



Figure 1.

## **ATTACHMENT 4: FIELD LOGS**

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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 4th Quarter 2008 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: 4-73805  
 Navy Contract No.: Battelle  
 Sampled By: Chase Brogdon, Andrew Wells  
 Date: 11/17/08  
 Weather: clear and sunny

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

### PURGE VOLUME CALCULATION (casing volume):

$$\left( \frac{120}{\text{TD (feet)}} - \frac{36.50}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{163.53}{\text{Calculated Purge Volume}} \text{ Gallons}$$

### 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
0813	36.50	0	--	--	--	--	--	--	Purge start
0822	36.50	33	6.08	73.9	5.00	10.22	17.0	241	Clear, no odor
0831	36.50	65	6.59	70.8	0.93	10.02	17.1	220	Clear, no odor
0840	36.50	98	6.71	70.3	0.64	9.89	17.0	217	Clear, no odor
0849	36.50	131	6.85	70.3	-0.05	9.71	17.6	213	Clear, no odor
0858	36.50	164	7.15	70.8	-0.25	8.83	17.8	204	Clear, no odor

Total Purge Volume: 164 (Gallons)

Total Discharge: 3.01 (Casing Volumes)

Approx. Purge Rate: 4.0 (GPM)

### OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 807 Purge time start: 813

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

### WATER DISPOSAL

Purge water storage: polytank  
 Purge water disposal: OU1 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-1</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>0900</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: 11/14/08  
 Weather: clear and sunny

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

### PURGE VOLUME CALCULATION (casing volume):

$$\left( \frac{140}{\text{TD (feet)}} - \frac{74.35}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{128.57}{\text{Calculated Purge Volume}} \text{ Gallons}$$

### 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
0735	74.35	0	--	--	--	--	--	--	Purge start
0742	74.35	26	5.24	51.4	2.15	8.52	17.3	234	Clear, no odor
0749	74.35	51	6.21	51.7	1.32	8.52	16.8	221	Clear, no odor
0756	74.35	77	6.38	51.7	0.57	8.52	16.6	219	Clear, no odor
0803	74.35	102	6.55	53.1	0.21	8.40	16.5	232	Clear, no odor
0811	74.35	129	6.62	54.2	0.34	8.35	16.7	239	Clear, no odor

Total Purge Volume: 129 (Gallons)

Total Discharge: 3.01 (Casing Volumes)

Approx. Purge Rate: 4.0 (GPM)

### OBSERVATIONS DURING PUMPING

**NOTES:** (well condition, color, clarity, odor): Purge start at: 0730 Purge time start: 0735

**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: 11/14/08  
 Weather: clear and sunny

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

### PURGE VOLUME CALCULATION (casing volume):

$$\left( \frac{245}{\text{TD (feet)}} - \frac{178.33}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{130.57}{\text{Calculated Purge Volume}} \text{ Gallons}$$

### 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
0856	178.33	0	--	--	--	--	--	--	Purge start
0907	178.33	27	6.66	0.145	63.9	10.14	22.9	249	Reddish brown color, no odor
0918	178.33	53	6.70	0.137	42.3	8.45	24.4	233	Reddish brown color, no odor
0929	178.33	80	6.87	0.140	33.4	8.86	22.2	242	Cloudy, no odor
0940	178.33	108	6.81	0.138	25.9	8.25	21.3	267	Cloudy, no odor
0951	178.33	134	6.82	0.138	19.6	7.92	21.6	279	Cloudy, no odor

Total Purge Volume: 134 (Gallons)

Total Discharge: 3.08 (Casing Volumes)

Approx. Purge Rate: 2.50 (GPM)

### OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 848 Purge time start: 856

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>0954</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 # 7



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.  
 Project No: 4-73805  
 Navy Contract No.: Battelle  
 Sampled By: Chase Brogdon, Andrew Wells  
 Date: 11/11/08  
 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):

$$\left( \frac{275}{\text{TD (feet)}} - \frac{212.44}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{122.52}{\text{Calculated Purge Volume}} \text{ Gallons}$$

### 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
0824	212.44	0	--	--	--	--	--	--	Purge start
0837	212.44	25	6.19	78.1	6.56	6.89	19.7	200	Clear, no odor
0849	212.44	50	6.37	77.4	18.1	6.92	19.9	220	Clear, no odor
0902	212.44	75	6.70	77.2	26.7	6.97	20.4	209	Clear, no odor
0914	212.44	100	6.83	78.4	4.03	7.02	19.7	234	Clear, no odor
0927	212.44	125	6.89	77.8	2.29	6.98	20.1	248	Clear, no odor

Total Purge Volume: 125 (Gallons)

Total Discharge: 3.06 (Casing Volumes)

Approx. Purge Rate: 2.00 (GPM)

### OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 755 Purge time start: 824

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-7</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>0929</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: 11/13/08  
 Weather: clear and sunny

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

### PURGE VOLUME CALCULATION (casing volume):

$$\left( \frac{205}{\text{TD (feet)}} - \frac{139.67}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{127.94}{\text{Calculated Purge Volume}} \text{ Gallons}$$

### 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
1008	139.67	0	--	--	--	--	--	--	Purge start
1017	139.67	26	7.14	72.2	2.63	9.10	19.4	297	Clear, no odor
1026	139.67	51	7.17	70.2	1.66	8.66	19.1	291	Clear, no odor
1035	139.67	77	7.13	70.6	0.72	8.57	18.9	294	Clear, no odor
1044	139.67	102	7.14	69.7	0.16	8.38	18.9	296	Clear, no odor
1053	139.67	128	7.20	69.5	-0.21	8.33	19.0	298	Clear, no odor

