

APPENDIX A

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # MW-5Project Name: Quarterly Monitoring at JPL, Pasadena, CA.Project No: 04-4428.10Navy Contract No.: N68711-01-D-6008, D.O. No. 0001Sampled By: Leo W. Williamson / Dale ErbesDate: 2/19/03Weather: Clear and cool

22632 Golden Springs Dr., Suite 27
Diamond Bar, CA 9176
Telephone: (909) 396-7662
Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

(140.0 - 71.75) X 4² X 3 X 0.0408 = 135 Gallons
TD (feet) WL (feet) D (inches) # Vols Calculated Purge Volume

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	71.9	30	7.65	77.1	1.23	8.81	12.87	-98	Rust-Colored, Clearing Quickly
747	71.9	60	7.52	74.7	0.33	10.76	14.52	-101	
759	71.9	90	7.49	75.8	0.18	11.73	15.08	-78	
811	71.9	120	7.50	75.3	0.08	11.52	15.89	-58	
823	71.9	150	7.46	76.6	0.06	11.07	16.59	-72	

Total Purge Volume: 150 (Gallons)Total Discharge: 3.33 (Casing Volumes)Approx. Purge Rate: 2.5 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Rusty-Colored water initially, clearing up quicklyStart: 700
 RECHARGE BEHAVIOR: ☒ Fast recharging
☐ Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: 600 Gallon Onsite Polytank

Purge water disposal: _____

WELL SAMPLING

Sample Depth in feet (BTOC): _____

Original	Duplicate	Blank	Other (Trip / Source /)
Sample ID: <u>MW-5</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>840</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>3+1+1</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # MW-6Project Name: Quarterly Monitoring at JPL, Pasadena, CA.Project No: 04-4428.10Navy Contract No.: N68711-01-D-6008, D.O. No. 0001Sampled By: Leo W. Williamson / Dale ErbesDate: 2/20/03Weather: Clear, Windy and warm

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PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{245.0}{\text{TD (feet)}} - \frac{183.87}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{120}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
858	183.9	20	7.25	103.0	0.14	14.57	20.05	60	
911	183.9	40	7.23	102.0	0.12	14.31	19.85	112	
924	183.9	60	7.22	101.0	0.09	12.46	20.70	124	
937	183.9	80	7.20	100.0	0.59	11.40	21.26	36	
950	183.9	100	7.26	101.0	0.87	11.30	21.10	66	
1003	183.9	120	7.21	98.0	0.33	11.22	22.10	43	

Total Purge Volume: 120 (Gallons)Total Discharge: 3.00 (Casing Volumes)Approx. Purge Rate: 1.5 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Clear, No OdorStart: 845RECHARGE BEHAVIOR: ☒ Fast recharging
☐ Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: 600 Gallon Onsite 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>1025</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>3+1+1</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # MW-7

Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 04-4428.10
 Navy Contract No.: N68711-01-D-6008, D.O. No. 0001
 Sampled By: Leo W. Williamson / Dale Erbes
 Date: 2/24/03
 Weather: Cool, overcast and slightly windy

22632 Golden Springs Dr., Suite 27
 Diamond Bar, CA 9176
 Telephone: (909) 396-7662
 Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{275.0}{\text{TD (feet)}} - \frac{213.12}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{121}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
1223	213.2	20	7.82	47.0	0.17	11.48	17.63	-63	
1236	213.2	40	7.88	47.8	0.12	11.53	17.28	-14	
1250	213.2	60	7.80	46.5	0.08	11.90	18.33	-28	
1303	213.2	80	7.82	47.5	0.07	12.03	18.84	-36	
1316	213.2	100	7.85	47.8	0.07	12.12	18.66	-37	
1329	213.2	120	7.87	48.0	0.05	12.06	18.82	-36	
1335	213.2	130	7.83	48.2	0.06	12.24	18.91	-33	

Total Purge Volume: 130 (Gallons)

Total Discharge: 3.22 (Casing Volumes)

Approx. Purge Rate: 1.5 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Clear, No Odor Start: 1210

Note: Samples for EPA Method 8315 were collected. They are re-samples for the last quarter as those exceeded their hold time.

