

ATTACHMENT 4: FIELD LOGS

This attachment contains the groundwater sample collection field logs for the relatively shallow standpipe monitoring wells (MW-5 through MW-8, MW-10, MW-13, 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 was conducted by Insight (formerly Geofon Incorporated).

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # 5



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73803
 Navy Contract No.: Battelle
 Sampled By: Marco Mendoza, Chase Brogdon
 Date: 4/13/07
 Weather: clear and windy

22632 Golden Springs Dr., Suite 270
 Diamond Bar, CA 91765
 Telephone: (909) 396-7662
 Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{140}{\text{TD (feet)}} - \frac{51.92}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{172.50}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
724	51.92	0	5.10	55.2	10.99	12.08	16.0	99	Clear, no odor
747	51.92	35	5.75	50.7	3.07	13.32	16.7	76	Clear, no odor
811	51.92	69	5.82	50.3	2.46	13.65	17.7	83	Clear, no odor
834	51.92	104	5.98	51.3	1.69	12.83	17.7	92	Clear, no odor
858	51.92	138	6.12	51.5	1.59	13.45	17.8	125	Clear, no odor
922	51.92	173	6.28	53.0	0.77	12.34	18.6	82	Clear, no odor

Total Purge Volume: 173 (Gallons)

Total Discharge: 3.01 (Casing Volumes)

Approx. Purge Rate: 1.5 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 715 Purge time start: 724

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-5</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>924</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: 4-73803
 Navy Contract No.: Battelle
 Sampled By: Marco Mendoza, Chase Brogdon
 Date: 4/16/07
 Weather: cloudy and cool

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 Diamond Bar, CA 91765
 Telephone: (909) 396-7662
 Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{245}{\text{TD (feet)}} - \frac{152.59}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{180.98}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
731	152.59	0	4.93	0.094	176	14.28	17.2	250	Reddish brown color, no odor
800	152.59	36	5.42	0.090	95.6	12.52	17.3	62	Reddish brown color, no odor
829	152.59	72	5.74	0.091	23.6	11.25	17.7	66	Clear, no odor
859	152.59	109	6.11	0.100	7.96	10.76	18.4	79	Clear, no odor
928	152.59	145	6.14	0.090	5.14	10.64	18.2	190	Clear, no odor
957	152.59	181	6.44	0.100	1.65	11.33	17.3	217	Clear, no odor

Total Purge Volume: 181 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 1.25 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 724 Purge time start: 731

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-6</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1004</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>12 (MS/MSD)</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG
WELL ID # 7



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73803
 Navy Contract No.: Battelle
 Sampled By: Marco Mendoza, Chase Brogdon
 Date: 4/12/07
 Weather: clear and cool

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 Diamond Bar, CA 91765
 Telephone: (909) 396-7662
 Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$(\frac{275}{\text{TD (feet)}} - \frac{188.79}{\text{WL (feet)}}) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{168.83}{\text{Calculated Purge Volume}}$ 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
735	188.79	0	5.26	59.3	108.8	8.79	18.5	101	Reddish brown color, no odor
758	188.79	34	5.56	55.3	17.8	4.12	19.3	178	Clear, no odor
821	188.79	68	5.90	55.5	6.76	8.83	20.0	42	Clear, no odor
844	188.79	102	6.05	55.4	4.36	9.54	20.2	38	Clear, no odor
907	188.79	136	6.32	56.2	5.95	9.66	20.5	27	Clear, no odor
930	188.79	170	6.41	55.7	3.28	8.05	20.1	23	Clear, no odor

Total Purge Volume: 170 (Gallons)

Total Discharge: 3.02 (Casing Volumes)

Approx. Purge Rate: 1.5 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 730 Purge time start: 735

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-7</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>934</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: 4-73803
 Navy Contract No.: Battelle
 Sampled By: Marco Mendoza, Chase Brogdon
 Date: 4/12/07
 Weather: clear and cool

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 Telephone: (909) 396-7662
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PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{205}{\text{TD (feet)}} - \frac{116.18}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{173.95}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
1024	116.18	0	6.50	55.5	31.3	11.86	17.0	124	Slightly cloudy, no odor
1038	116.18	35	6.69	55.4	7.67	11.57	16.9	108	Clear, no odor
1052	116.18	70	6.68	55.2	1.72	11.49	16.7	91	Clear, no odor
1106	116.18	105	6.69	55.4	0.72	11.82	16.8	128	Clear, no odor
1120	116.18	140	6.80	54.9	0.49	11.45	17.0	113	Clear, no odor
1134	116.18	175	6.72	54.9	0.41	8.62	17.0	93	Clear, no odor

Total Purge Volume: 175 (Gallons)

Total Discharge: 3.02 (Casing Volumes)

Approx. Purge Rate: 2.5 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 1021 Purge time start: 1024

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-8</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1141</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>12 (MS/MSD)</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: 4-73803
 Navy Contract No.: Battelle
 Sampled By: Marco Mendoza, Chase Brogdon
 Date: 4/13/07
 Weather: clear and warm

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 Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{155}{\text{TD (feet)}} - \frac{65.67}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{174.94}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
1057	65.67	0	6.14	0.117	20.6	13.41	24.1	242	Clear, no odor
1109	65.67	35	6.34	0.104	8.88	13.29	22.7	210	Clear, no odor
1121	65.67	70	6.51	0.104	1.64	12.87	22.3	220	Clear, no odor
1133	65.67	105	6.50	0.104	5.65	11.17	22.2	197	Clear, no odor
1145	65.67	140	6.57	0.103	1.43	12.69	21.5	244	Clear, no odor
1157	65.67	175	6.66	0.105	2.10	10.19	22.0	175	Clear, no odor

Total Purge Volume: 175 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 3.0 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 1055 Purge time start: 1057

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-10</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1200</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>12 (MS/MSD)</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: 4-73803
 Navy Contract No.: Battelle
 Sampled By: Marco Mendoza, Chase Brogdon
 Date: 4/11/07
 Weather: clear and cool

22632 Golden Springs Dr., Suite 270
 Diamond Bar, CA 91765
 Telephone: (909) 396-7662
 Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{235}{\text{TD (feet)}} - \frac{158.31}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{150.19}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
725	158.31	0	5.18	77.5	49.5	-	18.5	148	Slightly cloudy, no odor
745	158.31	30	5.62	74.1	9.17	-	19.9	113	Clear, no odor
805	158.31	60	5.91	75.3	3.13	-	20.4	119	Clear, no odor
826	158.31	91	6.13	75.4	1.98	9.87	21.2	38	Clear, no odor
846	158.31	121	6.29	78.2	1.63	9.94	21.6	43	Clear, no odor
906	158.31	151	6.53	78.3	1.22	10.55	21.7	55	Clear, no odor

Total Purge Volume: 151 (Gallons)

Total Discharge: 3.02 (Casing Volumes)

Approx. Purge Rate: 1.5 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 721 Purge time start: 725

' – ' DO meter not operational for first three measurements

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-13</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>910</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 # 15



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 4-73803
 Navy Contract No.: Battelle
 Sampled By: Marco Mendoza, Chase Brogdon
 Date: 4/16/07
 Weather: cloudy and cool

22632 Golden Springs Dr., Suite 270
 Diamond Bar, CA 91765
 Telephone: (909) 396-7662
 Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{74}{\text{TD (feet)}} - \frac{29.59}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{86.97}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
1103	29.59	0	6.68	59.8	0.50	10.74	20.0	55	Clear, no odor
1116	29.59	17	6.80	60.3	0.29	11.82	19.5	59	Clear, no odor
1131	29.59	35	6.95	60.6	1.40	11.44	19.4	67	Clear, no odor
1144	29.59	52	6.92	60.3	0.90	11.42	19.5	65	Clear, no odor
1159	29.59	70	6.94	60.4	0	11.68	19.9	76	Clear, no odor
1212	29.59	87	6.96	60.7	0.65	10.56	19.8	55	Clear, no odor

Total Purge Volume: 87 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 1.25 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 1058 Purge time start: 1103

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-15</u>	Sample ID: <u>DUPE-8-1Q07</u>	Type: _____	Type: _____
Sample Time: <u>1214</u>	Sample Time: <u>-----</u>	Sample ID: _____	Sample ID: _____
No. of Containers: <u>2</u>	No. of Containers: <u>2</u>	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: 4-73803
 Navy Contract No.: Battelle
 Sampled By: Marco Mendoza, Chase Brogdon
 Date: 4/11/07
 Weather: clear and warm

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 Telephone: (909) 396-7662
 Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{285}{\text{TD (feet)}} - \frac{211.48}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{143.98}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
959	211.48	0	6.49	52.4	29.1	12.25	24.4	91	Clear, no odor
1018	211.48	29	6.63	51.8	6.38	11.92	23.8	75	Clear, no odor
1037	211.48	58	6.70	52.3	1.97	12.43	23.9	75	Clear, no odor
1057	211.48	87	6.67	52.7	0.75	11.43	24.0	134	Clear, no odor
1116	211.48	116	6.75	52.7	0.19	11.94	24.3	84	Clear, no odor
1135	211.48	145	6.78	53.9	0.12	9.94	24.9	57	Clear, no odor

Total Purge Volume: 145 (Gallons)

Total Discharge: 3.02 (Casing Volumes)

Approx. Purge Rate: 1.5 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 955 Purge time start: 959

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-16</u>	Sample ID: <u>DUPE-7-1Q07</u>	Type: _____	Type: _____
Sample Time: <u>1140</u>	Sample Time: <u>-----</u>	Sample ID: _____	Sample ID: _____
No. of Containers: <u>6</u>	No. of Containers: <u>6</u>	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-11
 Sampling Zone No.: 4 to 1
 Depth (ft): 529, 524, 429, 259, 149
 Beginning of Session: 13.92 psia
 End of Session: 13.97 psia

Start Time: 956
 Finish Time: 1220

Date: 4/3/07
 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)
4	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	191.70	✓	191.57	✓	191.53	✓	✓	191.70	1019	6.49	1.12	23.9	9.97	20.5	-110
3	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	152.22	✓	149.14	✓	148.95	✓	✓	152.22	1050	6.54	3.92	43.7	10.84	21.9	-39
3	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	152.19	✓	149.07	✓	148.90	✓	✓	152.19	-	-	-	-	-	-	-
2	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	78.40	✓	76.26	✓	76.21	✓	✓	78.42	1038	6.72	0.41	50.7	8.54	25.0	65
1	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	30.42	✓	35.19	✓	35.17	✓	✓	30.41	1205	6.87	-0.19	62.4	13.00	22.5	-6
1	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	29.89	✓	35.17	✓	35.14	✓	✓	29.89	-	-	-	-	-	-	-

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Notes:

port 5: NOT SAMPLED port 4: CLEAR, H₂S ODOR port 3: CLEAR, NO ODOR
 port 2: CLEAR, SLIGHT 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.: 4 to 1
 Depth (ft): 542, 445, 319, 254, 174
 Beginning of Session: 14.02 psia
 End of Session: 13.99 psia

Start Time: 755
 Finish Time: 950

Date: 4/4/07
 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)
4	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	163.76	✓	169.14	✓	169.12	✓	✓	163.73	755	5.34	0.41	442	10.58	17.7	22
3	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	109.75	✓	116.15	✓	116.14	✓	✓	109.73	822	5.91	1.72	41.1	10.82	16.8	-43
3	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	109.53	✓	116.15	✓	116.14	✓	✓	109.54	-	-	-	-	-	-	-
2	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	81.47	✓	87.81	✓	87.82	✓	✓	81.49	910	5.94	1.37	94.9	10.07	18.8	-40
1	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	46.70	✓	53.37	✓	53.37	✓	✓	46.71	944	6.17	92.1	0.111	10.83	19.9	77

Notes:

port 5: NOT SAMPLED port 4: CLEAR, NO ODOR port 3: CLEAR, NO ODOR
 port 2: CLEAR, NO ODOR port 1: PINKISH BROWN COLOR, NO ODOR

Total Volume: _____

MS/MSD <

> 3

ATTACHMENT 5: WATER LEVEL MEASUREMENTS

This attachment contains water level measurements for the Westbay™ multiport JPL monitoring wells obtained during the first quarter of 2007. Water level measurements were recorded before the sampling event on March 27, 2007, and after the sampling event on April 17, 2007. Water levels in the shallow wells were measured using a Solinst™ water level meter and the results are provided in the field logs (Attachment 4). In the deep multiport wells, the hydraulic head at each sampling port was measured with a Westbay™ pressure-transducer probe. Water level measurements were taken by Geofon Incorporated.