Total Purge Volume: 128 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 3.00 (GPM)

### OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 959 Purge time start: 1008

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): \_\_\_\_\_

<b>Original</b>	<b>Duplicate</b>	<b>Blank</b>	<b>Other ( Trip / Source / _____ )</b>
Sample ID: <u>MW-8</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1059</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>7</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: 4-73805  
 Navy Contract No.: Battelle  
 Sampled By: Chase Brogdon, Andrew Wells  
 Date: 11/17/08  
 Weather: clear and sunny

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

### PURGE VOLUME CALCULATION (casing volume):

$$\left( \frac{68}{\text{TD (feet)}} - \frac{29.81}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{74.79}{\text{Calculated Purge Volume}} \text{ Gallons}$$

### 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
0955	29.81	0	--	--	--	--	--	--	Purge start
1000	29.81	15	7.45	63.5	7.98	11.11	22.1	242	Clear, no odor
1005	29.81	30	7.22	62.1	5.80	10.38	20.5	245	Clear, no odor
1010	29.81	45	7.16	61.8	2.23	9.52	20.0	253	Clear, no odor
1015	29.81	60	7.11	58.6	1.15	9.50	19.9	257	Clear, no odor
1020	29.81	75	6.98	72.1	0.10	9.02	21.0	260	Clear, no odor

Total Purge Volume: 75 (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: 0948 Purge time start: 0955

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): \_\_\_\_\_

<b>Original</b>	<b>Duplicate</b>	<b>Blank</b>	<b>Other ( Trip / Source / _____ )</b>
Sample ID: <u>MW-9</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1023</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: 11/12/08  
 Weather: clear and sunny

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

### PURGE VOLUME CALCULATION (casing volume):

$$\left( \frac{155}{\text{TD (feet)}} - \frac{88.05}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{131.11}{\text{Calculated Purge Volume}} \text{ Gallons}$$

### 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	88.05	0	-	--	--	--	--	--	Purge start
0838	88.05	27	5.58	0.124	13.2	7.80	18.0	200	Clear, no odor
0846	88.05	53	6.16	0.119	4.86	7.82	18.2	206	Clear, no odor
0854	88.05	80	6.32	0.119	4.21	7.84	18.6	220	Clear, no odor
0902	88.05	106	6.43	0.121	3.65	7.81	19.0	229	Clear, no odor
0910	88.05	132	6.52	0.122	4.43	7.90	19.4	230	Clear, no odor

Total Purge Volume: 132 (Gallons)

Total Discharge: 3.02 (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): \_\_\_\_\_

<b>Original</b>	<b>Duplicate</b>	<b>Blank</b>	<b>Other ( Trip / Source / _____ )</b>
Sample ID: <u>MW-10</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>0913</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: 11/13/08  
 Weather: clear and sunny

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

### PURGE VOLUME CALCULATION (casing volume):

$$\left( \frac{235}{\text{TD (feet)}} - \frac{182.24}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{103.33}{\text{Calculated Purge Volume}} \text{ Gallons}$$

### 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
0809	182.24	0	--	--	--	--	--	--	Purge start
0820	182.24	21	5.96	75.9	8.60	7.55	20.1	260	Clear, no odor
0831	182.24	41	6.45	74.9	8.61	7.38	20.7	246	Clear, no odor
0842	182.24	62	6.69	73.1	4.53	7.50	20.7	248	Clear, no odor
0853	182.24	82	6.67	73.8	3.28	7.65	20.7	248	Clear, no odor
0905	182.24	104	6.67	74.6	1.60	7.68	21.0	257	Clear, no odor

Total Purge Volume: 104 (Gallons)

Total Discharge: 3.02 (Casing Volumes)

Approx. Purge Rate: 2.00 (GPM)

### OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Purge start at: 0745 Purge time start: 0809

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>0909</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: 4-73805  
 Navy Contract No.: Battelle  
 Sampled By: Chase Brogdon, Andrew Wells  
 Date: 11/12/08  
 Weather: clear and sunny

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

**PURGE VOLUME CALCULATION (casing volume):**

$$\left( \frac{74}{\text{TD (feet)}} - \frac{42.66}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{61.38}{\text{Calculated Purge Volume}} \text{ Gallons}$$

**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
1013	42.66	0	--	--	--	--	--	--	Purge start
1017	42.66	13	7.15	74.0	13.6	10.83	18.7	267	Clear, no odor
1021	42.66	25	7.24	69.8	5.07	10.52	17.9	264	Clear, no odor
1025	42.66	38	7.21	70.1	2.33	9.97	17.4	261	Clear, no odor
1029	42.66	50	7.28	70.0	1.41	9.64	17.7	261	Clear, no odor
1033	42.66	62	7.31	70.4	3.98	9.57	17.4	269	Clear, no odor

Total Purge Volume: 62 (Gallons)

Total Discharge: 3.03 (Casing Volumes)

Approx. Purge Rate: 4.00 (GPM)

**OBSERVATIONS DURING PUMPING**

**NOTES:** (well condition, color, clarity, odor): Purge start at: 1000 Purge time start: 1013

**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>1036</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: 11/11/08  
 Weather: clear and sunny

