

ATTACHMENT 4: FIELD LOGS

This attachment contains the groundwater sample collection field logs for the relatively shallow standpipe monitoring wells (MW-1, MW-5 through MW-10, MW-13, MW-15, and MW-16), as well as the field data sheets for the Westbay™ multiport wells (MW-3, MW-4, MW-11, MW-12, MW-14, and MW-17 through MW-26). Groundwater sample collection for the 2nd Quarter 2009 sampling event was conducted by Insight Environmental, Inc.

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # 1



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73803
 Navy Contract No.: Battelle
 Sampled By: Marco Mendoza, Chase Brogdon
 Date: 5/27/09
 Weather: cloudy and cool

3010 E. Miraloma Blvd.
 Anaheim, CA 92806
 Telephone: (714) 678-6700
 Fax: (714) 678-6711

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{120}{\text{TD (feet)}} - \frac{25.51}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{185.05}{\text{Calculated Purge Volume}} \text{ Gallons}$$

PURGE METHOD

PUMP INTAKE SETTING

Bailer – Type: _____ Pump – Type: 2" Grundfos Depth in feet (BTOC): _____

FIELD PARAMETER MEASUREMENT

Time	Depth to Water (Feet)	Total Discharge (Gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (° C)	ORP (mV)	Comments
0725	25.51	0	5.07	53.6	2.17	9.6	15.8	80	Clear, no odor
0740	25.51	37	5.10	52.9	1.27	9.7	16.1	59	Clear, no odor
0755	25.51	74	5.40	52.8	0.61	9.7	16.1	51	Clear, no odor
0810	25.51	111	5.54	51.3	0.94	9.2	16.3	67	Clear, no odor
0825	25.51	148	5.56	51.7	0.75	9.8	16.3	76	Clear, no odor
0841	25.51	186	5.63	50.3	0.39	9.9	16.9	80	Clear, no odor

Total Purge Volume: 186 (Gallons)

Total Discharge: 3.02 (Casing Volumes)

Approx. Purge Rate: 2.50 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 713 Purge time start: 725

RECHARGE BEHAVIOR: Fast recharging
 Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: polytank

Purge water disposal: _____

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<u>Original</u>	<u>Duplicate</u>	<u>Blank</u>	<u>Other (Trip / Source / _____)</u>
Sample ID: <u>MW-1</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>845</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>6</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # 5



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73805
 Navy Contract No.: Battelle
 Sampled By: Chase Brogdon, Andrew Wells
 Date: 5/26/09
 Weather: cloudy and cold

3010 E. Miraloma Blvd.
 Anaheim, CA 92806
 Telephone: (714) 678-6700
 Fax: (714) 678-6711

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{140}{\text{TD (feet)}} - \frac{60.10}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{156.50}{\text{Calculated Purge Volume}} \text{ Gallons}$$

PURGE METHOD

PUMP INTAKE SETTING

Bailer – Type: _____ Pump – Type: 2" Grundfos Depth in feet (BTOC): _____

FIELD PARAMETER MEASUREMENT

Time	Depth to Water (Feet)	Total Discharge (Gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (° C)	ORP (mV)	Comments
0730	60.10	0	4.79	59.7	23.4	8.7	16.0	94	Clear, no odor
0738	60.10	32	5.04	47.0	6.60	9.7	16.2	85	Clear, no odor
0746	60.10	64	5.12	47.8	2.07	9.8	16.2	87	Clear, no odor
0754	60.10	96	5.22	46.0	1.24	9.7	16.2	88	Clear, no odor
0802	60.10	128	5.36	43.7	1.74	9.6	16.2	89	Clear, no odor
0810	60.10	160	5.37	47.2	0.91	9.5	16.3	86	Clear, no odor

Total Purge Volume: 160 (Gallons)

Total Discharge: 3.07 (Casing Volumes)

Approx. Purge Rate: 4.0 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 0725 Purge time start: 0730

RECHARGE BEHAVIOR: Fast recharging
 Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: polytank
 Purge water disposal: OU 1 System – Battelle - JPL

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<u>Original</u>	<u>Duplicate</u>	<u>Blank</u>	<u>Other (Trip / Source / _____)</u>
Sample ID: <u>MW-5</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>0813</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>6</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG
WELL ID # 6



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73805
 Navy Contract No.: Battelle
 Sampled By: Chase Brogdon, Andrew Wells
 Date: 5/26/09
 Weather: partly cloudy and cold

3010 E. Miraloma Blvd.
 Anaheim, CA 92806
 Telephone: (714) 678-6700
 Fax: (714) 678-6711

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{245}{\text{TD (feet)}} - \frac{166.41}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{138.60}{\text{Calculated Purge Volume}} \text{ Gallons}$$

PURGE METHOD

PUMP INTAKE SETTING

Bailer – Type: _____ Pump – Type: 2" Grundfos Depth in feet (BTOC): _____

FIELD PARAMETER MEASUREMENT

Time	Depth to Water (Feet)	Total Discharge (Gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (° C)	ORP (mV)	Comments
0850	166.41	0	5.34	0.137	188.0	8.5	18.8	209	Reddish brown color, no odor
0903	166.41	31	5.37	0.127	101.8	8.7	18.5	203	Reddish brown color, no odor
0916	166.41	62	5.61	0.137	52.30	8.6	18.7	189	Reddish brown color, no odor
0929	166.41	93	5.69	0.140	22.60	9.3	18.6	180	Cloudy, no odor
0942	166.41	124	5.67	0.137	13.50	8.6	18.8	181	Clear, no odor
0955	166.41	155	5.82	0.137	10.10	10.0	18.6	189	Clear, no odor

Total Purge Volume: 155 (Gallons)

Total Discharge: 3.02 (Casing Volumes)

Approx. Purge Rate: 2.50 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 0848 Purge time start: 0850

RECHARGE BEHAVIOR: Fast recharging
 Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: polytank
 Purge water disposal: OU 1 System – Battelle - JPL

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<u>Original</u>	<u>Duplicate</u>	<u>Blank</u>	<u>Other (Trip / Source / _____)</u>
Sample ID: <u>MW-6</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>0958</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>6</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

GROUNDWATER COLLECTION AND SAMPLE LOG
WELL ID # 7



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73805
 Navy Contract No.: Battelle
 Sampled By: Chase Brogdon, Andrew Wells
 Date: 5/19/09
 Weather: clear and cool

3010 E. Miraloma Blvd.
 Anaheim, CA 92806
 Telephone: (714) 678-6700
 Fax: (714) 678-6711

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{275}{\text{TD (feet)}} - \frac{196.18}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{154.36}{\text{Calculated Purge Volume}} \text{ Gallons}$$

PURGE METHOD

PUMP INTAKE SETTING

Bailer – Type: _____ Pump – Type: 2" Grundfos Depth in feet (BTOC): _____

FIELD PARAMETER MEASUREMENT

Time	Depth to Water (Feet)	Total Discharge (Gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (° C)	ORP (mV)	Comments
0820	196.18	0	4.59	77.1	73.6	8.8	23.7	-22	Yellowish color, slight odor
0835	196.18	31	5.61	65.8	25.7	8.6	23.8	-16	Clear, slight odor
0851	196.18	62	5.37	66.7	9.48	8.5	23.6	47	Clear, no odor
0907	196.18	93	5.66	68.2	4.45	8.5	23.9	30	Clear, no odor
0922	196.18	124	5.84	65.8	6.10	8.4	23.5	63	Clear, no odor
0938	196.18	155	5.92	66.6	3.96	8.3	24.8	71	Clear, faint odor

Total Purge Volume: 155 (Gallons)

Total Discharge: 3.01 (Casing Volumes)

Approx. Purge Rate: 2.0 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 0815 Purge time start: 0820

RECHARGE BEHAVIOR: Fast recharging
 Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: polytank
 Purge water disposal: OU 1 System – Battelle - JPL

WELL SAMPLING

Sample Depth in feet (BTOC): _____

Original	Duplicate	Blank	Other (Trip / Source / _____)
Sample ID: <u>MW-7</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>0941</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>6</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # 8



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73805
 Navy Contract No.: Battelle
 Sampled By: Chase Brogdon, Andrew Wells
 Date: 5/20/09
 Weather: clear and warm

3010 E. Miraloma Blvd.
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 Telephone: (714) 678-6700
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PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{205}{\text{TD (feet)}} - \frac{132.40}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{142.18}{\text{Calculated Purge Volume}} \text{ Gallons}$$

PURGE METHOD

PUMP INTAKE SETTING

Bailer – Type: _____ Pump – Type: 2" Grundfos Depth in feet (BTOC): _____

FIELD PARAMETER MEASUREMENT

Time	Depth to Water (Feet)	Total Discharge (Gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (° C)	ORP (mV)	Comments
0915	123.65	0	6.63	51.6	10.10	10.1	20.8	78	Cloudy, no odor
0929	123.65	32	6.53	54.6	3.13	9.3	20.8	112	Clear, no odor
0943	123.65	64	6.62	55.0	0.39	9.8	20.8	110	Clear, no odor
0958	123.65	96	6.63	54.2	1.42	9.7	21.3	109	Clear, no odor
1012	123.65	128	6.64	54.4	0.78	9.7	21.6	107	Clear, no odor
1026	123.65	160	6.63	55.4	0.30	9.8	22.4	106	Clear, no odor

Total Purge Volume: 160 (Gallons)

Total Discharge: 3.01 (Casing Volumes)

Approx. Purge Rate: 2.25 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 0910 Purge time start: 0915

RECHARGE BEHAVIOR: Fast recharging
 Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: polytank

Purge water disposal: OU 1 System – Battelle - JPL

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<u>Original</u>	<u>Duplicate</u>	<u>Blank</u>	<u>Other (Trip / Source / _____)</u>
Sample ID: <u>MW-8</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1033</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>6</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # 9



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73803
 Navy Contract No.: Battelle
 Sampled By: Chase Brogdon, Andrew Wells
 Date: 5/27/09
 Weather: clear and hot

3010 E. Miraloma Blvd.
 Anaheim, CA 92806
 Telephone: (714) 678-6700
 Fax: (714) 678-6711

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{68}{\text{TD (feet)}} - \frac{20.32}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{93.38}{\text{Calculated Purge Volume}} \text{ Gallons}$$

PURGE METHOD

PUMP INTAKE SETTING

Bailer – Type: _____ Pump – Type: 2" Grundfos Depth in feet (BTOC): _____

FIELD PARAMETER MEASUREMENT

Time	Depth to Water (Feet)	Total Discharge (Gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (° C)	ORP (mV)	Comments
0935	20.32	0	5.78	52.5	4.76	9.9	19.9	97	Clear, no odor
0942	20.32	19	5.82	50.5	13.4	9.1	21.4	100	Clear, no odor
0949	20.32	38	5.82	44.6	7.21	9.6	20.8	100	Clear, no odor
0956	20.32	57	5.88	51.2	6.78	9.6	20.4	93	Clear, no odor
1003	20.32	76	5.92	50.6	8.39	9.7	20.4	95	Clear, no odor
1010	20.32	95	6.02	50.7	4.32	9.5	21.7	93	Clear, no odor

Total Purge Volume: 95 (Gallons)

Total Discharge: 3.05 (Casing Volumes)

Approx. Purge Rate: 3.00 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 928 Purge time start: 935

RECHARGE BEHAVIOR: Fast recharging
 Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: polytank

Purge water disposal: OU1 wastewater treatment system

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<i>Original</i>	<i>Duplicate</i>	<i>Blank</i>	<i>Other (Trip / Source / _____)</i>
Sample ID: <u>MW-9</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1013</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>6</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # 10



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73805
 Navy Contract No.: Battelle
 Sampled By: Chase Brogdon, Andrew Wells
 Date: 5/21/09
 Weather: partly cloudy and cold

3010 E. Miraloma Blvd.
 Anaheim, CA 92806
 Telephone: (714) 678-6700
 Fax: (714) 678-6711

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{155}{\text{TD (feet)}} - \frac{74.60}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{157.46}{\text{Calculated Purge Volume}} \text{ Gallons}$$

PURGE METHOD

PUMP INTAKE SETTING

Bailer – Type: _____ Pump – Type: 2" Grundfos Depth in feet (BTOC): _____

FIELD PARAMETER MEASUREMENT

Time	Depth to Water (Feet)	Total Discharge (Gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (° C)	ORP (mV)	Comments
0654	74.60	0	6.72	0.118	26.4	9.5	18.8	222	Slight brown tint, no odor
0702	74.60	32	6.52	0.121	3.73	9.4	19.3	232	Clear, no odor
0710	74.60	63	6.49	0.123	2.22	8.7	19.1	228	Clear, no odor
0718	74.60	95	6.43	0.122	1.32	9.3	19.0	231	Clear, no odor
0726	74.60	126	6.40	0.124	0.90	9.7	19.1	226	Clear, no odor
0734	74.60	158	6.43	0.122	0.57	8.8	18.9	221	Clear, no odor

Total Purge Volume: 158 (Gallons)

Total Discharge: 3.01 (Casing Volumes)

Approx. Purge Rate: 4.00 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 0651 Purge time start: 0654

RECHARGE BEHAVIOR: Fast recharging
 Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: polytank

Purge water disposal: OU 1 – Battelle - JPL

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<u>Original</u>	<u>Duplicate</u>	<u>Blank</u>	<u>Other (Trip / Source / _____)</u>
Sample ID: <u>MW-10</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>0738</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>6</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # 13



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73805
 Navy Contract No.: Battelle
 Sampled By: Chase Brogdon, Andrew Wells
 Date: 5/20/09
 Weather: clear and sunny

3010 E. Miraloma Blvd.
 Anaheim, CA 92806
 Telephone: (714) 678-6700
 Fax: (714) 678-6711

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{235}{\text{TD (feet)}} - \frac{168.04}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{131.13}{\text{Calculated Purge Volume}} \text{ Gallons}$$

PURGE METHOD

PUMP INTAKE SETTING

Bailer – Type: _____ Pump – Type: 2" Grundfos Depth in feet (BTOC): _____

FIELD PARAMETER MEASUREMENT

Time	Depth to Water (Feet)	Total Discharge (Gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (° C)	ORP (mV)	Comments
0715	168.04	0	6.42	60.8	28.2	10.1	20.2	140	Slightly cloudy, no odor
0729	168.04	27	6.49	58.9	3.50	9.8	21.4	134	Clear, no odor
0744	168.04	54	6.46	59.9	1.24	10.6	21.0	125	Clear, no odor
0758	168.04	81	6.50	59.6	0.74	10.4	21.9	125	Clear, no odor
0813	168.04	108	6.49	60.3	0.44	10.7	22.4	122	Clear, no odor
0827	168.04	135	6.50	58.6	0.49	9.8	22.2	131	Clear, no odor

Total Purge Volume: 135 (Gallons)

Total Discharge: 3.09 (Casing Volumes)

Approx. Purge Rate: 2.00 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 0712 Purge time start: 0715

RECHARGE BEHAVIOR: Fast recharging
 Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: polytank
 Purge water disposal: Ou 1 – Battelle - JPL

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<u>Original</u>	<u>Duplicate</u>	<u>Blank</u>	<u>Other (Trip / Source / _____)</u>
Sample ID: <u>MW-13</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>0833</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>9</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # 15



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73805
 Navy Contract No.: Battelle
 Sampled By: Chase Brogdon, Andrew Wells
 Date: 5/21/09
 Weather: clear and sunny

3010 E. Miraloma Blvd.
 Anaheim, CA 92806
 Telephone: (714) 678-6700
 Fax: (714) 678-6711

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{74}{\text{TD (feet)}} - \frac{30.98}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{84.25}{\text{Calculated Purge Volume}} \text{ Gallons}$$

PURGE METHOD

PUMP INTAKE SETTING

Bailer – Type: _____ Pump – Type: 2" Grundfos Depth in feet (BTOC): _____

FIELD PARAMETER MEASUREMENT

Time	Depth to Water (Feet)	Total Discharge (Gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (° C)	ORP (mV)	Comments
0830	30.98	0	6.79	54.7	8.76	7.8	17.8	77	Clear, no odor
0835	30.98	17	6.77	53.3	2.21	9.2	18.2	86	Clear, no odor
0840	30.98	34	6.69	53.4	0.95	9.5	18.0	84	Clear, no odor
0845	30.98	51	6.75	51.8	1.46	8.8	18.1	91	Clear, no odor
0850	30.98	68	6.80	53.3	1.81	8.9	18.5	85	Clear, no odor
0855	30.98	85	6.76	52.9	0.69	9.3	18.8	79	Clear, no odor