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

WATER DISPOSAL

Purge water storage: 600 Gallon Onsite Polytank

Purge water disposal: _____

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<u>Original</u>	<u>MS / MSD</u>	<u>Additional Sampling</u>	<u>Other</u>
Sample ID: <u>MW-7</u>	Sample ID: <u>DUPE-6-1Q03</u>	Type: <u>Resample</u>	Type: _____
Sample Time: <u>1350</u>	Sample Time: <u>1350</u>	Sample ID: <u>53</u>	Sample ID: _____
No. of Containers: <u>3+1+1</u>	No. of Containers: <u>3+1+1</u>	Sample Time: <u>1350</u>	Sample Time: _____
		No. of Containers: <u>1</u>	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # MW-8Project Name: Quarterly Monitoring at JPL, Pasadena, CA.Project No: 04-4428.10Navy Contract No.: N68711-01-D-6008, D.O. No. 0001Sampled By: Leo W. Williamson / Dale ErbesDate: 2/24/03Weather: Overcast, cool and slight rain

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PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{205.0}{\text{TD (feet)}} - \frac{137.52}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{132}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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	137.6	20	7.73	55.4	2.23	12.18	15.92	-77	
747	137.6	40	7.62	48.5	1.02	12.55	16.74	-32	
803	137.6	60	7.54	47.9	0.40	12.87	16.95	-72	
819	137.6	80	7.52	47.6	0.65	12.70	17.17	-48	
835	137.6	100	7.51	48.0	0.45	12.55	16.82	-69	
851	137.6	120	7.57	47.4	0.67	12.57	16.14	-55	
907	137.6	140	7.57	47.6	0.25	12.61	16.26	-47	

Total Purge Volume: 140 (Gallons)Total Discharge: 3.18 (Casing Volumes)Approx. Purge Rate: 1.25 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Clear, No OdorStart: 715
 RECHARGE BEHAVIOR: ☒ Fast recharging
☐ Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: 600 Gallon Onsite Polytank

Purge water disposal: _____

WELL SAMPLING

Sample Depth in feet (BTOC): _____

Original	Duplicate	Blank	Other (Trip / Source /)
Sample ID: <u>MW-8</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>930</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>3+1+1</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # MW-10



Project Name: Quarterly Monitoring at JPL, Pasadena, CA.
 Project No: 04-4428.10
 Navy Contract No.: N68711-01-D-6008, D.O. No. 0001
 Sampled By: Leo W. Williamson / Dale Erbes
 Date: 2/20/03
 Weather: Clear and warm

22632 Golden Springs Dr., Suite 27
 Diamond Bar, CA 9176
 Telephone: (909) 396-7662
 Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{155.0}{\text{TD (feet)}} - \frac{88.90}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{130}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
1105	88.9	20	7.33	104.0	7.14	14.61	21.12	150	
1113	89.0	40	7.31	102.0	6.55	14.17	20.54	103	
1121	89.0	60	7.27	99.0	4.33	13.83	21.04	58	
1129	89.0	80	7.25	103.0	0.64	13.71	21.41	77	
1139	89.0	100	7.21	107.0	0.17	12.91	21.64	65	
1145	89.0	120	7.19	104.0	0.05	12.98	21.39	68	
1153	89.0	140	7.21	103.0	0.05	12.94	21.97	75	

Total Purge Volume: 140 (Gallons)

Total Discharge: 3.23 (Casing Volumes)

Approx. Purge Rate: 2.5 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Clear, No Odor