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

**PURGE VOLUME CALCULATION (casing volume):**

$$\left( \frac{285}{\text{TD (feet)}} - \frac{235.64}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{96.67}{\text{Calculated Purge Volume}} \text{ Gallons}$$

**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
1020	235.64	0	--	--	--	--	--	--	Purge start
1030	235.64	20	7.08	76.7	4.79	7.63	23.7	194	Clear, no odor
1040	235.64	40	7.29	77.9	1.03	7.76	23.9	211	Clear, no odor
1050	235.64	60	7.22	78.2	-0.26	7.83	23.8	220	Clear, no odor
1100	235.64	80	7.32	78.5	-0.53	7.77	24.6	227	Clear, no odor
1110	235.64	100	7.31	78.1	-0.89	7.79	25.0	220	Clear, no odor

Total Purge Volume: 100 (Gallons)

Total Discharge: 3.10 (Casing Volumes)

Approx. Purge Rate: 2.00 (GPM)

**OBSERVATIONS DURING PUMPING**

**NOTES:** (well condition, color, clarity, odor): Purge start at: 1010 Purge time start: 1020

**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): \_\_\_\_\_

<b>Original</b>	<b>Duplicate</b>	<b>Blank</b>	<b>Other ( Trip / Source / _____ )</b>
Sample ID: <u>MW-16</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1114</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 Sampling**  
Multi-Port Well Field Data Sheet

JPL Pasadena  
Contract #: Battelle

Well ID: MW-11  
Sampling Zone No.: 5+1  
Depth (ft): 639, 524, 429, 259, 149  
Beginning of Session: 14.07 psia  
End of Session: 14.02 psia

Start Time: 727  
Finish Time: 1155

Date: 11/4/08  
Page: 1 of 1

Water Pressure Inside Casing: \_\_\_\_\_

JPE <

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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	✓	✓	✓	✓	✓	✓	✓	✓	239.86	✓	224.12	✓	224.08	✓	✓	239.89	757	5.55	29.5	43.3	0	16.5	-6
	4	1	✓	✓	✓	✓	✓	✓	✓	✓	190.18	✓	182.60	✓	182.54	✓	✓	190.20	831	6.01	0.29	25.6	1.47	16.8	-65
	4	2	✓	✓	✓	✓	✓	✓	✓	✓	190.17	✓	182.58	✓	182.52	✓	✓	190.19	905	6.09	-0.23	26.2	1.67	18.5	-68
	3	1	✓	✓	✓	✓	✓	✓	✓	✓	149.19	✓	139.61	✓	139.51	✓	✓	149.20	938	6.03	4.62	45.5	2.04	18.5	-20
	2	1	✓	✓	✓	✓	✓	✓	✓	✓	75.39	✓	66.91	✓	66.92	✓	✓	75.42	1007	6.18	-0.03	49.3	0	18.6	-86
	1	1	✓	✓	✓	✓	✓	✓	✓	✓	29.47	✓	27.00	✓	26.89	✓	✓	29.48	1100	6.33	-1.49	63.6	0	23.4	10
	1	2	✓	✓	✓	✓	✓	✓	✓	✓	29.41	✓	27.00	✓	26.89	✓	✓	29.42	-	-	-	-	-	-	-

Notes:

port 5: CLOUDY, NO ODOUR port 4: CLEAR, SLIGHT ODOUR port 3: CLEAR, SLIGHT ODOUR  
port 2: CLEAR, SLIGHT ODOUR port 1: CLEAR, SLIGHT ODOUR

Total Volume: \_\_\_\_\_







**Groundwater Sampling**  
Multi-Port Well Field Data Sheet

JPL Pasadena  
Contract #: Battelle

Well ID: MW-14  
Sampling Zone No.: 5 to 1  
Depth (ft): 410, 456, 382, 277, 207  
Beginning of Session: 14.06 psia  
End of Session: 14.06 psia

Start Time: 0745  
Finish Time: 1125

Date: 10/29/08  
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	✓	✓	✓	✓	✓	✓	✓	✓	190.75	✓	177.39	✓	177.39	✓	✓	190.72	815	5.32	2.60	36.7	1.43	18.2	159
MS/MSD	4	1	✓	✓	✓	✓	✓	✓	✓	✓	154.10	✓	141.08	✓	141.07	✓	✓	154.11	851	5.29	0.82	66.8	0.26	19.9	90
	4	2	✓	✓	✓	✓	✓	✓	✓	✓	154.08	✓	141.08	✓	141.07	✓	✓	154.08	-	5.54	0.23	66.5	1.20	20.7	115
DUPE	3	1	✓	✓	✓	✓	✓	✓	✓	✓	121.75	✓	109.02	✓	109.04	✓	✓	121.74	945	5.88	0.99	0.999	2.17	23.0	268
	3	2	✓	✓	✓	✓	✓	✓	✓	✓	121.70	✓	109.02	✓	109.01	✓	✓	121.70	-	6.60	1.62	0.999	2.01	22.3	96
	2	1	✓	✓	✓	✓	✓	✓	✓	✓	75.86	✓	63.64	✓	63.64	✓	✓	75.87	1041	6.21	6.04	0.093	1.46	22.7	279
	1	1	✓	✓	✓	✓	✓	✓	✓	✓	45.74	✓	34.15	✓	34.14	✓	✓	45.74	1120	8.88	0.60	0.999	1.85	23.4	278