Total Purge Volume: 85 (Gallons)

Total Discharge: 3.03 (Casing Volumes)

Approx. Purge Rate: 3.50 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 0825 Purge time start: 0830

RECHARGE BEHAVIOR: Fast recharging
 Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: polytank

Purge water disposal: OU 1 –Battelle - JPL

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<u>Original</u>	<u>Duplicate</u>	<u>Blank</u>	<u>Other (Trip / Source / _____)</u>
Sample ID: <u>MW-15</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>0858</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>6</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # 16



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73805
 Navy Contract No.: Battelle
 Sampled By: Chase Brogdon, Andrew Wells
 Date: 5/19/09
 Weather: clear and sunny

3010 E. Miraloma Blvd.
 Anaheim, CA 92806
 Telephone: (714) 678-6700
 Fax: (714) 678-6711

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{285}{\text{TD (feet)}} - \frac{220.50}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{126.32}{\text{Calculated Purge Volume}} \text{ Gallons}$$

PURGE METHOD

PUMP INTAKE SETTING

Bailer – Type: _____ Pump – Type: 2" Grundfos Depth in feet (BTOC): _____

FIELD PARAMETER MEASUREMENT

Time	Depth to Water (Feet)	Total Discharge (Gallons)	pH	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp (° C)	ORP (mV)	Comments
1035	220.50	0	5.95	64.3	5.19	9.3	25.6	86	Clear, no odor
1048	220.50	26	6.09	63.2	0.89	6.5	24.8	81	Clear, no odor
1101	220.50	52	6.22	61.2	0.47	8.9	24.3	97	Clear, no odor
1114	220.50	78	6.22	60.4	0.52	8.9	24.4	92	Clear, no odor
1127	220.50	104	6.20	63.0	0.08	7.7	24.5	104	Clear, no odor
1140	220.50	130	6.27	61.9	0.16	8.7	25.1	105	Clear, no odor

Total Purge Volume: 130 (Gallons)

Total Discharge: 3.09 (Casing Volumes)

Approx. Purge Rate: 2.00 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 1025 Purge time start: 1030

RECHARGE BEHAVIOR: Fast recharging
 Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: polytank
 Purge water disposal: OU 1 – Battelle - JPL

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<u>Original</u>	<u>Duplicate</u>	<u>Blank</u>	<u>Other (Trip / Source / _____)</u>
Sample ID: <u>MW-16</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1147</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>9</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD



Groundwater Sampling
Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-4
Sampling Zone No.: 5 to 1
Depth (ft): 513, 392, 322, 240, 150
Beginning of Session: 14.07 psia
End of Session: 13.98 psia

Start Time: 0810
Finish Time: 1125

Date: 5/14/09
Page: 1 of 1

Water Pressure Inside Casing: _____

Port #	Run #	Surface Function Checks							Position Sampler	Sample Collection Checks							Water Quality Parameters								
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe in	Arm In		Deactivate Set Arm Locate Port	Arm out	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turb. (NTU)	Cond (mmhos)	Dissolved Oxygen	Temp. (oC)
5	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	149.36	✓	104.00	✓	103.98	✓	✓	149.39	0834	4.95	4.12	47.9	10.4	21.8	22
4	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	96.59	✓	151.59	✓	151.58	✓	✓	96.63	0904	6.29	3.02	41.6	9.6	22.0	20
3	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	66.05	✓	121.61	✓	121.61	✓	✓	66.07	0934	5.29	11.6	44.1	9.6	21.9	60
2	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	30.25	✓	86.09	✓	86.09	✓	✓	30.30	1016	5.22	2.46	97.9	9.4	23.5	75
1	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.13	✓	48.96	✓	48.94	✓	✓	14.12	1013	5.62	6.77	43.8	9.6	24.6	74
1	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.12	✓	48.95	✓	48.92	✓	✓	14.13	—	5.80	3.33	43.2	9.3	21.8	113

Notes:

port 5: CLEAR ~~to~~ ODO₂ STRAW port 4: CLEAR SLIGHT ODO₂ port 3: CLEAR yellowish w/ STRAW ODO₂
port 2: CLEAR SLIGHT ODO₂ port 1: CLEAR NO ODO₂

Total Volume: _____



Groundwater Sampling
Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-11
Sampling Zone No.: 5101
Depth (ft): 639, 524, 429, 259, 149
Beginning of Session: 14.06 psia
End of Session: 14.05 psia

Start Time: 0755
Finish Time: 1145

Date: 5/12/09
Page: 1 of 1

Water Pressure Inside Casing: _____

Port #	Run #	Surface Function Checks							Position Sampler	Arm out	Sample Collection Checks							Water Quality Parameters						
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe in	Arm In			Deactivate Set Arm Locate Port	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	PH	Turb. (NTU)	Cond (mmhos)	Dissolved Oxygen
5	1	✓	✓	✓	✓	✓	✓	✓	✓	238.64	✓	229.68	✓	229.63	✓	✓	238.65	0637	4.93	11.3	31.8	9.3	17.5	5
5	2	✓	✓	✓	✓	✓	✓	✓	✓	238.61	✓	229.64	✓	229.64	✓	✓	238.63	—	5.14	1.96	30.2	9.3	17.5	4
4	1	✓	✓	✓	✓	✓	✓	✓	✓	190.38	✓	188.10	✓	188.02	✓	✓	190.41	0929	5.39	0.88	21.0	9.3	14.5	-42
4	2	✓	✓	✓	✓	✓	✓	✓	✓	190.34	✓	188.07	✓	188.01	✓	✓	190.35	—	5.40	0.11	21.0	9.2	14.3	-35
3	1	✓	✓	✓	✓	✓	✓	✓	✓	149.34	✓	145.20	✓	145.12	✓	✓	149.33	1026	5.18	7.19	39.0	9.5	18.6	70
2	1	✓	✓	✓	✓	✓	✓	✓	✓	75.53	✓	73.02	✓	73.01	✓	✓	75.58	1054	5.22	1.45	40.6	9.6	19.5	60
1	1	✓	✓	✓	✓	✓	✓	✓	✓	28.62	✓	33.51	✓	33.52	✓	✓	28.66	1132	5.31	2.62	57.2	10.1	19.5	45

MS/MSD

MS/MSD

Notes:

port 5: CLEAR STRONG ODR port 4: CLEAR STRONG ODR port 3: CLEAR STRONG ODR
port 2: CLEAR STRONG ODR port 1: CLEAR STRONG ODR

Total Volume: _____



Groundwater Sampling
Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-12
Sampling Zone No.: 5 to 1
Depth (ft): 548, 436, 323, 243, 140
Beginning of Session: 14.04 psia
End of Session: 14.05 psia

Start Time: 0807
Finish Time: 1110

Date: 5/07/09
Page: 1 of 1

Water Pressure Inside Casing:

Port #	Run #	Surface Function Checks							Position Sampler	Sample Collection Checks								Water Quality Parameters						
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe in	Arm In	Deactivate Set Arm Locate Port	Arm out	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	PH	Turb. (NTU)	Cond (mmhcs)	Dissolved Oxygen	Temp. (oC)
5	1	✓	✓	✓	✓	✓	✓	✓	✓	220.50	✓	209.79	✓	209.71	✓	✓	220.49	0835	5.07	301	39.8	11.2	22.2	104
4	1	✓	✓	✓	✓	✓	✓	✓	✓	171.61	✓	163.61	✓	163.51	✓	✓	171.58	0927	5.13	0.55	44.9	12.3	22.3	83
3	1	✓	✓	✓	✓	✓	✓	✓	✓	122.32	✓	114.84	✓	114.87	✓	✓	122.35	0950	5.36	2.39	36.6	12.1	22.1	103
3	2	✓	✓	✓	✓	✓	✓	✓	✓	122.27	✓	114.82	✓	114.84	✓	✓	122.31	—	5.51	2.59	37.8	9.4	22.3	93
2	1	✓	✓	✓	✓	✓	✓	✓	✓	87.81	✓	80.41	✓	80.41	✓	✓	87.85	1035	5.54	2.65	48.9	9.4	22.8	97
1	1	✓	✓	✓	✓	✓	✓	✓	✓	82.76	✓	38.39	✓	38.47	✓	✓	42.83	1107	3.65	11.3	53.6	9.6	23.6	100

up E-07-209

DAPE

Notes:

port 5: CLEAR STRONG ODOUR port 4: CLEAR STRONG ODOUR port 3: CLEAR SLIGHT ODOUR
port 2: CLEAR STRONG ODOUR port 1: CLEAR STRONG ODOUR

Total Volume:



Groundwater Sampling Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-17
Sampling Zone No.: 5101
Depth (ft): 726, 582, 468, 370, 250
Beginning of Session: 14.04 psia
End of Session: 14.09 psia

Start Time: 0745
Finish Time: 1220

Date: 5/5/09
Page: 1 of 1

Water Pressure Inside Casing:

Port #	Run #	Surface Function Checks							Position Sampler	Sample Collection Checks							Water Quality Parameters								
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe in	Arm In		Deactivate Set Arm Locate Port	Arm out	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turb. (NTU)	Cond (mmhos)	Dissolved Oxygen	Temp. (oC)
5	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	244.48	✓	245.10	✓	245.08	✓	✓	244.38	0840	5.23	21.0	29.0	9.1	18.7	32
4	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	182.17	✓	182.97	✓	182.94	✓	✓	182.16	918	5.48	0.29	29.7	9.2	19.7	35
4	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	182.15	✓	182.88	✓	182.97	✓	✓	182.14	-	5.53	1.54	30.5	9.3	19.6	40
4	3	✓	✓	✓	✓	✓	✓	✓	✓	✓	182.15	✓	183.01	✓	183.00	✓	✓	182.14	-	5.56	1.63	30.4	9.4	19.9	40
4	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	182.11	✓	183.02	✓	183.01	✓	✓	182.10	-	-	-	-	-	-	-
3	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	132.41	✓	133.46	✓	133.50	✓	✓	132.40	1107	5.26	12.8	66.0	10.4	20.4	75
2	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	89.99	✓	92.60	✓	92.64	✓	✓	89.99	1141	5.32	1.79	83.2	9.8	20.9	63
1	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	37.80	✓	40.37	✓	40.37	✓	✓	37.83	1213	5.66	11.5	34.9	10.1	21.6	72

18/1465
MW-17-4

18/1465
MW-17-4

Notes:
port 5: CLEAR STRONG ODOOR port 4: CLEAR SLIGHT ODOOR port 3: CLEAR NO ODOOR
port 2: CLEAR NO ODOOR port 1: CLEAR SLIGHT ODOOR

Total Volume:



Groundwater Sampling
Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-18
Sampling Zone No.: 5 to 1
Depth (ft): 684, 564, 424, 330, 270
Beginning of Session: 14.08 psia
End of Session: 14.06 psia

Start Time: 0840
Finish Time: 1230

Date: 4/30/09
Page: 1 of 1

Water Pressure Inside Casing: _____

Port #	Run #	Surface Function Checks							Position Sampler	Sample Collection Checks								Water Quality Parameters						
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe in	Arm In		Deactivate Set Arm Locate Port	Arm out	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	PH	Turb. (NTU)	Cond (mmhos)	Dissolved Oxygen
5	1	✓	✓	✓	✓	✓	✓	✓	✓	161.45	✓	209.35	✓	209.30	✓	✓	161.46	0907	5.12	0.71	30.1	11.3	18.9	101
4	2	✓	✓	✓	✓	✓	✓	✓	✓	109.13	✓	157.70	✓	157.81	✓	✓	109.12	0949	5.26	0.04	40.1	10.1	18.7	92
2	2	✓	✓	✓	✓	✓	✓	✓	✓	109.16	✓	157.67	✓	157.70	✓	✓	109.08	1013	6.09	2.38	41.1	10.3	18.4	54
3	1	✓	✓	✓	✓	✓	✓	✓	✓	48.07	✓	99.92	✓	99.93	✓	✓	48.09	1045	6.15	-1.16	48.8	7.9	18.4	79
2	1	✓	✓	✓	✓	✓	✓	✓	✓	14.20	✓	58.82	✓	58.81	✓	✓	14.27	1132	6.17	-1.86	46.6	9.6	20.4	91
2	2	✓	✓	✓	✓	✓	✓	✓	✓	14.25	✓	58.82	✓	58.81	✓	✓	14.25	1155	6.25	-1.99	47.9	10.4	18.6	99
1	1	✓	✓	✓	✓	✓	✓	✓	✓	14.17	✓	32.86	✓	32.80	✓	✓	14.18	1225	6.42	-0.10	36.6	9.3	22.0	110

MS/MSD

MS/MSD

MS/MSD

MS/MSD

Notes:

port 5: CLEAN STRONG ODOUR port 4: CLEAN STRONG ODOUR port 3: CLEAN STRONG ODOUR
port 2: CLEAN NO ODOUR port 1: CLEAN NO ODOUR

Total Volume: _____



Groundwater Sampling
Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-19
 Sampling Zone No.: 6 to 1
 Depth (ft): 498, 444, 392, 314, 242
 Beginning of Session: 13.99 psia
 End of Session: 14.09 psia

Start Time: 0820
 Finish Time: 1130

Date: 5/11/09
 Page: 1 of 1

Water Pressure Inside Casing: _____

Port #	Run #	Surface Function Checks							Position Sampler	Am out	Sample Collection Checks							Water Quality Parameters						
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe in	Arm In			Deactivate Set Arm Locate Port	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	pH	Turb. (NTU)	Cond (microh)	Dissolved Oxygen
5	1	✓	✓	✓	✓	✓	✓	✓	✓	173.65	✓	166.60	✓	166.59	✓	✓	173.59	0842	4.92	0.57	70.9	10.6	16.7	81
4	1	✓	✓	✓	✓	✓	✓	✓	✓	150.18	✓	143.19	✓	143.18	✓	✓	150.20	0913	5.05	0.16	59.6	11.0	16.9	73
4	2	✓	✓	✓	✓	✓	✓	✓	✓	150.18	✓	143.17	✓	143.18	✓	✓	150.18	—	5.20	0.50	58.8	10.8	17.6	69
3	1	✓	✓	✓	✓	✓	✓	✓	✓	127.58	✓	121.45	✓	121.44	✓	✓	127.57	1015	5.36	0.67	57.2	10.3	20.6	81
2	1	✓	✓	✓	✓	✓	✓	✓	✓	93.63	✓	87.18	✓	87.22	✓	✓	93.63	1045	5.43	118.0	98.0	10.6	20.5	104
1	1	✓	✓	✓	✓	✓	✓	✓	✓	62.55	✓	56.03	✓	56.06	✓	✓	62.60	1122	5.59	6.65	61.0	11.1	20.4	92

195-08-100

Notes:

port 5: clear faint odor port 4: clear no odor port 3: clear slight odor
 port 2: murky brownish/tan color, port 1: clear no odor
no odor

Total Volume: _____



Groundwater Sampling
Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-20
 Sampling Zone No.: 5 + 0 /
 Depth (ft): 900, 700, 562, 392, 230
 Beginning of Session: 14.07 psia
 End of Session: 14.07 psia