Start: 1055

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

WATER DISPOSAL

Purge water storage: 600 Gallon Onsite Polytank

Purge water disposal: _____

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<i>Original</i>	<i>Duplicate</i>	<i>Blank</i>	<i>Other (Trip / Source /)</i>
Sample ID: <u>MW-10</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1210</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>3+1+1</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # MW-13Project Name: Quarterly Monitoring at JPL, Pasadena, CA.Project No: 04-4428.10Navy Contract No.: N68711-01-D-6008, D.O. No. 0001Sampled By: Leo W. Williamson / Dale ErbesDate: 2/20/03Weather: Clear, Windy and slight rain

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Diamond Bar, CA 9176
Telephone: (909) 396-7662
Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{235.0}{\text{TD (feet)}} - \frac{184.05}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{100}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
705	184.1	20	7.83	79.8	0.93	11.51	17.15	-74	
720	184.1	40	7.84	79.6	1.24	11.71	17.41	-32	
735	184.1	60	7.86	80.1	0.31	10.87	18.92	-7	
750	184.1	80	7.84	80.0	0.22	10.65	18.61	-14	
805	184.1	100	7.79	79.7	0.18	10.59	18.27	-17	

Total Purge Volume: 100 (Gallons)Total Discharge: 3.00 (Casing Volumes)Approx. Purge Rate: 1.33 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Clear, No OdorStart: 650

RECHARGE BEHAVIOR:

☒ Fast recharging☐ Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: 600 Gallon Onsite Polytank

Purge water disposal: _____

WELL SAMPLING

Sample Depth in feet (BTOC): _____

Original	Duplicate	Blank	Other (Trip / Source /)
Sample ID: <u>MW-13</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>820</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>3+1+1</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # MW-15Project Name: Quarterly Monitoring at JPL, Pasadena, CA.Project No: 04-4428.10Navy Contract No.: N68711-01-D-6008, D.O. No. 0001Sampled By: Leo W. Williamson / Dale ErbesDate: 2/20/03Weather: Clear, warm and sunny

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

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{74.0}{\text{TD (feet)}} - \frac{28.50}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{90}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
1255	30.1	20	7.58	60.5	2.47	16.05	19.70	-46	
1302	30.1	40	7.67	59.9	1.59	15.82	19.33	-19	
1309	30.1	60	7.70	60.7	2.09	16.02	19.10	-49	
1316	30.1	80	7.61	58.5	2.14	16.06	19.08	-51	
1323	30.1	100	7.59	58.8	1.23	15.92	19.44	-48	

Total Purge Volume: 100 (Gallons)Total Discharge: 3.33 (Casing Volumes)Approx. Purge Rate: 3.0 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Clear, No OdorStart: 1345
 RECHARGE BEHAVIOR: ☒ Fast recharging
☐ Slow recharging (80% recharge did not occur after two hours)

WATER DISPOSAL

Purge water storage: 600 Gallon Onsite Polytank

Purge water disposal: _____

WELL SAMPLING

Sample Depth in feet (BTOC): _____

Original	Duplicate	Blank	Other (Trip / Source /)
Sample ID: <u>MW-15</u>	Sample ID: _____	Type: _____	Type: _____
Sample Time: <u>1340</u>	Sample Time: _____	Sample ID: _____	Sample ID: _____
No. of Containers: <u>1+1</u>	No. of Containers: _____	Sample Time: _____	Sample Time: _____
		No. of Containers: _____	No. of Containers: _____

ORIGINAL FIELD RECORD

GROUNDWATER COLLECTION AND SAMPLE LOG

WELL ID # MW-16Project Name: Quarterly Monitoring at JPL, Pasadena, CA.Project No: 04-4428.10Navy Contract No.: N68711-01-D-6008, D.O. No. 0001Sampled By: Leo W. Williamson / Dale ErbesDate: 2/24/03Weather: Cold, overcast and slightly windy