**Notes:**

port 5: CLEAR STRONG ODOR. port 4: CLEAR SLIGHT ODOR port 3: CLEAR FAINT 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-17  
Sampling Zone No.: 5 to 1  
Depth (ft): 738, 582, 468, 370, 250  
Beginning of Session: 14:07 psia  
End of Session: 14:14 psia

Start Time: 0755  
Finish Time: 1130

Date: 10/27/08  
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. (°C)
5	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	245.36	✓	238.63	✓	238.90	✓	✓	245.35	825	5.35	49.0	37.7	0.80	17.4	160
4	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	182.94	✓	174.46	✓	174.41	✓	✓	182.92	846	5.86	-0.70	38.3	1.93	19.4	132
4	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	182.95	✓	174.44	✓	174.41	✓	✓	182.91	-	5.89	-0.52	38.7	2.37	19.9	114
3	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	133.46	✓	122.52	✓	122.53	✓	✓	133.43	0956	5.49	12.6	84.6	2.91	23.5	147
2	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	90.61	✓	84.07	✓	84.07	✓	✓	90.84	1034	5.68	2.72	0.999	2.89	23.1	268
1	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	38.79	✓	32.93	✓	32.91	✓	✓	38.82	1106	6.15	2.29	44.8	2.58	23.9	166
1	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	38.77	✓	32.85	✓	32.88	✓	✓	38.81	-	6.44	2.20	43.5	2.59	21.4	166

DUPE

DUPE

MS/MSD

MS/MSD

Notes:  
port 5: Cloudy faint odor port 4: clear faint 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-18  
Sampling Zone No.: 5 to 1  
Depth (ft): 684, 564, 424, 360, 270  
Beginning of Session: 14.00 psia  
End of Session: 14.01 psia

Start Time: 0759  
Finish Time: 1200

Date: 10/24/06  
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 (microh)	Dissolved Oxygen	Temp. (°C)
	5	1	✓	✓	✓	✓	✓	✓	✓	✓	160.39	✓	202.41	✓	202.35	✓	✓	160.39	831	5.23	0.33	34.5	8.00	16.7	43
DUPE	4	1	✓	✓	✓	✓	✓	✓	✓	✓	108.10	✓	150.97	✓	150.97	✓	✓	108.10	909	5.39	2.40	48.4	0.00	20.0	78
	4	2	✓	✓	✓	✓	✓	✓	✓	✓	108.06	✓	150.95	✓	150.97	✓	✓	108.06	-	5.23	1.92	41.3	0.01	20.7	83
	3	1	✓	✓	✓	✓	✓	✓	✓	✓	97.01	✓	93.23	✓	93.24	✓	✓	97.03	1000	5.38	0.05	57.3	1.39	20.3	115
	2	1	✓	✓	✓	✓	✓	✓	✓	✓	14.16	✓	51.68	✓	51.66	✓	✓	14.25	1043	5.79	-0.39	56.9	1.50	20.2	142
MS/MSD	1	1	✓	✓	✓	✓	✓	✓	✓	✓	14.08	✓	25.35	✓	25.34	✓	✓	14.20	1127	6.09	1.33	48.9	1.60	23.7	171
	1	2	✓	✓	✓	✓	✓	✓	✓	✓	14.14	✓	25.36	✓	25.33	✓	✓	14.19	-	6.19	1.13	48.7	1.64	22.5	168

Notes: port 5: CLEAR, STRONG ODR port 4: CLEAR, SLIGHT ODR port 3: CLEAR FAINT ODR  
port 2: CLEAR NO ODR port 1: CLEAR NO ODR.

Total Volume: \_\_\_\_\_







**Groundwater Sampling**  
Multi-Port Well Field Data Sheet

JPL Pasadena  
Contract #: Battelle

Well ID: MW-20 RESAMPLING  
 Sampling Zone No.: 5+1 Start Time: 0730  
 Depth (ft): 900, 700, 562, 392, 230 Finish Time: 1330  
 Beginning of Session: 14.13 psia  
 End of Session: 14.10 psia

Date: 11/18/08  
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	✓	✓	✓	✓	✓	✓	✓	✓	✓	324.40	✓	322.12	✓	322.07	✓	✓	324.38	824	6.16	0.38	36.7	7.81	19.4	-82
5	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	324.37	✓	322.10	✓	322.09	✓	✓	324.34	-	7.91	2.03	35.2	8.80	18.7	-93
4	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	232.64	✓	232.07	✓	232.03	✓	✓	232.65	946	7.97	-0.13	40.8	8.82	21.0	-80
4	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	237.63	✓	232.08	✓	232.04	✓	✓	237.61	-	8.10	-0.13	41.4	8.28	24.9	-96
3	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	177.76	✓	171.13	✓	171.13	✓	✓	177.74	1057	8.12	1.90	57.0	9.20	22.8	-39
3	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	177.57	✓	171.15	✓	171.13	✓	✓	177.61	-	8.19	-0.34	58.2	9.86	20.1	-15
2	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	103.76	✓	99.15	✓	99.16	✓	✓	103.82	1153	7.61	-0.71	0.1	9.62	22.5	119
2	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	103.77	✓	99.14	✓	99.17	✓	✓	103.77	-	7.27	-0.79	78.7	9.59	24.5	153
1	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	33.53	✓	28.51	✓	28.50	✓	✓	33.53	1254	7.54	-0.47	6.1	9.60	22.5	49
1	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	33.49	✓	28.48	✓	28.48	✓	✓	33.50	-	7.77	-0.51	65.0	9.73	22.3	116

Notes:

port 5: CLEAR, STRONG ODOR port 4: CLEAR, STRONG ODOR port 3: CLEAR, STRONG ODOR  
 port 2: CLEAR, SLIGHT ODOR port 1: CLEAR, SLIGHT ODOR

Total Volume: \_\_\_\_\_



### Groundwater Sampling Multi-Port Well Field Data Sheet

JPL Pasadena  
Contract #: Battelle

Well ID: MW-21  
Sampling Zone No.: 5-1  
Depth (ft): 372, 310, 240, 161, 90  
Beginning of Session: 14.09 psia  
End of Session: 14.11 psia

Start Time: 8:00  
Finish Time: 11:40

Date: 10/21/06  
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	✓	✓	✓	✓	✓	✓	✓	✓	✓	129.37	✓	152.01	✓	152.00	✓	✓	129.37	835	5.25	7.97	93.5	0.45	15.8	207
4	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	102.32	✓	125.19	✓	125.21	✓	✓	102.32	915	6.53	7.65	86.5	0.39	16.9	192
4	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	100.77	✓	125.21	✓	125.22	✓	✓	100.76	-	-	-	-	-	-	-
3	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	72.19	✓	95.33	✓	95.33	✓	✓	72.17	1009	6.07	8.77	0.999	1.26	19.9	238
2	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	37.16	✓	61.07	✓	61.09	✓	✓	37.16	1043	6.38	9.51	0.093	1.81	22.2	294
1	1	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.13	✓	29.57	✓	29.59	✓	✓	14.20	1117	6.40	9.57	0.180	0.73	25.9	316
1	2	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.11	✓	29.59	✓	29.60	✓	✓	14.20	-	6.49	9.98	0.000	1.68	24.4	298

MS/MS

DATE

MS/MS

DATE

Notes:

port 5: CLEAN SAMPLE ODOUR    port 4: CLEAN NO ODOUR    port 3: CLEAN NO 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-23  
Sampling Zone No.: 571  
Depth (ft): 542, 445, 319, 254, 174  
Beginning of Session: 14.87 psia  
End of Session: 14.06 psia

Start Time: 0725  
Finish Time: 0948

Date: 11/10/08  
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	✓	✓	✓	✓	✓	✓	✓	✓	205.07	✓	200.99	✓	200.91	✓	✓	205.05	0900	7.41	0.13	57.5	7.60	16.4	182
4	1	✓	✓	✓	✓	✓	✓	✓	✓	162.99	✓	159.92	✓	159.02	✓	✓	162.99	0824	8.02	0.68	435	7.75	16.4	106
3	1	✓	✓	✓	✓	✓	✓	✓	✓	108.37	✓	105.91	✓	105.91	✓	✓	108.37	0852	7.44	0.59	446	7.70	17.1	111
2	1	✓	✓	✓	✓	✓	✓	✓	✓	80.14	✓	77.64	✓	77.63	✓	✓	80.13	0914	7.34	0.81	0.899	8.16	16.0	176
1	1	✓	✓	✓	✓	✓	✓	✓	✓	45.36	✓	43.15	✓	43.16	✓	✓	45.34	0943	7.80	2.67	0.133	8.65	18.9	154

Notes:

port 5: CLEAR STRONG ODR    port 4: CLEAR STRONG ODR    port 3: CLEAR STRONG ODR  
port 2: CLEAR FAINT ODR    port 1: CLEAR NO ODR

Total Volume:



**Groundwater Sampling**  
Multi-Port Well Field Data Sheet

JPL Pasadena  
Contract #: Battelle

Well ID: MW-24  
Sampling Zone No.: 5 to 1  
Depth (ft): 678, 554, 435, 373, 279  
Beginning of Session: 14.09 psia  
End of Session: 14.06 psia

Start Time: 735  
Finish Time: 1105

Date: 11/5/08  
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	✓	✓	✓	✓	✓	✓	✓	✓	234.36	✓	217.93	✓	217.92	✓	✓	234.39	806	5.31	1.98	50.7	0	18.2	81
4	1	✓	✓	✓	✓	✓	✓	✓	✓	180.65	✓	165.87	✓	165.86	✓	✓	180.66	845	5.87	-0.27	30.8	1.81	19.0	-107
3	1	✓	✓	✓	✓	✓	✓	✓	✓	129.03	✓	115.65	✓	115.65	✓	✓	129.03	925	5.98	-0.54	29.0	2.13	19.6	-49
3	2	✓	✓	✓	✓	✓	✓	✓	✓	129.02	✓	115.66	✓	115.66	✓	✓	129.01	952	6.23	0.43	39.7	0	19.1	-102
2	1	✓	✓	✓	✓	✓	✓	✓	✓	102.11	✓	88.68	✓	88.68	✓	✓	102.10	1026	6.29	1.93	54.8	0	19.6	-85
1	1	✓	✓	✓	✓	✓	✓	✓	✓	62.00	✓	48.41	✓	48.40	✓	✓	61.96	1101	6.32	11.9	71.8	1.36	19.9	-7

Notes:

port 5: CLEAR, NO ODOUR port 4: CLEAR, STRONG ODOUR port 3: CLEAR, SLIGHT ODOUR  
port 2: CLEAR, SLIGHT ODOUR port 1: CLEAR, SLIGHT ODOUR