Start Time: 0755
 Finish Time: 1140

Date: 5/06/09
 Page: 1 of 1

Water Pressure Inside Casing: _____

Port #	Run #	Surface Function Checks							Position Sampler	Sample Collection Checks							Water Quality Parameters							
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe In	Arm In		Deactivate Set Arm Locate Port	Arm out	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	PH	Turb. (NTU)	Cond (mmhos)	Dissolved Oxygen
5	1	✓	✓	✓	✓	✓	✓	✓	✓	323.71	✓	327.23	✓	327.22	✓	✓	323.74	0825	5.34	0.69	28.6	8.9	18.9	-152
4	1	✓	✓	✓	✓	✓	✓	✓	✓	236.90	✓	238.60	✓	238.55	✓	✓	236.96	0901	5.67	1.02	32.0	8.8	19.9	-171
4	2	✓	✓	✓	✓	✓	✓	✓	✓	236.93	✓	238.57	✓	238.52	✓	✓	236.94	—	5.81	0.57	32.6	9.1	19.8	-175
3	1	✓	✓	✓	✓	✓	✓	✓	✓	176.97	✓	177.20	✓	177.23	✓	✓	176.98	1005	5.83	41.8	0.61	9.0	20.9	-35
3	2	✓	✓	✓	✓	✓	✓	✓	✓	176.97	✓	177.51	✓	177.59	✓	✓	176.97	—	5.76	0.84	37.4	9.3	20.7	-10
2	1	✓	✓	✓	✓	✓	✓	✓	✓	103.18	✓	106.02	✓	106.07	✓	✓	103.21	1104	5.71	0.33	47.7	7.2	22.0	63
1	1	✓	✓	✓	✓	✓	✓	✓	✓	33.00	✓	35.01	✓	35.14	✓	✓	33.02	1134	5.89	1.12	47.9	9.4	22.2	52

dupl - 05-20
dupl - 06-20

→ dupl
→ dupl

Notes: port 5: CLEAR STRONG ODO port 4: CLEAR STRONG ODO port 3: CLEAR STRONG ODO
 port 2: CLEAR STRONG ODO port 1: CLEAR STRONG ODO

Total Volume: _____



Groundwater Sampling
Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-21
 Sampling Zone No.: 5
 Depth (ft): 372, 310, 240, 161, 80
 Beginning of Session: 14.14 psia
 End of Session: 14.17 psia

Start Time: 0830
 Finish Time: 1110

Date: 4/28/09
 Page: 1 of 1

Water Pressure Inside Casing:

Port #	Run #	Surface Function Checks							Position Sampler	Arm out	Sample Collection Checks							Water Quality Parameters							
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe in	Arm In			Deactivate Set Arm Locate Port	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	PH	Turb. (NTU)	Cond (mmhos)	Dissolved Oxygen	Temp. (oC)
5	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	129.75	✓	46.73	✓	156.71	✓	✓	129.73	0850	4.81	0.43	0.096	9.0	17.0	141
4	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	102.72	✓	129.85	✓	129.84	✓	✓	102.74	0920	5.31	6.93	0.1	9.0	17.1	57
4	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	102.17	✓	129.82	✓	129.84	✓	✓	102.19	—	5.24	6.54	0.1	12.7	17.3	48
3	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	72.54	✓	99.91	✓	99.91	✓	✓	72.50	1002	5.33	1.31	0.122	9.1	17.8	155
2	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	39.96	✓	65.61	✓	65.60	✓	✓	39.98	1035	6.93	6.32	0.140	9.6	17.3	144
1	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.23	✓	34.07	✓	34.06	✓	✓	14.26	1108	6.03	2.90	0.135	9.5	17.9	168

DUPS
03-2009

Notes:

port 5: clear no odor port 4: clear no odor port 3: clear no odor
 port 2: clear no odor port 1: clear no odor

Total Volume:



Groundwater Sampling
Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-22
 Sampling Zone No.: 5 to 1
 Depth (ft): 588, 467, 389, 329, 245
 Beginning of Session: 13.99 psia
 End of Session: 14.05 psia

Start Time: 0745
 Finish Time: 1105

Date: 04/22/09
 Page: 1 of 1

Water Pressure Inside Casing: _____

Port #	Run #	Surface Function Checks							Position Sampler	Sample Collection Checks							Water Quality Parameters							
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe In	Arm In		Deactivate Set Arm Locate Port	Arm out	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	PH	Turb. (NTU)	Cond (mmhos)	Dissolved Oxygen
5	1	✓	✓	✓	✓	✓	✓	✓	✓	203.11	✓	198.19	✓	198.17	✓	✓	203.14	0817	4.98	-0.40	32.3	9.0	18.8	-189
4	1	✓	✓	✓	✓	✓	✓	✓	✓	150.69	✓	146.93	✓	146.93	✓	✓	150.68	0855	5.30	-0.84	39.8	9.1	18.9	55
4	2	✓	✓	✓	✓	✓	✓	✓	✓	150.01	✓	146.93	✓	146.92	✓	✓	150.00	-	4.82	-0.36	39.5	9.1	19.1	76
3	1	✓	✓	✓	✓	✓	✓	✓	✓	116.58	✓	114.53	✓	114.55	✓	✓	116.58	0957	5.19	-1.10	58.5	9.0	20.7	55
2	1	✓	✓	✓	✓	✓	✓	✓	✓	90.49	✓	88.41	✓	88.41	✓	✓	90.52	1025	5.40	-0.67	55.7	8.7	22.5	60
1	1	✓	✓	✓	✓	✓	✓	✓	✓	53.77	✓	51.50	✓	51.53	✓	✓	53.79	1103	5.51	10.92	0.120	9.6	23.9	183

MS/MSD

MS/MSD

Notes:

port 5: CLEAR STRONG ODOR port 4: CLEAR SLIGHT ODOR port 3: CLEAR SLIGHT ODOR
 port 2: CLEAR FAINT ODOR port 1: CLEAR NO ODOR

Total Volume: _____



Groundwater Sampling
Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-23
Sampling Zone No.: 5701
Depth (ft): 542, 445, 319, 254, 174
Beginning of Session: 14.02 psia
End of Session: 14.06 psia

Start Time: 0740
Finish Time: 1100

Date: 5/13/09
Page: 1 of 1

Water Pressure Inside Casing: _____

Port #	Run #	Surface Function Checks							Position Sampler	Arm out	Sample Collection Checks							Water Quality Parameters							
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe in	Arm In			Deactivate Set Arm Locate Port	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	PH	Turb. (NTU)	Cond (mmhos)	Dissolved Oxygen	Temp. (cC)
	5	1	✓	✓	✓	✓	✓	✓	✓	✓	206.77	✓	206.85	✓	206.15	✓	✓	206.77	0815	5.15	1.19	43.7	9.0	17.7	67
	4	1	✓	✓	✓	✓	✓	✓	✓	✓	164.71	✓	164.60	✓	164.60	✓	✓	164.73	0847	5.67	0.58	36.2	9.3	18.1	43
	4	2	✓	✓	✓	✓	✓	✓	✓	✓	164.68	✓	164.59	✓	164.56	✓	✓	164.66	—	5.43	0.50	36.4	9.1	18.9	50
	3	1	✓	✓	✓	✓	✓	✓	✓	✓	110.04	✓	111.53	✓	111.55	✓	✓	110.02	0837	5.41	1.41	37.3	9.2	14.9	64
	2	1	✓	✓	✓	✓	✓	✓	✓	✓	81.80	✓	83.36	✓	83.36	✓	✓	81.81	1004	5.30	0.50	47.3	8.9	20.8	79
	1	1	✓	✓	✓	✓	✓	✓	✓	✓	47.25	✓	49.15	✓	49.19	✓	✓	47.28	1041	5.59	3.22	0.19%	9.2	21.8	195

MS/MSD

MS/MSD

Notes:

port 5: CLEAN SLIGHT ODR port 4: CLEAN NO ODR port 3: CLEAN NO ODR
port 2: CLEAN NO ODR port 1: CLEAN NO ODR

Total Volume: _____



Groundwater Sampling Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-24
Sampling Zone No.: 5701
Depth (ft): 678, 554, 435, 373, 279
Beginning of Session: 14.04 psia
End of Session: 14.10 psia

Start Time: 820
Finish Time: 1425

Date: 4/23/09
Page: 1 of 1

Water Pressure Inside Casing:

Port #	Run #	Surface Function Checks							Position Sampler	Sample Collection Checks								Water Quality Parameters						
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe in	Arm In		Deactivate Set Arm Locate Port	Arm out	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	PH	Turb. (NTU)	Cond (mmhos)	Dissolved Oxygen
5	1	✓	✓	✓	✓	✓	✓	✓	✓	233.99	✓	224.39	✓	224.38	✓	✓	233.96	0845	4.83	-0.17	38.1	8.9	18.3	73
5	2	✓	✓	✓	✓	✓	✓	✓	✓	233.54	✓	224.36	✓	224.37	✓	✓	233.63	0900	5.17	-0.67	38.1	8.9	18.6	48
4	1	✓	✓	✓	✓	✓	✓	✓	✓	180.85	✓	172.09	✓	172.08	✓	✓	180.85	0945	5.76	-0.24	23.6	9.0	18.0	-130
4	2	✓	✓	✓	✓	✓	✓	✓	✓	180.22	✓	172.06	✓	172.08	✓	✓	180.27	—	5.98	0.20	25.5	8.6	18.8	-122
3	1	✓	✓	✓	✓	✓	✓	✓	✓	129.22	✓	121.80	✓	121.80	✓	✓	129.24	1048	6.30	0.11	34.7	11.0	17.8	25
3	2	✓	✓	✓	✓	✓	✓	✓	✓	129.23	✓	121.80	✓	121.80	✓	✓	129.27	—	6.24	0.16	34.3	9.5	17.3	44
3	3	✓	✓	✓	✓	✓	✓	✓	✓	128.37	✓	121.80	✓	121.80	✓	✓	128.38	—	6.33	0.24	33.7	9.1	18.7	45
2	1	✓	✓	✓	✓	✓	✓	✓	✓	102.10	✓	95.06	✓	95.85	✓	✓	102.07	1200	6.37	0.26	45.2	9.3	18.7	16
1	2	✓	✓	✓	✓	✓	✓	✓	✓	61.53	✓	55.56	✓	55.55	✓	✓	61.51	1237	6.28	0.16	64.5	9.1	18.5	56
1	3	✓	✓	✓	✓	✓	✓	✓	✓	61.50	✓	55.56	✓	55.55	✓	✓	61.51	—	6.32	0.28	61.3	9.2	19.7	63
1	4	✓	✓	✓	✓	✓	✓	✓	✓	61.46	✓	55.55	✓	55.57	✓	✓	61.45	1355	—	—	—	—	—	—
1	5	✓	✓	✓	✓	✓	✓	✓	✓	61.09	✓	55.55	✓	55.54	✓	✓	61.01	1420	6.46	-0.39	61.7	9.3	20.2	96

MS/MSD
DUPE
DUPE

MS/MSD
DUPE
DUPE

Notes:

port 5: CLEAN NO ODO port 4: CLEAN STRONG ODO port 3: CLEAN STRONG ODO
port 2: CLEAN STRONG ODO port 1: CLEAN STRONG ODO

Total Volume:



Groundwater Sampling
Multi-Port Well Field Data Sheet

JPL Pasadena
Contract #: Battelle

Well ID: MW-25
Sampling Zone No.: 5 to 1
Depth (ft): 713, 633, 503, 423, 358
Beginning of Session: 14.26 psia
End of Session: 14.24 psia

Start Time: 1000
Finish Time: 1320

Date: 4/29/09
Page: 1 of 1

Water Pressure Inside Casing:

Port #	Run #	Surface Function Checks							Position Sampler	Sample Collection Checks							Water Quality Parameters								
		Shoe Out	Vacuum Check Valve Closed	Valve Open	Evacuate Container	Valve Closed	Shoe In	Arm In		Deactivate Set Arm Locate Port	Arm out	Pressure in MP	Shoe Out	Zone Pressure	Open Valve	Zone Pressure	Close Valve	Shoe In	Pressure in MP	Time	PH	Turb. (NTU)	Cond (mmhos)	Dissolved Oxygen	Temp. (°C)
5	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	207.45	✓	205.16	✓	205.16	✓	✓	207.43	1022	4.59	1.10	55.5	9.4	20.8	17
4	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	172.85	✓	168.78	✓	168.79	✓	✓	172.85	1055	4.68	0.75	66.8	9.8	19.4	65
3	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	116.46	✓	115.89	✓	115.89	✓	✓	116.45	1121	4.91	0.11	63.7	9.0	19.3	67
2	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	116.41	✓	115.85	✓	115.85	✓	✓	116.36	-	5.14	1.29	62.1	9.7	20.9	81
2	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	81.53	✓	84.62	✓	84.62	✓	✓	81.52	1227	5.28	0.99	64.8	9.3	22.2	77
1	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	53.44	✓	58.44	✓	58.44	✓	✓	53.60	1317	5.36	12.8	77.9	10.5	23.4	105

Dupe

Dupe

Notes:

port 5: CLEAR SLIGHT ODDOR port 4: CLEAR STRONG ODDOR port 3: CLEAR SLIGHT ODDOR

port 2: CLEAR SLIGHT ODDOR port 1: CLEAR NO ODDOR

Total Volume:

ATTACHMENT 5: WATER LEVEL MEASUREMENTS

This attachment contains water level measurements for the Westbay™ multiport JPL monitoring wells obtained during the 2nd Quarter 2009. Water level measurements were recorded before the sampling event on April, 2009, and after the sampling event on May 28, 2009. Water levels for the shallow wells were measured using a Solinst™ water level meter and the results are provided with the field logs (Attachment 4). In the deep multiport wells, the hydraulic head at each sampling port was measured with a Westbay™ MOSDAX sampling probe. Water level measurements were conducted by Insight Environmental, Inc.

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-3
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. + MSL): 1,100.34
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	954	1007
Pressure (psia)	14.13	14.16
Temperature (°C)	21.48	17.32

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	653	245.99	253.90	245.99	21.77	956	99.85	1000.49
4	558	204.77	212.87	204.70	22.52	958	99.51	1000.83
3	346	112.55	124.18	112.58	22.22	1000	92.11	1008.23
2	252	71.74	83.29	21.75	20.60	1002	92.45	1007.89
1	172	36.95	49.90	36.96	18.76	1004	89.48	1010.86

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-4
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. +MSL): 1,082.84
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	752	805
Pressure (psia)	14.09	14.11
Temperature (°C)	21.09	20.14

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	513	145.75	204.56	145.74	21.49	754		
								73.59
4	392	93.13	152.19	93.14	21.83	756		
								73.40
3	322	63.76	104.15	63.70	21.64	758		
								114.23
2	240	26.87	86.78	26.87	21.19	800		
								72.30
1	150	14.23	15.98	14.22	20.68	803		
								145.64

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-11
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,139.30
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	931	944
Pressure (psia)	14.06	14.12
Temperature (°C)	24.27	17.86

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)	
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)					
5	639	236.30	23.37	236.29	22.11	933			
								617.52	521.78
4	524	186.82	188.41	186.82	21.79	935			
								121.77	1017.53
3	429	145.94	145.72	145.95	21.23	937			
								125.26	1014.04
2	259	72.33	73.71	72.34	20.03	939			
								121.39	1017.91
1	149	25.02	34.17	25.00	18.27	941			
								102.61	1036.69

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-12
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,102.14
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1310	1322
Pressure (psia)	14.05	14.22
Temperature (°C)	30.81	18.51

Screen No.	Depth (Ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	548	216.77	208.55	216.76	25.11	1312	99.29	1002.85
4	436	167.96	163.12	167.98	24.10	1314	92.10	1010.04
3	323	118.91	114.62	118.92	22.60	1316	90.99	1011.15
2	243	84.09	80.37	84.08	20.39	1318	90.00	1012.14
1	140	40.08	64.81	40.04	19.17	1320	22.90	1079.24

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-14
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,173.47
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	811	825
Pressure (psia)	14.08	14.08
Temperature (°C)	21.68	19.50

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	540	187.29	183.17	187.28	21.61	813		
								149.91
4	456	150.80	146.80	150.76	21.62	815		
								149.81
3	382	118.55	114.72	118.56	20.88	817		
								149.82
2	277	72.87	69.14	72.85	20.33	820		
								149.98
1	207	42.35	39.10	42.33	19.78	822		
								149.28

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-17
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,191.21
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1048	1100
Pressure (psia)	14.08	14.08
Temperature (°C)	25.59	16.62

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	726	243.63	244.97	243.78	21.25	1050		
								193.34
4	582	181.45	181.06	181.46	20.89	1052		
								196.78
3	468	132.31	129.52	132.95	19.78	1054		
								201.68
2	370	89.46	90.86	89.49	18.40	1056		
								192.87
1	250	37.34	40.38	37.31	17.46	1058		
								189.33