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-3
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. + MSL): 1,100.34
 Weather: cloudy and cool

Ambient Readings		
Time	908	917
Pressure (psia)	14.06	14.07
Temperature (°C)	16.58	17.58

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	653	251.15	257.22	251.17	19.20	911	92.03	1008.31
4	558	209.96	216.17	209.99	20.63	912	91.73	1008.61
3	346	117.76	127.08	117.78	20.90	914	85.26	1015.08
2	252	76.84	85.93	76.81	20.28	915	86.20	1014.14
1	172	42.10	51.50	42.11	19.02	916	85.63	1014.71

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-4
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. +MSL): 1,082.84
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	1208	1217
Pressure (psia)	14.06	14.04
Temperature (°C)	16.52	19.44

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	141.02	208.34	141.08	20.11	1211	64.80	1018.04
4	392	88.36	155.98	88.41	20.72	1213	64.59	1018.25
3	322	57.87	125.91	57.87	20.73	1214	63.96	1018.88
2	240	22.15	90.14	22.16	20.43	1215	64.48	1018.36
1	150	14.17	52.18	14.16	19.92	1216	62.06	1020.78

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-11
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,139.30
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	849	859
Pressure (psia)	14.01	14.05
Temperature (°C)	18.94	18.01

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	239.44	233.96	239.45	19.58	852		
								131.58
4	524	189.92	191.78	189.95	20.35	854		
								113.88
3	429	149.08	149.41	149.10	20.17	855		
								116.63
2	259	75.52	76.47	75.45	19.40	857		
								114.90
1	149	28.16	35.21	28.10	18.48	858		
								100.09

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-12
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,102.14
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	1152	1201
Pressure (psia)	14.05	14.09
Temperature (°C)	17.47	17.64

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	197.10	212.04	197.11	18.90	1155	91.24	1010.90
4	436	148.47	166.62	148.46	19.80	1157	84.02	1018.12
3	323	99.32	117.85	99.29	19.49	1158	83.53	1018.61
2	243	64.44	83.29	64.42	18.82	1159	83.26	1018.88
1	140	20.33	23.82	20.33	18.09	1200	117.46	984.68

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-14
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,173.47
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	728	740
Pressure (psia)	13.98	14.01
Temperature (°C)	17.95	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	540	191.03	189.90	191.03	19.23	732	134.15	1039.32
4	456	154.55	153.41	154.52	20.03	735	134.33	1039.14
3	382	122.35	121.30	122.32	19.96	736	134.41	1039.06
2	277	76.64	75.63	76.60	19.61	738	134.77	1038.70
1	207	46.14	45.72	46.10	19.37	739	133.78	1039.69

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-17
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,191.21
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	1001	1010
Pressure (psia)	14.02	14.04
Temperature (°C)	15.45	15.99

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	245.21	247.95	245.22	17.22	1004		
								186.32
4	582	182.84	183.95	182.84	18.35	1005		
								189.97
3	468	133.44	131.64	133.43	18.03	1006		
								196.65
2	370	90.81	93.01	90.85	17.29	1007		
								187.77
1	250	38.66	42.14	38.65	16.41	1008		
								185.13

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-18
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: _____
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,225.41

Note: cloudy and cool

Ambient Readings	Start	Finish
Time	1019	1032
Pressure (psia)	14.00	14.03
Temperature (°C)	15.46	16.81

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	157.57	211.94	157.56	19.95	1025		
								227.35
4	564	105.37	160.30	105.41	20.06	1027		
								226.49
3	424	44.53	102.37	44.50	19.49	1028		
								220.13
2	330	14.17	15.40	14.18	18.24	1029		
								326.77
1	270	14.15	15.76	14.15	17.37	1031		
								265.94

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-19
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. +MSL): 1,142.94
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	945	952
Pressure (psia)	14.02	14.07
Temperature (°C)	15.28	16.61

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	173.34	170.19	173.97	16.42	947	137.72	1005.22
4	444	150.53	146.80	150.55	17.22	948	137.68	1005.26
3	392	127.96	125.02	127.99	17.60	949	135.92	1007.02
2	314	94.16	90.16	94.15	17.79	950	138.35	1004.59
1	242	62.86	59.07	62.86	17.56	951	138.07	1004.87

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-20
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,165.05
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	1043	1056
Pressure (psia)	14.02	14.02
Temperature (°C)	15.46	17.17

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	330.40	330.32	330.44	19.11	1047		
4	700	243.76	244.02	243.80	21.09	1050		
3	562	184.02	180.72	184.01	20.84	1051		
2	392	110.29	108.70	110.29	18.73	1053		
1	230	39.84	38.56	39.88	17.55	1055		

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-21
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,059.10
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	750	758
Pressure (psia)	14.06	14.10
Temperature (°C)	17.11	18.55

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	372	126.86	161.94	126.92	18.38	754	30.84	1028.26
4	310	99.88	135.09	99.82	18.91	754	30.78	1028.32
3	240	69.83	105.10	69.82	19.02	755	29.97	1029.13
2	161	35.43	70.68	35.45	18.83	756	30.38	1028.72
1	90	14.17	38.97	14.15	18.66	757	32.53	1026.57

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-22
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,176.98
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	809	817
Pressure (psia)	14.00	14.03
Temperature (°C)	17.11	19.81

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	201.74	202.22	201.74	19.36	812		
							153.78	1023.20
4	467	149.36	151.48	149.37	20.40	813		
							149.83	1027.15
3	389	115.57	119.56	115.57	20.58	814		
							145.47	1031.51
2	329	89.55	93.35	89.52	20.52	815		
							145.94	1031.04
1	245	52.60	55.99	52.63	20.19	816		
							148.13	1028.85

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-23
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,108.84
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	709	717
Pressure (psia)	14.09	14.04
Temperature (°C)	19.18	19.63

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	204.96	211.48	204.98	19.29	712	86.62	1022.22
4	445	163.04	169.53	163.07	20.14	713	86.40	1022.44
3	319	108.48	116.57	108.47	20.30	714	82.58	1026.26
2	254	80.25	88.21	80.24	20.16	715	83.01	1025.83
1	174	45.45	53.54	45.49	19.88	716	82.99	1025.85

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-24
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,200.94
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	831	841
Pressure (psia)	13.97	14.03
Temperature (°C)	17.58	20.56

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	235.29	227.98	235.23	20.01	835	184.28	1016.66
4	554	181.63	176.12	181.61	20.76	836	179.92	1021.02
3	435	129.95	125.98	129.99	20.95	837	176.59	1024.35
2	373	103.12	98.82	103.11	21.02	838	177.25	1023.69
1	279	62.34	58.42	62.37	20.92	839	176.45	1024.49

GEOFON, Inc.
Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-25
 Project No: 4-73803 Probe Type: Westbay
 Date: 3/26/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. + MSL): 934.52

Weather: cloudy and cool

Ambient Readings		Start	Finish
Time		1115	1124
Pressure (psia)		14.16	14.15
Temperature (°C)		16.31	19.56

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	205.92	210.69	205.92	19.04	1118	259.61	674.91
4	633	171.48	177.08	171.43	20.06	1119	257.14	677.38
3	503	115.18	122.07	115.17	20.44	1121	254.05	680.47
2	423	80.39	87.91	80.37	20.26	1122	252.86	681.66
1	358	52.11	59.73	52.12	20.03	1123	252.87	681.65

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-3
 Project No: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. + MSL): 1,100.34
 Weather: cloudy and cool

Ambient Readings		
Time	905	914
Pressure (psia)	14.10	14.10
Temperature (°C)	16.63	17.55

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	653	251.10	257.02	251.12	19.60	908	92.58	1007.76
4	558	209.81	215.98	209.84	21.04	909	92.26	1008.08
3	346	117.68	126.72	117.68	21.10	911	86.19	1014.15
2	252	76.78	85.64	76.82	20.33	912	86.96	1013.38
1	172	42.04	51.15	42.05	18.90	913	86.53	1013.81

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-4
 Project No: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. +MSL): 1,082.84
 Weather: partly cloudy and cool

Ambient Readings	Start	Finish
Time	1212	1223
Pressure (psia)	14.08	14.10
Temperature (°C)	17.46	18.25

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	513	143.45	207.87	143.43	19.36	1214	65.93	1016.91
4	392	90.81	155.49	90.82	20.38	1215	65.77	1017.07
3	322	60.35	125.44	60.38	20.52	1216	65.09	1017.75
2	240	24.64	89.74	24.65	20.27	1218	65.45	1017.39
1	150	14.18	51.74	14.18	18.55	1222	63.12	1019.72

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-11
 Project No: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,139.30
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	847	857
Pressure (psia)	14.04	14.11
Temperature (°C)	18.63	17.67

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	239.20	233.69	239.24	19.58	850		
							132.27	1007.03
4	524	189.74	191.46	189.74	20.35	851		
							114.69	1024.61
3	429	148.87	148.99	148.86	20.14	852		
							117.67	1021.63
2	259	75.21	76.11	75.21	19.31	854		
							115.80	1023.50
1	149	27.89	35.00	27.89	18.08	856		
							100.65	1038.65

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-12
 Project No: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,102.14
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	1156	1205
Pressure (psia)	14.06	14.08
Temperature (°C)	18.82	17.77

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	206.03	211.74	206.01	19.73	1159	91.95	1010.19
4	436	157.33	166.20	157.33	20.33	1201	85.01	1017.13
3	323	108.14	117.44	108.16	19.81	1202	84.50	1017.64
2	243	73.24	82.93	73.28	19.15	1203	84.12	1018.02
1	140	28.34	40.03	28.35	18.24	1204	80.09	1022.05

GEOFON, Inc.

Piezometric Pressures/Levels

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-14
 Project No: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,173.47
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	719	728
Pressure (psia)	14.02	14.06
Temperature (°C)	17.34	18.88

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	190.75	188.63	190.77	18.85	722	137.17	1036.30
4	456	154.27	152.27	154.25	19.61	723	137.06	1036.41
3	382	122.06	120.18	122.06	19.69	724	137.09	1036.38
2	277	76.32	74.66	76.32	19.43	725	137.10	1036.37
1	207	45.82	44.97	45.81	19.02	727	135.60	1037.87

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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: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,191.21
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	1008	1019
Pressure (psia)	14.05	14.09
Temperature (°C)	15.68	15.89

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	245.17	247.87	245.16	17.69	1011	186.58	1004.63
4	582	182.83	183.93	182.80	18.88	1013	190.09	1001.12
3	468	133.41	131.72	133.37	18.29	1015	196.54	994.67
2	370	90.82	92.94	90.81	17.49	1016	188.00	1003.21
1	250	38.62	41.97	38.61	16.58	1017	185.59	1005.62

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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: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: _____
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,225.41

Note: cloudy and cool

Ambient Readings	Start	Finish
Time	1028	1040
Pressure (psia)	14.04	14.08
Temperature (°C)	16.25	16.75

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	157.53	211.97	157.54	19.85	1032		
								227.38
4	564	105.36	160.29	105.38	20.15	1035		
								226.60
3	424	44.46	102.24	44.45	19.36	1037		
								220.52
2	330	14.23	60.74	14.23	17.95	1038		
								222.26
1	270	14.20	34.58	14.17	17.25	1039		
								222.61

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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: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (ft. +MSL): 1,142.94
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	950	958
Pressure (psia)	14.08	14.10
Temperature (°C)	15.48	16.70

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	173.99	170.05	173.94	16.87	953	138.18	1004.76
4	444	150.50	146.66	150.50	17.65	954	138.14	1004.80
3	392	127.94	124.83	127.96	17.95	955	136.50	1006.44
2	314	94.11	90.50	94.09	18.04	956	137.70	1005.24
1	242	62.80	58.98	62.81	17.57	957	138.42	1004.52

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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: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,165.05
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	1050	1104
Pressure (psia)	14.05	14.06
Temperature (°C)	16.52	17.46

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	330.36	330.31	330.35	20.07	1054		
4	700	243.68	244.10	243.70	21.45	1057		
3	562	183.88	180.97	183.88	20.96	1059		
2	392	110.23	108.94	110.17	19.47	1100		
1	230	39.75	38.77	39.80	18.01	1102		
							172.97	992.08

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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: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,059.10
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	740	747
Pressure (psia)	14.07	14.12
Temperature (°C)	17.55	18.58

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	372	126.74	161.25	126.74	18.55	742	32.46	1026.64
4	310	99.78	134.39	99.73	19.04	743	32.42	1026.68
3	240	69.74	104.44	69.72	19.09	744	31.52	1027.58
2	161	35.29	70.09	35.31	18.88	745	31.76	1027.34
1	90	14.17	38.52	14.18	18.67	746	33.59	1025.51

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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: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,176.98
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	759	812
Pressure (psia)	14.04	14.03
Temperature (°C)	17.02	19.32

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	588	202.11	201.68	202.10	19.18	802	155.11	1021.87
4	467	149.71	150.81	149.73	20.31	803	151.47	1025.51
3	389	115.89	118.79	115.92	20.51	804	147.34	1029.64
2	329	89.86	92.61	89.87	20.10	807	147.74	1029.24
1	245	52.92	55.53	52.96	19.69	810	149.28	1027.70

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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: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,108.84
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	700	708
Pressure (psia)	14.02	14.11
Temperature (°C)	16.84	19.38