Total Volume: \_\_\_\_\_





## **ATTACHMENT 5: WATER LEVEL MEASUREMENTS**

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This attachment contains water level measurements for the Westbay™ multiport JPL monitoring wells obtained during the 4th quarter of 2008. Water level measurements were recorded before the sampling event on October 20, 2008, and after the sampling event on November 19, 2008. Water levels results 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: 10/20/08 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	958	1013
Pressure (psia)	14.18	14.17
Temperature (°C)	20.48	17.04

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	246.71	247.89	246.70	21.10	1001	113.83	986.51
4	558	205.43	206.82	205.43	22.09	1003	113.58	986.76
3	346	113.23	117.81	113.25	21.97	1005	106.93	993.41
2	252	72.42	76.69	72.42	21.06	1007	107.79	992.55
1	172	37.64	42.02	37.64	18.85	1009	107.77	992.57



# 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: 10/20/08 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	818	830
Pressure (psia)	14.13	14.16
Temperature (°C)	18.58	19.88

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	513	145.61	198.67	145.63	20.03	820		
								87.27
4	392	92.95	146.33	92.98	21.26	822		
								87.01
3	322	62.47	116.32	62.49	21.19	824		
								86.25
2	240	26.74	80.66	26.75	20.90	826		
								86.52
1	150	14.27	17.82	14.27	20.38	828		
								141.49

# 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: 10/20/08 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	837	850
Pressure (psia)	14.12	14.23
Temperature (°C)	18.82	17.98

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	639	237.00	224.45	237.01	19.81	839			
								153.77	985.53
4	524	187.53	182.94	187.51	20.66	842			
								134.53	1004.77
3	429	146.68	139.96	146.64	20.50	845			
								138.69	1000.61
2	259	73.05	67.37	73.02	19.39	847			
								136.15	1003.15
1	149	25.67	27.50	25.68	18.69	849			
								118.13	1021.17

# 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: 10/20/08 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	1408	1420
Pressure (psia)	14.14	14.13
Temperature (°C)	24.17	17.62

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	548	217.42	202.52	217.45	21.82	14	113.41	988.73
4	436	168.88	157.13	168.87	21.57	1412	106.12	996.02
3	323	119.82	108.34	119.73	20.30	1414	105.68	996.46
2	243	84.88	73.86	84.87	18.87	1416	105.23	996.91
1	140	39.97	30.66	39.98	17.52	1418	101.89	1000.25

# INSIGHT, Inc.

## 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: 10/20/08 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	739	751
Pressure (psia)	14.08	14.31
Temperature (°C)	19.02	19.27

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	187.94	177.61	187.99	19.86	741		
								162.74
4	456	151.46	141.31	151.48	20.38	743		
								162.48
3	382	119.27	109.29	119.27	20.32	745		
								162.35
2	277	73.52	63.88	73.53	19.95	747		
								162.11
1	207	43.05	34.43	43.04	19.52	749		
								160.05

# 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: 10/20/08 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	1108	1125
Pressure (psia)	14.11	14.15
Temperature (°C)	17.47	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	244.15	239.04	244.14	20.19	1111		
							207.09	984.12
4	582	181.79	174.58	181.80	20.02	1115		
							211.80	979.41
3	468	132.36	122.97	132.35	18.52	1117		
							216.86	974.35
2	370	89.82	84.44	89.81	17.79	1119		
							207.75	983.46
1	250	37.63	33.12	37.65	16.85	1121		
							206.14	985.07

# 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: 10/20/08 Serial No.: \_\_\_\_\_  
 Personnel: Chase Brogdon, Andrew Wells  
 Datum: TOC Casing Size/Type: 1.5" Westbay  
 Elevation of Datum (Ft. + MSL): 1,225.41

Note: clear and warm

Ambient Readings	Start	Finish
Time	1140	1156
Pressure (psia)	14.13	14.11
Temperature (°C)	18.24	16.65

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	157.71	202.35	157.73	20.13	1143		
								249.78
4	564	105.58	151.21	105.59	20.72	1146		
								247.76
3	424	44.68	93.44	44.68	19.78	1149		
								241.03
2	330	14.24	51.81	14.25	17.46	1151		
								243.07
1	270	14.23	25.53	14.24	17.09	1153		
								243.70

# 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: 10/20/08 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	1047	1100
Pressure (psia)	14.13	14.17
Temperature (°C)	18.18	16.74

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	172.93	161.33	172.94	18.36	1049	158.41	984.53
4	444	149.52	137.94	149.52	18.84	1051	158.37	984.57
3	392	127.96	116.60	127.96	18.95	1053	155.60	987.34
2	314	93.14	82.41	93.12	18.91	1055	156.48	986.46
1	242	61.83	51.42	61.84	18.45	1057	155.97	986.97

# 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: 10/20/08 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	1211	1228
Pressure (psia)	14.10	14.15
Temperature (°C)	18.30	17.21

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	900	323.08	322.83	323.07	20.91	1216			
								187.76	977.29
4	700	236.44	232.42	236.44	22.14	1218			
								196.34	968.71
3	562	176.69	165.61	176.66	21.54	1220			
								212.47	952.58
2	392	102.76	98.83	102.75	19.92	1222			
								196.53	968.52
1	230	32.57	28.48	32.56	17.61	1224			
								196.83	968.22



