0.21J µg/l | 0.73 µg/l | 0.32J µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l |
| **chloroform** | 8260B | <0.5 µg/l | | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l |
| **dichloromethane** | 8260B | 1.0J µg/l | | 1.4J µg/l | 0.59J µg/l | <5.0 µg/l | <5.0 µg/l | | | | | |
| **chloromethane** | 8260B | <1.0 µg/l | | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | | | | | |
| **isoproylbenzene** | 8260B | | | | | | | | | | | |
| **acetone** | 8260B | 74 µg/l | | 9.9J µg/l | 5.1J µg/l | 12 µg/l | 16 µg/l | | | | | |
| **2-butanone** | 8260B | 61 µg/l | | 6.6J µg/l | 6.9J µg/l | 12J µg/l | 24 µg/l | | | | | |
| **carbon disulfide** | 8260B | 0.25J µg/l | | 0.53J µg/l | 1.6 µg/l | 0.62J µg/l | 0.41J µg/l | | | | | |
| **total organic carbon** | 415.1 | | | | | | | | | | | |
| **anaerobic heterotrophs** | SM9215B | | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric

[1] Field parameters collected by meter on Janua

[2] Samples and field parameters collected on Ja

# EISB-EW-09

| Sample ID / Well Type / Date | Method | baseline 12/20/2007 | week 0 1/30/2008 | week 0 1/31/2008 | week 1 2/6/2008 | week 1 2/11/2008 | week 2 2/12/2008 | week 3 2/19/2008 | week 4 2/27/2008 | week 5 3/4/2008 | extraction week 6 3/11/2008 | week 7 3/20/2008 | week 8 3/25/2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| alkalinity ($CaCO_3$ total) | HACH | 47 mg/L | 44 mg/L | 34 mg/L | 40 mg/L | 34 mg/L | 34 mg/L | 38 mg/L | 34 mg/L | 42.5 mg/L | 47 mg/L | 51 mg/L | 52 mg/L |
| pH | meter | 6.91 | | | 7 | | 6.75 | 6.7 | 6.82 | 6.27 | | 6.36 | |
| dissolved oxygen | meter | 6.08 ppm | | | 7.01 ppm | | 7.32 ppm | 6.78 ppm | 6.39 ppm | 8.4 ppm | | 6.66 ppm | |
| oxidation reduction potential | meter | 43 mV | | | 132 mV | | 120 mV | 52 mV | 86 mV | 28 mV | | -5 mV | |
| conductivity | meter | 51.5 uS/cm | | | 48.4 uS/cm | | 49.5 uS/cm | 48.3 uS/cm | 49.1 uS/cm | 51.3 uS/cm | | 53.1 uS/cm | |
| turbidity | meter | 34.3 NTU | | | 0 NTU | | 0 NTU | 0 NTU | 3.2 NTU | 0 NTU | | 1.8 NTU | |
| temperture | meter | 17.2 °C | | | 17.3 °C | | 17.16 °C | 17.5 °C | 17.4 °C | 17.49 °C | | 17.81 °C | |
| nitrate | 300.0 | 8310 µg/l | | | | | | 9800 µg/l | | 9970 µg/l | | 8850 µg/l | |
| nitrite | 300.0 | <100 µg/l | | | | | | <100 µg/l | | <100 µg/l | | <100 µg/l | |
| sulfate | 300.0 | 27700 µg/l | | | | | | 26500 µg/l | | 37900 µg/l | | 28600 µg/l | |
| ortho-phosphate | 300.0 | <500 µg/l | | | | | | <500 µg/l | | <500 µg/l | | <500 µg/l | |
| dissolved iron | 6010B | 45.5J µg/l | | | | | | <200 µg/l | | 46.7J µg/l | | 91.1J µg/l | |
| manganese | 6010B | 8.30J µg/l | | | | | | <10 µg/l | | <10 µg/l | | 47.4 µg/l | |
| arsenic | 6010B | <10 µg/l | | | | | | <10 µg/l | | <10 µg/l | | <10 µg/l | |
| methane | RSK 175 | <2.0 µg/l | | | | | | | | | | <2.0 µg/l | |
| ethane | RSK 175 | <2.0 µg/l | | | | | | | | | | <2.0 µg/l | |
| lactate | 300.0M | <100 µg/l | | | | | | <100 µg/l | | <100 µg/l | | <100 µg/l | |
| propionate | 300.0M | <100 µg/l | | | | | | <100 µg/l | | <100 µg/l | | <100 µg/l | |
| acetate | 300.0M | <100 µg/l | | | | | | <100 µg/l | | <100 µg/l | | <100 µg/l | |
| carbon tetrachloride | 8260B | 1.3 µg/l | | | 1.0 µg/l | | 0.7 µg/l | 0.79 µg/l | 0.9 µg/l | 1.1 µg/l | | 1.5 µg/l | |
| chloroform | 8260B | <0.5 µg/l | | | <0.5 µg/l | | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | | <0.5 µg/l | |
| dichloromethane | 8260B | <5.0 µg/l | | | <5.0 µg/l | | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | | <5.0 µg/l | |
| chloromethane | 8260B | 0.30J µg/l | | | <1.0 µg/l | | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | | <1.0 µg/l | |
| methyl tert-butyl ether | 8260B | | | | | | | | | | | | |
| total organic carbon | 415.1 | | | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric value is an estimate.

[1] Field parameters collected by meter on January 29, 2008 when stable flow could be achieved.

[2] Samples and field parameters collected on January 30, 2008. Working pump installed on January 22 and pump tested and well purged on January 24.

# EISB-EW-09

| Sample ID / Well Type / Date | Method | week 9 4/1/2008 | week 10 4/8/2008 | week11 4/16/2008 | week 16 5/21/2008 | week 21 6/23/2008 | week 25 7/22/2008 | monitoring 9/23/2008 50 ft bgs | 56 ft bgs | 62 ft bgs | 68 ft bgs | 74 ft bgs | 80 ft bgs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| alkalinity ($CaCO_3$ total) | HACH | 63 mg/L | 68 mg/L | 75 mg/L | 50 mg/L | 40 mg/L | 43 mg/L | | | | | | |
| pH | meter | 6.32 | | 6.34 | 6.87 | 6.85 | 6.63 | | | | | | |
| dissolved oxygen | meter | 6.36 ppm | | 7.11 ppm | 5.18 ppm | 5.5 ppm | 4.99 ppm | | | | | | |
| oxidation reduction potential | meter | 60 mV | | 17 mV | 29 mV | 44 mV | 27 mV | | | | | | |
| conductivity | meter | 53.1 uS/cm | | 55.4 uS/cm | 53.8 uS/cm | 53.9 uS/cm | 53.5 uS/cm | | | | | | |
| turbidity | meter | 0 NTU | | 0 NTU | 8 NTU | 22.1 NTU | 55 NTU | | | | | | |
| temperture | meter | 18.05 °C | | 17.43 °C | 17.3 °C | 17.3 °C | 17.8 °C | | | | | | |
| nitrate | 300.0 | 8840 µg/l | | 8950(9220) µg/l | 8970 µg/l | 8370 µg/l | 8050(8030) µg/l | | | | | | |
| nitrite | 300.0 | <100 µg/l | | <100(<100) µg/l | <100 µg/l | <100 µg/l | <100(<100) µg/l | | | | | | |
| sulfate | 300.0 | 28900 µg/l | | 30400(30400) µg/l | 29200 µg/l | 27800 µg/l | 30900(30800) µg/l | | | | | | |
| ortho-phosphate | 300.0 | <500 µg/l | | <500(<500) µg/l | <500 µg/l | <500 µg/l | <500(<500) µg/l | | | | | | |
| dissolved iron | 6010B | <200 µg/l | | <200 µg/l | <200 µg/l | 48.3J µg/l | 104J(<1000) µg/l | | | | | | |
| manganese | 6010B | 81 µg/l | | 146 µg/l | 79.6 µg/l | 50 µg/l | 32.4(32.9J) µg/l | | | | | | |
| arsenic | 6010B | <10 µg/l | | <10 µg/l | <10 µg/l | <10 µg/l | <10(<50) µg/l | | | | | | |
| methane | RSK 175 | | | | <2.0 µg/l | | <2.0 µg/l | | | | | | |
| ethane | RSK 175 | | | | <2.0 µg/l | | <2.0 µg/l | | | | | | |
| lactate | 300.0M | <100 µg/l | | <100(<100) µg/l | <100 µg/l | <100 µg/l | <100(<100) µg/l | | | | | | |
| propionate | 300.0M | <100 µg/l | | <100(<100) µg/l | <100 µg/l | <100 µg/l | <100(<100) µg/l | | | | | | |
| acetate | 300.0M | <100 µg/l | | 86.0J(87) µg/l | <100 µg/l | <100 µg/l | <100(<100) µg/l | | | | | | |
| carbon tetrachloride | 8260B | 1.5 µg/l | | 1.5 µg/l | 1.6 µg/l | 2.7 µg/l | 2.9 µg/l | 6.3 µg/l | 6.4 µg/l | 6.4 µg/l | 6.4 µg/l | 6.5 µg/l | 6.5 µg/l |
| chloroform | 8260B | <0.5 µg/l | | <0.5 µg/l | <0.5 µg/l | 0.25J µg/l | 0.25J µg/l | 0.33J µg/l | 0.36J µg/l | 0.36J µg/l | 0.35J µg/l | 0.37J µg/l | 0.38J µg/l |
| dichloromethane | 8260B | <5.0 µg/l | | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | | | | | | |
| chloromethane | 8260B | <1.0 µg/l | | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | | | | | | |
| methyl tert-butyl ether | 8260B | | | | 0.27J µg/l | 0.53J µg/l | 0.67J µg/l | | | | | | |
| total organic carbon | 415.1 | | | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric

[1] Field parameters collected by meter on Janua

[2] Samples and field parameters collected on Ja

# EISB-EW-12

| Sample ID / Well Type / Date | Method | baseline 12/26/2007 | week 0 1/30/2008 | week 0 1/31/2008 | week 1 2/6/2008 | week 1 2/11/2008 | week 2 2/12/2008 | week 3 2/19/2008 | week 4 2/27/2008 | week 5 3/4/2008 | extraction week 6 3/11/2008 | week 7 3/19/2008 | week 8 3/25/2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| alkalinity ($CaCO_3$ total) | HACH | 30 mg/L | 43 mg/L | 51 mg/L | 43 mg/L | 48 mg/L | 50 mg/L | 51 mg/L | 45 mg/L | 43.5 mg/L | 46 mg/L | 45 mg/L | 56 mg/L |
| pH | meter | 6.56 | | | 7 | | 6.9 | 6.9 | 6.93 | 6.38 | | 6.5 | |
| dissolved oxygen | meter | 4.98 ppm | | | 6.4 ppm | | 7.11 ppm | 6.82 ppm | 6.66 ppm | 6.98 ppm | | 8.12 ppm | |
| oxidation reduction potential | meter | 54 mV | | | 176 mV | | 71 mV | 14 mV | 96 mV | 29 mV | | 30 mV | |
| conductivity | meter | 39.8 uS/cm | | | 46.5 uS/cm | | 46.5 uS/cm | 46.6 uS/cm | 47.6 uS/cm | 48.9 uS/cm | | 48.1 uS/cm | |
| turbidity | meter | 24.6 NTU | | | 0 NTU | | 0 NTU | 18.7 NTU | 0 NTU | 0 NTU | | 6.4 NTU | |
| temperture | meter | 17.5 °C | | | 17.6 °C | | 17.4 °C | 20.6 °C | 17.8 °C | 18.1 °C | | 19.57 °C | |
| nitrate | 300.0 | 6920 µg/l | | | | | | 9110 µg/l | | 9400 µg/l | | 7810(7790) µg/l | |
| nitrite | 300.0 | <100 µg/l | | | | | | <100 µg/l | | <100 µg/l | | <100(<100) µg/l | |
| sulfate | 300.0 | 28500 µg/l | | | | | | 23600 µg/l | | 23900 µg/l | | 23800(23700) µg/l | |
| ortho-phosphate | 300.0 | <500 µg/l | | | | | | <500 µg/l | | <500 µg/l | | <500(<500) µg/l | |
| dissolved iron | 6010B | <200 µg/l | | | | | | <200 µg/l | | <200 µg/l | | <200(<1000) µg/l | |
| manganese | 6010B | 13.7 µg/l | | | | | | <10 µg/l | | <10 µg/l | | 18(<50) µg/l | |
| arsenic | 6010B | <10 µg/l | | | | | | <10 µg/l | | <10 µg/l | | <10(<50) µg/l | |
| methane | RSK 175 | <2.0 µg/l | | | | | | | | | | <2.0 µg/l | |
| ethane | RSK 175 | 1.5J µg/l | | | | | | | | | | <2.0 µg/l | |
| lactate | 300.0M | | | | | | | 1780 µg/l | | <100 µg/l | | <100(<100) µg/l | |
| propionate | 300.0M | | | | | | | <100 µg/l | | <100 µg/l | | <100(<100) µg/l | |
| acetate | 300.0M | | | | | | | <100 µg/l | | <100 µg/l | | <100(<100) µg/l | |
| carbon tetrachloride | 8260B | <0.5 µg/l | | | 0.88 µg/l | | 1 µg/l | 1.1 µg/l | 1.4 µg/l | 1.0 µg/l | | 1.2 µg/l | |
| chloroform | 8260B | <0.5 µg/l | | | <0.5 µg/l | | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | | <0.5 µg/l | |
| dichloromethane | 8260B | <5.0 µg/l | | | <5.0 µg/l | | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | | <5.0 µg/l | |
| chloromethane | 8260B | <1.0 µg/l | | | <1.0 µg/l | | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | | <1.0 µg/l | |
| acetone | 8260B | | | | | | | | | | | | |
| 2-butanone | 8260B | | | | | | | | | | | | |
| carbon disulfide | 8260B | | | | | | | | | | | | |
| 1,2,4-trimethylbenzene | 8260B | | | | | | | | | | | | |
| total organic carbon | 415.1 | | | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric value is an estimate.

[1] Field parameters collected by meter on January 29, 2008 when stable flow could be achieved.

[2] Samples and field parameters collected on January 30, 2008. Working pump installed on January 22 and pump tested and well purged on January 24.

# EISB-EW-12

| Sample ID | | | | | | | | monitoring | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Type | | | | | | | | 9/23/2008 | | | | |
| Date | Method | week 9 4/1/2008 | week 10 4/8/2008 | week 11 4/16/2008 | week 16 4/16/2008 | week 21 6/24/2008 | week 25 7/22/2008 | 66 ft bgs | 71 ft bgs | 76 ft bgs | 81 ft bgs | 86 ft bgs |
| alkalinity ($CaCO_3$ total) | HACH | 41 mg/L | 50 mg/L | 43 mg/L | 260 mg/L | 389 mg/L | 468 mg/L | | | | | |
| pH | meter | 6.23 | | 6.39 | 6.72 | 6.84 | 6.67 | | | | | |
| dissolved oxygen | meter | 4.19 ppm | | 2.75 ppm | 0 ppm | 0.05 ppm | 0 ppm | | | | | |
| oxidation reduction potential | meter | 82 mV | | -17 mV | -136 mV | -115 mV | -115 mV | | | | | |
| conductivity | meter | 45.6 uS/cm | | 44.8 uS/cm | 103 uS/cm | 140 uS/cm | 132 uS/cm | | | | | |
| turbidity | meter | 0 NTU | | 10.4 NTU | 0 NTU | 0 NTU | 120 NTU | | | | | |
| temperture | meter | 17.28 °C | | 17.59 °C | 18.3 °C | 17.7 °C | 18.89 °C | | | | | |
| nitrate | 300.0 | 8350(8350) µg/l | | 5490 µg/l | 191(187) µg/l | 98.6J µg/l | 151J µg/l | | | | | |
| nitrite | 300.0 | <100(<100) µg/l | | <100 µg/l | <100(<100) µg/l | <100 µg/l | <200 µg/l | | | | | |
| sulfate | 300.0 | 23900(23800) µg/l | | 26200 µg/l | 5210(5180) µg/l | 1210 µg/l | 1800 µg/l | | | | | |
| ortho-phosphate | 300.0 | <500(<500) µg/l | | <500 µg/l | <500(<500) µg/l | <500 µg/l | <1000 µg/l | | | | | |
| dissolved iron | 6010B | <200 µg/l | | <200 µg/l | 7480(7590) µg/l | 15200 µg/l | 18400 µg/l | | | | | |
| manganese | 6010B | 9.09J µg/l | | 21.3 µg/l | 1870(1910) µg/l | 4480 µg/l | 4570 µg/l | | | | | |
| arsenic | 6010B | <10 µg/l | | <10 µg/l | 8.85J(<50) µg/l | 20.8 µg/l | 11.7 µg/l | | | | | |
| methane | RSK 175 | | | | 1.9J µg/l | | 14 µg/l | | | | | |
| ethane | RSK 175 | | | | <2.0 µg/l | | <2.0 µg/l | | | | | |
| lactate | 300.0M | <100(<100) µg/l | | <100 µg/l | <10000(<1000) µg/l | <100 µg/l | <200 µg/l | | | | | |
| propionate | 300.0M | <100(<100) µg/l | | <100 µg/l | 51600(51200) µg/l | 104000 µg/l | 126000 µg/l | | | | | |
| acetate | 300.0M | <100(<100) µg/l | | <100 µg/l | 71900(72700) µg/l | 145000 µg/l | 142000 µg/l | | | | | |
| carbon tetrachloride | 8260B | 0.48J µg/l | | <0.5 µg/l | <0.5 µg/l | <0.5(<5.0) µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l |
| chloroform | 8260B | <0.5 µg/l | | <0.5 µg/l | <0.5 µg/l | <0.5(<5.0) µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l | <0.5 µg/l |
| dichloromethane | 8260B | <5.0 µg/l | | <5.0 µg/l | <5.0 µg/l | <5.0(<50) µg/l | <5.0 µg/l | | | | | |
| chloromethane | 8260B | <1.0 µg/l | | <1.0 µg/l | <1.0 µg/l | <1.0(<10) µg/l | <1.0 µg/l | | | | | |
| acetone | 8260B | 5.7J µg/l | | | 32 µg/l | 44E(53) µg/l | 28 µg/l | | | | | |
| 2-butanone | 8260B | | | | 44 µg/l | 32(41J) µg/l | 30 µg/l | | | | | |
| carbon disulfide | 8260B | | | | 0.24J µg/l | 0.22(<5.0) µg/l | | | | | | |
| 1,2,4-trimethylbenzene | 8260B | | | | | 0.74J(<5.0) µg/l | | | | | | |
| total organic carbon | 415.1 | | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric

[1] Field parameters collected by meter on Janua

[2] Samples and field parameters collected on Ja

# EISB-EW-15

| Sample ID<br>Well Type<br>Date | Method | baseline<br>12/19/2007 | week 0<br>1/30/2008 | week 0<br>1/31/2008 | week 1<br>2/7/2008 | week 1<br>2/11/2008 | week 2<br>2/13/2008 | week 3<br>2/21/2008 | week 4<br>2/27/2008 | extraction<br>week 5<br>3/4/2008 | week 6<br>3/11/2008 | week 7<br>3/19/2008 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| alkalinity ($CaCO_3$ total) | HACH | 40 mg/L | 32 mg/L | 36 mg/L | 42 mg/L | 35 mg/L | 43 mg/L | 34 mg/L | 37 mg/L | 37.4 mg/L | 46 mg/L | 47 mg/L |
| pH | meter | 6.94 | | | 7 | | 6.8 | 6.3 | 6.66 | 6.1 | | 6.25 |
| dissolved oxygen | meter | 6.82 ppm | | | 8.42 ppm | | 7.86 ppm | 7.83 ppm | 5.01 ppm | 5.81 ppm | | 4.39 ppm |
| oxidation reduction potential | meter | 57 mV | | | 114 mV | | 56 mV | 43 mV | 23 mV | 62 mV | | 49 mV |
| conductivity | meter | 47.3 uS/cm | | | 44.7 uS/cm | | 44 uS/cm | 44 uS/cm | 47.2 uS/cm | 49 uS/cm | | 48.4 uS/cm |
| turbidity | meter | 4.9 NTU | | | 3.6 NTU | | 2.1 NTU | 25.8 NTU | 74.4 NTU | 68.8 NTU | | 99.2 NTU |
| temperture | meter | 17.5 °C | | | 17.4 °C | | 18 °C | 20 °C | 27.4 °C | 32.07 °C | | 32.92 °C |
| nitrate | 300.0 | 7620(7630) µg/l | | | | | | | 7790 µg/l | | | 7330 µg/l |
| nitrite | 300.0 | <100(<100) µg/l | | | | | | | <100 µg/l | | | <100 µg/l |
| sulfate | 300.0 | 26500(26400) µg/l | | | | | | | 30000 µg/l | | | 29700 µg/l |
| ortho-phosphate | 300.0 | <500(<500) µg/l | | | | | | | <500 µg/l | | | <500 µg/l |
| dissolved iron | 6010B | <200 µg/l | | | | | | | 285 µg/l | | | <200 µg/l |
| manganese | 6010B | 6.21J µg/l | | | | | | | 23.1 µg/l | | | 28.1 µg/l |
| arsenic | 6010B | <10 µg/l | | | | | | | <10 µg/l | | | <10 µg/l |
| methane | RSK 175 | | | | | | | | | | | |
| ethane | RSK 175 | | | | | | | | | | | |
| lactate | 300.0M | | | | | | | | | | | |
| propionate | 300.0M | | | | | | | | | | | |
| acetate | 300.0M | | | | | | | | | | | |
| carbon tetrachloride | 8260B | 2.8 µg/l | | | | | | | 3.1 µg/l | | | 4.3 µg/l |
| chloroform | 8260B | 0.29J µg/l | | | | | | | 0.26J µg/l | | | 0.33J µg/l |
| dichloromethane | 8260B | <5.0 µg/l | | | | | | | <5.0 µg/l | | | <5.0 µg/l |
| chloromethane | 8260B | <1.0 µg/l | | | | | | | <1.0 µg/l | | | <1.0 µg/l |
| methyl tert-butyl ether | 8260B | 0.22J µg/l | | | | | | | | | | |
| carbon disulfide | 8260B | | | | | | | | | | | |
| total organic carbon | 415.1 | | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric value is an estimate.

[1] Field parameters collected by meter on January 29, 2008 when stable flow could be achieved.

[2] Samples and field parameters collected on January 30, 2008. Working pump installed on January 22 and pump tested and well purged on January 24.

# EISB-EW-15

| Sample ID | Method | | | | | | | | monitoring | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Type | | | | | | | | | 9/23/2008 | | | |
| Date | | week 8 3/25/2008 | week 9 4/1/2008 | week 10 4/8/2008 | week 11 4/15/2008 | week 16 5/20/2008 | week 21 6/23/2008 | week 25 7/22/1980 | 60 ft bgs | 66 ft bgs | 72 ft bgs | 78 ft bgs |
| alkalinity ($CaCO_3$ total) | HACH | 43 mg/L | 62 mg/L | 86 mg/L | 130 mg/L | 43 mg/L | 45 mg/L | 44 mg/L | | | | |
| pH | meter | | 6.23 | | 6.17 | 6.85 | 6.89 | 6.73 | | | | |
| dissolved oxygen | meter | | 7.75 ppm | | 5.9 ppm | 6.68 ppm | 4.36 ppm | 6.54 ppm | | | | |
| oxidation reduction potential | meter | | 29 mV | | -26 mV | -29 mV | 37 mV | 71 mV | | | | |
| conductivity | meter | | 48.2 uS/cm | | 54.8 uS/cm | 52.4 uS/cm | 49.1 uS/cm | 52.6 uS/cm | | | | |
| turbidity | meter | | 0 NTU | | 4.1 NTU | 50.6 NTU | 14.2 NTU | 94.9 NTU | | | | |
| temperture | meter | | 18.28 °C | | 18.03 °C | 17.35 °C | 17.9 °C | 17.46 °C | | | | |
| nitrate | 300.0 | | | | 5120 µg/l | | | 6630 µg/l | | | | |
| nitrite | 300.0 | | | | <100 µg/l | | | <100 µg/l | | | | |
| sulfate | 300.0 | | | | 21400 µg/l | | | 28000 µg/l | | | | |
| ortho-phosphate | 300.0 | | | | <500 µg/l | | | <500 µg/l | | | | |
| dissolved iron | 6010B | | | | 367 µg/l | | | <200 µg/l | | | | |
| manganese | 6010B | | | | 391 µg/l | | | 45.3 µg/l | | | | |
| arsenic | 6010B | | | | <10 µg/l | | | <10 µg/l | | | | |
| methane | RSK 175 | | | | | | | | | | | |
| ethane | RSK 175 | | | | | | | | | | | |
| lactate | 300.0M | | | | <100 µg/l | | | | | | | |
| propionate | 300.0M | | | | <100 µg/l | | | | | | | |
| acetate | 300.0M | | | | <100 µg/l | | | | | | | |
| carbon tetrachloride | 8260B | | | | 2.0 µg/l | 1.7 µg/l | 1.9 µg/l | 1.7 µg/l | 2.0 µg/l | 1.9 µg/l | 1.8 µg/l | 0.38J µg/l |
| chloroform | 8260B | | | | <0.5 µg/l | <0.5 µg/l | 0.23J µg/l | 0.21J µg/l | 0.26J µg/l | 0.26J µg/l | 0.27J µg/l | <0.5 µg/l |
| dichloromethane | 8260B | | | | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | | | | |
| chloromethane | 8260B | | | | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | | | | |
| methyl tert-butyl ether | 8260B | | | | | | | 0.20J µg/l | | | | |
| carbon disulfide | 8260B | | | | 0.21J µg/l | | | | | | | |
| total organic carbon | 415.1 | | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric

[1] Field parameters collected by meter on Janua

[2] Samples and field parameters collected on Ja

# EISB-MW-01

| Sample ID | | | | | | | | | | | monitoring | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Type | | | | | | | | | | | | |
| Date | Method | baseline 12/20/2007 | week 0 1/30/2008 | week 1 2/4/2008 | week 1 2/6/2008 | week 1 2/11/2008 | week 2 2/12/2008 | week 3 2/21/2008 | week 4 2/27/2008 | week 5 3/5/2008 | week 6 3/11/2008 | week 7 3/18/2008 |
| alkalinity ($CaCO_3$ total) | HACH | 39 mg/L | 48 mg/L | 46 mg/L | 73 mg/L | 102 mg/L | 96 mg/L | 112 mg/L | 150 mg/L | 200.1 mg/L | 345 mg/L | 315 mg/L |
| pH | meter | 6.9 | | | 6.7 | | 6.9 | 6.6 | 6.6 | 6.23 | | 6.19 |
| dissolved oxygen | meter | 8.05 ppm | | | 2.31 ppm | | 0.73 ppm | 0.78 ppm | 0.68 ppm | 1.62 ppm | | 1.35 ppm |
| oxidation reduction potential | meter | 108 mV | | | 121 mV | | 103 mV | 85 mV | -125 mV | -63 mV | | -90 mV |
| conductivity | meter | 48 uS/cm | | | 48.1 uS/cm | | 52 uS/cm | 59.1 uS/cm | 63.3 uS/cm | 74.2 uS/cm | | na uS/cm |
| turbidity | meter | 2.9 NTU | | | 15.6 NTU | | 0 NTU | 15.5 NTU | 0 NTU | 5.1 NTU | | 5.5 NTU |
| temperture | meter | 17.3 °C | | | 16.9 °C | | 17.1 °C | 16.8 °C | 17.5 °C | 17.03 °C | | 16.97 °C |
| nitrate | 300.0 | 6760(6780) µg/l | | | | | | 1590 µg/l | 304 µg/l | <100 µg/l | | 144(142) µg/l |
| nitrite | 300.0 | <100(<100) µg/l | | | | | | <100 µg/l | <100 µg/l | 51.4J µg/l | | <100(<100) µg/l |
| sulfate | 300.0 | 28900(29000) µg/l | | | | | | 28000 µg/l | 19900 µg/l | 14400 µg/l | | 8270(8250) µg/l |
| ortho-phosphate | 300.0 | <500(<500) µg/l | | | | | | <500 µg/l | <500 µg/l | <500 µg/l | | <500(<500) µg/l |
| dissolved iron | 6010B | <200(<200) µg/l | | | | | | <200 µg/l | <200 µg/l | J9J(<1000) µg/l | | 1630(1630) µg/l |
| manganese | 6010B | <10(<10) µg/l | | | | | | 178 µg/l | 341 µg/l | 854(1860) µg/l | | 1670(1620) µg/l |
| arsenic | 6010B | <10(<10) µg/l | | | | | | <10 µg/l | <10 µg/l | <10(<50) µg/l | | 7.62J(<50) µg/l |
| methane | RSK 175 | <2.0(<2.0) µg/l | | | | | | | | | | <2.0 µg/l |
| ethane | RSK 175 | <2.0(<2.0) µg/l | | | | | | | | | | <2.0 µg/l |
| lactate | 300.0M | <100(<100) µg/l | | | <100 µg/l | | 969 µg/l | 18300 µg/l | <500 µg/l | <1000 µg/l | | <500(<500) µg/l |
| propionate | 300.0M | <100(<100) µg/l | | | <100 µg/l | | <100 µg/l | 3870 µg/l | 25900 µg/l | 59200 µg/l | | 199000(198000) µg/l |
| acetate | 300.0M | <100(<100) µg/l | | | <100 µg/l | | <100 µg/l | 4010 µg/l | 26500 µg/l | 27200 µg/l | | 86700(86200) µg/l |
| carbon tetrachloride | 8260B | 0.99(0.96) µg/l | | | | | | 1.1 µg/l | <0.5 µg/l | <0.5 µg/l | | <0.5 µg/l |
| chloroform | 8260B | <0.50(<0.50) µg/l | | | | | | <0.50 µg/l | <0.5 µg/l | <0.5 µg/l | | <0.5 µg/l |
| dichloromethane | 8260B | <5.0(<5.0) µg/l | | | | | | <5.0 µg/l | 0.58J µg/l | <5.0 µg/l | | 0.50J µg/l |
| chloromethane | 8260B | <1.0(0.24J) µg/l | | | | | | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | | <1.0 µg/l |
| acetone | 8260B | | | | | | | 11 µg/l | 21 µg/l | 27 µg/l | | 53 µg/l |
| 2-butanone | 8260B | | | | | | | | 12J µg/l | 23 µg/l | | 21 µg/l |
| carbon disulfide | 8260B | | | | | | | | 0.43J µg/l | 0.61J µg/l | | 1.2 µg/l |
| toluene | 8260B | | | | | | | | 0.22J µg/l | | | |
| total organic carbon | 415.1 | 740J(720J) µg/l | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | $9x10^1$($5x10^1$) cfu/ml | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric value is an estimate.

# EISB-MW-01

| Sample ID | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Type | | | | | | | | | monitoring | | | |
| Date | Method | week 8 3/25/2008 | week 9 4/1/2008 | week 10 4/8/2008 | week 11 4/15/2008 | week 16 5/20/2008 | week 21 6/24/2008 | week 25 7/22/2008 | 9/23/2008 60 ft bgs | 66 ft bgs | 72 ft bgs | 78 ft bgs |
| alkalinity ($CaCO_3$ total) | HACH | 398 mg/L | 426 mg/L | 607 mg/L | 317 mg/L | 302 mg/L | 292 mg/L | 295 mg/L | | | | |
| pH | meter | | 6.18 | | 6.22 | 6.93 | 6.71 | 6.57 | | | | |
| dissolved oxygen | meter | | 0.79 ppm | | 0.57 ppm | 0.45 ppm | 0.19 ppm | 0 ppm | | | | |
| oxidation reduction potential | meter | | -97 mV | | -116 mV | -150 mV | -127 mV | -167 mV | | | | |
| conductivity | meter | | na uS/cm | | na uS/cm | 99 uS/cm | na uS/cm | 176 uS/cm | | | | |
| turbidity | meter | | 0 NTU | | 10 NTU | 3.1 NTU | 14.7 NTU | 152 NTU | | | | |
| temperture | meter | | 17.94 °C | | 18.01 °C | 17.59 °C | 18.5 °C | 18.14 °C | | | | |
| nitrate | 300.0 | | 101 µg/l | | <100(<100) µg/l | 479(477) µg/l | 378 µg/l | 203 µg/l | | | | |
| nitrite | 300.0 | | <100 µg/l | | <100(<100) µg/l | <100(<100) µg/l | <100 µg/l | <100 µg/l | | | | |
| sulfate | 300.0 | | 11800 µg/l | | 13300(13300) µg/l | 7590(7220) µg/l | 7010 µg/l | 6150 µg/l | | | | |
| ortho-phosphate | 300.0 | | <500 µg/l | | <500(<500) µg/l | 338J(301J) µg/l | <500 µg/l | <500 µg/l | | | | |
| dissolved iron | 6010B | | 3000 µg/l | | 1280(1300) µg/l | 1490(1500) µg/l | 1770 µg/l | 5890 µg/l | | | | |
| manganese | 6010B | | 3190 µg/l | | 2640(2710) µg/l | 1870(1890) µg/l | 1790 µg/l | 3900 µg/l | | | | |
| arsenic | 6010B | | 9.82J µg/l | | 9.15J(<50) µg/l | 6.21J(5.71J) µg/l | <10 µg/l | 9.31J µg/l | | | | |
| methane | RSK 175 | | | | <2.0 µg/l | 0.65J(<2.0) µg/l | | 13 µg/l | | | | |
| ethane | RSK 175 | | | | <2.0 µg/l | <2.0(<2.0) µg/l | | <2.0 µg/l | | | | |
| lactate | 300.0M | | <500 µg/l | | 606J(618J) µg/l | <500(<500) µg/l | <200 µg/l | <100 µg/l | | | | |
| propionate | 300.0M | | 323000 µg/l | | 155000(156000 µg/l | 21300(19400) µg/l | 30800 µg/l | 251000 µg/l | | | | |
| acetate | 300.0M | | 130000 µg/l | | 93200(93100) µg/l | 53100(46200) µg/l | 48300 µg/l | 127000 µg/l | | | | |
| carbon tetrachloride | 8260B | | <0.5 µg/l | | <0.5 µg/l | 0.24J(0.23J) µg/l | <0.5 µg/l | <0.5 µg/l | 2.0 µg/l | 1.9 µg/l | 1.8 µg/l | 0.38J µg/l |
| chloroform | 8260B | | <0.5 µg/l | | <0.5 µg/l | <0.5(<0.5) µg/l | <0.5 µg/l | <0.5 µg/l | 0.26J µg/l | 0.26J µg/l | 0.27J µg/l | <0.5 µg/l |
| dichloromethane | 8260B | | 0.53J µg/l | | 0.70J µg/l | <5.0(<5.0) µg/l | <5.0 µg/l | <5.0 µg/l | | | | |
| chloromethane | 8260B | | <1.0 µg/l | | <1.0 µg/l | <1.0(<1.0) µg/l | <1.0 µg/l | <1.0 µg/l | | | | |
| acetone | 8260B | | 19 µg/l | | 14 µg/l | 6.7J(8.2J) µg/l | 5.6J µg/l | 14 µg/l | | | | |
| 2-butanone | 8260B | | 19J µg/l | | 7.1J µg/l | 5.1J(5.4J) µg/l | <20 µg/l | 10J µg/l | | | | |
| carbon disulfide | 8260B | | 1.1 µg/l | | 1.2 µg/l | 4.3(6.1) µg/l | 0.44J µg/l | 0.23J µg/l | | | | |
| toluene | 8260B | | | | 0.25J µg/l | | | | | | | |
| total organic carbon | 415.1 | | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric

# EISB-MW-04

| Sample ID | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Type | | | | | | | | monitoring | | | | | | |
| Date | Method | baseline 12/18/2007 | week 0 1/30/2008 | week 1 2/4/2008 | week 1 2/6/2008 | week 1 2/11/2008 | week 2 2/12/2008 | week 3 2/19/2008 | week 4 2/26/2008 | week 5 3/5/2008 | week 6 3/11/2008 | week 7 3/18/2008 | week 8 3/25/2008 | wee 4/1/ |
| alkalinity ($CaCO_3$ total) | HACH | 41 mg/L | 64 mg/L | 57 mg/L | 48 mg/L | 76 mg/L | 60 mg/L | 91 mg/L | 158 mg/L | 73 mg/L | 85 mg/L | 33 mg/L | 51 mg/L | 46 |
| pH | meter | 7.11 | | | 7.4 | | 7 | 6.9 | 7.1 | 6.47 | | 6.16 | | 6.09 |
| dissolved oxygen | meter | 9.69 ppm | | | 8.09 ppm | | 4.48 ppm | 1.96 ppm | 0.69 ppm | 2.39 ppm | | 6.63 ppm | | 4.15 |
| oxidation reduction potential | meter | 150 mV | | | 167 mV | | 142 mV | 30 mV | -54 mV | -48 mV | | 54 mV | | 26 |
| conductivity | meter | 49.1 uS/cm | | | 47.6 uS/cm | | 52.4 uS/cm | 52.1 uS/cm | 55.1 uS/cm | 79.1 uS/cm | | 46 uS/cm | | 41.9 |
| turbidity | meter | 0 NTU | | | 0 NTU | | 7.9 NTU | 7 NTU | 0 NTU | 15.4 NTU | | 14 NTU | | 0.9 |
| temperture | meter | 17.3 °C | | | 17.9 °C | | 17.7 °C | 16.9 °C | 18.2 °C | 17.68 °C | | 17.76 °C | | 17.97 |
| nitrate | 300.0 | 7360 µg/l | | | | | | 3790 µg/l | <100(549) µg/l | 4100(4080) µg/l | | 6900 µg/l | | 4850 |
| nitrite | 300.0 | <100 µg/l | | | | | | 150 µg/l | 377(104) µg/l | <100(<100) µg/l | | <100 µg/l | | <100 |
| sulfate | 300.0 | 26000 µg/l | | | | | | 29500 µg/l | 28100(28000) µg/l | 30100(30000) µg/l | | 30400 µg/l | | 28700 |
| ortho-phosphate | 300.0 | <500 µg/l | | | | | | <500 µg/l | <500(<500) µg/l | <500(<500) µg/l | | <500 µg/l | | <500 |
| dissolved iron | 6010B | <200 µg/l | | | | | | <200 µg/l | <200(<200) µg/l | 63.5J µg/l | | <200 µg/l | | <200 |
| manganese | 6010B | <10 µg/l | | | | | | 303 µg/l | 2740(2770) µg/l | 1840 µg/l | | 235 µg/l | | 56.9 |
| arsenic | 6010B | <10 µg/l | | | | | | <10 µg/l | <10(<10) µg/l | <10 µg/l | | <10 µg/l | | <10 |
| methane | RSK 175 | <2.0 µg/l | | | | | | | | | | <2.0 µg/l | | |
| ethane | RSK 175 | <2.0 µg/l | | | | | | | | | | <2.0 µg/l | | |
| lactate | 300.0M | <100 µg/l | | | <100 µg/l | | <100 µg/l | <100 µg/l | <100(<100) µg/l | <100(<100) µg/l | | <100 µg/l | | <100 |
| propionate | 300.0M | <100 µg/l | | | <100 µg/l | | <100 µg/l | <100 µg/l | <100(<100) µg/l | <100(<100) µg/l | | <100 µg/l | | <100 |
| acetate | 300.0M | <100 µg/l | | | <100 µg/l | | <100 µg/l | <100 µg/l | <100(<100) µg/l | <100(<100) µg/l | | <100 µg/l | | <100 |
| carbon tetrachloride | 8260B | 1.2 µg/l | | | | | | 2.2 µg/l | 1.5(1.5) µg/l | 2.0 µg/l | | 1.2 µg/l | | 0.74 |
| chloroform | 8260B | <0.5 µg/l | | | | | | 0.31J µg/l | 0.26J(0.26J) µg/l | <0.5 µg/l | | <0.5 µg/l | | <0.5 |
| dichloromethane | 8260B | <5.0 µg/l | | | | | | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | | <5.0 µg/l | | <5.0 |
| chloromethane | 8260B | 0.22J µg/l | | | | | | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | | <1.0 µg/l | | <1.0 |
| acetone | 8260B | | | | | | | | 12(12) µg/l | | | | | |
| 2-butanone | 8260B | | | | | | | | 6.3J(6.1J) µg/l | | | | | |
| carbon disulfide | 8260B | | | | | | | | 0.22J(<1.0) µg/l | | | | | |
| toluene | 8260B | | | | | | | | | | | | | 0.30J |
| total organic carbon | 415.1 | | | | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric value is an estimate.

[1] Field parameters collected by meter on January 29, 2008 when stable flow could be achieved.

[2] Samples and field parameters collected on January 30, 2008. Working pump installed on January 22 and pump tested and well purged on January 24.

# EISB-MW-04

| Sample ID | | Method | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well Type | | | | | | | | monitoring | | | | |
| Date | | | ek 9 2008 | week 10 4/10/2008 | week 11 4/15/2008 | week 16 5/19/2008 | week 21 6/24/2008 | week 25 7/23/2008 | 9/23/2008 57 ft bgs | 63 ft bgs | 69 ft bgs | 75 ft bgs | 81 ft bgs |
| alkalinity ($CaCO_3$ total) | HACH | mg/L | 75 mg/L | 51 mg/L | 59 mg/L | 84 mg/L | 139 mg/L | | | | | |
| pH | meter | | | 6.26 | 7.28 | 7.13 | 6.1 | | | | | |
| dissolved oxygen | meter | ppm | | 2.71 ppm | 6.29 ppm | 6.69 ppm | 4.18 ppm | | | | | |
| oxidation reduction potential | meter | mV | | 15 mV | -14 mV | -17 mV | 65 mV | | | | | |
| conductivity | meter | uS/cm | | 41.3 uS/cm | 44.9 uS/cm | 55.9 uS/cm | 67.4 uS/cm | | | | | |
| turbidity | meter | NTU | | 0.7 NTU | 0 NTU | 38.1 NTU | 49 NTU | | | | | |
| temperture | meter | °C | | 17.86 °C | 17.8 °C | 17.78 °C | 17.79 °C | | | | | |
| nitrate | 300.0 | µg/l | | 3190 µg/l | 6200(6230) µg/l | 4630 µg/l | 3090(2950) µg/l | | | | | |
| nitrite | 300.0 | µg/l | | <100 µg/l | <100(<100) µg/l | <100 µg/l | <100(<100) µg/l | | | | | |
| sulfate | 300.0 | µg/l | | 28400 µg/l | 26000(25900) µg/l | 23400 µg/l | 18700(18200) µg/l | | | | | |
| ortho-phosphate | 300.0 | µg/l | | <500 µg/l | 279J(279J) µg/l | <500 µg/l | <500(<500) µg/l | | | | | |
| dissolved iron | 6010B | µg/l | | <200 µg/l | <200(<1000) µg/l | 157J µg/l | 137J(135J) µg/l | | | | | |
| manganese | 6010B | µg/l | | 31.3 µg/l | 18.1(<50) µg/l | 224 µg/l | 146(151) µg/l | | | | | |
| arsenic | 6010B | µg/l | | <10 µg/l | <10(<50) µg/l | <10 µg/l | <10(<10) µg/l | | | | | |
| methane | RSK 175 | | | | <2.0 µg/l | | 0.99J(0.97J) µg/l | | | | | |
| ethane | RSK 175 | | | | <2.0 µg/l | | <2.0(<2.0) µg/l | | | | | |
| lactate | 300.0M | µg/l | | <100 µg/l | <100(<100) µg/l | <100 µg/l | <100(<100) µg/l | | | | | |
| propionate | 300.0M | µg/l | | <100 µg/l | <100(<100) µg/l | <100 µg/l | <100(<100) µg/l | | | | | |
| acetate | 300.0M | µg/l | | <100 µg/l | <100(<100) µg/l | <100 µg/l | <100(<100) µg/l | | | | | |
| carbon tetrachloride | 8260B | µg/l | | 0.43J µg/l | 3 µg/l | 2.1 µg/l | 1.4(1.5) µg/l | | 3.8 µg/l | 3.8 µg/l | 3.5 µg/l | 3.4 µg/l | 3.5 µg/l |
| chloroform | 8260B | µg/l | | <0.5 µg/l | 0.29 µg/l | 0.24J µg/l | <0.5(<0.5) µg/l | | 0.33J µg/l | 0.33J µg/l | 0.34J µg/l | 0.31J µg/l | 0.29J µg/l |
| dichloromethane | 8260B | µg/l | | <5.0 µg/l | <5.0 µg/l | <5.0 µg/l | <5.0(<5.0) µg/l | | | | | | |
| chloromethane | 8260B | µg/l | | <1.0 µg/l | <1.0 µg/l | <1.0 µg/l | <1.0(<1.0) µg/l | | | | | | |
| acetone | 8260B | | | | | | | | | | | | |
| 2-butanone | 8260B | | | | | | | | | | | | |
| carbon disulfide | 8260B | | | | | | | | | | | | |
| toluene | 8260B | µg/l | | 0.22J µg/l | | | | | | | | | |
| total organic carbon | 415.1 | | | | | | | | | | | | |
| anaerobic heterotrophs | SM9215B | | | | | | | | | | | | |

Detections are bolded

J qualifier indicates that the associated numeric

[1] Field parameters collected by meter on Januar

[2] Samples and field parameters collected on Jan

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

## STATUS - November 12, 2008

### 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.

### SCHEDULE

- Quarterly sampling of monitoring wells - December.

### DATA (Preliminary)

- October 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 pump in well EW-OU1-93-A failed on August 17. The pump was replaced and restarted on August 26. The extraction rate was reduced to minimize pump cycling.
- Several compounds continue to be detected in process samples and PBD samples that are not likely present in groundwater. Compounds include: process samples – benzene, bromoform, isopropylbenzene, chloromethane, dibromochloromethane: PDB samples – chloromethane, acetone, 2-butanone. The latest process samples indicate no detection of benzene or isopropylbenzene. The trihalomethanes are commonly found in drinking water and acetone is a common lab contaminant. Evaluating process sample collection to minimize collection of stagnant water in samples. Evaluating PDB manufacturing/shipping/handling for introduction of trace compounds. Latest process samples show no trihalomethanes after switching to a new lot of sample containers.

**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 22, 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 |

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

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

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

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

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

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

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

**Summary of Operable Unit 1 Process System**
**Operating Parameters**
**September 29, 2008 - November 3, 2008**

| | Volume Treated (gallons) | Average Flowrate (gallons per minute) | Percent of Month Online | Mass TCE Removed (pounds) | Notes |
|---|---|---|---|---|---|
| **EW-OU1-92-A** | | | | | |
| October 2008 | 999,913 | 19.8 | 100 | 0.0093 | |
| Total | 2,525,685 | | | 0.0441 | |
| **EW-OU1-93-A** | | | | | |
| October 2008 | 599,041 | 11.9 | 100 | 0.0160 | |
| Total | 1,360,597 | | | 0.0636 | |
| **System** | | | | | |
| October 2008 | 1,572,805 | 31.2 | 100 | 0.0241 | |
| Total | 3,812,372 | | | 0.0993 | |

**HGL AGENDA & NOTES**

Fort Ord HTW BCT Meeting
1:00 PM. 12 November 2008
Monterey, California

## *1. Groundwater Remediation System Update*

Northwest Treatment System (NWTS) has operated continuously since last update on 14 October 2008. Total volume pumped through 03 November 2008 is 72,285,810 gallons. The average treatment rate over the last four weeks has been 86.3 gallons per minute. Performance characteristics are summarized in Table 1. To date. the NWTS has removed approximately 3.1 pounds of TCE and 0.3 pounds of cis-1,2-DCE.

The last bi-monthly samples from the treatment system and extraction wells were collected on 29 September and validated results are not yet available. The preliminary analytical results are summarized below:

- System influent TCE concentration increased slightly to 3.8 µg/L (from 3.6 µg/L in July).
- System influent cis-1,2-DCE concentration was essentially unchanged at 0.42 µg/L (from 0.41 µg/L in July).
- System effluent concentrations were below detection limit for all compounds monitored. Cis-1,2-DCE, however, was reported below the method detection limit at 0.12J µg/L. The other compounds of concern were not detected.
- TCE concentrations at individual extraction wells and in the NWTS influent were typically slightly greater than those reported in July but only EW-OU1-71-A (increased by 1 µg/L) showed an increase of more than 0.3 µg/L. TCE concentrations reported in 2008 for all extraction wells are summarized in Table 2.
- All extraction wells showed TCE concentrations less than 5 µg/L except the two wells located in the central portion of the plume: MW-87 (9.1 µg/L) and EW-71 (14 µg/L).

## *2. Long Term Monitoring Update*

Third quarter (includes annual frequency wells) samples were collected during the period from 29 September through 02 October. Validated analytical results are not yet available. The preliminary analytical results are summarized below:

*Original GWETS Zone (MW-OU1-25-A and south)*

- All wells (nine) ≤ 3.8 µg/L TCE. Two wells (IW-OU1-01-A & MW-OU1-23-A) at 3.7 µg/L and 3.8 µg/L while all others < 1.9 µg/L.

*MW-OU1-87-A Extraction Region (South-Central FONR between EW-OU1-53-A and PZ-OU1-49-A1)*

- TCE ranged between 2.6 µg/L and 11µg/L. Four wells along "spine" of plume showed 8 µg/L to 11µg/L while all others < 5 µg/L.

*Central Extraction Region (Pumping wells EW-OU1-71-A, MW-OU1-85-A and MW-OU1-46-AD)*

- All monitoring wells < 2.4 µg/L. Pumping well EW-OU1-71-A showed TCE at 15 µg/L while MW-OU1-85-A had TCE at 4.3 µg/L. MW-OU1-46-AD sample was 2.9 µg/L.

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

- Except for the two wells screened only in Channel Fill (MW-OU1-61-A and MW-OU1-67-A) and wells MW-OU1-50-A and MW-OU1-82-A all wells were "Non-detect" or less than the 0.5 µg/L method detection limit. Only MW-OU1-50 (11 µg/L) and MW-OU1-61-A (7.1 µg/L) exceeded the ACL. Recent data suggests the start of a declining trend at these locations. TCE was ≤ 1.8 µg/L at MW-OU1-82-A and MW-OU1-67-A.

Well MW-OU1-04-A was not sampled during the third quarter. The well was inaccessible because the LBNL research project was recently completed and the pumps were not operating. The installed LBNL equipment had not yet been removed and we could not gain access to collect a sample. LBNL staff subsequently removed their equipment and HGL installed a PDB on 27 October. This well will be sampled again during the Fourth Quarter LTM in December.

### 3. *NWTS Operation Relative to Carbon Change-out*

HGL submitted a letter to the US Army that summarized the agreement reached at the September BCT meeting concerning the criteria for carbon change-out based on Cis-1,2-DCE concentrations in the performance sample routinely collected at the mid-point of the GAC process (i.e., as influent to the lag vessels). As agreed, the carbon will be changed if the TCE concentration in the mid-point sample exceeds 0.5 µg/L or if the cis-1,2-DCE concentration exceeds 3.0 µg/L in the NWTS effluent.

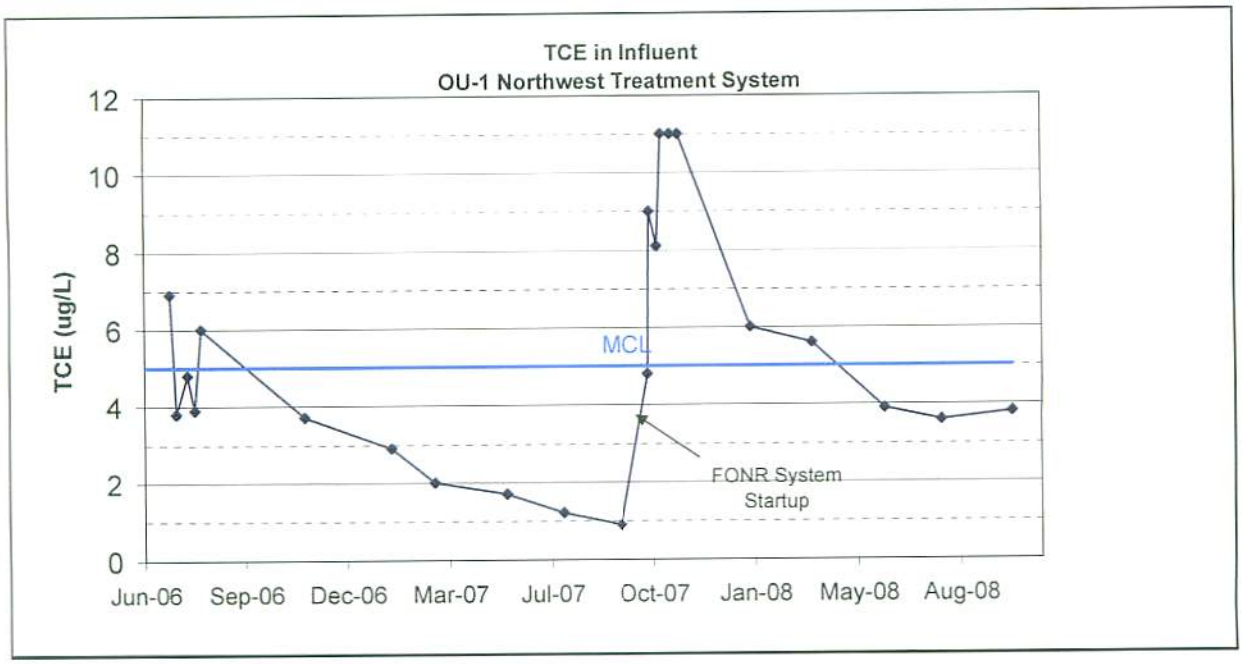
TCE was detected at 0.19 J µg/L in the mid-point NWTS sample in the September sampling event. If this detection is confirmed and exceeds the 0.50 µg/L threshold in the November performance monitoring sample event. then HGL will initiate a carbon change-out for the lead GAC units.

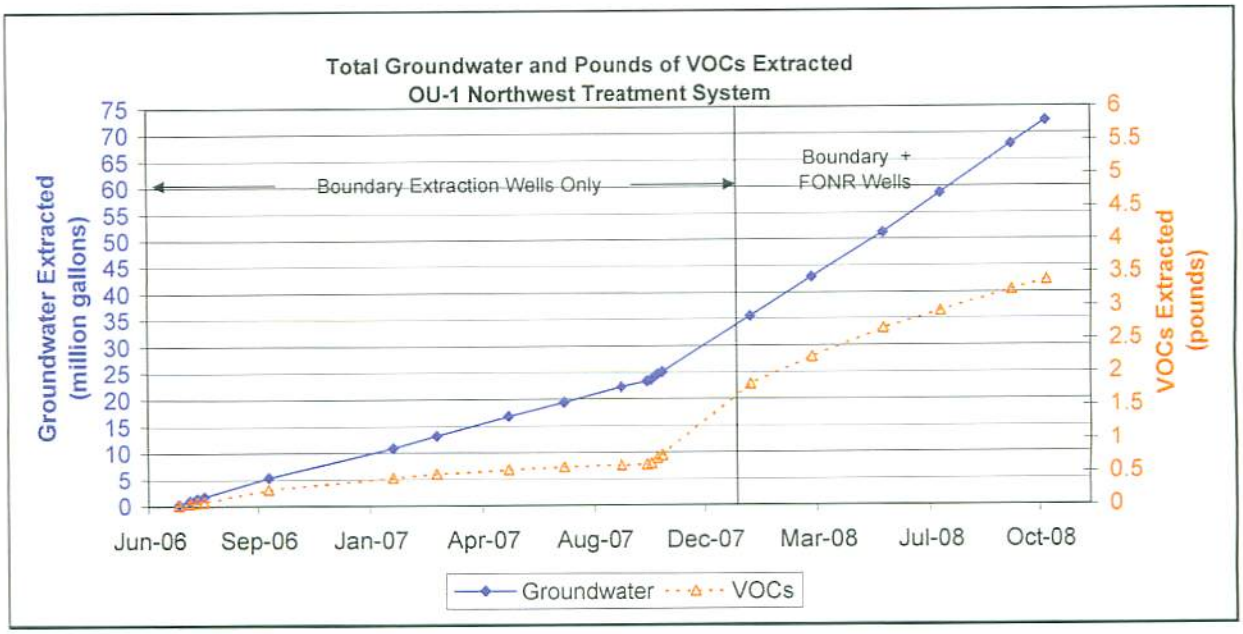
Table 1
Fort Ord OU-1 Northwest Treatment System Operational Summary
November 11, 2008 BCT Meeting

| Date | Influent TCE Concentration (µg/L) | Effluent TCE Concentration (µg/L) | Volume Treated (gal) | Mass Removed (lb) |
|---|---|---|---|---|
| 6/27/06-7/1/06 | 6.90 | 0.00 | 190,000 | 0.011 |
| 7/2/06-7/12/06 | 3.80 | 0.00 | 781,680 | 0.025 |
| 7/13/06-7/19/06 | 4.80 | 0.00 | 425,980 | 0.017 |
| 7/20/06-7/26/06 | 3.90 | 0.00 | 371,170 | 0.012 |
| 7/27/06-9/29/06 | 6.00 | 0.00 | 3,497,030 | 0.175 |
| 9/30/06-1/29/07 | 3.70 | 0.00 | 5,514,470 | 0.170 |
| 1/30/07-3/13/07 | 2.90 | 0.00 | 2,351,090 | 0.057 |
| 3/13/07-5/22/07 | 2.00 | 0.00 | 3,698,570 | 0.062 |
| 5/23/07-7/16/07 | 1.70 | 0.00 | 2,571,340 | 0.037 |
| 7/17/07-9/11/07 | 1.20 | 0.00 | 2,833,230 | 0.028 |
| 9/12/07-10/07/07 | 0.88 | 0.00 | 1,035,270 | 0.008 |
| 10/8/07-10/11/07 | 4.80 | 0.00 | 345,910 | 0.014 |
| 10/12/07-10/17/07 | 9.00 | 0.00 | 897,440 | 0.067 |
| 10/18/07-10/22/07 | 8.10 | 0.00 | 468,080 | 0.032 |
| 10/23/01-1/17/08 | 11.00 | 0.00 | 10,520,280 | 0.966 |
| 1/18/08-3/17/08 | 6.00 | 0.00 | 7,379,340 | 0.370 |
| 3/18/08 - 5/26/08 | 5.60 | 0.00 | 8,224,750 | 0.385 |
| 5/27/08-7/21/08 | 3.90 | 0.00 | 7,482,080 | 0.244 |
| 7/21/08-9/29/08 | 3.60 | 0.00 | 9,320,640 | 0.280 |
| 9/29/08-11/03/08 | 3.80 | 0.00 | 4,377,460 | 0.139 |
| Total Volume Pumped (gal) | | | | 72,285,810 |
| Total Mass Removed (lb) | | | | 3.10 |
| Average Pumping Rate (gpm) | | | | 58.49 |

| Date | Influent Cis-1,2-DCE Concentration | EFfluent Cis-1,2-DCE Concentration | Volume Treated (gal) | Mass Removed (lb) |
|---|---|---|---|---|
| 6/27/06-7/1/06 | 0.00 | 0.00 | 190,000 | 0.000 |
| 7/2/06-7/12/06 | 0.00 | 0.00 | 781,680 | 0.000 |
| 7/13/06-7/19/06 | 0.00 | 0.00 | 425,980 | 0.000 |
| 7/20/06-7/26/06 | 0.00 | 0.00 | 371,170 | 0.000 |
| 7/27/06-9/29/06 | 0.00 | 0.00 | 3,497,030 | 0.000 |
| 9/30/06-1/29/07 | 0.15 | 0.00 | 5,514,470 | 0.007 |
| 1/30/07-3/13/07 | 0.16 | 0.00 | 2,351,090 | 0.003 |
| 3/13/07-5/22/07 | 0.10 | 0.00 | 3,698,570 | 0.003 |
| 5/23/07-7/16/07 | 0.00 | 0.00 | 2,571,340 | 0.000 |
| 7/17/07-9/11/07 | 0.00 | 0.00 | 2,833,230 | 0.000 |
| 9/12/07-10/07/07 | 0.00 | 0.00 | 1,035,270 | 0.000 |
| 10/8/07-10/11/07 | 0.00 | 0.00 | 345,910 | 0.000 |
| 10/12/07-10/17/07 | 0.68 | 0.00 | 897,440 | 0.005 |
| 10/18/07-10/22/07 | 0.97 | 0.00 | 468,080 | 0.004 |
| 10/23/01-11/1/07 | 1.70 | 0.00 | 1,148,980 | 0.016 |
| 11/1/07 - 1/17/07 | 1.30 | 0.00 | 9,371,300 | 0.102 |
| 1/18/08-3/17/08 | 0.66 | 0.00 | 7,379,340 | 0.041 |
| 3/18/08 - 5/26/08 | 0.59 | 0.00 | 8,224,750 | 0.041 |
| 5/27/08 - 7/21/08 | 0.36 | 0.00 | 7,482,080 | 0.022 |
| 7/21/08 - 9/29/08 | 0.41 | 0.00 | 9,320,640 | 0.032 |
| 9/30/08 - 11/03/08 | 0.42 | 0.12 | 4,377,460 | 0.011 |
| Total Mass Removed (lb) | | | | 0.29 |

| Date | Influent Totalizer FI-131 Reading | Gallons since previous reading | Average Rate (gpm) | %Uptime |
|---|---|---|---|---|
| 10/13/2008 | 69682660 | 878,260 | 87.1 | 100 |
| 10/20/2008 | 70571210 | 888,550 | 88.1 | 100 |
| 10/27/2008 | 71423030 | 851,820 | 84.5 | 100 |
| 11/3/2008 | 72285810 | 862,780 | 85.6 | 100 |
| Period Total Gallons Treated | | | | 3,481,410 |
| Period Average Pumping Rate (gallons per minute) | | | | 86.3 |
| Period % Uptime | | | | 100.0 |


TCE in Influent
OU-1 Northwest Treatment System
TCE (ug/L)
12
10
8
6
4
2
0
MCL
FONR System
Startup
Jun-06
Sep-06
Dec-06
Mar-07
Jul-07
Oct-07
Jan-08
May-08
Aug-08


Total Groundwater and Pounds of VOCs Extracted
OU-1 Northwest Treatment System
Groundwater Extracted
(million gallons)
VOCs Extracted
(pounds)
Boundary Extraction Wells Only
Boundary +
FONR Wells
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
6
5.5
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Jun-06
Sep-06
Jan-07
Apr-07
Aug-07
Dec-07
Mar-08
Jul-08
Oct-08
Groundwater
VOCs

## Table 2

## TCE and Cis-1,2-DCE in OU-1 FONR Groundwater Remediation System - 2008 Performance Monitoring

| Sample Date | Extraction Well | | | | | | | | NWTS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MW-87 | EW-71 | MW-85 | MW-46AD | EW-60 | EW-62 | EW-63 | EW-66 | INFLUENT | MIDPOINT | EFFLUENT |
| | TCE (µg/L) | | | | | | | | | | |
| 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* | *15* | *4.3* | *2.9* | *0.90* | *ND* | *ND* | *1.7* | *3.8* | *.19 J* | *ND* |
| | | | | | | | | | | | |
| | cis-1,2-DCE (µg/L) | | | | | | | | | | |
| 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* | *.30 J* | *ND* | *ND* | *ND* | *.13 J* | *0.42* | *0.42* | *.12J* |

**italics indicate data not yet validated**