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	204.96	210.92	204.96	18.06	702	87.75	1021.09
4	445	162.97	169.00	162.97	19.40	703	87.46	1021.38
3	319	108.39	115.99	108.40	19.82	704	83.76	1025.08
2	254	80.25	87.67	80.21	19.79	705	84.09	1024.75
1	174	45.40	53.14	45.42	19.58	706	83.75	1025.09

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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: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay
 Elevation of Datum (Ft. + MSL): 1,200.94
 Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	830	839
Pressure (psia)	14.03	14.05
Temperature (°C)	17.88	20364.00

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	235.15	227.57	235.17	20.13	833	185.36	1015.58
4	554	181.46	175.59	181.52	20.94	834	181.28	1019.66
3	435	129.92	125.44	129.93	21.06	836	177.98	1022.96
2	373	103.10	98.38	103.07	21.08	837	178.40	1022.54
1	279	62.34	58.09	62.33	20.95	838	177.35	1023.59

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-25
 Project No: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay

Elevation of Datum (ft. + MSL): 934.52

Weather: cloudy and cool

Ambient Readings	Start	Finish
Time	1118	1127
Pressure (psia)	14.15	14.19
Temperature (°C)	17.56	19.63

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	206.32	210.75	206.30	19.56	1121	259.44	675.08
4	633	171.84	177.15	171.83	20.57	1123	256.96	677.56
3	503	115.59	122.15	115.57	20.63	1124	253.84	680.68
2	423	80.78	87.99	80.80	20.40	1125	252.65	681.87
1	358	52.53	59.83	52.51	20.09	1126	252.62	681.90

Field Data Sheet for Multi-Port Monitoring Wells

Project Name: JPL Pasadena Well ID: MW-26
 Project No: 4-73803 Probe Type: Westbay
 Date: 4/17/07 Serial No.: 2508
 Personnel: Marco Mendoza, Chase Brogdon
 Datum: TOC Casing Size/Type: 1.5" Westbay

Elevation of Datum (ft. + MSL): 1,059.08

Weather: partly cloudy and cool

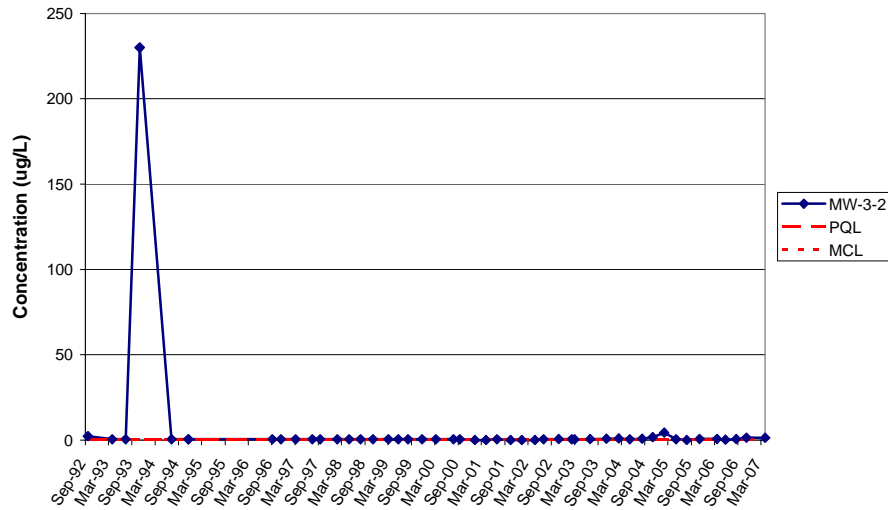
Ambient Readings	Start	Finish
Time	1140	1144
Pressure (psia)	14.09	14.15
Temperature (°C)	19.24	18.82

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)				
2	215	78.15	78.19	78.20	19.20	1142	67.12	991.96
1	135	43.85	40.96	43.65	19.14	1143	73.01	986.07

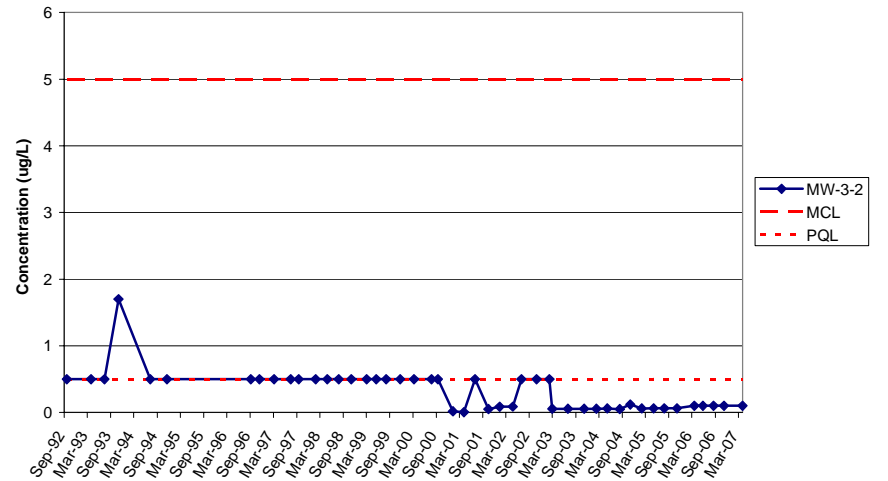
ATTACHMENT 6: TIME-SERIES CONCENTRATION PLOTS

This attachment contains time-series concentrations plots for perchlorate and VOCs in critical wells within the JPL monitoring well network. In general, critical wells have been determined based on the presence of perchlorate and VOC concentrations at levels that exceed cleanup goals or wells that are directly influenced by the operation of the OU-1 treatment system. These plots provide a graphical representation of perchlorate and VOC concentrations trends over time with respect to the cleanup goals for each chemical.

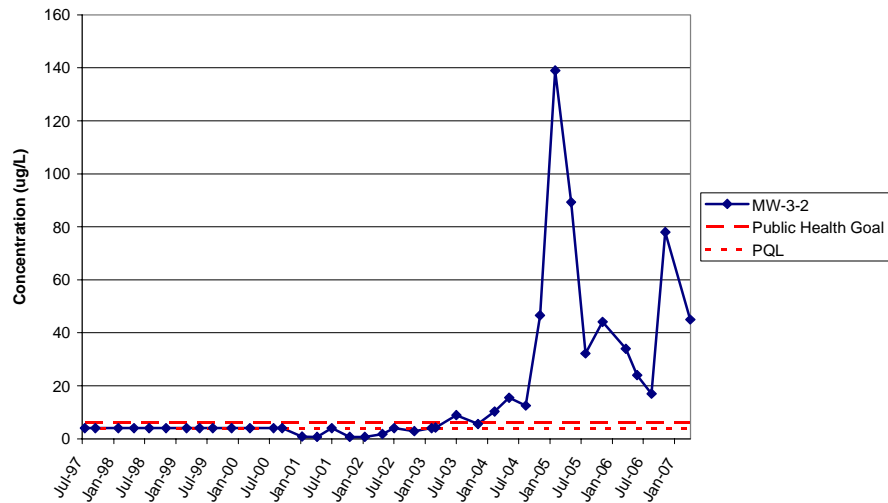
MW-3-2 Carbon Tetrachloride Concentrations 1992 to Present



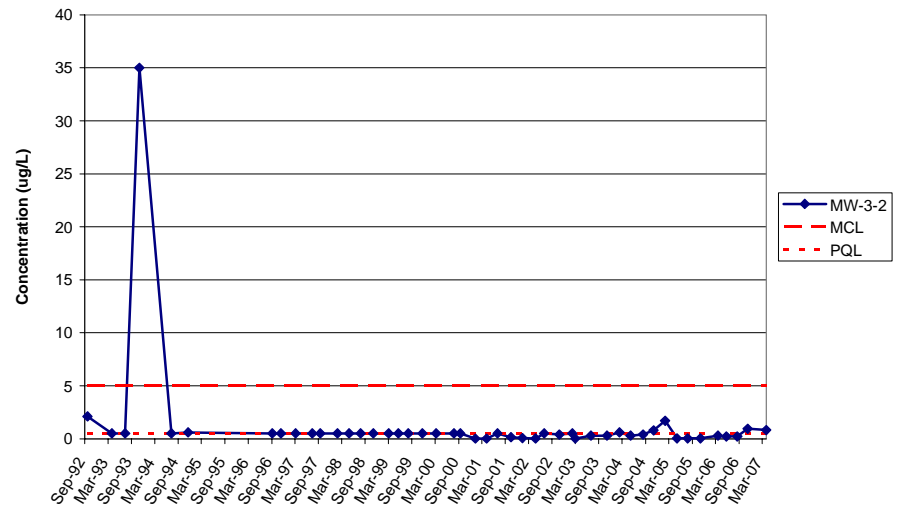
MW-3-2 PCE Concentrations 1992 to Present



MW-3-2 Perchlorate Concentrations 1997 to Present

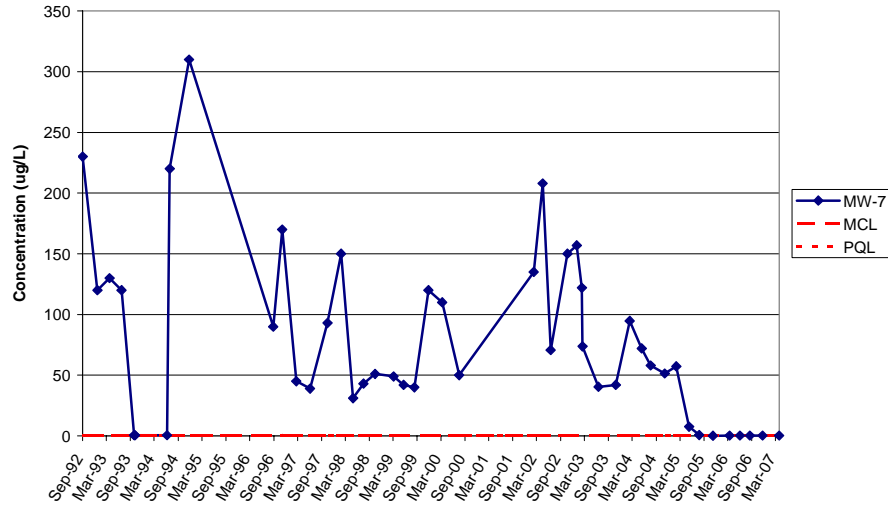


MW-3-2 TCE Concentrations 1992 to Present

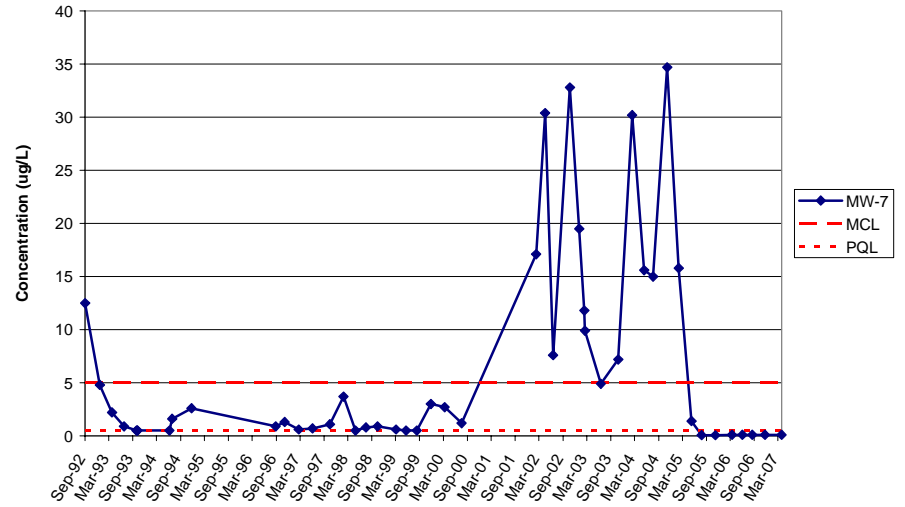


Time Series Plots for MW-3-2 VOCs and Perchlorate

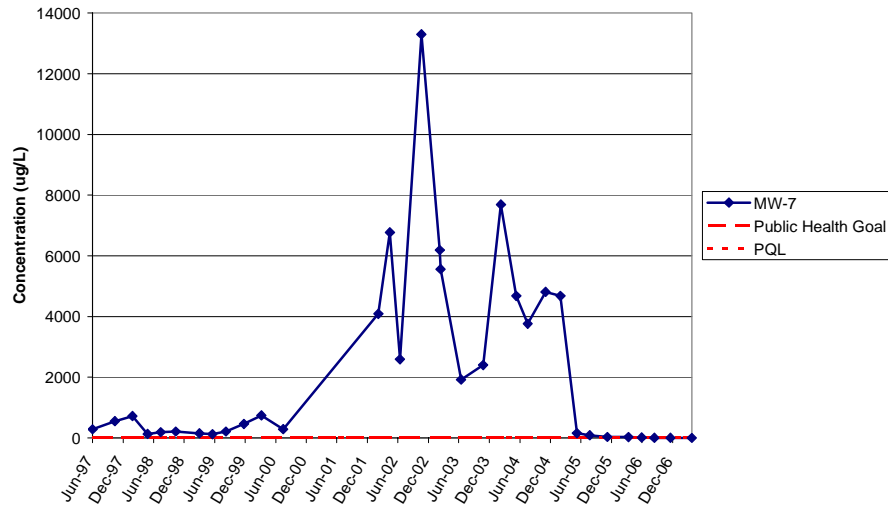
**MW-7 Carbon Tetrachloride Concentrations
1992 to Present**