22632 Golden Springs Dr., Suite 27
Diamond Bar, CA 9176
Telephone: (909) 396-7662
Fax: (909) 396-1455

PURGE VOLUME CALCULATION (casing volume):

$$\left(\frac{285.0}{\text{TD (feet)}} - \frac{236.05}{\text{WL (feet)}} \right) \times \frac{4^2}{\text{D (inches)}} \times \frac{3}{\text{\# Vols}} \times 0.0408 = \frac{96}{\text{Calculated Purge Volume}} \text{ Gallons}$$

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
1010	236.1	20	7.66	57.6	0.19	13.71	20.17	-21	
1025	236.1	40	7.69	57.9	0.08	13.40	20.75	-18	
1040	236.1	60	7.75	58.1	0.09	13.37	20.37	-21	
1055	236.1	80	7.78	58.2	0.04	13.22	20.62	-23	
1110	236.1	100	7.74	57.9	0.06	13.07	20.38	-21	

Total Purge Volume: 100 (Gallons)Total Discharge: 3.12 (Casing Volumes)Approx. Purge Rate: 1.33 (GPM)

OBSERVATIONS DURING PUMPING

NOTES: (well condition, color, clarity, odor): Clear, No Odor Start: 955

Note: Samples for EPA Method 8315 were collected. They are re-samples for the last quarter as those exceeded their hold time

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

WATER DISPOSAL

Purge water storage: 600 Gallon Onsite Polytank

Purge water disposal: _____

WELL SAMPLING

Sample Depth in feet (BTOC): _____

<u>Original</u>	<u>MS / MSD</u>	<u>Additional Sampling</u>	<u>Additional Sampling</u>
Sample ID: <u>MW-16</u>	Sample ID: <u>MW-16</u>	Type: <u>Resample + MS/MSD</u>	Type: <u>Duplicate</u>
Sample Time: <u>1150</u>	Sample Time: <u>1150</u>	Sample ID: <u>55</u>	Sample ID: <u>56</u>
No. of Containers: <u>3+1+1</u>	No. of Containers: <u>3+1+1</u>	Sample Time: <u>1150</u>	Sample Time: <u>1150</u>
		No. of Containers: <u>3</u>	No. of Containers: <u>1</u>

ORIGINAL FIELD RECORD



Groundwater Sampling

Field Data Sheet for Multi-Port Well

JPL Pasadena

Contract #: N68711-01-D-6008

Delivery Order #: 0001

Well ID: MW-21

Sampling Zone No.: 5/4/3/2/1

Depth (ft): 371/310/241/160/91'

Start Time: 700

Finish Time: 1425

Date: 1/29/03

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Beginning of Session: 14.26

End of Session: 14.28

Water Pressure Inside Casing:

Run No.	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)
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	122.73	✓	143.41	✓	143.40	✓	✓	122.71	750	8.11	1.12	14.24	30.6
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	127.70	✓	143.39	✓	143.41	✓	✓	122.69	832	8.09	1.31	14.36	31.2
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	102.69	✓	122.10	✓	122.10	✓	✓	102.71	907	8.82	0.34	15.22	33.5
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	102.71	✓	122.05	✓	122.07	✓	✓	102.70	1140	8.04	0.36	15.41	33.7
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	73.30	✓	92.12	✓	92.10	✓	✓	73.28	1222	7.98	0.97	19.16	101.0
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	72.37	✓	92.09	✓	92.09	✓	✓	73.32	1240	7.95	0.07	19.54	99.0
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	37.92	✓	57.72	✓	57.72	✓	✓	37.89	1305	7.69	0.52	20.18	102.0
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	37.92	✓	57.72	✓	57.72	✓	✓	37.89	1322	7.67	0.63	20.24	100.0
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.28	✓	26.03	✓	26.03	✓	✓	14.29	1344	8.03	1.82	21.64	70.1
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.25	✓	26.00	✓	25.99	✓	✓	14.25	1400	7.99	1.64	21.78	69.8

Notes:

PORT 5: NO ODOR, CLEAR

PORT 3: NO ODOR, CLEAR

PORT 1: NO ODOR, CLEAR

PORT 4: NO ODOR, CLEAR

PORT 2: NO ODOR, CLEAR

Total Volume: _____



Groundwater Sampling

Field Data Sheet for Multi-Port Well

JPL Pasadena

Contract #: N68711-01-D-6008
Delivery Order #: 0001

Well ID: NN-20

Sampling Zone No.: 5/4/3/2/1 Start Time: 645
Depth (ft): 900'/700'/562'/372'/230' Finish Time: 1310

Date: 1/30/03

Page: 1 OF 1

Beginning of Session: 14,31

End of Session: 14,30

Water Pressure Inside Casing:

Run No.	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)	Temp. (oC)	Cond (micros/mS/cm)
5	✓	✓	✓	✓	✓	✓	✓	✓	✓	303.71	✓	320.81	✓	320.81	✓	✓	303.70	736	4.29	1.03	15.90	33.7
	✓	✓	✓	✓	✓	✓	✓	✓	✓	304.98	✓	320.80	✓	320.80	✓	✓	305.01	814	4.21	0.87	16.13	30.7
4	✓	✓	✓	✓	✓	✓	✓	✓	✓	217.92	✓	235.73	✓	235.67	✓	✓	217.93	849	4.39	4.71	18.68	30.7
	✓	✓	✓	✓	✓	✓	✓	✓	✓	217.90	✓	235.73	✓	235.67	✓	✓	217.91	926	4.20	5.14	19.17	28.8
3	✓	✓	✓	✓	✓	✓	✓	✓	✓	157.76	✓	174.53	✓	174.53	✓	✓	157.79	945	4.19	0.20	19.42	53.0
	✓	✓	✓	✓	✓	✓	✓	✓	✓	157.80	✓	174.52	✓	174.53	✓	✓	157.83	1047	4.28	0.31	20.43	51.4
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	83.68	✓	99.99	✓	99.99	✓	✓	83.69	1127	4.25	0.08	21.88	32.3
	✓	✓	✓	✓	✓	✓	✓	✓	✓	83.64	✓	99.97	✓	99.97	✓	✓	83.58	1135	4.31	0.11	21.74	33.9
1	✓	✓	✓	✓	✓	✓	✓	✓	✗	14.32	✓	29.02	✓	29.02	✓	✓	14.32	1211	4.30	0.34	22.08	98.4
	✓	✓	✓	✓	✓	✗	✓	✓	✓	14.25	✓	29.02	✓	29.00	✓	✓	14.30	1224	4.42	0.37	22.11	98.1
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.29	✓	29.00	✓	29.01	✓	✓	14.31	1237	4.37	0.38	22.14	97.7
	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.29	✓	29.03	✓	29.00	✓	✓	14.30	1255	4.34	0.41	22.21	97.9

Notes:

PORT 5: SLIGHT H₂S ODOR, CLEAR
PORT 3: SLIGHT H₂S ODOR, CLEAR
PORT 1: NO ODOR, CLEAR

PORT 4: MILD H₂S ODOR, CLEAR
PORT 2: NO ODOR, CLEAR

Total Volume: _____



Groundwater Sampling
Field Data Sheet for Multi-Port Well

JPL Pasadena

Contract #: N68711-01-D-6008

Delivery Order #: 0001

Well ID: MW-19

Sampling Zone No.: 5/4/3/2/1

Depth (ft): 497' / 443' / 391' / 313' / 241'

Start Time: 720

Finish Time: 1200

Date: 2/3/03

Page: 1 of 1

Beginning of Session: 14.37

End of Session: 14.36

Water Pressure Inside Casing:

Run No.	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)	Temp. (oC)
PORT 5	1	✓	✓	✓	✓	✓	✓	✓	✓	80.40	✓	161.17	✓	161.17	✓	✓	80.41	737	7.39	6.61	16.01	76.4
	2	✓	✓	✓	✓	✓	✓	✓	✓	80.36	✓	161.14	✓	161.14	✓	✓	80.33	800	7.35	8.01	16.14	73.2
PORT 4	1	✓	✓	✓	✓	✓	✓	✓	✓	57.27	✓	137.75	✓	137.77	✓	✓	57.27	830	7.74	0.81	14.74	40.2
	2	✓	✓	✓	✓	✓	✓	✓	✓	56.73	✓	137.76	✓	137.75	✓	✓	56.75	400	7.81	0.93	14.93	38.7
PORT 3	3	✓	✓	✓	✓	✓	✓	✓	✓	56.70	✓	137.75	✓	137.77	✓	✓	56.71	914	7.82	1.47	15.26	38.4
	1	✓	✓	✓	✓	✓	✓	✓	✓	34.06	✓	115.16	✓	115.15	✓	✓	34.07	1040	7.49	6.44	16.76	101.0
PORT 2	2	✓	✓	✓	✓	✓	✓	✓	✓	34.04	✓	115.13	✓	115.13	✓	✓	34.04	1058	7.55	7.07	16.93	100.0
	1	✓	✓	✓	✓	✓	✓	✓	✓	14.42	✓	80.86	✓	80.85	✓	✓	14.41	933	7.45	8.38	17.78	99.2
PORT 1	2	✓	✓	✓	✓	✓	✓	✓	✓	14.36	✓	80.85	✓	80.85	✓	✓	14.41	1013	7.43	8.71	17.50	101.0
	1	✓	✓	✓	✓	✓	✓	✓	✓	14.36	✓	48.97	✓	48.97	✓	✓	14.40	1125	8.08	47.2	17.92	31.2
PORT 1	2	✓	✓	✓	✓	✓	✓	✓	✓	14.36	✓	48.98	✓	48.97	✓	✓	14.38	1143	8.12	74.2	18.01	30.9

Notes:

PORT 5: NO ODOR, CLEAR

PORT 3: NO ODOR, CLEAR

PORT 1: NO ODOR, SLIGHTLY TURBID

PORT 4: NO ODOR, CLEAR

PORT 3: NO ODOR, CLEAR

Total Volume: _____



Field Data Sheet for Multi-Port Well

Well ID: MW-17

Sampling Zone No.: 4/3/2

Depth (ft): $\frac{11215}{582' / 467' / 370'}$

Start Time: 7/5

Finish Time: 1145

Date: 2/4/03

Page: 1 of 1

Water Pressure Inside Casing:

Beginning of Session: 14,32

End of Session: 14,30

[illegible]

Notes:

PORT 4: NO ODR, CLEAR
PORT 2: NO ODR, CLEAR

PORT 3: NO ADDR, CLEAR

Total Volume:



Field Data Sheet for Multi-Port Well

Well ID: MW-18

Sampling Zone No.:

Depth (ft): $\frac{683'}{563'} / \frac{424'}{330'}$

Start Time: 725

Finish Time: 1050

Date: 2/5/03

Page: 10F1

Water Pressure Inside Casing:

Beginning of Session: 14.24

End of Session: 14.22

[illegible]

Notes:

PORT 5: NO ODOR CLEAR

PORT 4: NO ODOE. CLEAR

PORT 4: NO ODOR CLEAR

PORT 2: NO OPOR CLEAR

Total Volume:



Field Data Sheet for Multi-Port Well

Well ID: MW-4

Sampling Zone No.: 3/2/1

Depth (ft): $\frac{322'}{242'}/152'$

Start Time: 650

Finish Time: 925

Date: 2/6/03

Page: 1 of 1

Water Pressure Inside Casing:

Beginning of Session: 14,27

End of Session: 14.26

[illegible]

Notes:

PORT 3: NO ODP, CLEAR
PORT 1: NO ODP, CLEAR

PORT 2: NO ORDER; CLEAR

Total Volume:



Groundwater Sampling
Field Data Sheet for Multi-Port Well

JPL Pasadena

Contract #: N68711-01-D-6008

Delivery Order #: 0001

Well ID: **MW-3**

Sampling Zone No.: **4/3/2**

Depth (ft): **560' 349' 255'**

Start Time: **640**

Finish Time: **930**

Date: **2/6/03**

Page: **10F1**

Water Pressure Inside Casing:

Beginning of Session: **14,31**

End of Session: **14,29**

Run No.	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)	Temp. (oC)
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	137.77	✓	206.94	✓	206.92	✓	✓	137.83	1027	8.92	0.92	18.83	31.3
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	157.46	✓	206.92	✓	206.92	✓	✓	137.31	1050	8.71	0.94	19.02	31.1
3	✓	✓	✓	✓	✓	✓	✓	✓	✓	45.19	✓	116.59	✓	116.60	✓	✓	45.20	1111	8.29	1.76	18.62	47.0
4	✓	✓	✓	✓	✓	✓	✓	✓	✓	45.20	✓	116.58	✓	116.59	✓	✓	45.19	1129	8.31	1.52	18.24	45.4
5	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.28	✓	75.68	✓	75.67	✓	✓	14.34	1146	8.45	2.63	18.33	40.8
6	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.27	✓	75.66	✓	75.66	✓	✓	14.33	1200	8.43	1.54	18.57	42.2
7																						
8																						
9																						
10																						
11																						
12																						

Notes:

PORT 4: NO ODOR, CLEAR

PORT 3: NO ODOR, CLEAR

Total Volume: _____



Groundwater Sampling

Field Data Sheet for Multi-Port Well

JPL Pasadena

Contract #: N68711-01-D-6008

Delivery Order #: 0001

Well ID: MW-14

Sampling Zone No.: 5/4/3/2/1

Depth (ft): 542' / 458' / 385' / 280' / 210'

Start Time: 7:15

Finish Time: 11:15

Date: 2/10/03

Page: 10 of 11

Water Pressure Inside Casing:

Beginning of Session: 14.26

End of Session: 14.24

Run No.	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)
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	139.39	✓	175.47	✓	175.47	✓	✓	139.34	730	8.85	2.95	12.61	43.0
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	139.25	✓	175.45	✓	175.44	✓	✓	139.33	753	8.99	3.63	12.5	32.1
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	103.20	✓	139.02	✓	139.02	✓	✓	103.22	817	8.45	0.12	14.31	54.2
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	103.21	✓	139.01	✓	139.03	✓	✓	103.17	843	8.36	0.14	15.47	56.3
3	✓	✓	✓	✓	✓	✓	✓	✓	✓	103.17	✓	139.01	✓	139.01	✓	✓	103.16	903	8.22	0.17	15.38	57.0
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	70.42	✓	106.91	✓	106.92	✓	✓	70.42	932	8.29	0.11	17.18	99.9
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	70.39	✓	106.90	✓	106.93	✓	✓	70.39	950	8.25	0.34	18.05	99.9
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	24.56	✓	61.21	✓	61.24	✓	✓	24.61	1010	8.10	0.08	18.59	95.0
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	24.58	✓	61.23	✓	61.25	✓	✓	24.59	1025	8.01	0.09	18.05	93.0
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.25	✓	30.90	✓	30.92	✓	✓	14.31	1045	7.90	6.19	19.45	109.0
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	14.23	✓	30.89	✓	30.91	✓	✓	14.27	1103	7.85	7.24	19.50	114.0

Notes:

PORT 5: Slight H₂S ODOR, CLEAR

PORT 3: No odor, CLEAR

PORT 1: No odor, CLEAR

PORT 4: No odor, CLEAR

PORT 2: No odor, CLEAR

Total Volume: _____



Groundwater Sampling
Field Data Sheet for Multi-Port Well

JPL Pasadena

Contract #: N68711-01-D-6008
Delivery Order #: 0001

Well ID: MW-12

Sampling Zone No.: 514/312/1
Depth (ft): 551' / 435' / 320' / 244' / 140' / 105'