# 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: 10/20/08 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	900	913
Pressure (psia)	14.24	14.20
Temperature (°C)	17.29	18.72

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	126.04	151.79	126.09	18.45	904	54.67	1004.43
4	310	99.32	124.96	99.31	19.39	906	54.57	1004.53
3	240	69.23	95.08	69.26	19.44	908	53.50	1005.60
2	161	34.80	60.87	34.83	19.17	910	53.42	1005.68
1	90	14.27	17.94	14.24	18.90	912	81.46	977.64

# 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: 10/20/08 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	713	726
Pressure (psia)	14.10	14.12
Temperature (°C)	19.45	19.98

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	588	201.59	192.10	201.58	20.67	715	177.35	999.63
4	467	149.24	141.00	149.26	21.28	718	174.24	1002.74
3	389	115.47	108.79	115.46	21.26	720	170.55	1006.43
2	329	89.46	82.65	89.44	21.06	722	170.86	1006.12
1	245	52.53	45.84	52.53	20.43	723	171.78	1005.20

# 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: 10/20/08 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	654	709
Pressure (psia)	14.07	14.15
Temperature (°C)	18.58	19.95

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	203.93	201.36	203.93	20.57	658	109.92	998.92
4	445	161.94	159.45	161.93	21.13	700	109.61	999.23
3	319	107.44	106.33	107.43	21.02	702	106.16	1002.68
2	254	79.13	78.09	79.12	20.72	704	106.31	1002.53
1	174	44.37	43.80	44.39	20.29	706	105.41	1003.43

# 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: 10/20/08 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	936	948
Pressure (psia)	14.11	14.14
Temperature (°C)	17.66	21.11

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	233.20	218.19	233.21	20.05	939	207.19	993.75
4	554	179.53	166.11	179.52	21.07	941	203.34	997.60
3	435	127.94	115.90	127.98	21.21	943	200.17	1000.77
2	373	100.98	89.01	101.02	21.26	945	200.21	1000.73
1	279	60.34	48.97	60.34	21.18	947	198.58	1002.36

# 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: 10/20/08 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	1250	1303
Pressure (psia)	14.20	14.23
Temperature (°C)	20.51	19.99

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	713	204.38	205.01	204.40	21.40	1253	272.80	661.72
4	633	170.04	168.76	170.00	21.75	1255	276.43	658.09
3	503	113.73	115.85	113.74	21.36	1257	268.49	666.03
2	423	79.02	84.71	79.01	20.74	1259	260.33	674.19
1	358	50.73	58.59	50.72	20.20	1301	255.59	678.93

**INSIGHT, Inc.**  
**Piezometric Pressure/Levels**

**Field Data Sheet for Multi-Port Monitoring Wells**

Project Name: JPL Pasadena Well ID: MW-26  
 Project No: 4-73805 Probe Type: Westbay  
 Date: 10/20/08 Serial No.: 2508  
 Personnel: Chase Brogdon, Andrew Wells  
 Datum: TOC Casing Size/Type: 1.5" Westbay  
 Elevation of Datum (ft. + MSL): 1,059.08  
 Weather: clear and warm

Ambient Readings	Start	Finish
Time	1330	1334
Pressure (psia)	14.13	14.16
Temperature (°C)	23.42	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)						
2	215	71.82	71.86	71.87	22.06	1331				
									81.82	977.26
1	135	37.36	36.05	37.32	20.81	1332				
									84.43	974.65

# 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: 11/19/08 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	1015	1027
Pressure (psia)	14.13	14.16
Temperature (°C)	21.44	17.89

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	653	245.56	247.07	245.58	21.95	1017	115.61	984.73
4	558	204.28	206.01	204.27	22.53	1019	115.33	985.01
3	346	114.16	182.24	114.16	22.23	1021	-41.83	1142.17
2	252	71.26	75.74	71.26	20.36	1023	109.87	990.47
1	172	36.38	41.01	36.47	19.12	1025	109.99	990.35

# 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: 11/19/08 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	753	805
Pressure (psia)	14.13	14.18
Temperature (°C)	18.57	19.77

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	513	145.57	197.94	145.52	19.51	755		
							88.95	993.89
4	392	92.92	145.59	92.97	20.84	757		
							88.72	994.12
3	322	62.46	115.57	62.49	20.91	759		
							87.98	994.86
2	240	26.70	79.88	26.71	20.75	801		
							88.31	994.53
1	150	14.26	41.60	14.25	20.34	803		
							86.63	996.21



# 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: 11/19/08 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	940	953
Pressure (psia)	14.09	14.15
Temperature (°C)	21.66	18.13

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	236.61	223.67	236.64	20.83	942	155.50	983.80
4	524	187.06	182.23	187.05	21.34	944	136.10	1003.20
3	429	146.24	139.24	146.28	21.02	946	140.28	999.02
2	259	72.66	66.54	72.67	19.77	948	138.00	1001.30
1	149	25.35	26.67	25.33	18.72	950	119.98	1019.32

# 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: 11/19/08 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	1357	1410
Pressure (psia)	14.12	14.12
Temperature (°C)	23.67	18.37

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	217.20	201.76	217.21	21.92	1359	115.11	987.03
4	436	168.53	156.33	168.56	22.05	1401	107.92	994.22
3	323	119.37	107.48	119.38	21.23	1403	107.62	994.52
2	243	84.55	72.94	84.57	20.24	1405	107.30	994.84
1	140	39.60	29.61	39.62	19.26	1407	104.26	997.88

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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: 11/19/08 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	819	831
Pressure (psia)	14.11	14.10
Temperature (°C)	19.36	19.23

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	187.66	177.47	187.63	20.00	821		
								163.13
4	456	151.10	141.14	151.10	20.53	823		
								162.94
3	382	118.97	109.07	118.94	20.42	825		
								162.93
2	277	73.36	63.60	73.30	19.95	827		
								162.83
1	207	42.60	33.92	42.67	19.57	824		
								161.30

# 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: 11/19/08 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	1128	1140
Pressure (psia)	14.07	14.13
Temperature (°C)	21.68	16.51

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	726	243.95	238.20	243.93	20.01	1130		
							208.93	982.28
4	582	181.61	173.69	181.60	20.43	1132		
							213.76	977.45
3	468	132.15	121.70	132.17	19.43	1134		
							219.70	971.51
2	370	89.63	83.33	89.62	18.09	1136		
							210.22	980.99
1	250	37.41	31.95	37.45	17.31	1138		
							208.75	982.46

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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: 11/19/08 Serial No.: \_\_\_\_\_  
 Personnel: Chase Brogdon, Andrew Wells  
 Datum: TOC Casing Size/Type: 1.5" Westbay  
 Elevation of Datum (Ft. + MSL): 1,225.41

Note: clear and warm

Ambient Readings	Start	Finish
Time	1152	1204
Pressure (psia)	14.06	14.11
Temperature (°C)	22.19	21.56

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	684	157.66	201.66	157.64	21.78	1154		
								251.21
4	564	105.52	150.26	105.55	21.63	1156		
								249.79
3	424	44.61	92.39	44.64	20.46	1158		
								243.29
2	330	14.25	50.71	14.23	19.27	1200		
								245.45
1	270	14.21	24.38	14.20	19.13	1202		
								246.19

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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: 11/19/08 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	1040	1052
Pressure (psia)	14.13	14.17
Temperature (°C)	19.14	17.12

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	498	172.77	160.49	172.80	18.90	1042	160.35	982.59
4	444	149.39	137.09	149.38	19.14	1044	160.33	982.61
3	392	126.83	115.80	126.84	19.19	1046	157.45	985.49
2	314	92.99	81.57	92.99	19.14	1048	158.42	984.52
1	242	61.71	50.51	61.70	18.67	1050	158.07	984.87

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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: 11/19/08 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	1230	1243
Pressure (psia)	14.06	14.09
Temperature (°C)	25.43	17.48

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	322.45	322.20	322.43	22.79	1233	189.12	975.93
4	700	234.78	232.25	234.83	23.07	1235	196.64	968.41
3	562	175.99	164.96	176.01	22.03	1237	213.87	951.18
2	392	102.33	98.16	102.34	19.97	1239	197.98	967.07
1	230	31.93	27.87	31.92	17.94	1240	198.14	966.91

# 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: 11/19/08 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	842	854
Pressure (psia)	14.17	14.17
Temperature (°C)	19.56	18.72

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	123.91	190.04	123.93	19.71	844	-33.73	1092.83
4	310	99.16	124.45	99.12	20.08	846	55.58	1003.52
3	240	69.09	94.55	69.07	19.86	848	54.56	1004.54
2	161	34.66	60.31	34.67	19.20	850	54.56	1004.54
1	90	14.21	28.95	14.23	18.82	852	55.90	1003.20



# 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: 11/19/08 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	728	740
Pressure (psia)	14.07	14.12
Temperature (°C)	18.28	20.08

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	201.49	191.46	201.50	19.41	730	178.76	998.22
4	467	149.19	140.43	149.14	20.53	732	175.49	1001.49
3	389	115.33	108.26	115.33	20.77	734	171.70	1005.28
2	329	89.33	82.11	89.31	20.78	736	172.03	1004.95
1	245	52.42	45.07	52.42	20.49	738	173.48	1003.50

# 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: 11/19/08 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	707	720
Pressure (psia)	14.11	14.15
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	542	203.78	200.69	203.79	19.10	709	111.56	997.28
4	445	161.81	158.80	161.80	20.18	711	111.20	997.64
3	319	107.39	105.72	107.23	20.46	713	107.66	1001.18
2	254	78.98	77.48	79.02	20.35	715	107.81	1001.03
1	174	44.25	42.97	44.26	20.07	718	107.42	1001.42

# 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: 11/19/08 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	908	920
Pressure (psia)	14.07	14.08
Temperature (°C)	18.85	21.14

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	678	232.99	217.47	233.02	20.60	910	208.76	992.18
4	554	179.35	165.45	179.36	21.27	912	204.77	996.17
3	435	127.70	115.21	127.72	21.35	914	201.67	999.27
2	373	101.03	88.26	101.00	21.35	916	201.84	999.10
1	279	61.05	84.70	61.03	21.20	918	116.06	1084.88

# 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: 11/19/08 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	1307	1320
Pressure (psia)	14.18	14.20
Temperature (°C)	23.72	19.96

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	204.11	204.92	204.14	22.55	1309	272.96	661.56
4	633	169.68	168.67	169.68	22.48	1311	276.59	657.93
3	503	113.47	115.80	113.44	21.93	1313	268.56	665.96
2	423	78.68	84.65	78.68	21.29	1315	260.43	674.09
1	358	52.54	73.73	52.58	20.69	1317	220.62	713.90