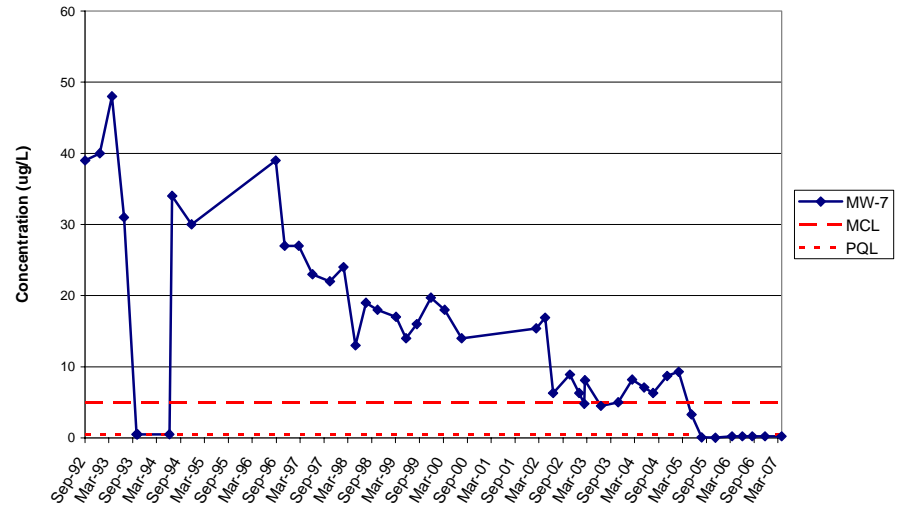
**MW-7 PCE Concentrations
1992 to Present**



**MW-7 Perchlorate Concentrations
1997 to Present**

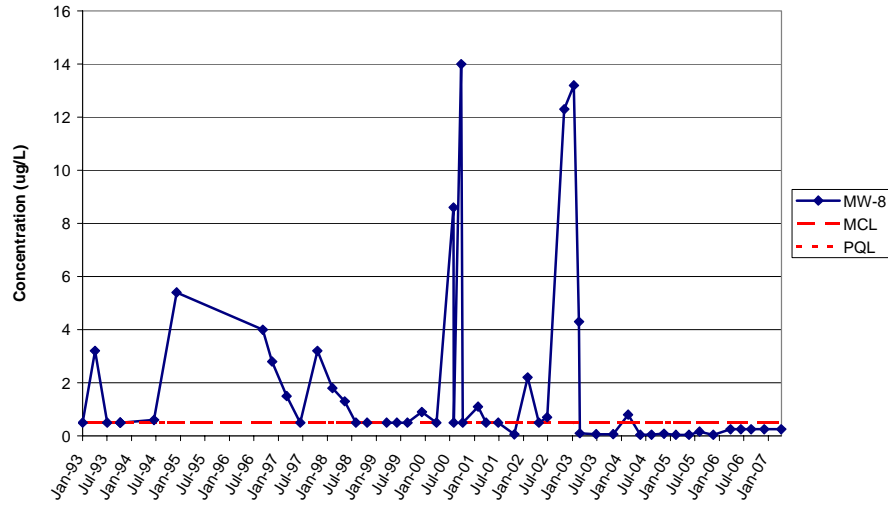


**MW-7 TCE Concentrations
1992 to Present**

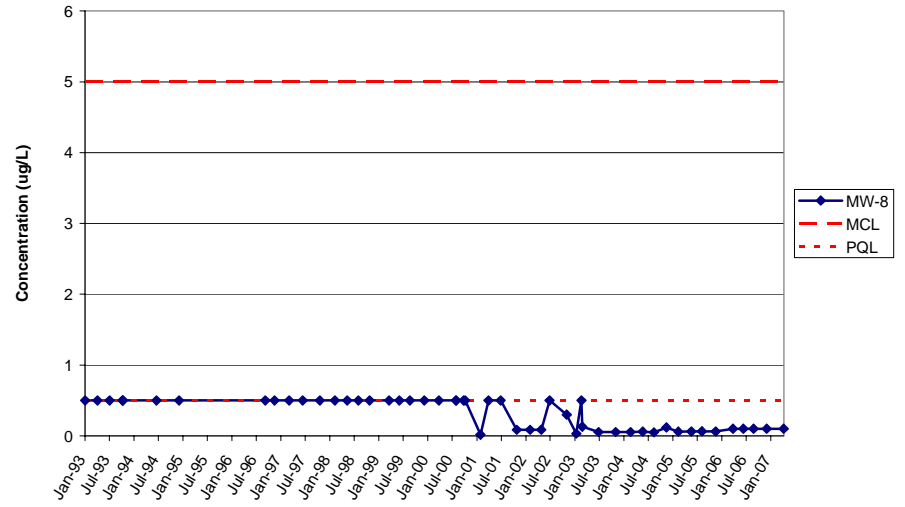


Time Series Plots for MW-7 VOCs and Perchlorate

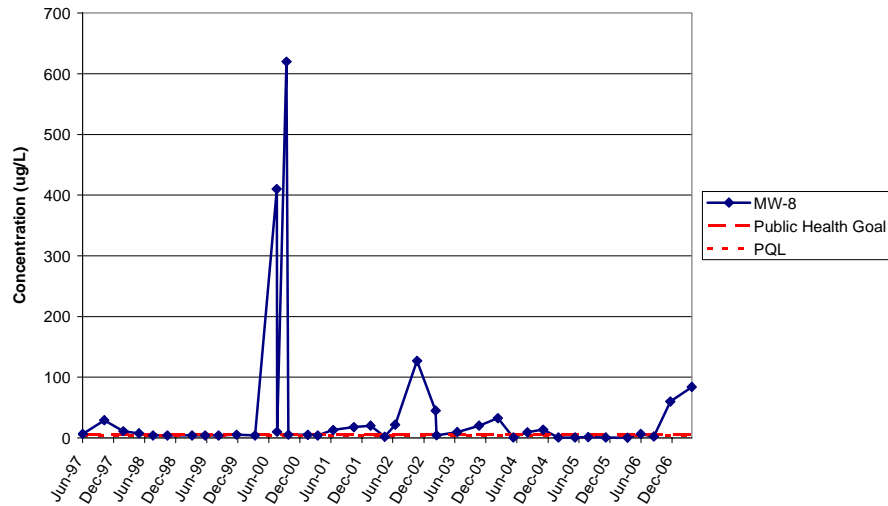
**MW-8 Carbon Tetrachloride Concentrations
1993 to Present**



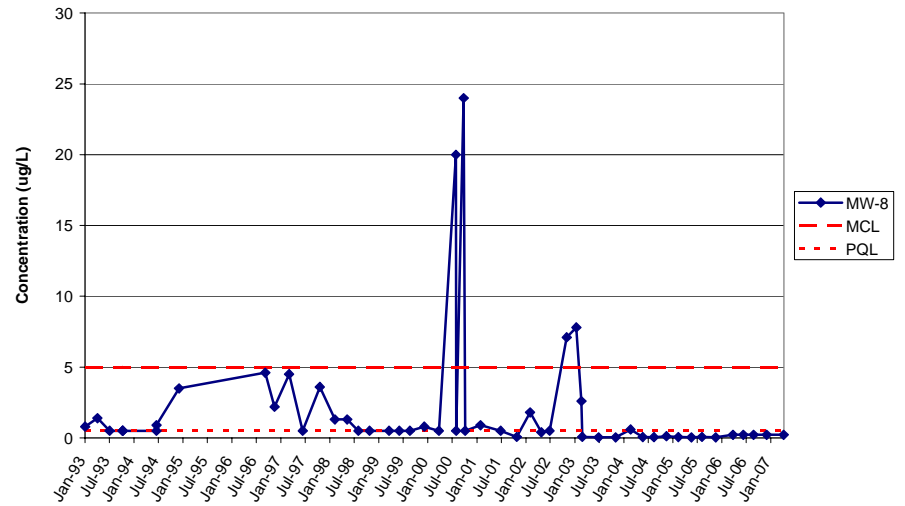
**MW-8 PCE Concentrations
1993 to Present**



**MW-8 Perchlorate Concentrations
1997 to Present**

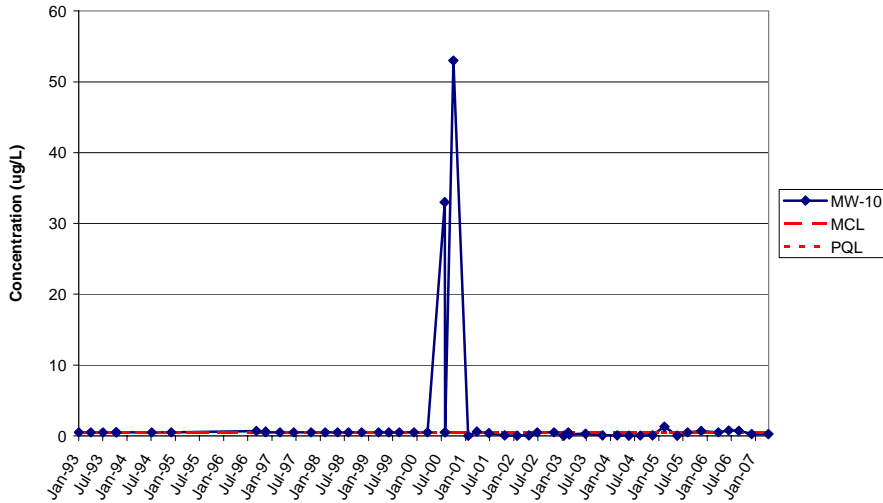


**MW-8 TCE Concentrations
1993 to Present**

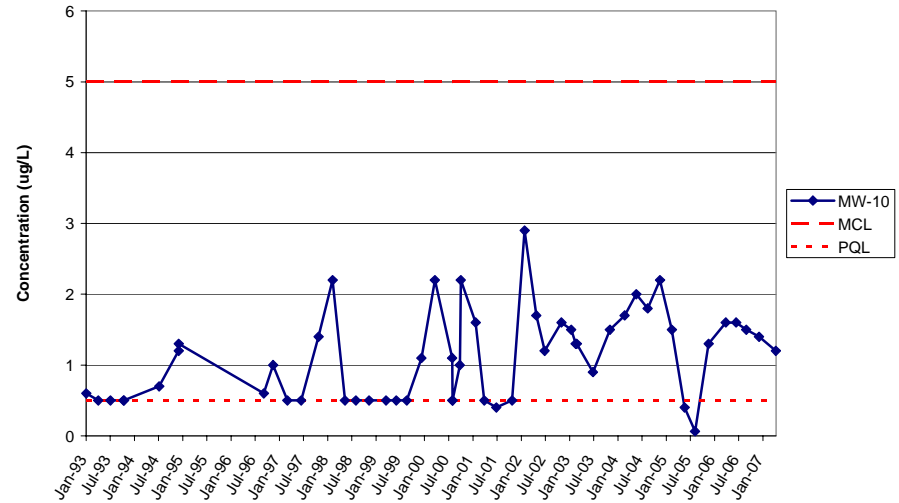


Time Series Plots for MW-8 VOCs and Perchlorate

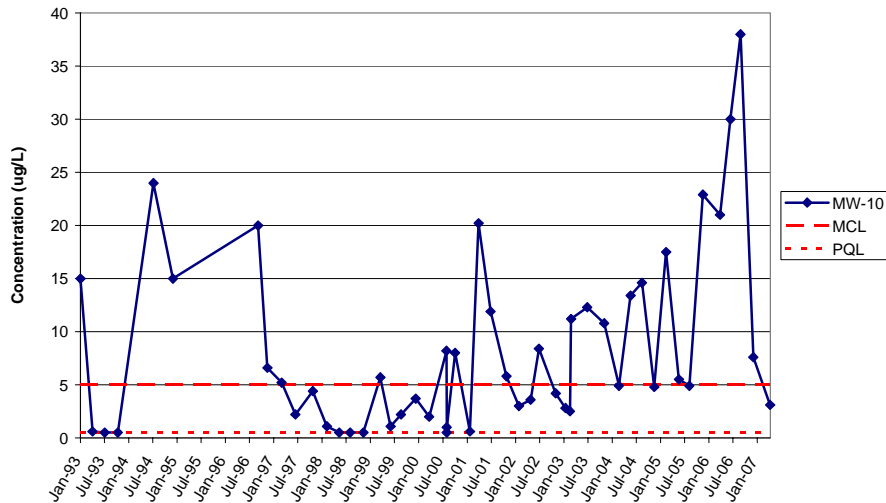
**MW-10 Carbon Tetrachloride Concentrations
1993 to Present**



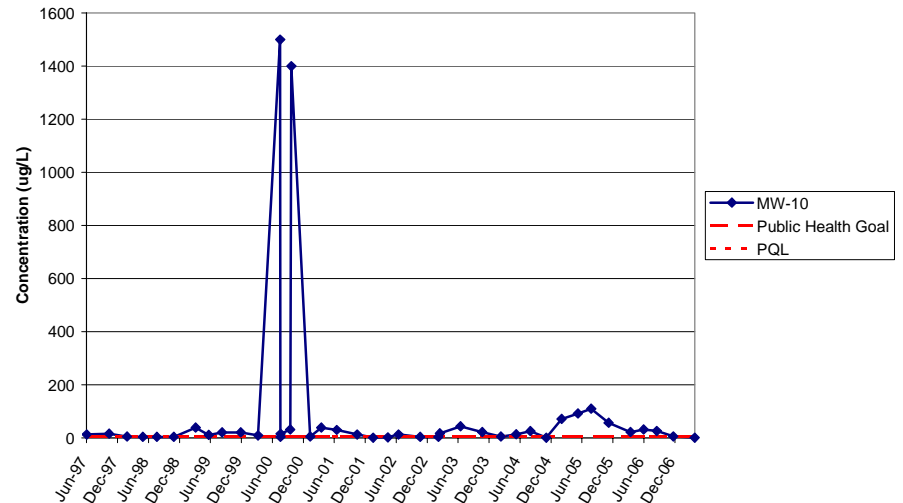
**MW-10 PCE Concentrations
1993 to Present**



**MW-10 TCE Concentrations
1993 to Present**

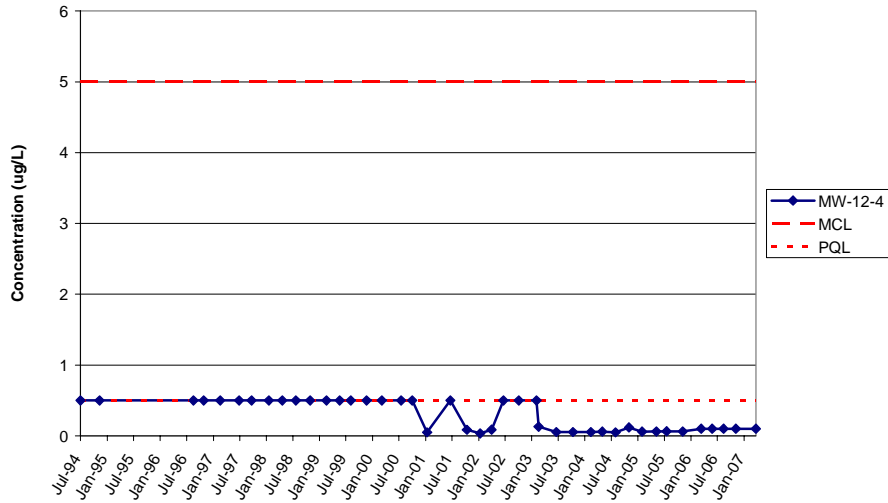


**MW-10 Perchlorate Concentrations
1997 to Present**

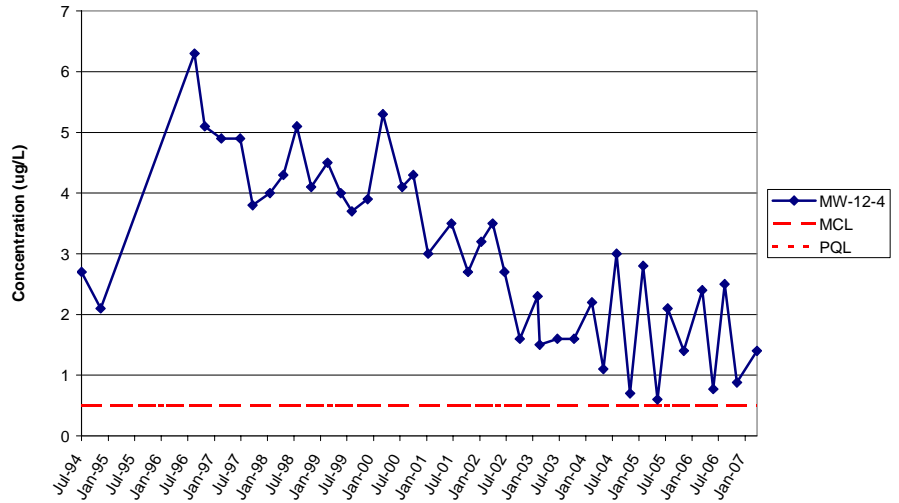


Time Series Plots for MW-10 VOCs and Perchlorate

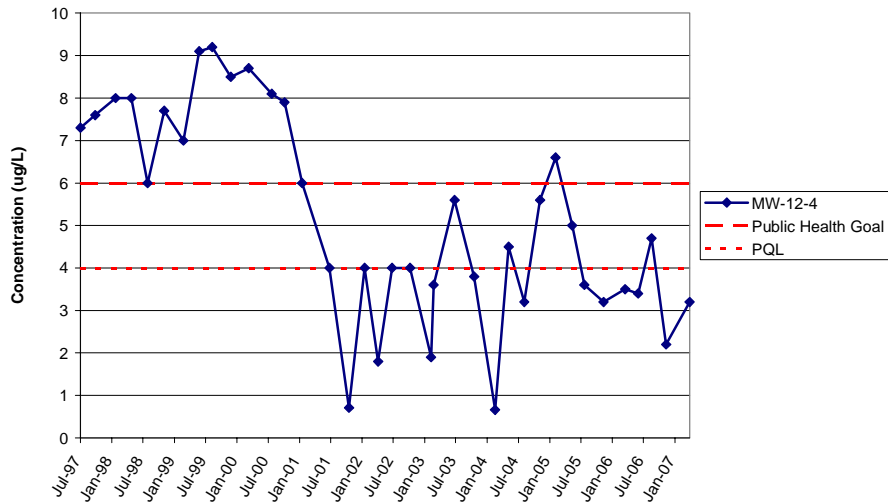
**MW-12-4 PCE Concentrations
1994 to Present**



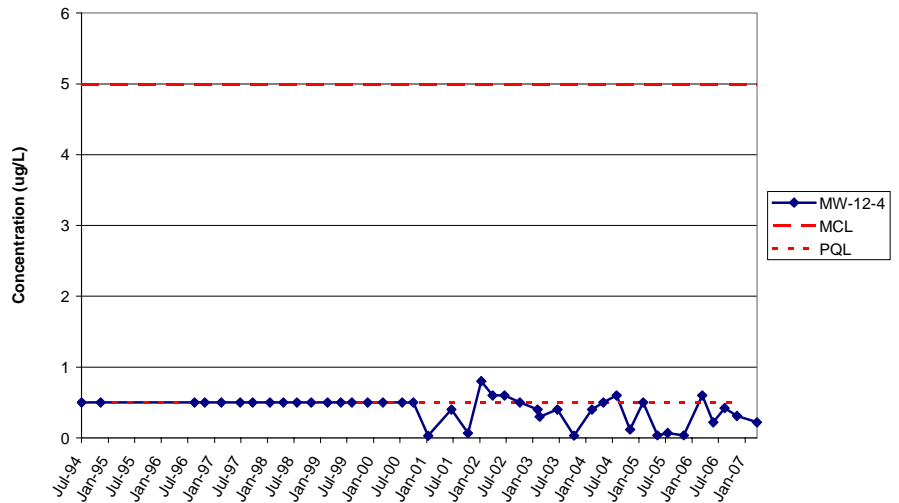
**MW-12-4 Carbon Tetrachloride Concentrations
1994 to Present**



**MW-12-4 Perchlorate Concentrations
1997 to Present**

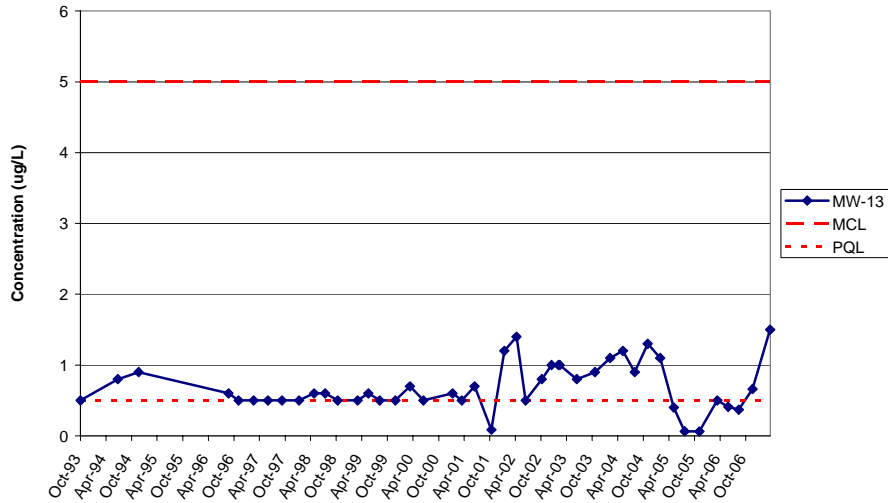


**MW-12-4 TCE Concentrations
1994 to Present**

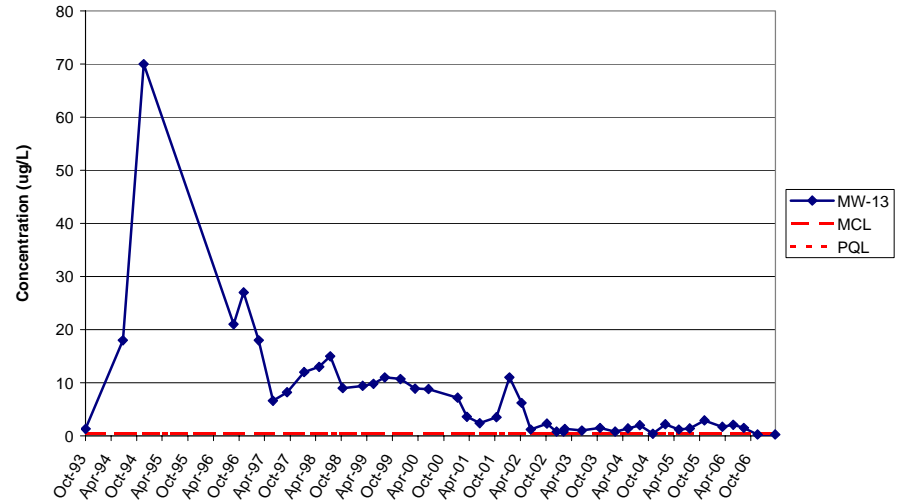


Time Series Plots for MW-12-4 VOCs and Perchlorate

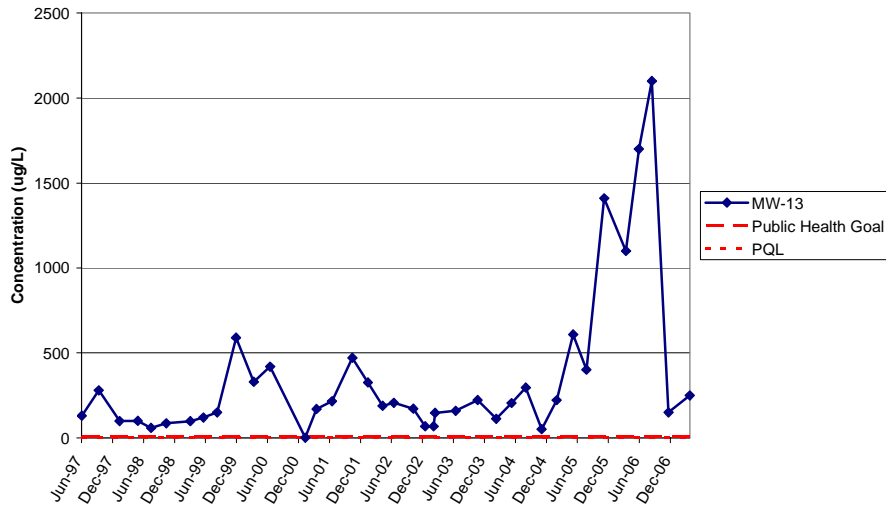
**MW-13 PCE Concentrations
1993 to Present**



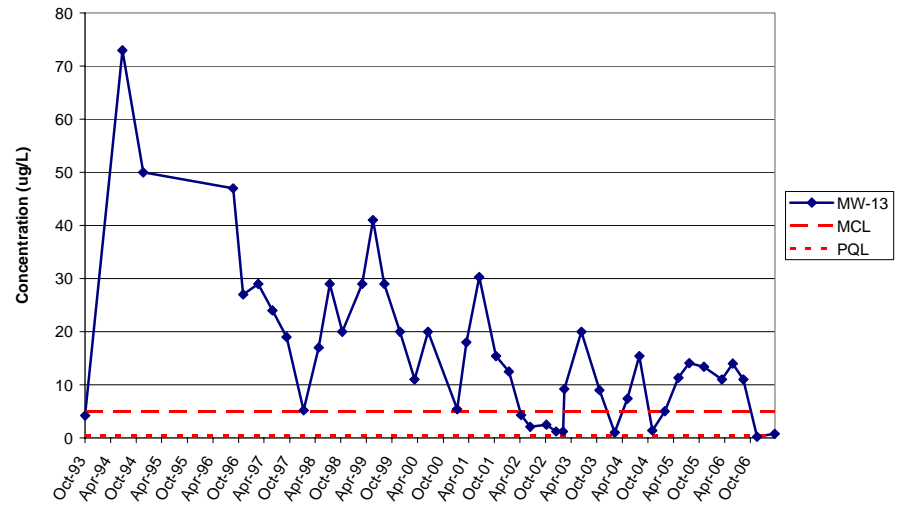
**MW-13 Carbon Tetrachloride Concentrations
1993 to Present**



**MW-13 Perchlorate Concentrations
1997 to Present**

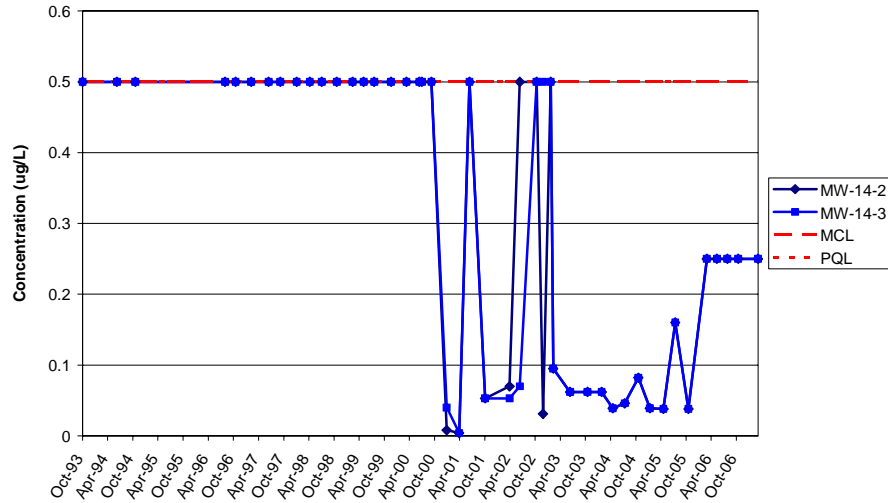


**MW-13 TCE Concentrations
1993 to Present**

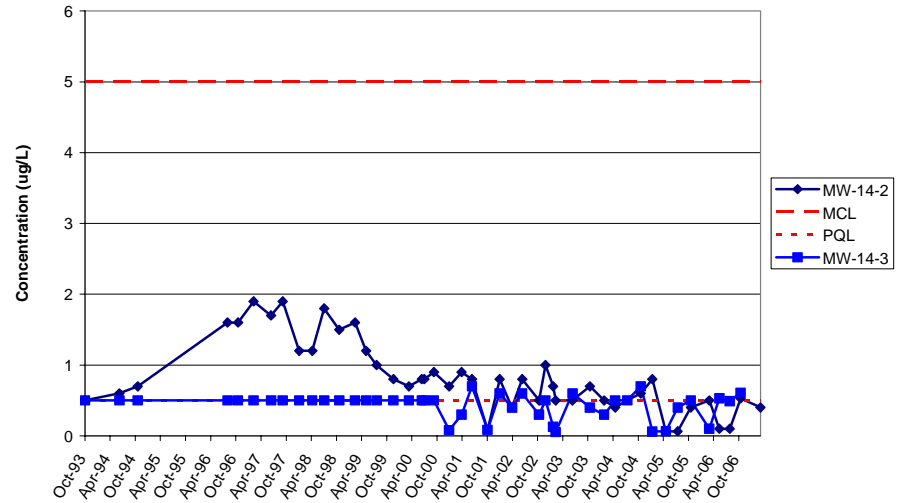


Time Series Plots for MW-13 VOCs and Perchlorate

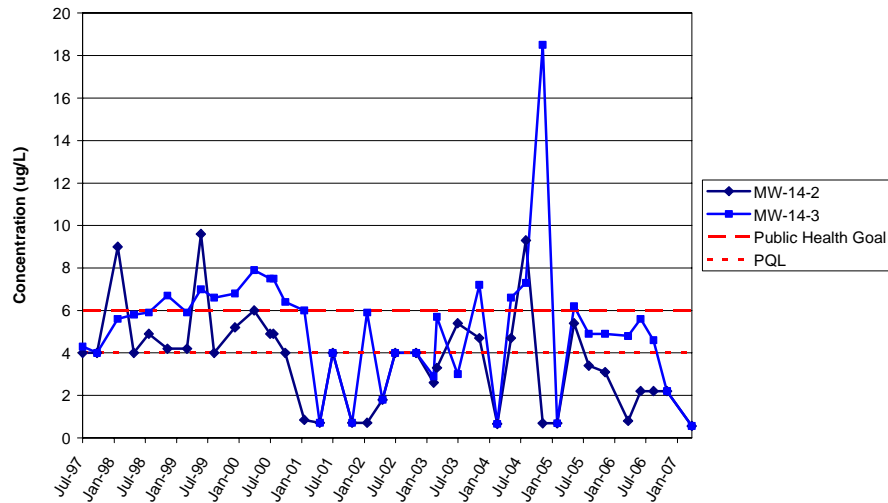
**MW-14-2 and MW-14-3 Carbon Tetrachloride Concentrations
1993 to Present**



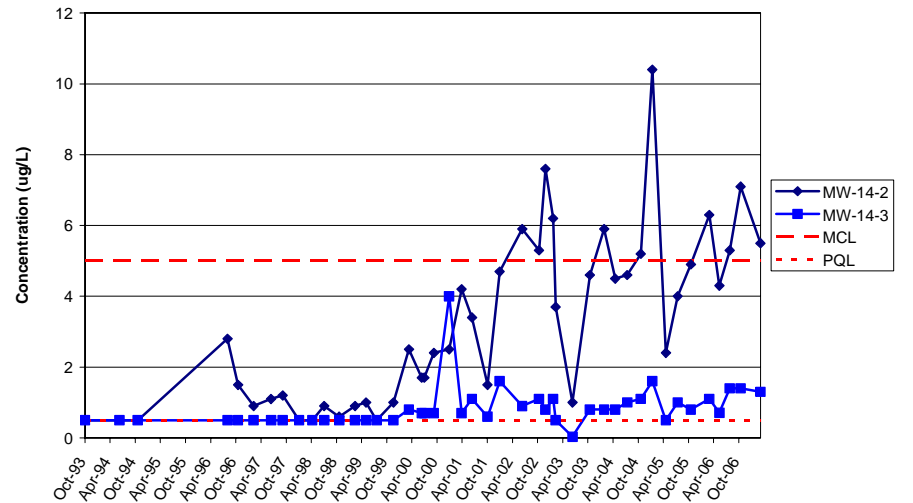
**MW-14-2 and MW-14-3 PCE Concentrations
1993 to Present**



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

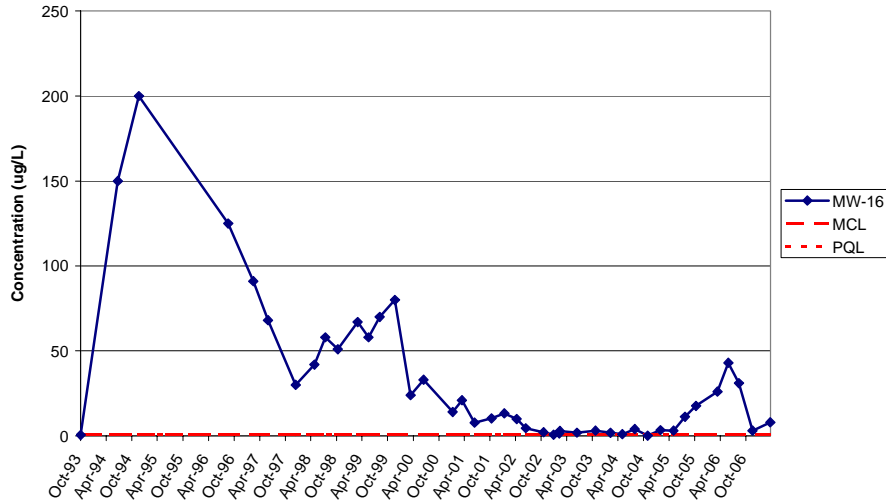


**MW-14-2 and MW-14-3 TCE Plot
1993 to Present**

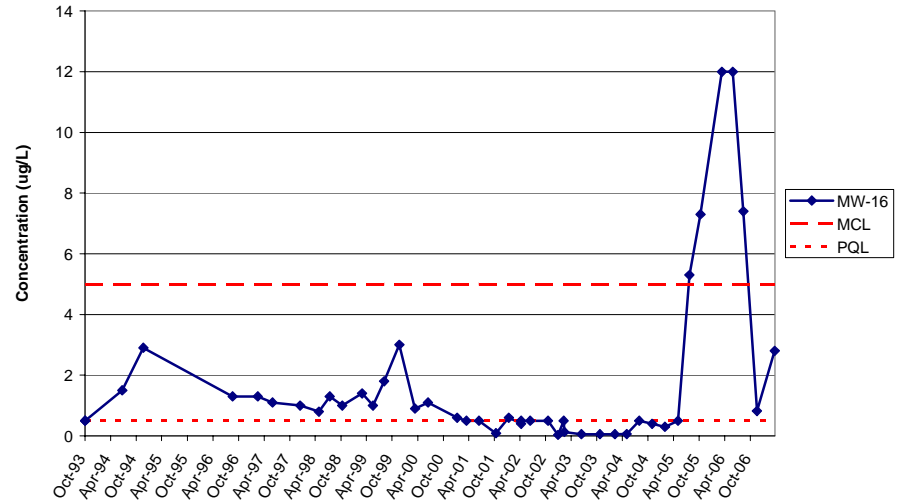


Time Series Plots for MW-14-2 and MW-14-3 VOCs and Perchlorate

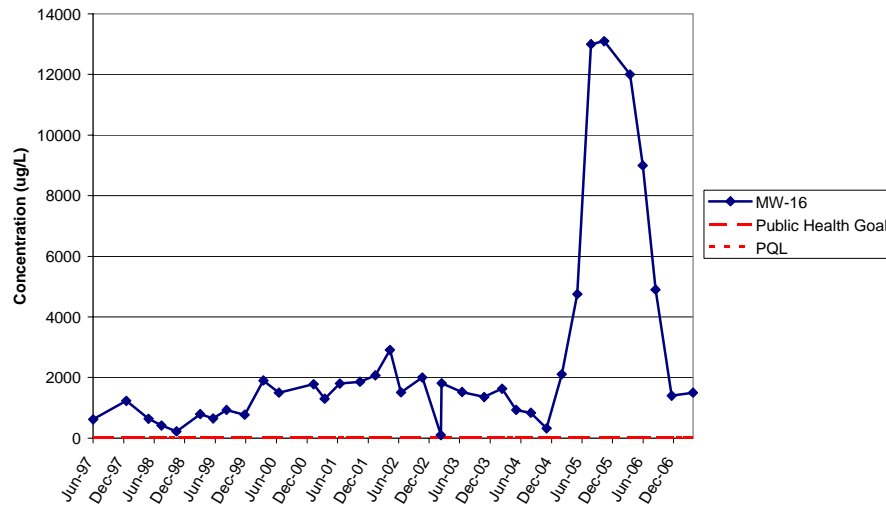
**MW-16 Carbon Tetrachloride Concentrations
1993 to Present**



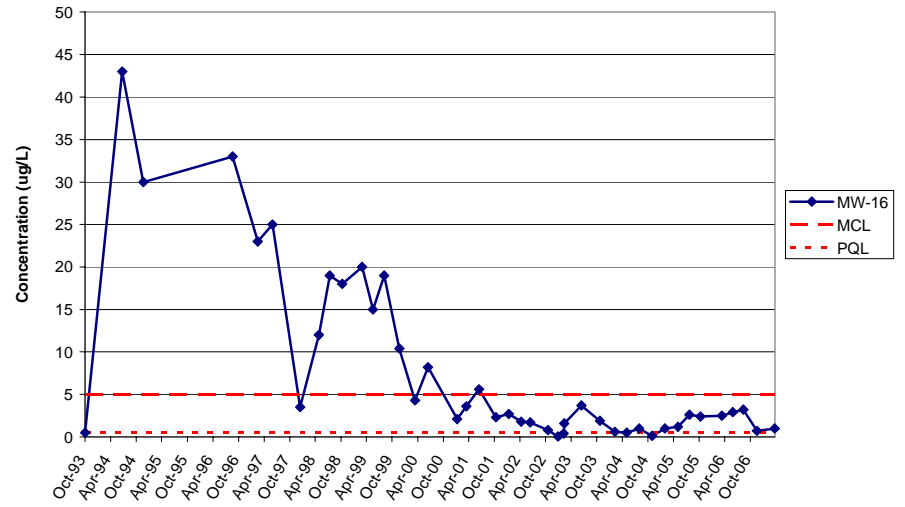
**MW-16 PCE Concentrations
1993 to Present**



**MW-16 Perchlorate Concentrations
1997 to Present**

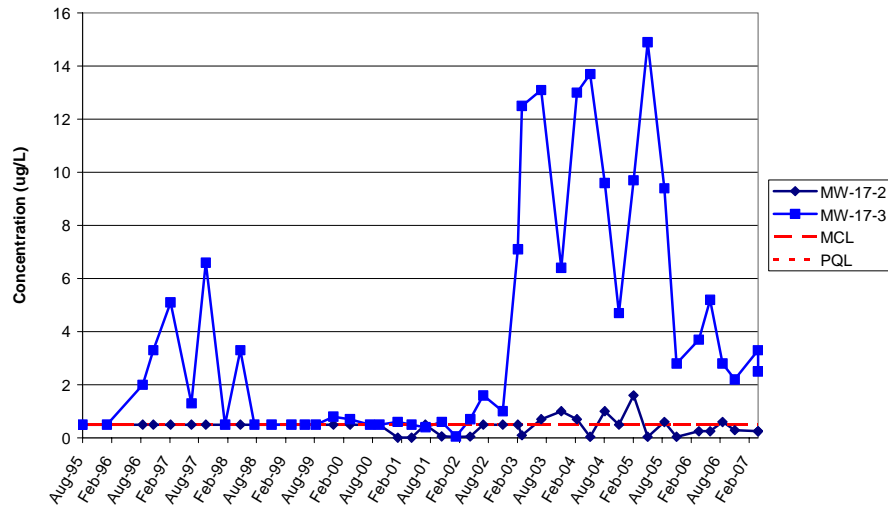


**MW-16 TCE Concentrations
1993 to Present**

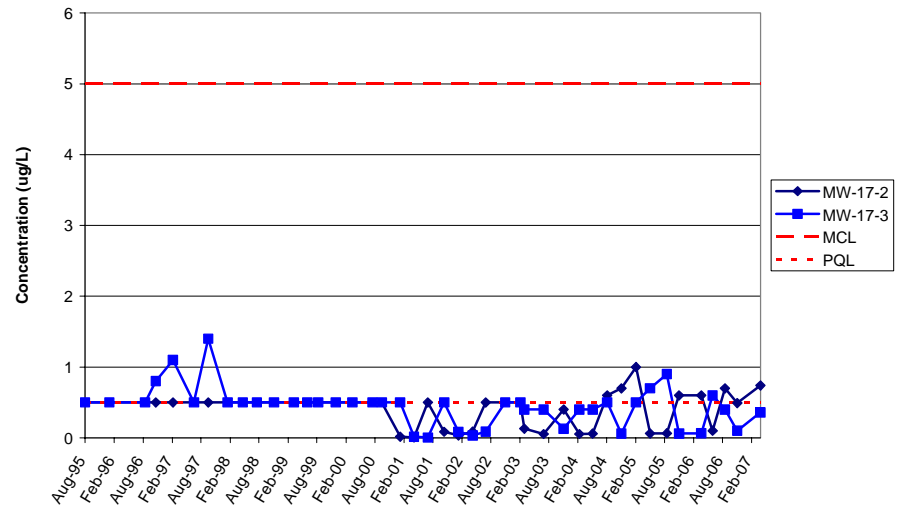


Time Series Plots for MW-16 VOCs and Perchlorate

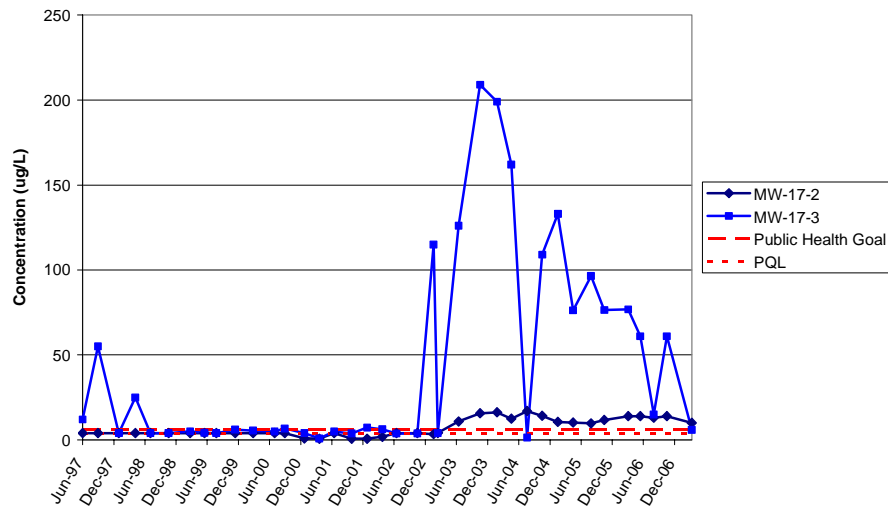
**MW-17-2 and MW-17-3 Carbon Tetrachloride Concentrations
1995 to Present**



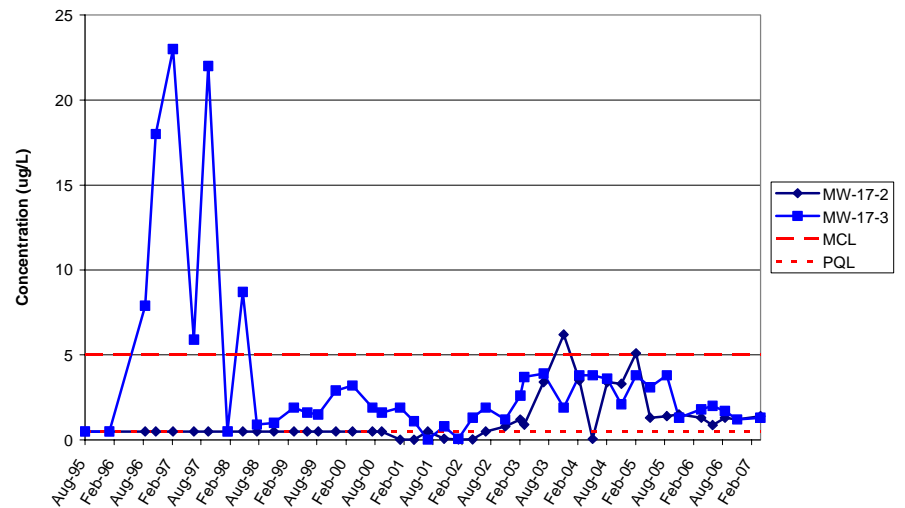
**MW-17-2 and MW-17-3 PCE Concentrations
1995 to Present**



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

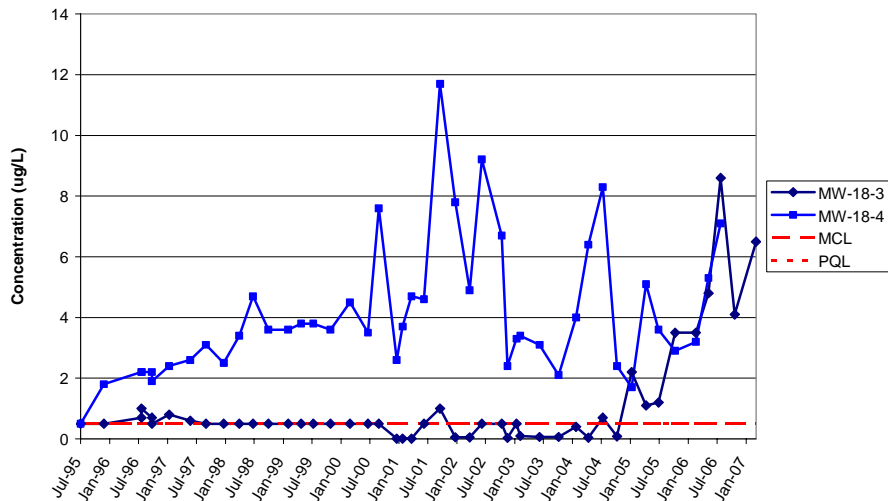


**MW-17-2 and MW-17-3 TCE Concentrations
1995 to Present**

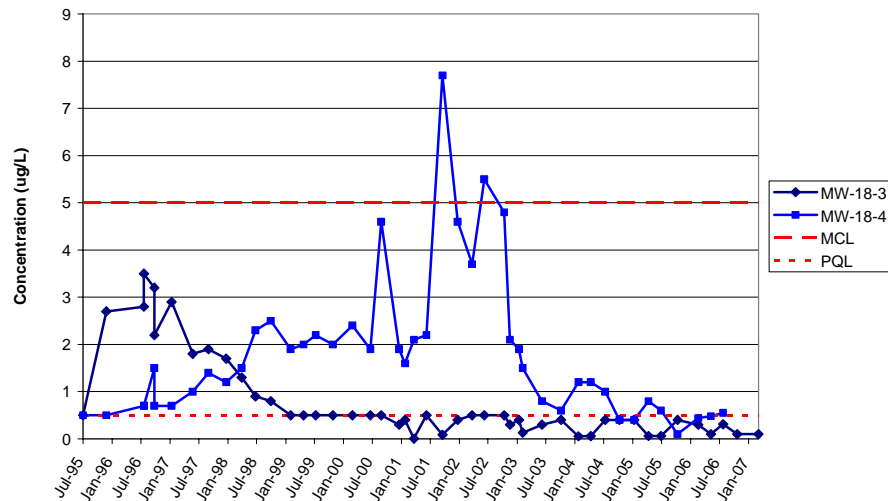


Time Series Plots for MW-17-2 and MW-17-3 VOCs and Perchlorate

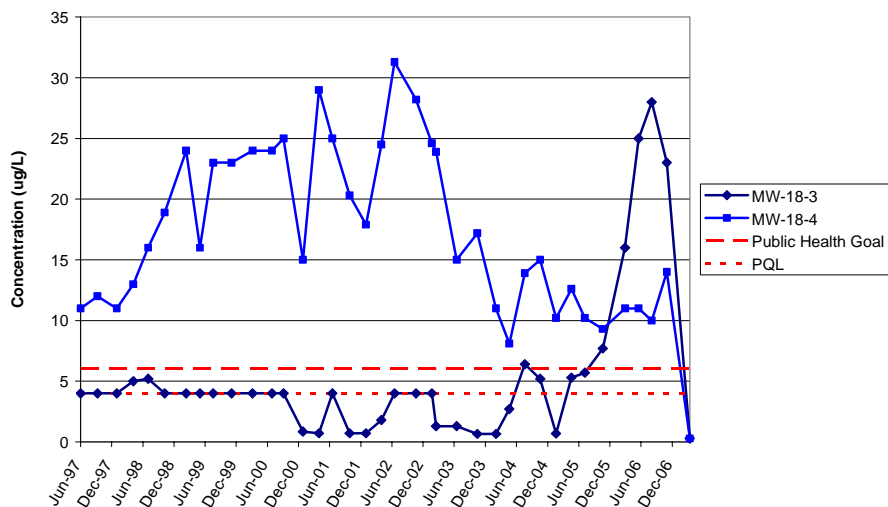
**MW-18-3 and MW-18-4 Carbon Tetrachloride Concentrations
1995 to Present**



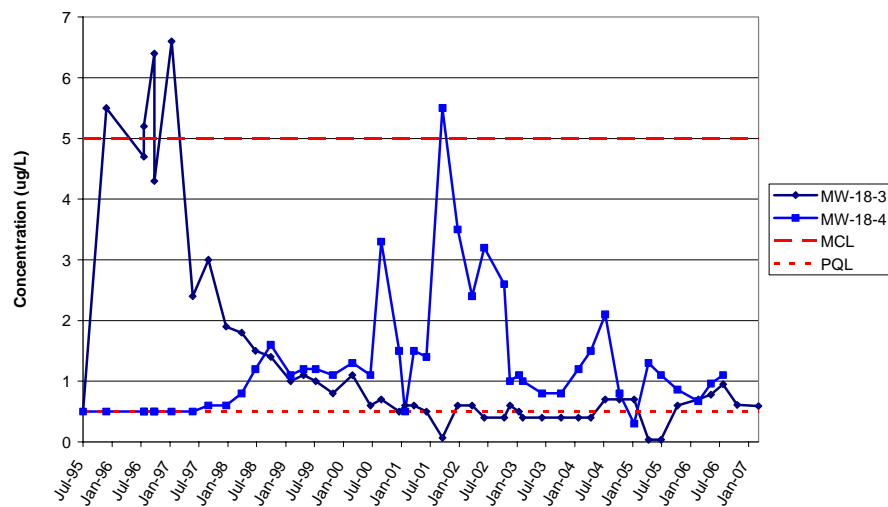
**MW-18-3 and MW-18-4 PCE Concentrations
1995 to Present**



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

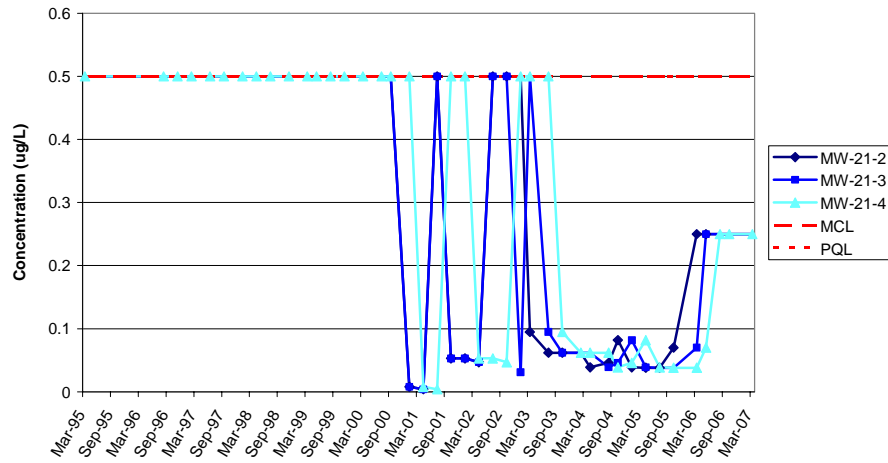


**MW-18-3 and MW-18-4 TCE Concentrations
1995 to Present**

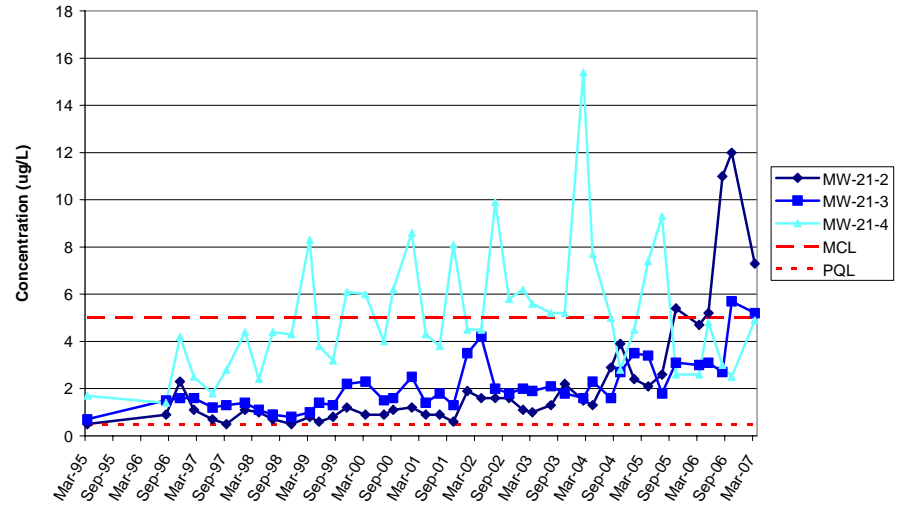


Time Series Plots for MW-18-3 and MW-18-4 VOCs and Perchlorate

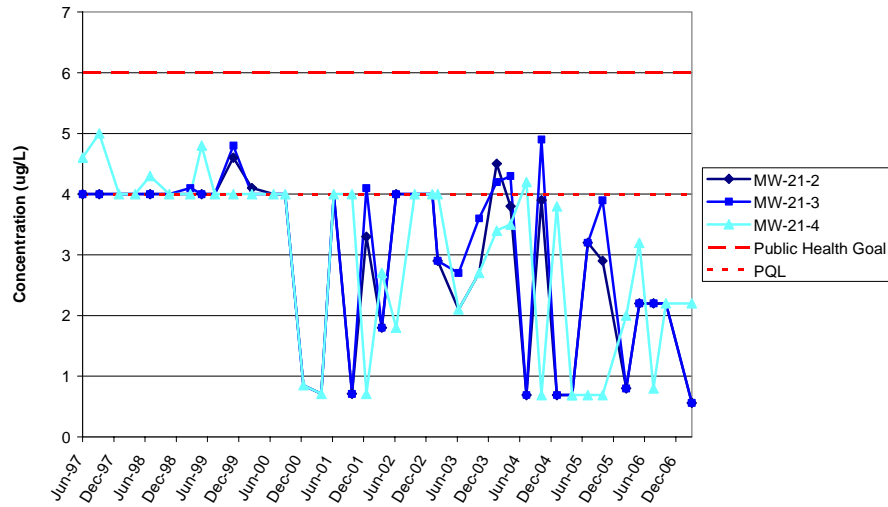
**MW-21-2, MW-21-3, and MW-21-4
Carbon Tetrachloride Concentrations
1995 to Present**



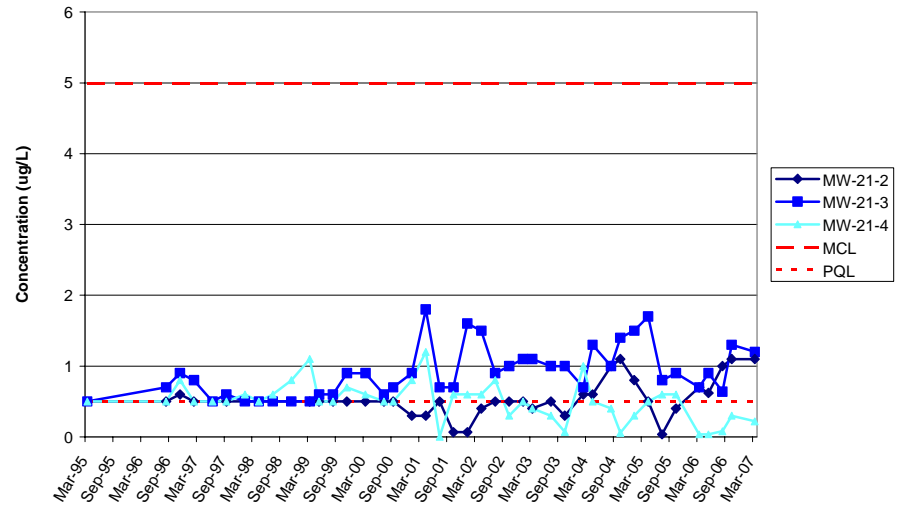
**MW-21-2, MW-21-3, and MW-21-4 PCE
Concentrations 1995 to Present**



**MW-21-2, MW-21-3, and MW-21-4 Perchlorate
Concentrations 1997 to Present**

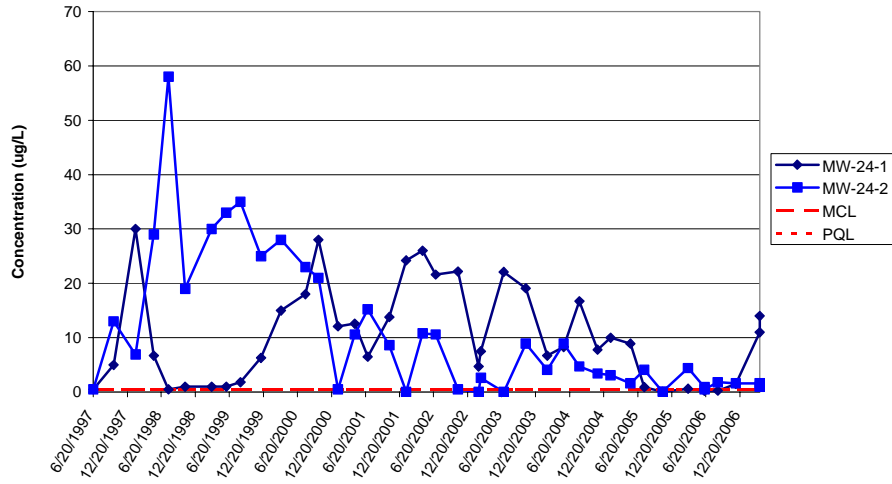


**MW-21-2, MW-21-3, and MW-21-4 TCE
Concentrations 1995 to Present**

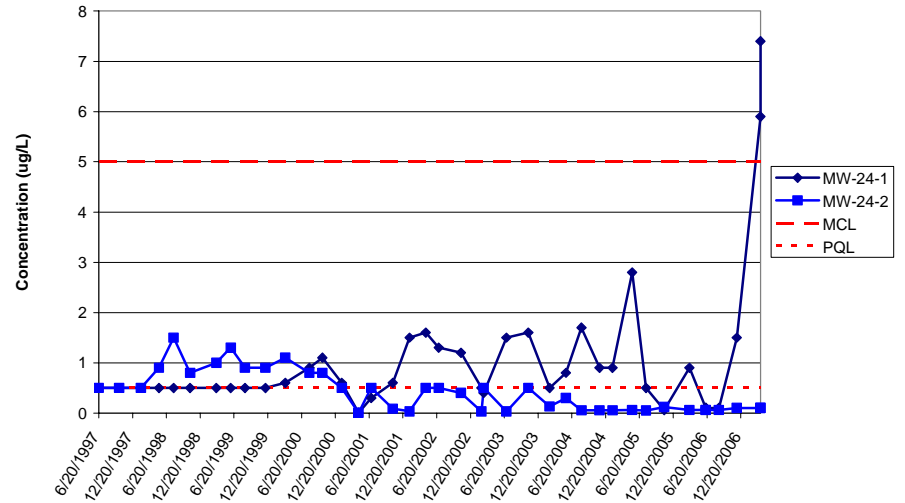


Time Series Plots for MW-21-2, MW-21-3, and MW-21-4 VOCs and Perchlorate

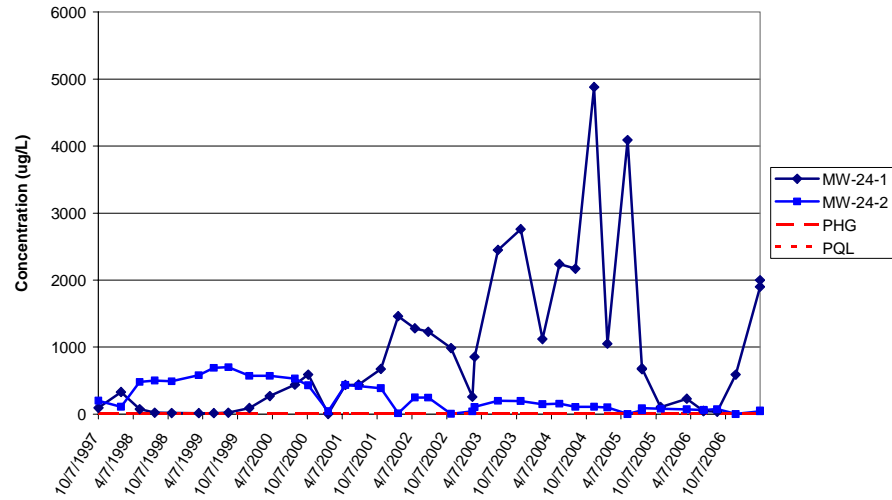
MW-24-1 and MW-24-2 Carbon Tetrachloride Concentrations 1997 to Present



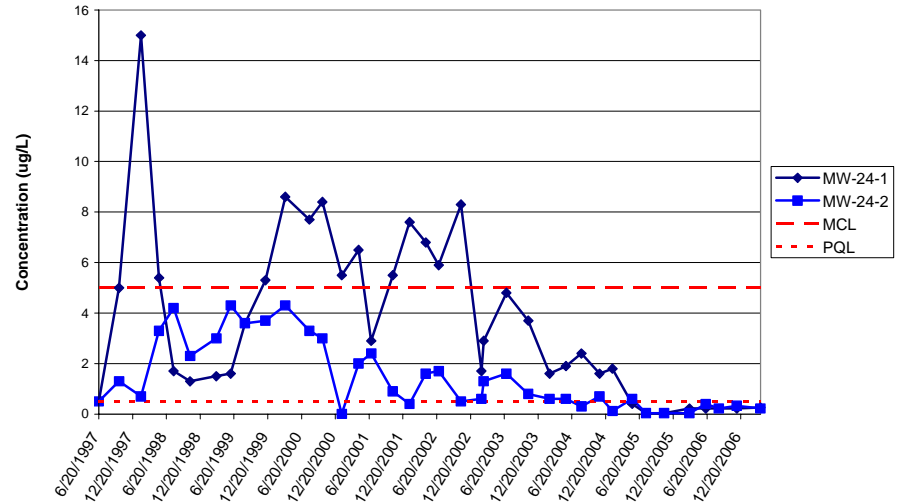
MW-24-1 and MW-24-2 PCE Concentrations 1997 to Present



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



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



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