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-18
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: _____
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,225.41
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1113	1126
Pressure (psia)	14.00	14.06
Temperature (°C)	21.85	16.98

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	684	157.78	209.26	157.79	21.50	1115		
							233.54	991.87
4	564	105.67	157.69	105.66	21.60	1117		
							232.51	992.90
3	424	44.76	100.15	44.74	20.86	1119		
							225.25	1000.16
2	330	14.25	59.07	14.22	19.59	1121		
							226.02	999.39
1	270	14.20	33.06	14.19	18.73	1123		
							226.03	999.38

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-19
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. +MSL): 1,142.94
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1020	1035
Pressure (psia)	14.09	14.12
Temperature (°C)	22.47	18.20

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	498	172.17	167.13	172.18	20.89	1022	144.94	998.00
4	444	148.73	143.75	148.71	20.32	1024	144.87	998.07
3	392	126.21	121.91	126.20	19.73	1026	143.26	999.68
2	314	92.35	87.71	92.32	19.56	1028	144.16	998.78
1	242	61.06	56.46	61.07	19.00	1030	144.25	998.69

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-20
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,165.05
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1138	1153
Pressure (psia)	14.06	14.08
Temperature (°C)	21.33	17.68

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	900	322.12	327.44	322.03	21.81	1140	177.03	988.02
4	700	235.45	241.43	235.42	22.70	1143	175.46	989.59
3	562	175.66	178.00	175.61	22.07	1146	183.79	981.26
2	392	101.90	106.09	101.91	20.57	1148	179.69	985.36
1	230	32.41	45.58	32.39	18.68	1150	157.28	1007.77

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-21
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,059.10
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	838	850
Pressure (psia)	14.13	14.16
Temperature (°C)	21.39	19.12

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	372	126.14	156.70	126.16	20.69	840	43.09	1016.01
4	310	99.04	129.87	99.14	20.65	842	42.99	1016.11
3	240	68.20	99.93	69.10	20.15	844	42.06	1017.04
2	161	34.70	65.62	34.69	19.53	846	42.21	1016.89
1	90	14.22	34.06	14.19	19.26	848	44.02	1015.08

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-22
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,176.98
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	725	738
Pressure (psia)	14.04	14.08
Temperature (°C)	20.10	20.29

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	588	201.35	197.56	201.39	20.98	727	164.62	1012.36
4	467	149.00	146.63	149.00	21.51	729	161.11	1015.87
3	389	115.21	114.40	115.21	21.44	731	157.47	1019.51
2	329	89.15	88.31	89.17	21.21	733	157.66	1019.32
1	245	52.29	51.59	52.26	20.79	735	158.37	1018.61

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-23
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,108.84
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	701	714
Pressure (psia)	14.00	14.11
Temperature (°C)	20.57	20.19

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	542	205.24	206.99	205.25	21.34	704	96.77	1012.07
4	445	163.27	165.09	163.26	21.00	706	96.44	1012.40
3	319	108.76	112.01	108.67	21.49	708	92.89	1015.95
2	254	80.48	83.01	80.49	21.05	710	94.79	1014.05
1	174	45.75	49.60	45.73	20.56	712	91.87	1016.97

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-24
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,200.94
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	904	916
Pressure (psia)	14.06	14.07
Temperature (°C)	20.10	21.33

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	678	232.84	223.99	232.84	21.42	906	193.69	1007.25
4	554	178.15	171.82	178.16	21.88	908	190.05	1010.89
3	435	127.66	121.72	127.62	21.72	910	186.63	1014.31
2	373	100.75	94.99	100.73	21.62	912	186.29	1014.65
1	279	60.01	55.67	60.00	21.41	914	183.01	1017.93

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-25
 Project No: 4-73805 Probe Type: Westbay
 Date: 4/20/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. + MSL): 934.52

Weather: clear and warm

Ambient Readings	Start	Finish
Time	1209	1225
Pressure (psia)	14.17	14.10
Temperature (°C)	23.60	20.10

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	713	203.75	204.86	203.77	22.65	1213	273.08	661.44
4	633	169.31	168.61	169.29	22.48	1215	276.71	657.81
3	503	113.03	115.73	113.05	21.51	1217	268.70	665.82
2	423	78.32	84.51	78.31	21.05	1220	260.73	673.79
1	358	50.02	58.35	50.02	20.72	1222	256.08	678.44

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-3
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. + MSL): 1,100.34
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1045	1059
Pressure (psia)	14.16	14.14
Temperature (°C)	20.56	17.87

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	653	245.83	252.52	245.89	21.09	1047	103.10	997.24
4	558	204.54	211.41	204.55	22.35	1050	102.94	997.40
3	346	112.37	122.79	112.34	22.13	1052	95.39	1004.95
2	252	71.50	81.80	71.48	21.40	1054	95.95	1004.39
1	172	36.76	47.71	36.78	19.66	1056	94.60	1005.74

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-4
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. +MSL): 1,082.84

Weather: clear and warm

Ambient Readings	Start	Finish
Time	756	810
Pressure (psia)	14.12	14.14
Temperature (°C)	19.33	19.55

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	513	146.95	203.51	146.93	21.94	758		
								76.08
4	392	94.30	151.11	94.30	22.16	801		
								75.96
3	322	63.85	121.15	63.88	21.87	804		
								75.08
2	240	28.14	85.58	28.19	21.42	806		
								75.14
1	150	14.25	48.20	14.24	20.32	808		
								71.38

INSIGHT, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-11
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,139.30
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1003	1017
Pressure (psia)	14.14	14.11
Temperature (°C)	22.55	17.92

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	639	235.81	229.10	235.79	21.40	1005	143.09	996.21
4	524	186.32	187.57	186.30	21.62	1008	123.90	1015.40
3	429	145.40	144.68	145.41	21.13	1010	127.84	1011.46
2	259	71.80	72.40	71.81	19.73	1013	124.59	1014.71
1	149	24.55	32.95	24.53	18.44	1015	105.61	1033.69

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-12
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,102.14
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1410	1427
Pressure (psia)	14.16	14.12
Temperature (°C)	24.71	17.84

Screen No.	Depth (Ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	548	216.19	207.16	216.20	22.20	1413	102.75	999.39
4	436	167.52	161.92	167.50	22.14	1416	95.12	1007.02
3	323	118.33	113.30	118.32	20.82	1419	94.28	1007.86
2	243	83.52	78.93	83.52	19.98	1421	93.58	1008.56
1	140	38.66	36.82	38.64	18.36	1424	87.72	1014.42

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-14
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,173.47
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	832	845
Pressure (psia)	14.10	14.10
Temperature (°C)	18.89	19.15

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	540	186.77	182.83	186.76	20.84	834		
								150.74
4	456	150.20	146.46	150.22	20.72	836		
								150.65
3	382	118.01	114.37	118.01	20.56	838		
								150.68
2	277	72.32	68.85	72.31	19.60	840		
								150.69
1	207	41.84	39.03	41.84	19.27	842		
								149.49

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-17
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,191.21
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1115	1132
Pressure (psia)	14.11	14.07
Temperature (°C)	20.57	16.21

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	726	242.51	243.49	242.55	19.88	1119		
								196.82
4	582	180.18	179.10	180.18	19.99	1123		
								201.37
3	468	130.68	128.18	130.69	19.15	1125		
								204.84
2	370	88.20	88.18	88.21	18.21	1128		
								199.12
1	250	36.09	36.08	36.10	17.03	1130		
								199.32

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-18
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: _____
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,225.41
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1145	1200
Pressure (psia)	14.10	14.08
Temperature (°C)	18.85	17.25

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	684	157.48	206.96	157.48	21.85	1148		
								239.07
4	564	105.33	156.02	105.33	21.62	1151		
								236.59
3	424	44.50	98.55	44.47	20.53	1153		
								229.17
2	330	14.25	57.27	14.24	19.03	1155		
								230.41
1	270	14.20	31.15	14.21	17.80	1157		
								230.67

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-19
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. +MSL): 1,142.94
 Weather: clear and warm

Ambient Readings	Start	Finish
Time		
Pressure (psia)		
Temperature (°C)		

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	498							
							#DIV/0!	#DIV/0!
4	444							
							#DIV/0!	#DIV/0!
3	392							
							#DIV/0!	#DIV/0!
2	314							
							#DIV/0!	#DIV/0!
1	242							
							#DIV/0!	#DIV/0!

Levels not collected due to construction site blockage.

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-20
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,165.05
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1225	1244
Pressure (psia)	14.11	14.13
Temperature (°C)	20.13	16.58

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)	
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)					
5	900	321.85	326.24	321.84	20.63	1230			
								179.92	985.13
4	700	235.15	236.53	235.13	22.23	1233			
								186.88	978.17
3	562	175.31	169.27	175.33	21.13	1235			
								204.05	961.00
2	392	101.34	103.05	101.59	19.21	1238			
								186.82	978.23
1	230	31.27	32.90	31.25	16.81	1240			
								186.65	978.40

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-21
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,059.10
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	915	930
Pressure (psia)	14.15	14.17
Temperature (°C)	20.49	18.94

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	372	125.89	156.27	125.87	20.35	917	44.13	1014.97
4	310	98.92	129.42	98.91	20.43	921	44.07	1015.03
3	240	68.91	99.49	68.93	20.13	923	43.12	1015.98
2	161	34.38	65.22	34.39	19.76	925	43.18	1015.92
1	90	14.20	33.70	14.19	19.03	927	44.90	1014.20

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-22
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,176.98
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	733	749
Pressure (psia)	14.50	14.06
Temperature (°C)	18.82	20.18

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	588	201.14	198.15	201.15	20.70	737	164.32	1012.66
4	467	148.78	147.22	148.76	21.32	739	160.81	1016.17
3	389	114.96	114.44	114.95	21.33	741	158.44	1018.54
2	329	89.94	88.32	89.91	21.13	743	158.70	1018.28
1	245	51.05	51.27	51.02	20.70	745	160.17	1016.81

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-23
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,108.84
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	712	726
Pressure (psia)	14.08	14.10
Temperature (°C)	19.36	19.82

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	542	205.03	205.54	205.03	21.17	716	100.30	1008.54
4	445	163.03	163.61	163.02	21.49	718	100.03	1008.81
3	319	108.44	109.68	108.45	21.20	720	98.45	1010.39
2	254	80.27	81.48	80.25	20.90	722	98.51	1010.33
1	174	46.42	46.41	46.41	20.31	724	99.41	1009.43

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-24
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,200.94
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	938	852
Pressure (psia)	14.11	14.11
Temperature (°C)	20.23	21.33

Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	678	232.53	222.90	232.50	21.54	940	196.32	1004.62
4	554	178.88	170.87	178.94	21.89	942	192.35	1008.59
3	435	127.15	120.79	127.23	21.76	945	188.89	1012.05
2	373	100.42	93.91	100.41	21.68	947	188.90	1012.04
1	279	59.67	54.22	59.67	21.52	949	186.47	1014.47

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Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-25
 Project No: 4-73805 Probe Type: Westbay
 Date: 5/28/09 Serial No.: 2508
 Personnel: Chase Brogdon, Andrew Wells
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. + MSL): 934.52

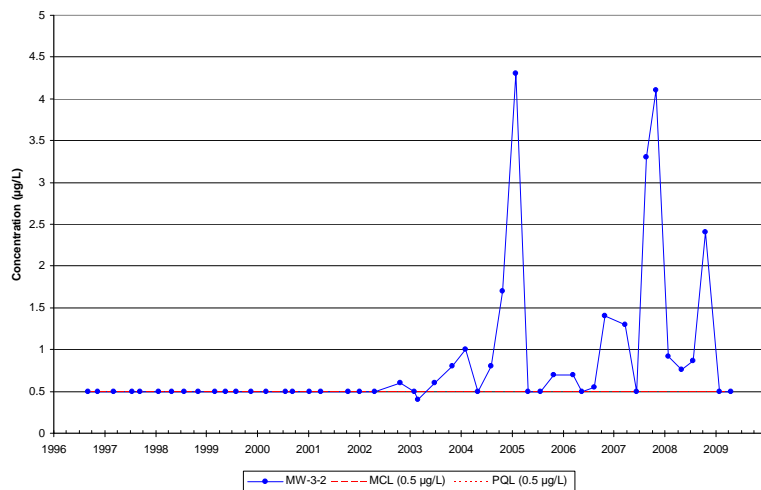
Weather: clear and warm

Ambient Readings	Start	Finish
Time	1305	1326
Pressure (psia)	14.24	14.23
Temperature (°C)	20.03	19.93

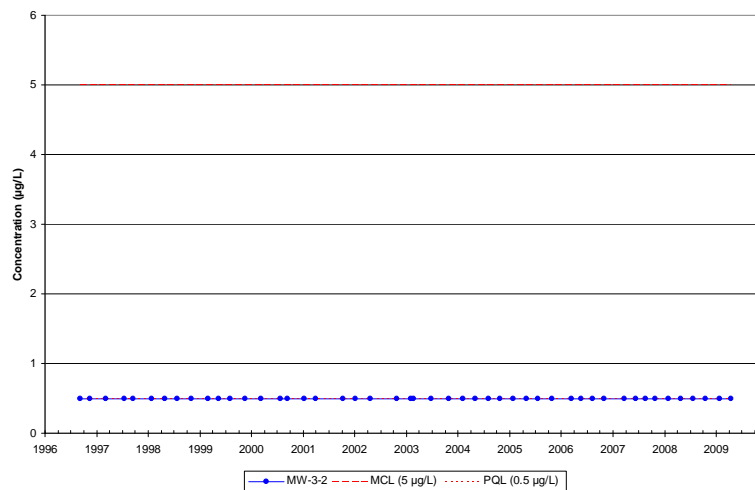
Screen No.	Depth (ft. BTOC)	Fluid Pressure Readings			Temp. (°C)	Time	Piezometric Level Outside Port (ft.)	Water Level Elevation (ft.)
		Inside Casing (psia)	Outside Casing (psia)	Inside Casing (psia)				
5	713	203.37	208.79	203.32	21.50	1309	264.17	670.35
4	633	168.82	174.71	168.80	21.95	1312	262.80	671.72
3	503	112.62	119.24	112.57	21.56	1315	260.77	673.76
2	423	77.81	85.68	77.83	21.01	1318	258.19	676.33
1	358	49.62	58.50	49.57	20.47	1322	255.89	678.63

ATTACHMENT 6: TIME SERIES PLOTS

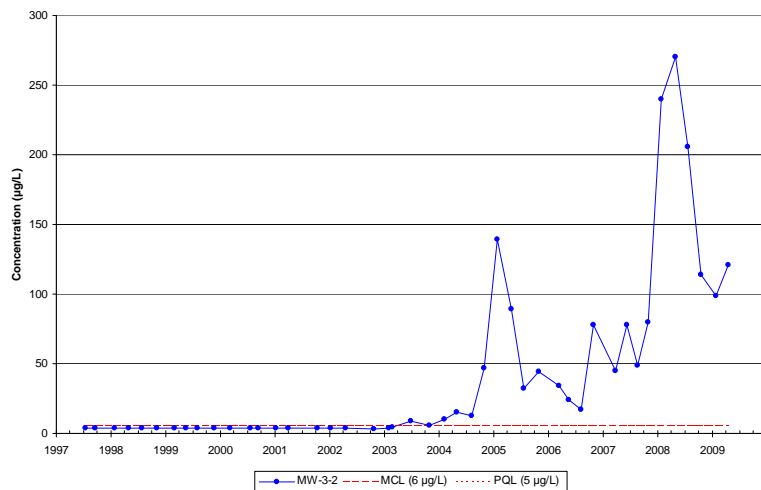
MW-3-2 Carbon tetrachloride Concentrations 1996 to Present



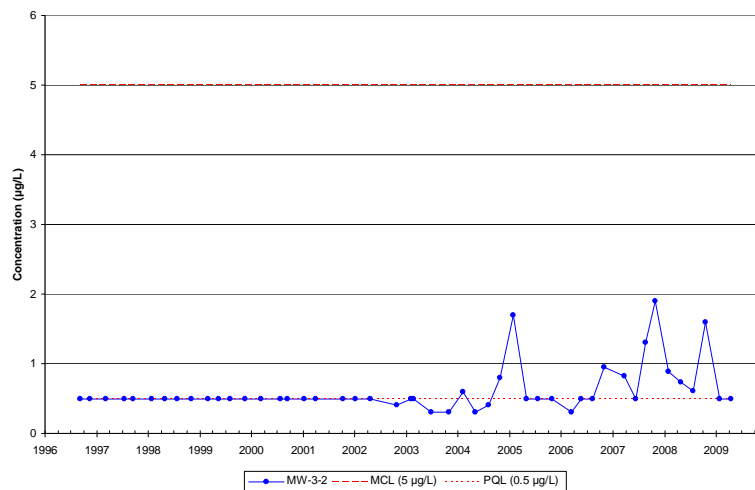
MW-3-2 Tetrachloroethene (PCE) Concentrations 1996 to Present



MW-3-2 Perchlorate Concentrations 1997 to Present

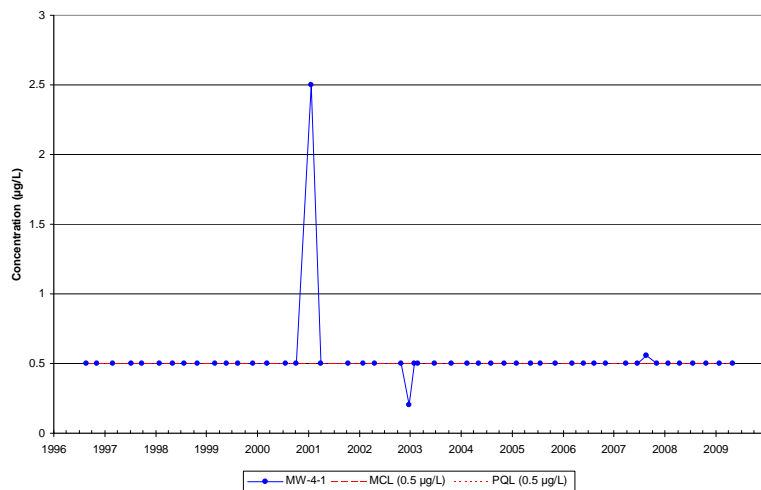


MW-3-2 Trichloroethene (TCE) Concentrations 1996 to Present

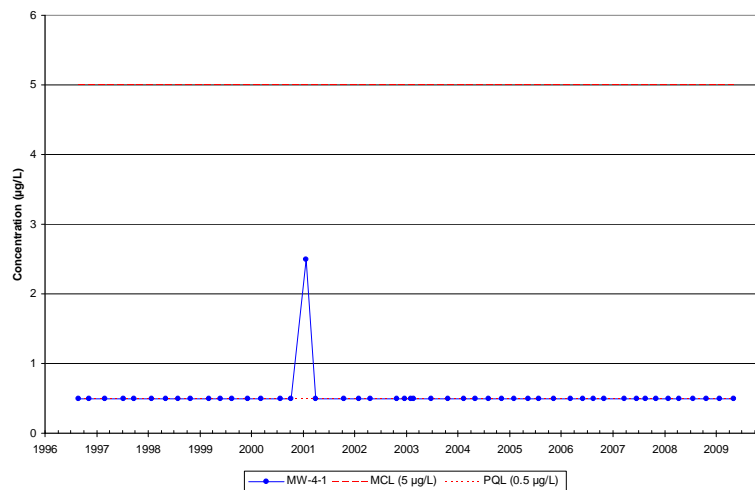


VOCs and Perchlorate Time Series Plots for MW-3-2

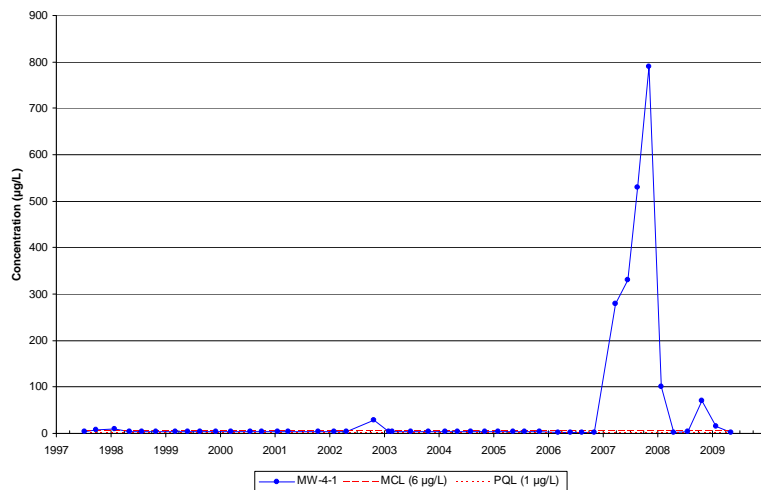
MW-4-1 Carbon tetrachloride Concentrations 1996 to Present



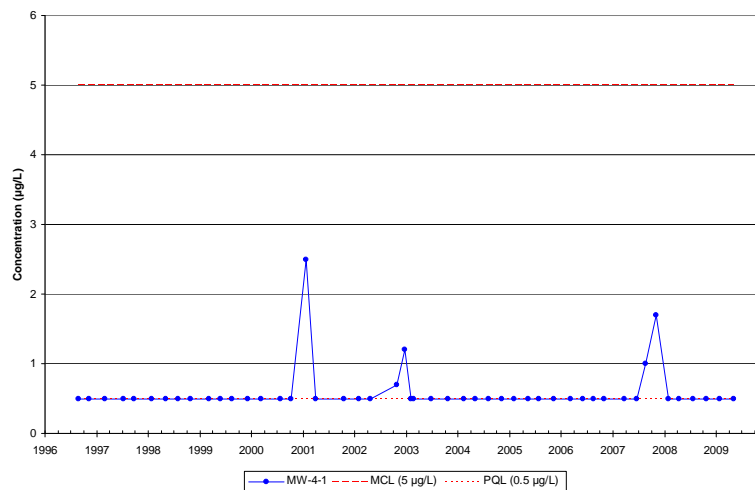
MW-4-1 Tetrachloroethene (PCE) Concentrations 1996 to Present



MW-4-1 Perchlorate Concentrations 1997 to Present

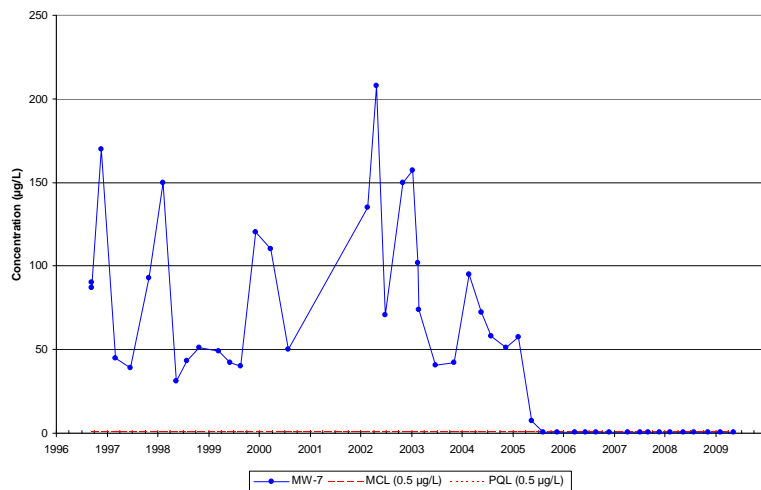


MW-4-1 Trichloroethene (TCE) Concentrations 1996 to Present

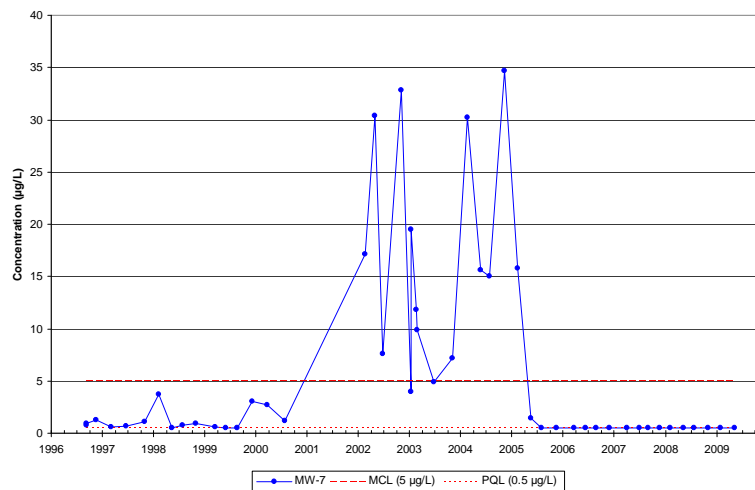


VOCs and Perchlorate Time Series Plots for MW-4-1

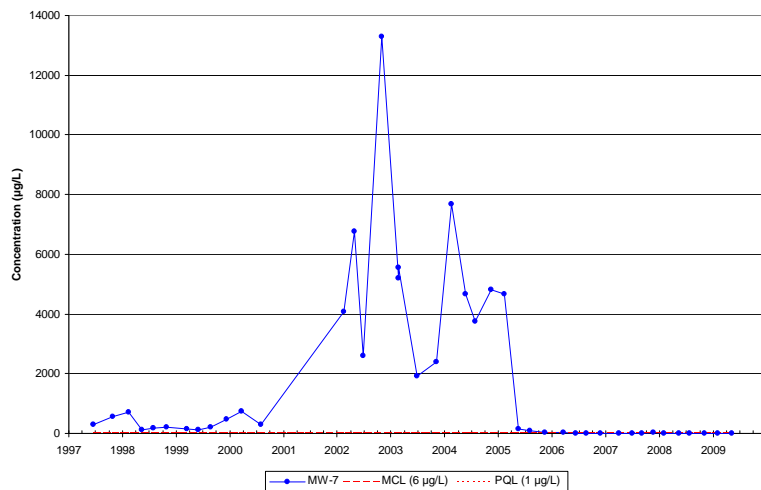
MW-7 Carbon tetrachloride Concentrations 1996 to Present



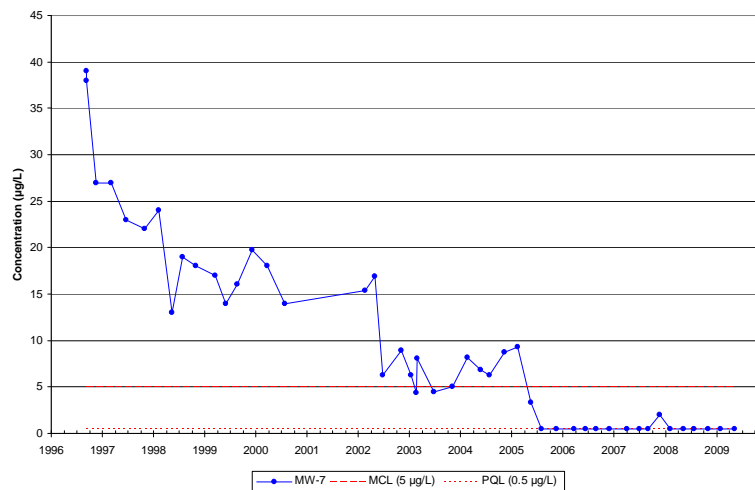
MW-7 Tetrachloroethene (PCE) Concentrations 1996 to Present



MW-7 Perchlorate Concentrations 1997 to Present

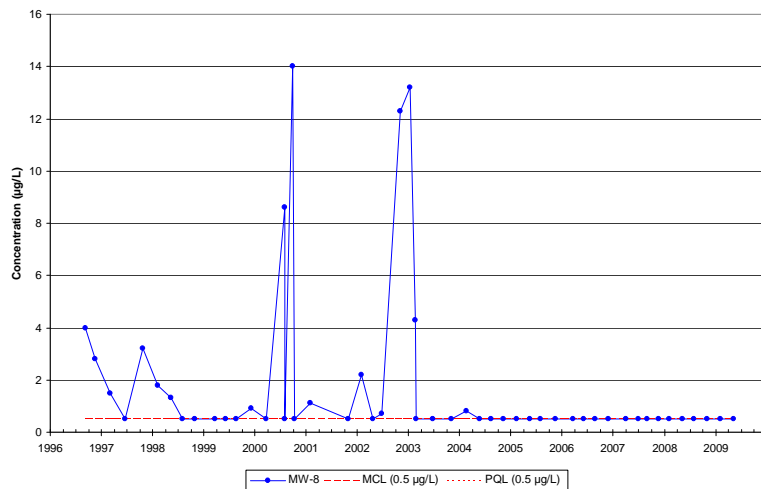


MW-7 Trichloroethene (TCE) Concentrations 1996 to Present

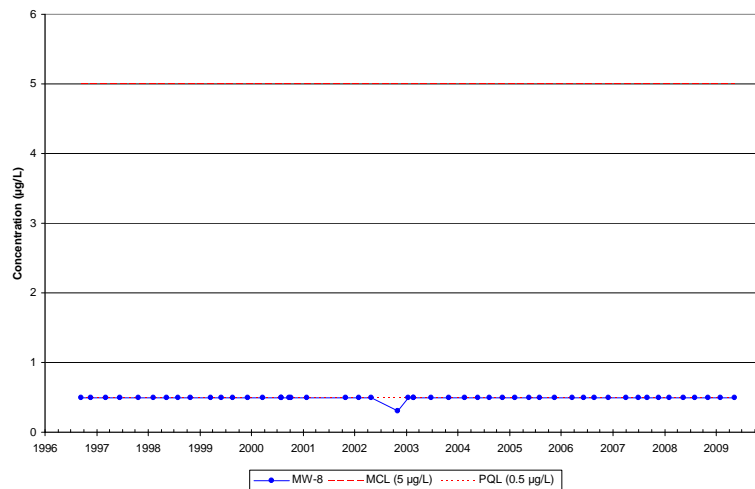


VOCs and Perchlorate Time Series Plots for MW-7

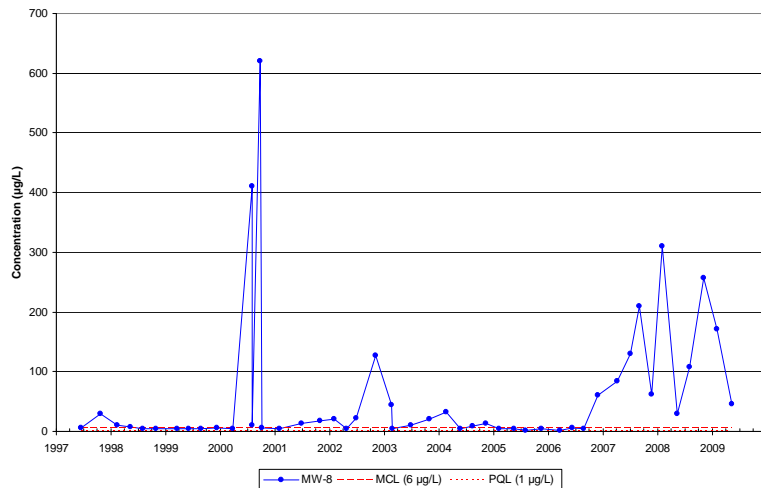
MW-8 Carbon tetrachloride Concentrations 1996 to Present



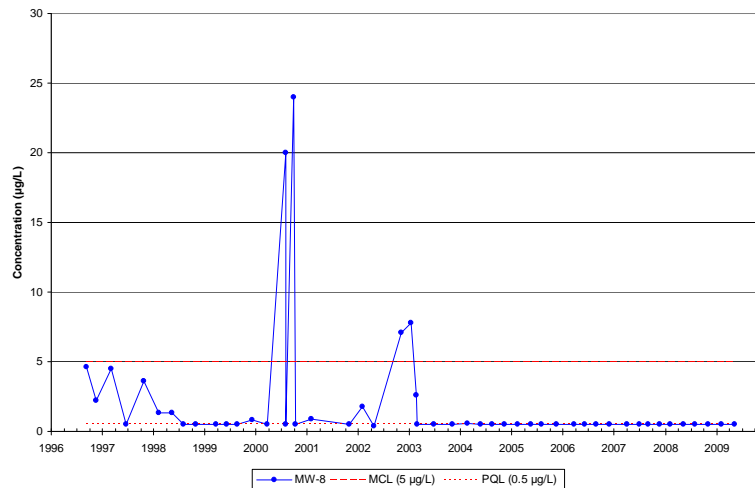
MW-8 Tetrachloroethene (PCE) Concentrations 1996 to Present



MW-8 Perchlorate Concentrations 1997 to Present

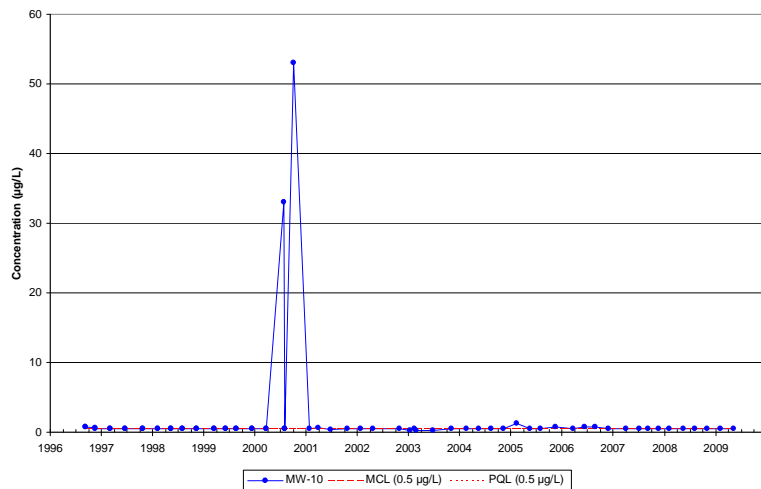


MW-8 Trichloroethene (TCE) Concentrations 1996 to Present

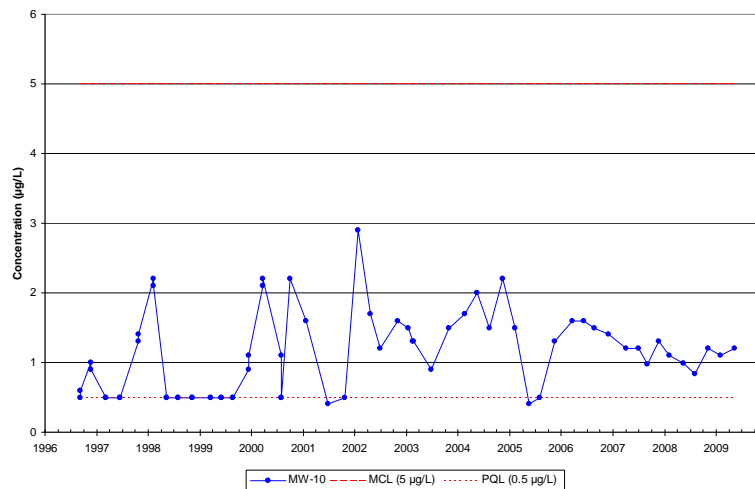


VOCs and Perchlorate Time Series Plots for MW-8

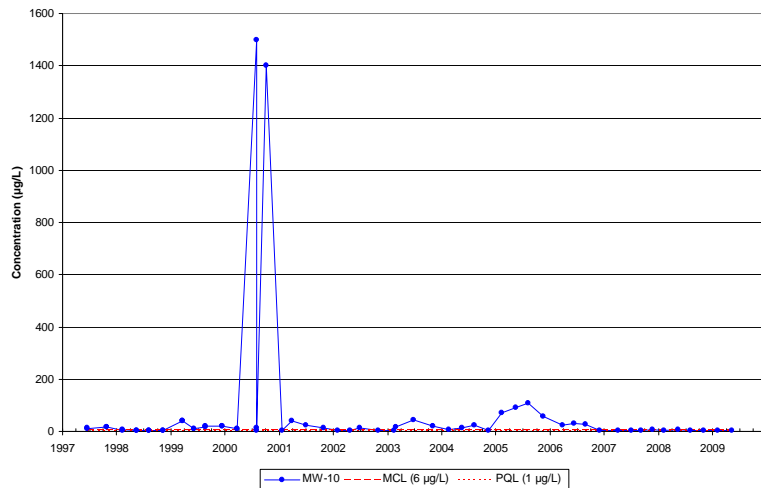
MW-10 Carbon tetrachloride Concentrations 1996 to Present



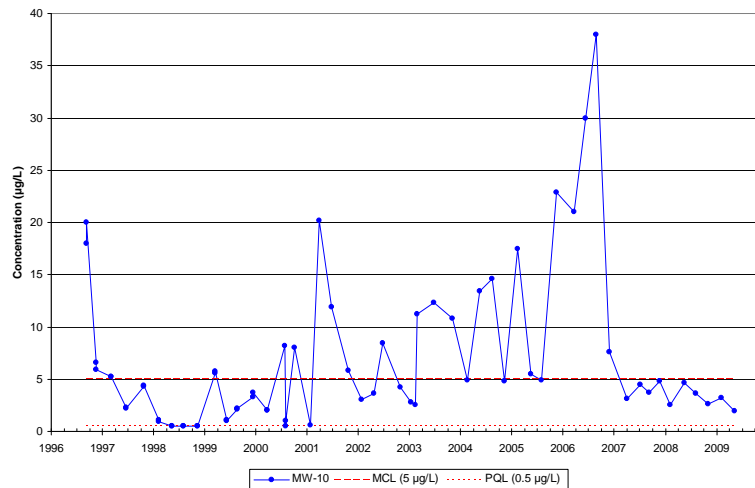
MW-10 Tetrachloroethene (PCE) Concentrations 1996 to Present



MW-10 Perchlorate Concentrations 1997 to Present

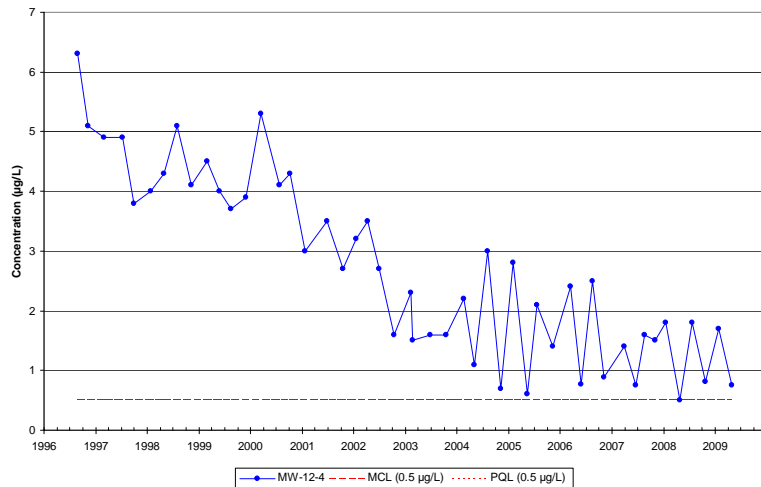


MW-10 Trichloroethene (TCE) Concentrations 1996 to Present

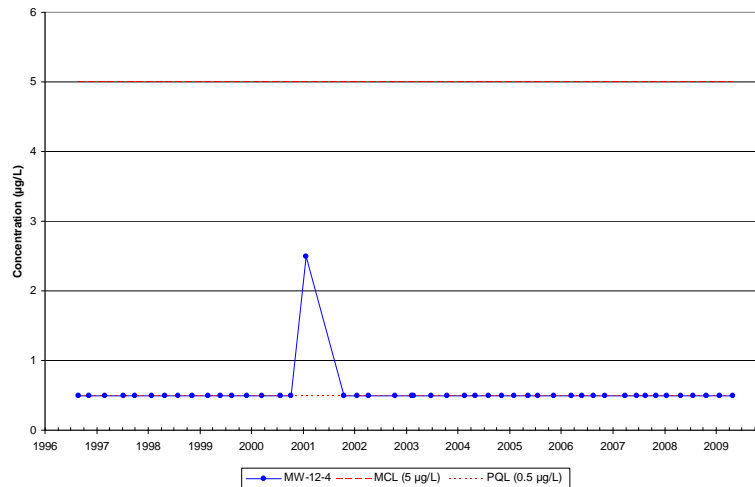


VOCs and Perchlorate Time Series Plots for MW-10

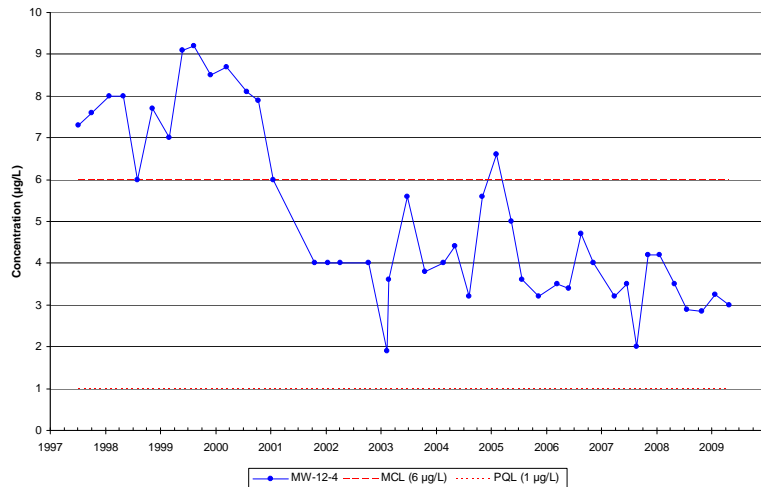
MW-12-4 Carbon tetrachloride Concentrations 1996 to Present



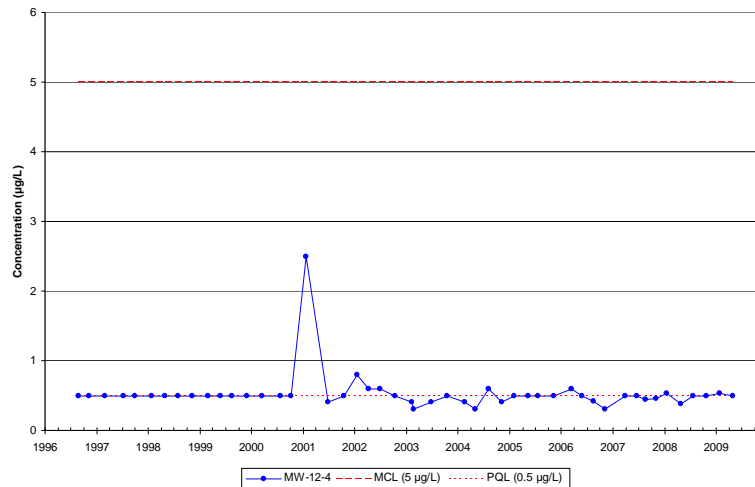
MW-12-4 Tetrachloroethene (PCE) Concentrations 1996 to Present



MW-12-4 Perchlorate Concentrations 1997 to Present

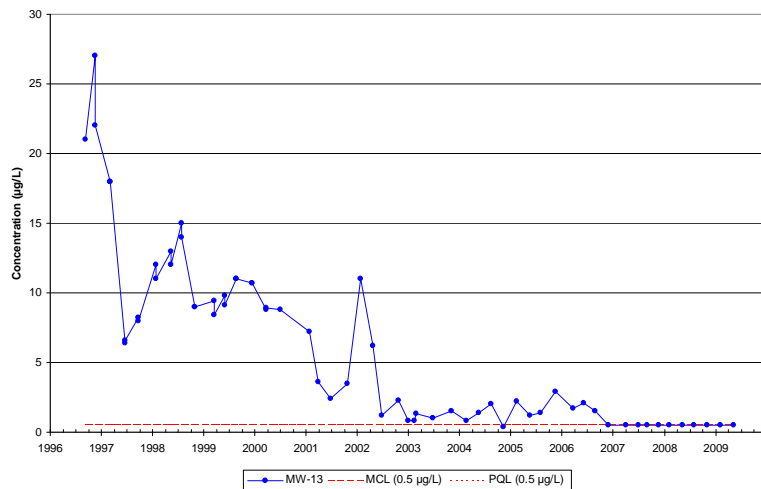


MW-12-4 Trichloroethene (TCE) Concentrations 1996 to Present

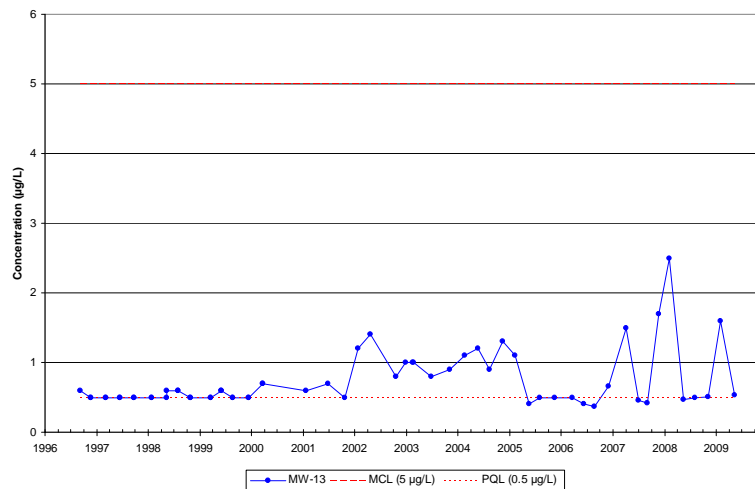


VOCs and Perchlorate Time Series Plots for MW-12-4

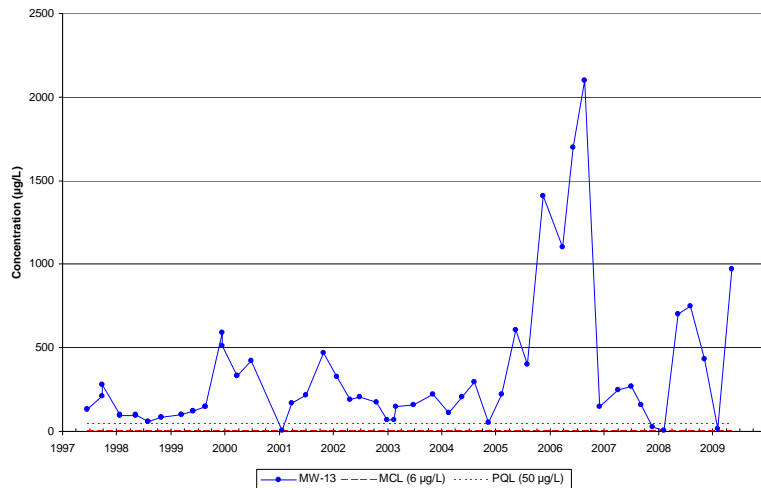
MW-13 Carbon tetrachloride Concentrations 1996 to Present



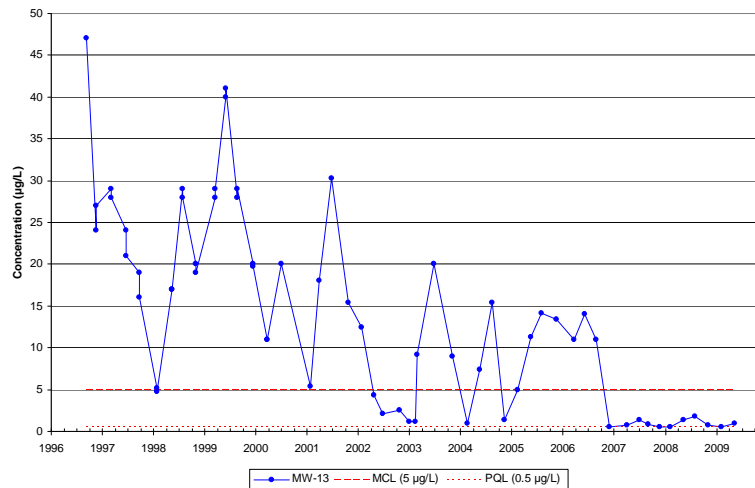
MW-13 Tetrachloroethene (PCE) Concentrations 1996 to Present



MW-13 Perchlorate Concentrations 1997 to Present

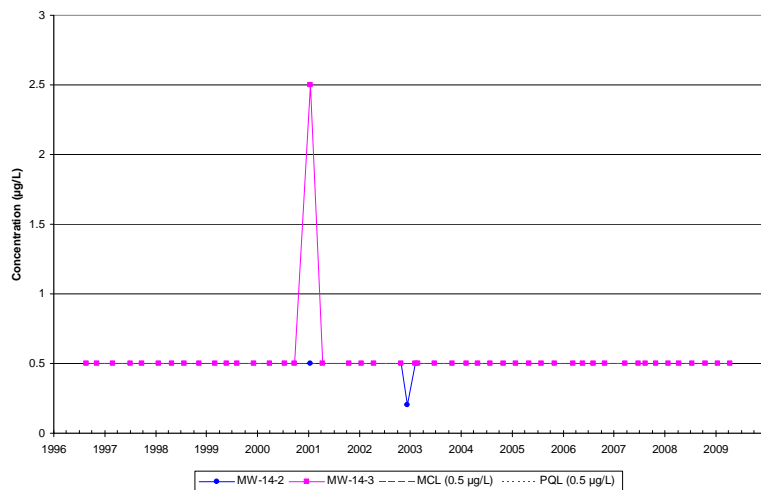


MW-13 Trichloroethene (TCE) Concentrations 1996 to Present

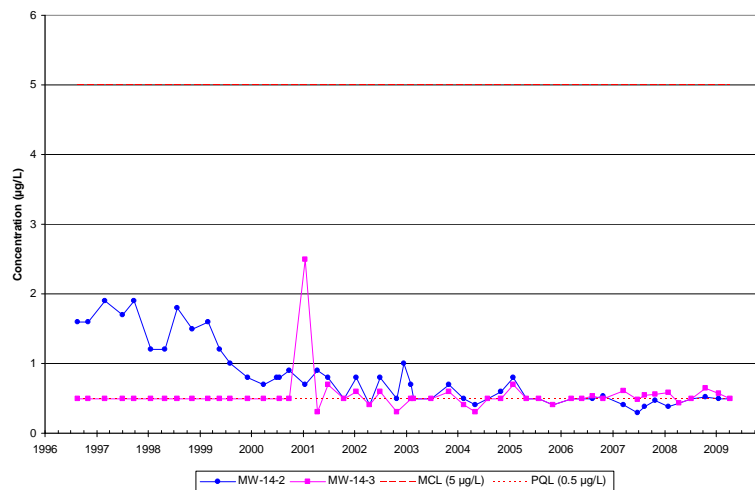


VOCs and Perchlorate Time Series Plots for MW-13

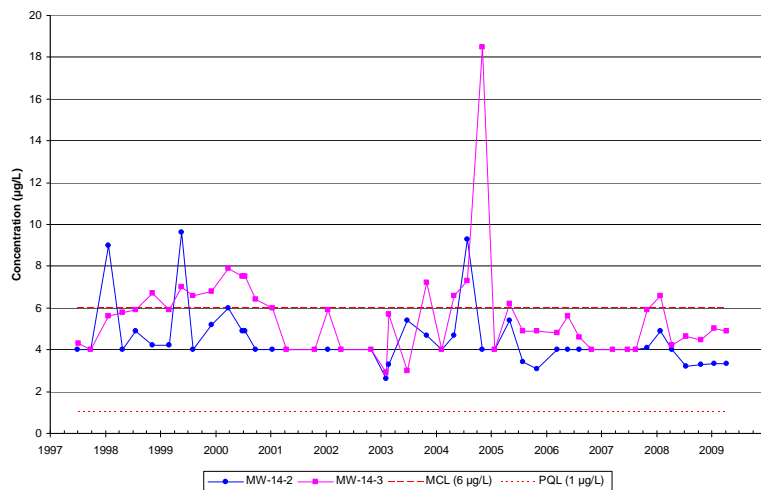
MW-14-2 and MW-14-3 Carbon tetrachloride Concentrations 1996 to Present



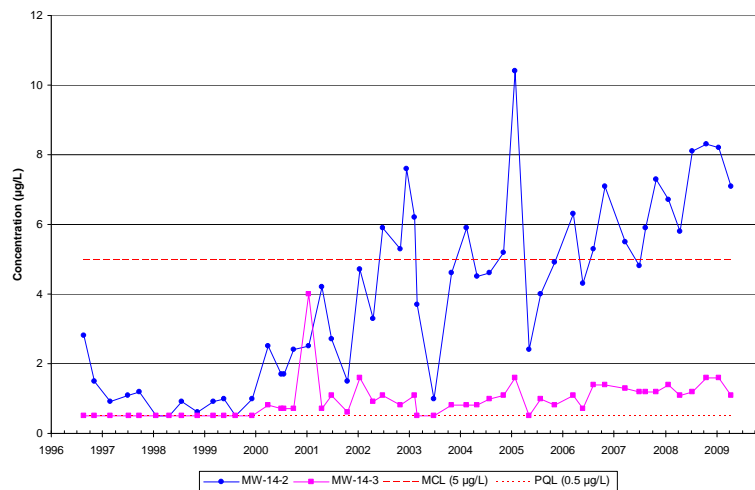
MW-14-2 and MW-14-3 Tetrachloroethene (PCE) Concentrations 1996 to Present



MW-14-2 and MW-14-3 Perchlorate Concentrations 1997 to Present

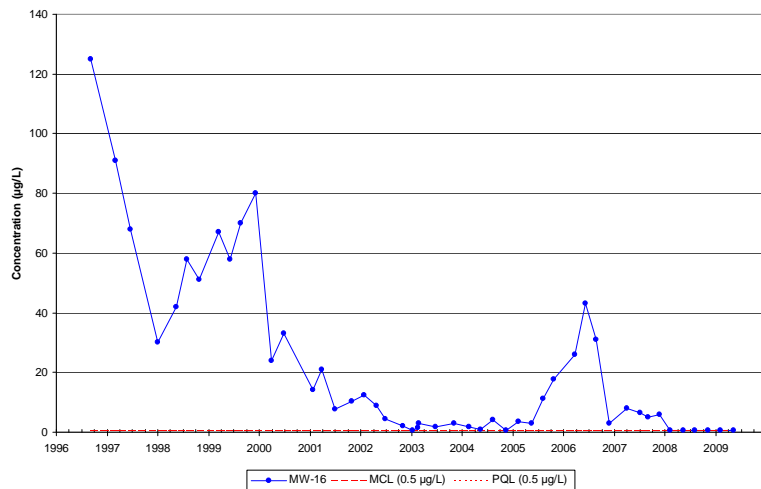


MW-14-2 and MW-14-3 Trichloroethene (TCE) Concentrations 1996 to Present

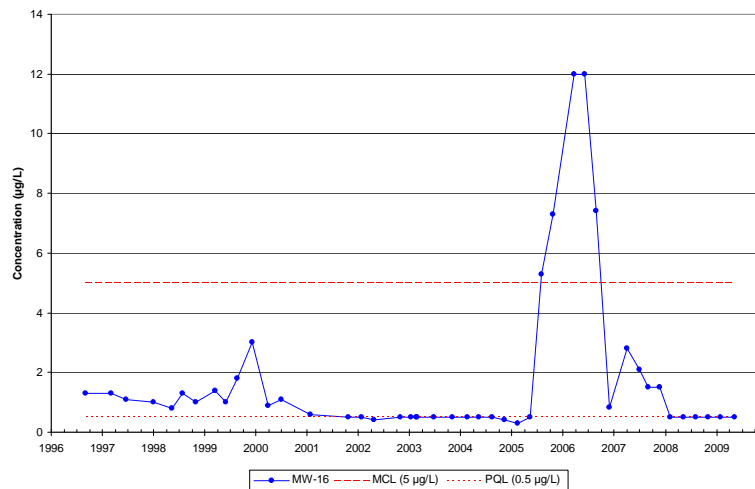


VOCs and Perchlorate Time Series Plots for MW-14-2 and MW-14-3

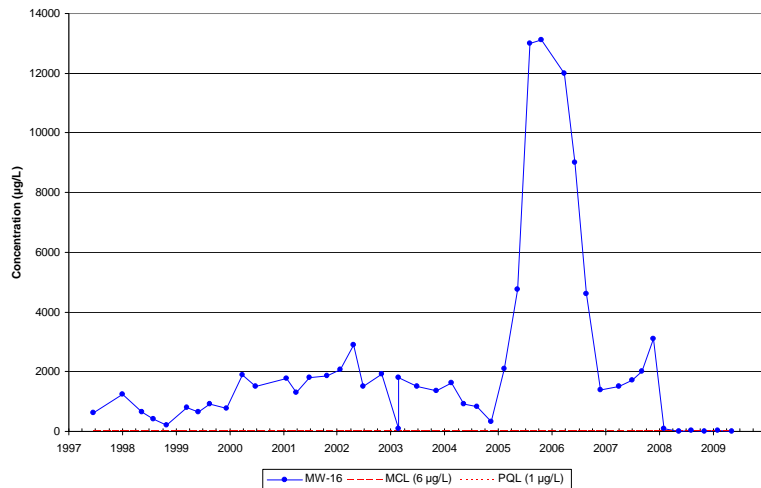
MW-16 Carbon tetrachloride Concentrations 1996 to Present



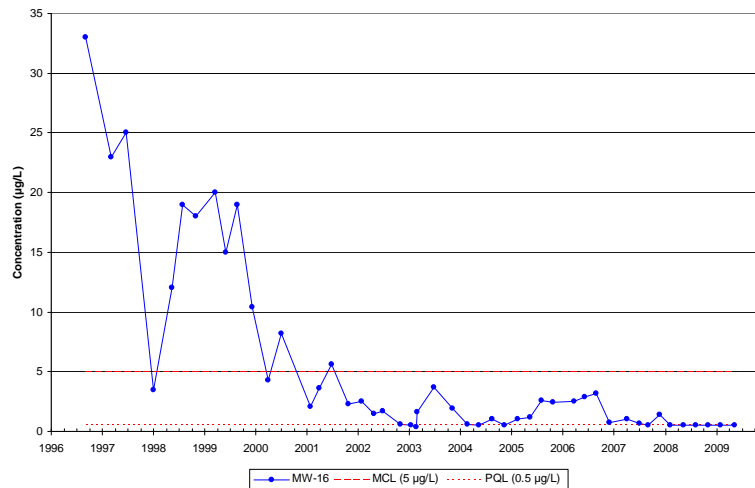
MW-16 Tetrachloroethene (PCE) Concentrations 1996 to Present



MW-16 Perchlorate Concentrations 1997 to Present

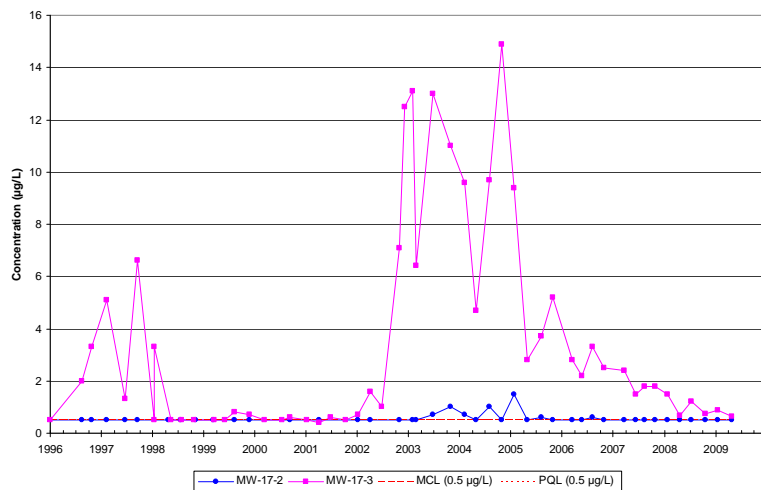


MW-16 Trichloroethene (TCE) Concentrations 1996 to Present

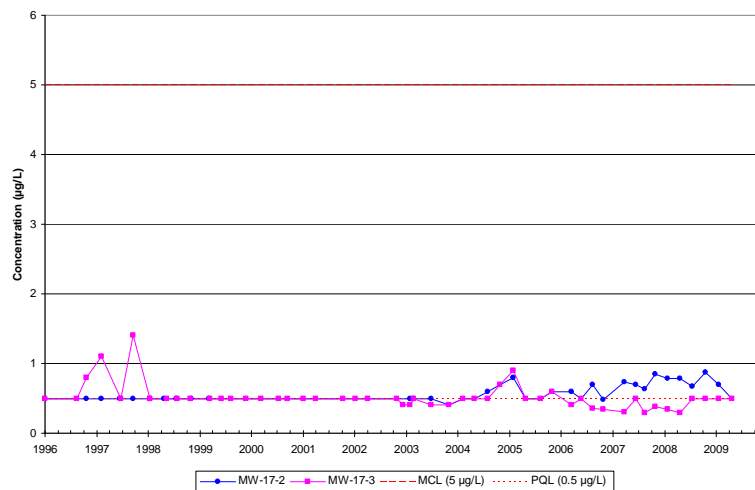


VOCs and Perchlorate Time Series Plots for MW-16

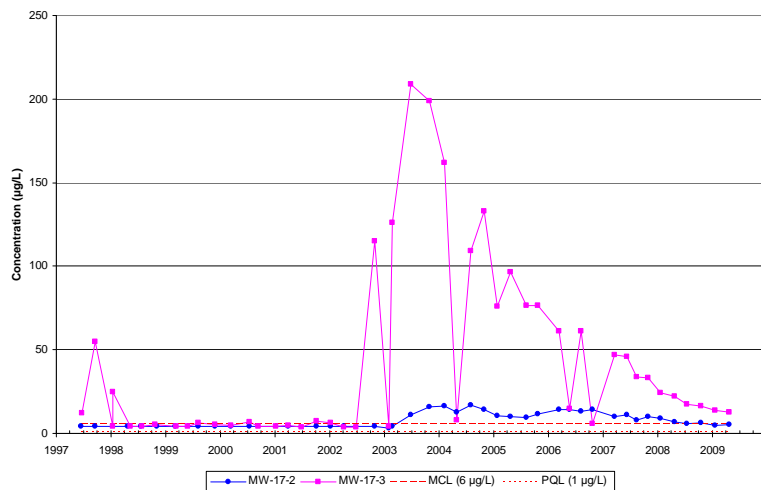
MW-17-2 and MW-17-3 Carbon tetrachloride Concentrations 1996 to Present



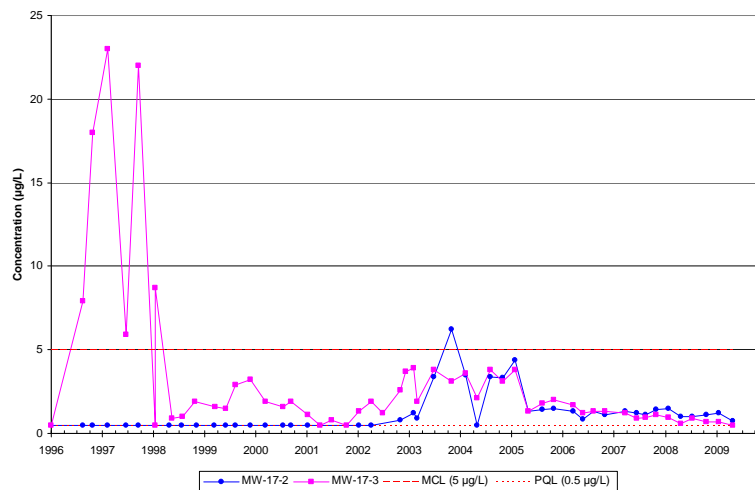
MW-17-2 and MW-17-3 Tetrachloroethene (PCE) Concentrations 1996 to Present



MW-17-2 and MW-17-3 Perchlorate Concentrations 1997 to Present

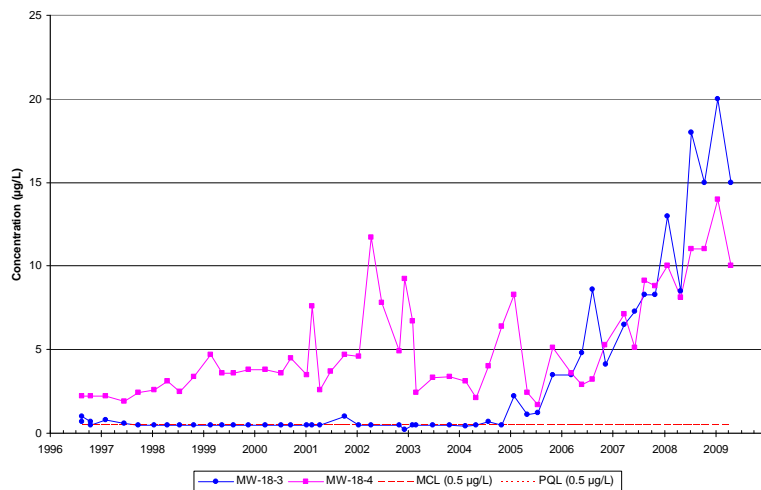


MW-17-2 and MW-17-3 Trichloroethene (TCE) Concentrations 1996 to Present

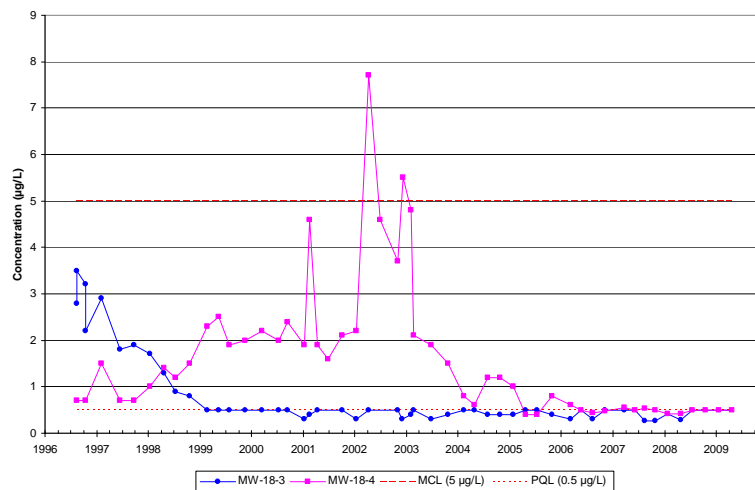


VOCs and Perchlorate Time Series Plots for MW-17-2 and MW-17-3

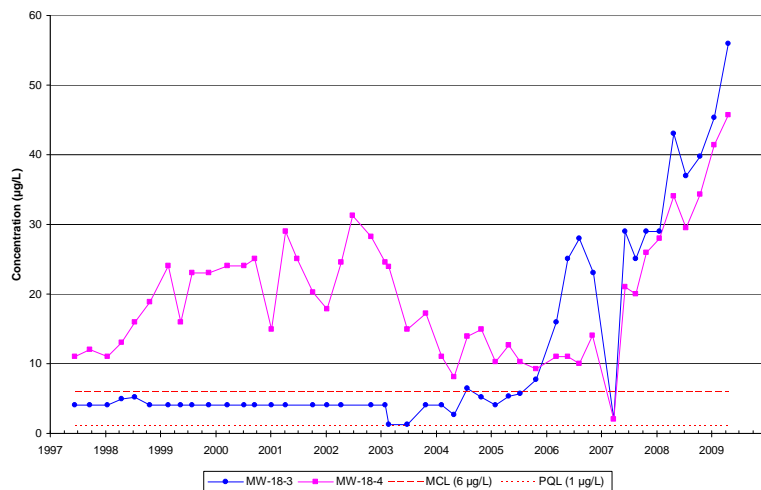
MW-18-3 and MW-18-4 Carbon tetrachloride Concentrations 1996 to Present



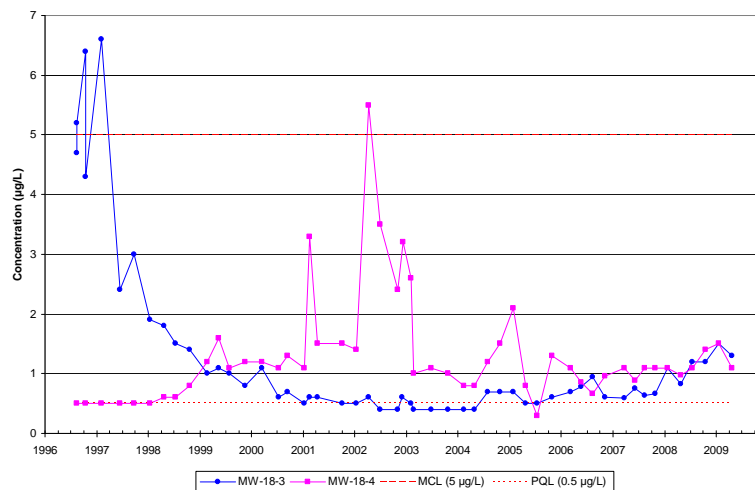
MW-18-3 and MW-18-4 Tetrachloroethene (PCE) Concentrations 1996 to Present



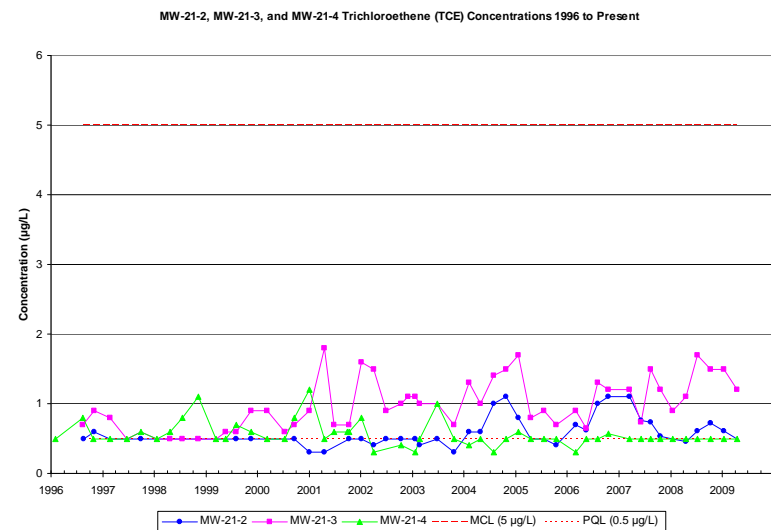
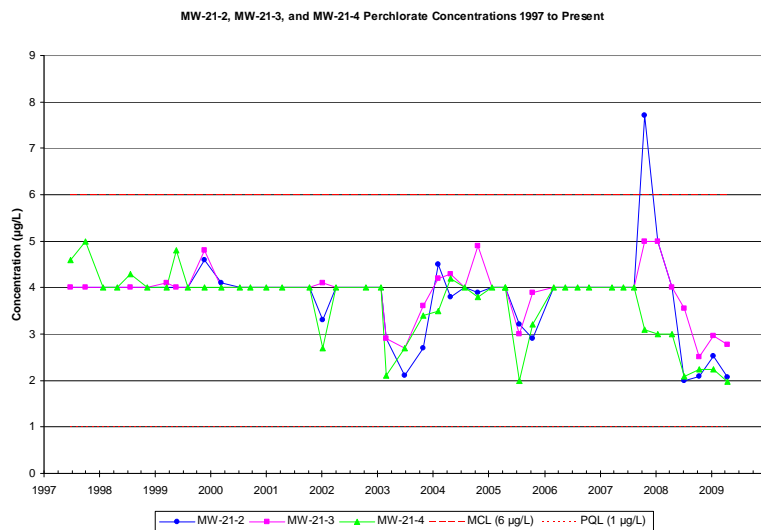
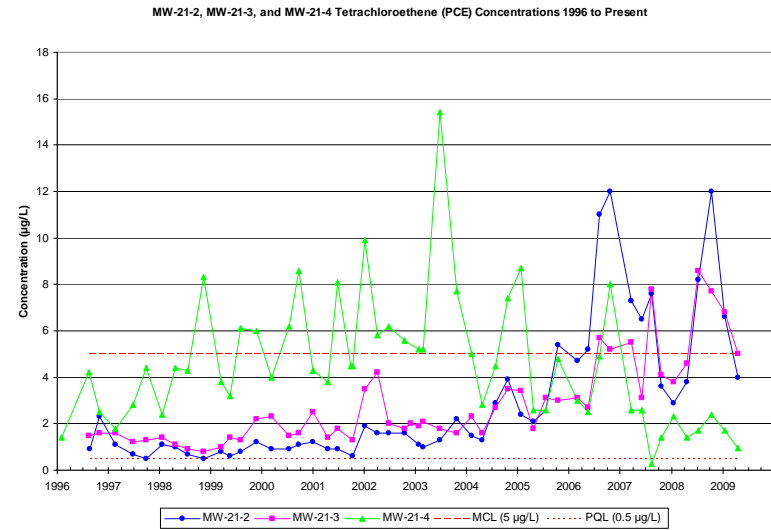
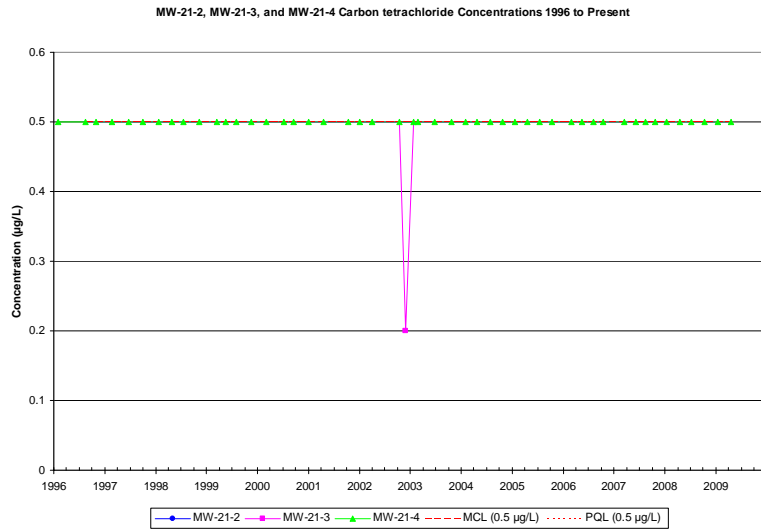
MW-18-3 and MW-18-4 Perchlorate Concentrations 1997 to Present



MW-18-3 and MW-18-4 Trichloroethene (TCE) Concentrations 1996 to Present

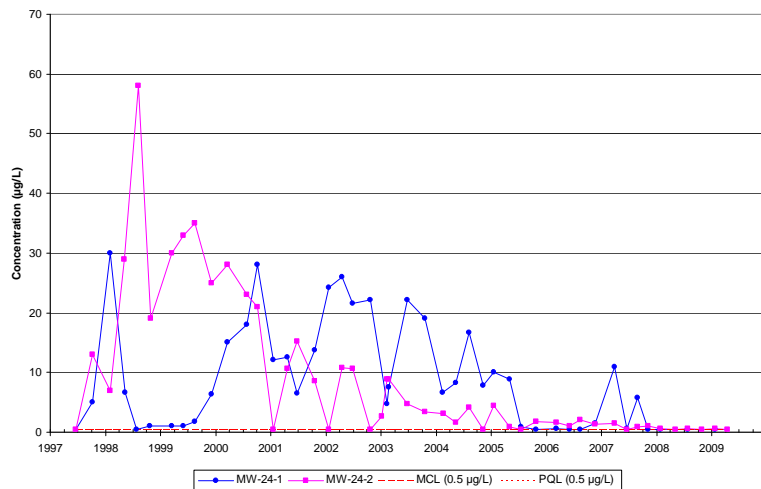


VOCs and Perchlorate Time Series Plots for MW-18-3 and MW-18-4

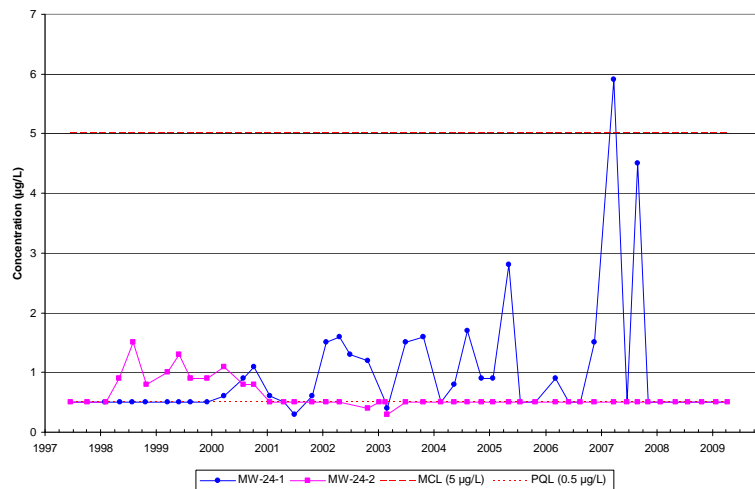


VOCs and Perchlorate Time Series Plots for MW-21-2 and MW-21-3 and MW-21-4

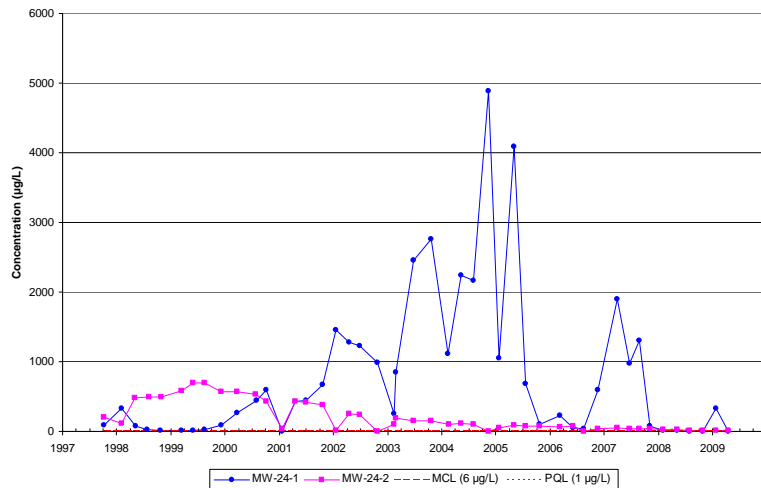
MW-24-1 and MW-24-2 Carbon tetrachloride Concentrations 1997 to Present



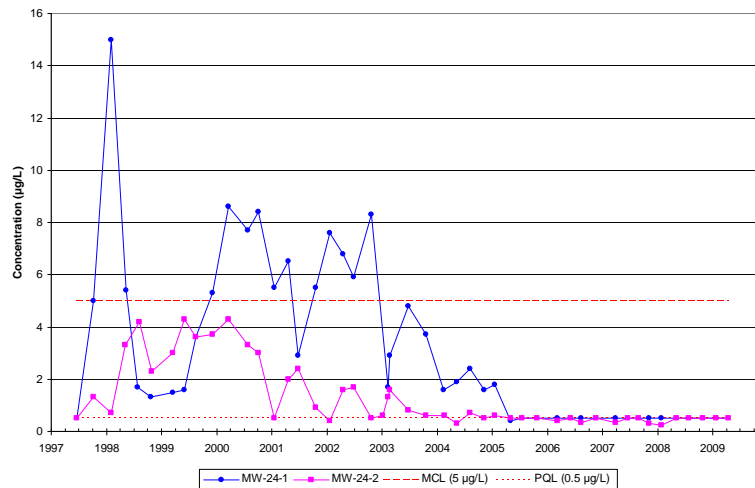
MW-24-1 and MW-24-2 Tetrachloroethene (PCE) Concentrations 1997 to Present



MW-24-1 and MW-24-2 Perchlorate Concentrations 1997 to Present



MW-24-1 and MW-24-2 Trichloroethene (TCE) Concentrations 1997 to Present



VOCs and Perchlorate Time Series Plots for MW-24-1 and MW-24-2