Date: 2/14/03

Page: 1 OF 1

Beginning of Session: 14.26

End of Session: 14.27

Water Pressure Inside Casing:

Run No.	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)	Temp. (oC)
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	198.33	✓	202.91	✓	202.98	✓	✓	198.21	709	859	4.94	14.83	51.6
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	198.33	✓	202.91	✓	202.88	✓	✓	198.24	732	860	7.08	15.02	38.4
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	149.49	✓	156.27	✓	156.22	✓	✓	149.49	758	841	0.22	13.98	48.5
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	108.11	✓	107.23	✓	107.24	✓	✓	100.09	829	847	2.51	16.59	41.5
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	101.20	✓	107.23	✓	107.23	✓	✓	101.18	836	843	3.46	16.32	42.1
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	66.85	✓	72.75	✓	72.72	✓	✓	65.98	913	847	1.05	16.92	48.8
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	65.98	✓	72.72	✓	72.71	✓	✓	65.01	934	848	1.34	17.07	49.2
3	✓	✓	✓	✓	✓	✓	✓	✓	✓	65.97	✓	72.74	✓	72.74	✓	✓	65.02	955	851	1.46	17.22	48.9
1	✓	✓	✓	✓	✓	✓	✓	✓	✓	20.29	✓	30.55	✓	30.51	✓	✓	20.28	1015	825	1.72	17.77	57.5
2	✓	✓	✓	✓	✓	✓	✓	✓	✓	20.28	✓	30.53	✓	30.51	✓	✓	20.31	1025	825	5.32	17.56	57.4

Notes:

PORT 5: NO ODOR, CLEAR

PORT 3: NO ODOR, CLEAR

PORT 1: NO ODOR, CLEAR

PORT 4: NO ODOR, CLEAR

PORT 2: NO ODOR, CLEAR

Total Volume: _____



Field Data Sheet for Multi-Port Well

End of Session: 14.19

[illegible]

PORT 3: CLEAR, NO ODOR, SOME EFFERVESCENCE
PORT 1: CLEAR, NO ODOR



Field Data Sheet for Multi-Port Well

Well ID: MW-24

Sampling Zone No.: 4/3/2/1

Depth (ft): $555' / 435' / 374' / 279'$

Start Time: 1645

Finish Time: 1320

Date: 2/17/03

Page: 2 of 2

Water Pressure Inside Casing:

Beginning of Session: 14.24

End of Session: 14.23

[illegible]

Total Volume:

PORT 4: CLEAR, NO ODOR
PORT 2: CLEAR, NO ODOR

PORT 3: CLEAR, SLIGHT H₂S ODOR
PORT 1: CLEAR, NO ODOR



Field Data Sheet for Multi-Port Well

Well ID: MW-22

Sampling Zone No.: 3/2/1

Depth (ft): $\frac{11}{388} / 329 / 243$

Start Time: 650

Finish Time: 945

Date: 2/18/03

Page: 1 of 2

Water Pressure Inside Casing:

Beginning of Session: 14.16

End of Session: 14,19

[illegible]

Notes:

PORT 3: CLEAR, SLIGHT HS ODOOR

PORT 1: CLEAR, NO ODOR

PORT 2: CLEAR, NO ODDR

Total Volume:



Field Data Sheet for Multi-Port Well

Well ID: MW-11

Sampling Zone No.: 4/3/2/1

Start Time: 1025

Date: 2/18/03

Page: 2 of 2

Water Pressure Inside Casing:

Beginning of Session: 14.23

End of Session: 14.22

[illegible]

Notes:

PORT 4: CLEAR, MILD H₂S ODOR

PORT 3: CLEAR, SLIGHT H_2S odor

PORT 2: CLEAR SLIGHT HYS ODOR

PORT 1: CLEAR, NO ODOR

Total Volume: