# APPENDIX A

# GROUNDWATER COLLECTION AND SAMPLE LOG
## WELL ID # MW-5

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

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: Dale Erbes and J. Robinson
Date: 8/25/03
Weather: Hot and Sunny

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

( 140 (TD (feet)) - 66.39 (WL (feet)) ) X $4^2$ (D (inches)) X 3 (# Vols) X 0.0408 = 144.16 (Calculated Purge Volume) Gallons

**PURGE METHOD** **PUMP INTAKE SETTING**

Bailer – Type: _____ **X** 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 (º C) | ORP (mV) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 0958 | 66.39 | 0.0 | 7.79 | 37.8 | 80.0 | 10.56 | 20.80 | 186 | |
| 1013 | | 30 | 7.80 | 36.9 | 2.9 | 10.62 | 20.33 | 192 | |
| 1028 | | 60 | 7.45 | 37.6 | 1.5 | 9.40 | 19.85 | 192 | |
| 1043 | | 90 | 7.84 | 37.8 | 1.5 | 10.54 | 20.33 | 191 | |
| 1058 | | 120 | 7.52 | 0.99 | 2.8 | 11.59 | 19.34 | 258 | |
| 1113 | 66.20 | 150 | 7.58 | 37.4 | 1.8 | 9.19 | 23.90 | 183 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Total Purge Volume: 150 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 2.0 (GPM)

**OBSERVATIONS DURING PUMPING**

**NOTES:** (well condition, color, clarity, odor): Purge time start: 0958; brownish in color w/ no odor @ 1st interval; clear and odorless for the remainder intervals; control box: 381

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

**WATER DISPOSAL**

Purge water storage: Polytank

Purge water disposal: 150

**WELL SAMPLING**

Sample Depth in feet (BTOC): _____

| ***Original*** | ***Duplicate*** | ***Blank*** | ***Other ( Trip / Source / _____ )*** |
|---|---|---|---|
| Sample ID: MW-5 | Sample ID: | Type: | Type: |
| Sample Time: 1117 | Sample Time: | Sample ID: | Sample ID: |
| No. of Containers: 3+1+1 | No. of Containers: | Sample Time: | Sample Time: |
| | | No. of Containers: | No. of Containers: |

**ORIGINAL FIELD RECORD**

# GROUNDWATER COLLECTION AND SAMPLE LOG
## WELL ID # MW-6

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

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: Dale Erbes and J. Robinson
Date: 8/27/03
Weather: Cool and Sunny

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

( 245 (TD feet) - 179.30 (WL feet) ) X $4^2$ (D inches) X 3 (# Vols) X 0.0408 = 128.67 (Calculated Purge Volume) Gallons

**PURGE METHOD** **PUMP INTAKE SETTING**

Bailer – Type: _____ **X** 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 (º C) | ORP (mV) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 0748 | 128.67 | 0 | 6.85 | 99.7 | 22.2 | 9.39 | 20.20 | 139 | |
| 0800 | | 24 | 6.91 | 96.6 | 24.1 | 8.90 | 20.85 | 137 | |
| 0812 | | 48 | 6.93 | 96.3 | 5.69 | 8.87 | 20.93 | 137 | |
| 0824 | | 62 | 6.97 | 95.0 | 7.31 | 8.84 | 21.21 | 136 | |
| 0836 | | 84 | 6.98 | 96.4 | 2.85 | 9.01 | 21.56 | 137 | |
| 0848 | | 108 | 7.03 | 96.3 | 1.59 | 10.01 | 21.76 | 136 | |
| 0900 | 128.55 | 132 | 7.08 | 97.1 | 1.11 | 8.77 | 21.93 | 130 | |
| | | | | | | | | | |
| | | | | | | | | | |

Total Purge Volume: 136 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 2.0 (GPM)

**OBSERVATIONS DURING PUMPING**

**NOTES:** (well condition, color, clarity, odor): Purge start: 0748; brownish and odorless for 1st and 2nd intervals; the remainder clear and odorless; control box: 333

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

**WATER DISPOSAL**

Purge water storage: Polytank

Purge water disposal: 140

**WELL SAMPLING**

Sample Depth in feet (BTOC): _____

| ***Original*** | ***MS/MSD*** | ***Blank*** | ***Other ( Trip / Source / _____ )*** |
|---|---|---|---|
| Sample ID: MW-6 | Sample ID: | Type: | Type: |
| Sample Time: 0906 | Sample Time: | Sample ID: | Sample ID: |
| No. of Containers: 3+1+1 | 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

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

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: Dale Erbes and J. Robinson
Date: 8/26/03
Weather: Warm and Sunny

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

( 275 (TD feet) - 205.8 (WL feet) ) X $4^2$ (D inches) X 3 (# Vols) X 0.0408 = 135.52 (Calculated Purge Volume) Gallons

**PURGE METHOD** **PUMP INTAKE SETTING**

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

**FIELD PARAMETER MEASUREMENT**

| Time | Depth to Water (Feet) | Total Discharge (Gallons) | pH | Conductivity (mS/cm) | Turbidity (NTU) | Dissolved Oxygen (mg/L) | Temp (º C) | ORP (mV) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 1013 | 135.52 | 0.0 | 7.08 | 46.6 | 0.08 | 9.09 | 23.63 | 170 | |
| 1028 | | 22.5 | 7.20 | 46.1 | 0.00 | 9.43 | 23.47 | 156 | |
| 1043 | | 45.0 | 7.28 | 45.8 | 2.43 | 9.30 | 24.00 | 155 | |
| 1058 | | 67.5 | 7.33 | 46.6 | 0.11 | 10.05 | 23.07 | 154 | |
| 1113 | | 90 | 7.35 | 46.2 | 0.20 | 9.65 | 23.62 | 153 | |
| 1128 | | 112.5 | 7.34 | 46.5 | 0.36 | 9.76 | 23.83 | 153 | |
| 1143 | 135.02 | 135.0 | 7.33 | 46.1 | 0.00 | 9.48 | 25.53 | 153 | |
| | | | | | | | | | |
| | | | | | | | | | |

Total Purge Volume: 140 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 1.5 (GPM)

**OBSERVATIONS DURING PUMPING**

**NOTES:** (well condition, color, clarity, odor): Purge Start: 1013; clear and odorless; control box: 352

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

**WATER DISPOSAL**

Purge water storage: Polytank

Purge water disposal: 140

**WELL SAMPLING**

Sample Depth in feet (BTOC): _____

| ***Original*** | ***MS / MSD*** | ***Additional Sampling*** | ***Other*** |
|---|---|---|---|
| Sample ID: MW-7 | Sample ID: | Type: | Type: |
| Sample Time: 1147 | Sample Time: | Sample ID: | Sample ID: |
| No. of Containers: 3+1+1 | No. of Containers: | Sample Time: | Sample Time: |
| | | No. of Containers: | No. of Containers: |

**ORIGINAL FIELD RECORD**

# GROUNDWATER COLLECTION AND SAMPLE LOG
## WELL ID # MW-8

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

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: Dale Erbes and J. Robinson
Date: 8/25/03
Weather: Warm and Sunny

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

( 205 (TD feet) - 131.88 (WL feet) ) X $4^2$ (D inches) X 3 (# Vols) X 0.0408 = 143.20 (Calculated Purge Volume) Gallons

**PURGE METHOD** **PUMP INTAKE SETTING**

Bailer – Type: _____ **X** 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 (º C) | ORP (mV) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 0822 | 131.88 | 0 | 7.18 | 46.6 | 4.9 | 11.43 | 19.45 | 202 | |
| 0842 | | 50 | 7.27 | 44.5 | 0.65 | 11.79 | 19.52 | 208 | |
| 0902 | | 100 | 7.10 | 43.3 | 0.00 | 9.26 | 21.19 | 220 | |
| 0922 | | 150 | 7.42 | 44.2 | 0.00 | 10.70 | 20.90 | 202 | |
| 0930 | 131.75 | 170 | 7.33 | 44.3 | 0.00 | 10.13 | 19.63 | 207 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Total Purge Volume: 170 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 2.5 (GPM)

**OBSERVATIONS DURING PUMPING**

**NOTES:** (well condition, color, clarity, odor): Purge Start: 0822; clear and odorless; control box; 350

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

**WATER DISPOSAL**

Purge water storage: Polytank

Purge water disposal: 150

**WELL SAMPLING**

Sample Depth in feet (BTOC): _____

| ***Original*** | ***Duplicate*** | ***Blank*** | ***Other ( Trip / Source / _____ )*** |
|---|---|---|---|
| Sample ID: MW-8 | Sample ID: | Type: | Type: |
| Sample Time: 0934 | Sample Time: | Sample ID: | Sample ID: |
| No. of Containers: 3+1+1 | 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

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

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: Dale Erbes and J. Robinson
Date: 8/25/03
Weather: Cool and Clear

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

( 140 (TD feet) - 81.97 (WL feet) ) X $4^2$ (D inches) X 3 (# Vols) X 0.0408 = 113.65 (Calculated Purge Volume) Gallons

**PURGE METHOD** **PUMP INTAKE SETTING**

Bailer – Type: _____ **X** 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 (º C) | ORP (mV) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 0658 | 81.97 | 0.00 | 6.12 | 90.7 | 14.0 | 8.68 | 20.27 | 283 | Non-calibrated Horiba V-22 |
| 0707 | | 22.5 | 5.77 | 98.7 | 10.0 | 8.02 | 19.57 | 280 | Non-calibrated Horiba V-22 |
| 0716 | | 45.0 | 5.80 | 91.7 | 0.90 | 8.58 | 19.89 | 277 | Non-calibrated Horiba V-22 |
| 0725 | | 67.5 | 5.00 | 0.99 | 0.60 | 9.08 | 20.14 | 378 | Calibrated Horiba V-22 |
| 0734 | | 90.0 | 6.02 | 0.1 | 0.00 | 9.11 | 19.94 | 244 | Calibrated Horiba V-22 |
| 0743 | 81.88 | 112.5 | 6.17 | 0.1 | 0.45 | 9.29 | 19.70 | 327 | Calibrated Horiba V-22 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Total Purge Volume: 112.5 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 2.5 (GPM)

**OBSERVATIONS DURING PUMPING**

**NOTES:** (well condition, color, clarity, odor): Purge Start: 0658; clear and odorless; control box: 288

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

**WATER DISPOSAL**

Purge water storage: Polytank

Purge water disposal: 115

**WELL SAMPLING**

Sample Depth in feet (BTOC): _____

| ***Original*** | ***Duplicate*** | ***Blank*** | ***Other ( Trip / Source / _____ )*** |
|---|---|---|---|
| Sample ID: MW-10 | Sample ID: | Type: | Type: |
| Sample Time: 0746 | Sample Time: | Sample ID: | Sample ID: |
| No. of Containers: 3+1+1 | No. of Containers: | Sample Time: | Sample Time: |
| | | No. of Containers: | No. of Containers: |

**ORIGINAL FIELD RECORD**

# GROUNDWATER COLLECTION AND SAMPLE LOG
## WELL ID # MW-13

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

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: Dale Erbes and J. Robinson
Date: 8/26/03
Weather: Cool and Sunny

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

( 235 (TD feet) - 175.89 (WL feet) ) X $4^2$ (D inches) X 3 (# Vols) X 0.0408 = 115.76 (Calculated Purge Volume) Gallons

**PURGE METHOD** **PUMP INTAKE SETTING**

Bailer – Type: _____ **X** 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 (º C) | ORP (mV) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 0648 | 175.89 | 0.0 | 5.44 | 68.4 | 4.0 | 8.58 | 21.56 | 185 | |
| 0658 | | 22.5 | 5.88 | 59.6 | 1.3 | 9.13 | 21.79 | 175 | |
| 0708 | | 45.0 | 6.19 | 58.7 | 0.10 | 8.85 | 21.54 | 174 | |
| 0718 | | 67.5 | 6.30 | 58.7 | 0.00 | 9.07 | 21.59 | 176 | |
| 0728 | | 90.0 | 6.45 | 57.1 | 0.30 | 8.80 | 21.69 | 172 | |
| 0738 | 175.75 | 112.5 | 6.66 | 58.9 | 0.05 | 8.88 | 21.60 | 166 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Total Purge Volume: 115 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 2.25 (GPM)

**OBSERVATIONS DURING PUMPING**

**NOTES:** (well condition, color, clarity, odor): Begin Purge: 0648; clear and odorless; control box: 346

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

**WATER DISPOSAL**

Purge water storage: Polytank

Purge water disposal: 120

**WELL SAMPLING**

Sample Depth in feet (BTOC): _____

| ***Original*** | ***Duplicate*** | ***Blank*** | ***Other ( Trip / Source / _____ )*** |
|---|---|---|---|
| Sample ID: MW-13 | Sample ID: | Type: | Type: |
| Sample Time: 0740 | Sample Time: | Sample ID: | Sample ID: |
| No. of Containers: 3+1+1 | No. of Containers: | Sample Time: | Sample Time: |
| | | No. of Containers: | No. of Containers: |

**ORIGINAL FIELD RECORD**

# GROUNDWATER COLLECTION AND SAMPLE LOG
## WELL ID # MW-15

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

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: Dale Erbes and J. Robinson
Date: 8/27/03
Weather: Cool and Cloudy

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

( 74 - 39.51 ) X $4^2$ X 3 X 0.0408 = 67.55 Gallons

TD (feet) | WL (feet) | D (inches) | # Vols | Calculated Purge Volume

**PURGE METHOD** **PUMP INTAKE SETTING**

Bailer – Type: _____ **X** 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 (º C) | ORP (mV) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 0650 | 67.55 | 0 | 6.57 | 52.2 | 19.0 | 6.61 | 17.05 | 112 | |
| 0656 | | 13.5 | 6.68 | 51.3 | 14.6 | 7.67 | 16.74 | 111 | |
| 0702 | | 27.0 | 6.86 | 51.8 | 10.01 | 7.81 | 16.75 | 112 | |
| 0708 | | 40.5 | 6.94 | 51.9 | 5.03 | 8.01 | 16.63 | 114 | |
| 0714 | | 54.0 | 7.01 | 49.6 | 3.14 | 8.02 | 16.59 | 117 | |
| 0720 | 67.50 | 67.5 | 7.06 | 51.8 | 1.56 | 10.24 | 16.78 | 120 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Total Purge Volume: 68.0 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 2.25 (GPM)

**OBSERVATIONS DURING PUMPING**

**NOTES:** (well condition, color, clarity, odor): Purge Start: 0650; clear and odorless; control box: 215

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

**WATER DISPOSAL**

Purge water storage: Polytank

Purge water disposal: 70

**WELL SAMPLING**

Sample Depth in feet (BTOC): _____

| ***Original*** | ***Duplicate*** | ***Blank*** | ***Other ( Trip / Source / _____ )*** |
|---|---|---|---|
| Sample ID: MW-15 | Sample ID: Dupe-6-3-Q03 | Type: _____ | Type: _____ |
| Sample Time: 0723 | Sample Time: 0729 | Sample ID: _____ | Sample ID: _____ |
| No. of Containers: 1+1 | No. of Containers: 2 | Sample Time: _____ | Sample Time: _____ |
| | | No. of Containers: _____ | No. of Containers: _____ |

**ORIGINAL FIELD RECORD**

# GROUNDWATER COLLECTION AND SAMPLE LOG
## WELL ID # MW-16

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

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: Dale Erbes and J. Robinson
Date: 8/26/03
Weather: Cool and Sunny

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

( 285 (TD feet) - 228.85 (WL feet) ) X $4^2$ (D inches) X 3 (# Vols) X 0.0408 = 109.96 (Calculated Purge Volume) Gallons

**PURGE METHOD** **PUMP INTAKE SETTING**

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

**FIELD PARAMETER MEASUREMENT**

| Time | Depth to Water (Feet) | Total Discharge (Gallons) | pH | Conductivity (mS/cm) | Turbidity (NTU) | Dissolved Oxygen (mg/L) | Temp (º C) | Salinity (%) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 0805 | 109.96 | 0 | 6.93 | 48.8 | 2.9 | 8.86 | 22.93 | 156 | |
| 0819 | | 21.0 | 6.98 | 46.1 | 0.05 | 9.05 | 22.87 | 156 | |
| 0833 | | 42.0 | 6.98 | 48.0 | 0.00 | 9.03 | 23.03 | 156 | |
| 0847 | | 63.0 | 7.00 | 47.6 | 0.00 | 9.04 | 22.88 | 156 | |
| 0901 | | 84.0 | 7.01 | 48.8 | 0.20 | 9.80 | 22.90 | 157 | |
| 0915 | | 105.0 | 7.02 | 48.1 | 0.20 | 8.68 | 23.53 | 156 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Total Purge Volume: 110 (Gallons)

Total Discharge: 3.00 (Casing Volumes)

Approx. Purge Rate: 1.5 (GPM)

**OBSERVATIONS DURING PUMPING**

**NOTES:** (well condition, color, clarity, odor): Purge Start: 0805; clear and odorless; control box: 376

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

**WATER DISPOSAL**

Purge water storage: Polytank

Purge water disposal: 115

**WELL SAMPLING**

Sample Depth in feet (BTOC): _____

| ***Original*** | ***MS / MSD*** | ***Additional Sampling*** | ***Additional Sampling*** |
|---|---|---|---|
| Sample ID: MW-16 | Sample ID: MW-16 | Type: | Type: |
| Sample Time: 0921 | Sample Time: 0921 | Sample ID: | Sample ID: |
| No. of Containers: 3+1+1 | No. of Containers: 5 | Sample Time: | Sample Time: |
| | | No. of Containers: | No. of Containers: |

**ORIGINAL FIELD RECORD**

(1)

GEOFON INCORPORATED

# Groundwater Sampling

Multi-Port Well Field Data Sheet

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Water Pressure Inside Casing: _____

Well ID: MW-21
Sampling Zone No.: 5/4/3/2/1
Depth (ft): 382/310/240/161/90
Beginning of Session: 14.16
End of Session: 14.14

Start Time: 1030
Finish Time: 1400

Date: 7.29.03
Page: 1 OF 1

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 130.27 | ✓ | 153.46 | ✓ | 153.49 | ✓ | ✓ | 130.30 | 1135 | 6.15 | 1.17 | 27.63 | 63.0 | 5 |
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 101.18 | ✓ | 126.62 | ✓ | 126.65 | ✓ | ✓ | 102.61 | 1211 | 7.01 | 0.55 | 26.15 | 46.1 | 4 |
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 72.53 | ✓ | 96.83 | ✓ | 96.83 | ✓ | ✓ | 72.55 | 1244 | 6.51 | 0.59 | 24.66 | 42.4 | 3 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 38.60 | ✓ | 62.74 | ✓ | 62.78 | ✓ | ✓ | 38.62 | 1321 | 6.91 | 0.15 | 24.51 | 71.2 | 2 |
| 1 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.14 | ✓ | 31.74 | ✓ | 31.65 | ✓ | ✓ | 14.17 | 1350 | 6.63 | 0.18 | 27.50 | 57.7 | 1 |

**Notes:**
PORT 5: CLEAR, NO ODOR
PORT 4: CLEAR, NO ODOR
PORT 3: CLEAR, NO ODOR
PORT 2: CLEAR, NO ODOR
PORT 1: YELLOWISH BROWN, NO ODOR

Total Volume: _____

GEOFON INCORPORATED

(2)

# Groundwater Sampling

Multi-Port Well Field Data Sheet

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Well ID: MW-19
Sampling Zone No.: 5/4/3/2/1
Depth (ft): 499/444/392/314/242
Beginning of Session: 14.13
End of Session: 14.52

Start Time: 645
Finish Time: _____

Date: 7/30/03
Page: 1 OF 1

Water Pressure Inside Casing: _____

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 80.66 | ✓ | 165.88 | ✓ | 165.91 | ✓ | ✓ | 80.70 | 0734 | 5.64 | 59.3 | 21.23 | 61.1 | >5 |
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 57.50 | ✓ | 142.53 | ✓ | 142.52 | ✓ | ✓ | 58.14 | 0759 | 6.07 | 0.00 | 20.69 | 48.3 | 4 |
| 4 | 2 | — | — | — | — | — | Dupe | — | — | — | — | — | — | — | — | Dupe | — | — | — | — | — | — | — | — | |
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 33.92 | ✓ | 120.58 | ✓ | 120.58 | ✓ | ✓ | 33.93 | 0823 | 6.61 | 24.4 | 22.18 | 90.0 | 3 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.30 | ✓ | 86.56 | ✓ | 86.56 | ✓ | ✓ | 14.33 | 0843 | 6.78 | 7.76 | 20.77 | 0.997 | 2 |
| 2 | 2 | — | — | — | — | — | — | MS/MSD | — | — | — | — | — | — | MS | MSD | — | — | — | — | — | — | — | — | |
| 1 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.24 | ✓ | 55.92 | ✓ | 55.89 | ✓ | ✓ | 14.30 | 0903 | 6.94 | 4.19 | 22.88 | 31.1 | >1 |

Notes:
PORT 5: Clear + odorless
PORT 4: Clear + odorless
PORT 3: " "
PORT 2: " "
PORT 1: brownish yellow - no odor - odor - odor

Total Volume: _____

GEOFON INCORPORATED

# Groundwater Sampling
Multi-Port Well Field Data Sheet

(3)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Water Pressure Inside Casing: —

Well ID: MW-3
Sampling Zone No.: 4/3/2
Depth (ft): 558/546/252
Beginning of Session: 14.17
End of Session: 14.26

Start Time: 0945
Finish Time: 1050

Date: 7/30/03
Page: 1 of 1

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 139.11 | ✓ | 211.18 | ✓ | 211.17 | ✓ | ✓ | 138.63 | 0957 | 7.41 | 1.06 | 24.53 | 32.8 | >4 |
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 45.01 | ✓ | 121.84 | ✓ | 121.82 | ✓ | ✓ | 46.72 | 1020 | 7.69 | 7.57 | 24.61 | 44.9 | >3 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.29 | ✓ | 81.15 | ✓ | 81.12 | ✓ | ✓ | 14.30 | 1040 | 7.47 | 3.38 | 24.62 | 43.7 | >2 |

14.30 ?

**Notes:**
PORT 4: Clear + odorless
PORT 3: Clear + rotten egg odor
PORT 2: Clear + odorless

Total Volume: _____

GEOFON INCORPORATED

# Groundwater Sampling
Multi-Port Well Field Data Sheet

(4)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Water Pressure Inside Casing: —

Well ID: MW-17
Sampling Zone No.: 4/3/2
Depth (ft): 582/468/370
Beginning of Session: 14.24
End of Session: 14.13

Start Time: 1113
Finish Time: 1218

Date: 7/30/03
Page: 1 of 1

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 104.65 | ✓ | 179.74 | ✓ | 179.72 | ✓ | ✓ | 104.84 | 1125 | 7.71 | 2.03 | 22.26 | 32.0 | >4 |
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 55.35 | ✓ | 127.49 | ✓ | 127.40 | ✓ | ✓ | 55.17 | 1140 | 7.47 | 16.3 | 21.90 | 43.5 | >3 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.25 | ✓ | 88.85 | ✓ | 88.80 | ✓ | ✓ | 14.31 | 1209 | 7.63 | 2.30 | 23.25 | 52.0 | >2 |

7.30.03

**Notes:**
Port 4: Clear + odorless
Port 3: Clear + no odorless
Port 2: Clear + odorless

Total Volume: ____

GEOFON INCORPORATED

# Groundwater Sampling

Multi-Port Well Field Data Sheet

(5)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Well ID: MW-20
Sampling Zone No.: 5/4/3/2/1
Depth (ft): 900/700/502/392/230
Beginning of Session: 14.14
End of Session: 14.26

Start Time: 0737
Finish Time: ~~0~~ 1240

Date: 7/31/03
Page: 1 of 1

Water Pressure Inside Casing: —

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 304.58 | ✓ | 322.39 | ✓ | 322.38 | ✓ | ✓ | 304.77 | 0800 | 5.88 | 0.21 | 21.55 | 32.3 | 5 |
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 217.67 | ✓ | 240.50 | ✓ | 240.43 | ✓ | ✓ | 217.59 | 0824 | 6.46 | 10.35 | 22.71 | 30.3 | |
| 4 | 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 218.44 | ✓ | 268.14 | ✓ | 265.82 | re-sample to check valves + pressure | | | | | | | | 4&3/2&1 |
| 3 | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 217.44 | ✓ | 240.46 | ✓ | 240.41 | ✓ | ✓ | 217.48 | 1039 | 6.59 | 8.98 | 23.42 | 31.0 | |
| 3 | 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 156.98 | ✓ | 177.08 | ✓ | 177.11 | ✓ | ✓ | 157.24 | 1106 | 6.39 | 0.25 | 23.44 | 54.6 | dup 3 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 157.01 | ✓ | 177.08 | ✓ | 177.11 | ✓ | ✓ | 157.25 | 1131 | 6.75 | 0.00 | 23.48 | 55.4 | 3 |
| 1 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 83.22 | ✓ | 105.11 | ✓ | 105.16 | ✓ | ✓ | 83.27 | 1158 | 6.80 | 0.12 | 22.67 | 84.8 | 2 |
| | | | | | | | | | | | 14.33 | ✓ | 35.13 | ✓ | 35.12 | ✓ | ✓ | 14.30 | 1223 | 7.02 | 1.02 | 25.76 | 58.0 | 1 |

7/31-03

**Notes:**
Port 5: clear + odorless
Port 4: rotten egg odor (strong) + clear
Port 3: clear + odorless (mild H2S)
Port 2: clear + odorless
Port 1:

Total Volume: _____

GEOFON INCORPORATED

# Groundwater Sampling
Multi-Port Well Field Data Sheet

(6)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Water Pressure Inside Casing: —

Well ID: MW-18
Sampling Zone No.: 5-4-3-2-1
Depth (ft): 684, 564, 424, 330, 220
Beginning of Session: 14.14
End of Session: 14.24

Start Time: 0741
Finish Time: 0920

Date: 8/4/03
Page: 1 of 1

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 160.01 | | | | | | | | | | | | | |
| 5 | 1 | ✓ | — | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ~~159.01~~ | ✓ | 207.85 | ✓ | 207.52 | ✓ | ✓ | 159.81 | 0755 | 5.78 | 0.75 | 22.95 | 31.0 | >5 |
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 104.02 | ✓ | 156.02 | ✓ | 156.02 | ✓ | ✓ | 106.11 | 0822 | 6.39 | 34.3 | 22.45 | 25.7 | >4 |
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 45.80 | ✓ | 97.99 | ✓ | 98.00 | ✓ | ✓ | 46.67 | 0847 | 7.08 | 0.00 | 22.45 | 52.7 | >3 |
| 2 | 1 | ✓ | — | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.25 | ✓ | 57.55 | ✓ | 57.43 | ✓ | ✓ | 14.29 | 0910 | 7.38 | 4.30 | 21.81 | 44.5 | >2 |
| | | | | | | | | | | | | | | | | | | | | | | | | >1 |
| | | | | | | | | | | | | 8 | 4.03 | | | | | | | | | | | |

**Notes:**
Port 5: Clear + no odor
Port 4: Clear + odor
Port 3: Clear + odorless
Port 2: " "

Total Volume: ____

GEOFON INCORPORATED

# Groundwater Sampling

Multi-Port Well Field Data Sheet

(9)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Well ID: MW-4
Sampling Zone No.: ~~4~~ 3/2/1
Depth (ft): 322/240/150
Beginning of Session: 14.21
End of Session: 14.18

Start Time: 0945
Finish Time: 1140

Date: 8/4/03
Page: 1 of 1

Water Pressure Inside Casing: —

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 53.82 | ✓ | 119.57 | ✓ | 119.56 | ✓ | ✓ | 55.50 | 1004 | 7.22 | 45.0 | 25.16 | 0.10 | 3 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 18.14 | ✓ | 84.22 | ✓ | 84.21 | ✓ | ✓ | 18.16 | 1027 | 6.88 | 3.40 | 24.26 | 87.1 | |
| 2 | 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 19.70 | ✓ | 84.24 | ✓ | 84.23 | ✓ | ✓ | 19.69 | 1044 | 6.53 | 12.0 | 23.45 | 90.7 | 2 |
| 1 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.22 | ✓ | 47.32 | ✓ | 47.28 | ✓ | ✓ | 14.22 | 1103 | 6.95 | 2.9 | 24.54 | 48.3 | |
| 1 | 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.19 | ✓ | 47.30 | ✓ | 47.23 | ✓ | ✓ | 14.18 | 1127 | 6.98 | 2.4 | 22.97 | 0.1 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 9 — | | | | | | | | | | | | | |
| | | | | | | | | | | | | 8: 4.03 | | | | | | | | | | | | |

MS/MSD
WP:

**Notes:**
Port 3: brownish yellow; odor
Port 2: Clear + odorless
Port 1: Clear + odorless

Total Volume: _____

GEOFON INCORPORATED

## Groundwater Sampling
Multi-Port Well Field Data Sheet

(8)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Well ID: MW-23
Sampling Zone No.: 4/3/2/1
Depth (ft): 445/391/254/174
Beginning of Session: 14.14
End of Session: 14.23

Start Time: 0712
Finish Time: 0832

Date: 8/6/03
Page: 1 of 1

Water Pressure Inside Casing: —

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 166.90 ✓ | ✓ | 162.07 | ✓ | 162.07 | ✓ | ✓ | 166.86 | 0721 | 5.95 | 0.30 | 19.10 | 33.8 | >4 |
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 111.97 | ✓ | 108.75 | ✓ | 108.75 | ✓ | ✓ | 112.63 | 0747 | 6.59 | 6.80 | 20.64 | 36.76 | >3 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 82.77 | ✓ | 80.67 | ✓ | 80.67 | ✓ | ✓ | 84.04 | 0804 | 6.68 | 0.60 | 20.98 | 89.1 | >2 |
| 1 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 49.30 | ✓ | 46.94 | ✓ | 46.95 | ✓ | ✓ | 49.30 | 0822 | 6.83 | 4.6 | 21.15 | 0.1 | >1 |

8.6.03

**Notes:**
Port 4: Clean + odorless
Port 3: Clean + odorless
Port 2: " "
Port 1: " "

Total Volume: ____

GEOFON INCORPORATED

# Groundwater Sampling

Multi-Port Well Field Data Sheet

(9)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Well ID: MW-24 (14)
Sampling Zone No.: 4/3/2/1
Depth (ft): 554/435/373/289
Beginning of Session: 14.14
End of Session: 14.25

Start Time: 0906
Finish Time: 1145

Date: 8/6/03
Page: 1 of 1

Water Pressure Inside Casing: —

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 147.30 | ✓ | 258.11 | ✓ | | | | | | | | | | 4 |
| 4 | 1 | — | adjust | port | setting | for | sampling | | | | — | ✓ | 178.27 | ✓ | 178.28 | ✓ | ✓ | 147.01 | 0929 | 7.52 | 1.10 | 22.71 | 34.70 | |
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 109.49 | ✓ | 141.93 | ✓ | 141.92 | ✓ | ✓ | 110.36 | 0942 | 7.07 | 0.00 | 22.87 | 50.1 | |
| 3 | 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | — | ✓ | ✓ | 112.94 | ✓ | 193.56 | ✓ | | | | | | | | | | 3 |
| 3 | 2 | — | adjust | port | setting | for | sampling | | | | 109.90 | ✓ | 141.91 | ✓ | 141.95 | ✓ | ✓ | 110.32 | 1011 | 7.05 | 0.75 | 23.20 | 53.9 | |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 78.04 | ✓ | 109.86 | ✓ | 109.88 | ✓ | ✓ | 78.04 | 1034 | 7.03 | 0.10 | 23.96 | 95.2 | |
| 2 | 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 78.00 | ✓ | 109.84 | ✓ | 109.87 | ✓ | ✓ | 78.00 | 1058 | 7.02 | 0.25 | 23.75 | 97.40 | 2 |
| 1 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 32.78 | ✓ | 64.52 | ✓ | 64.55 | ✓ | ✓ | 32.71 | 1121 | 6.86 | 2.10 | 25.37 | 0.1 | 1 |

Dup

S/H2S

8.6.03

**Notes:**
Pot 3: Clear + odorless
Pot 2: clear + odorless
Pot 1: " "
Pot 4: clear + $H_2S$ odor (slight)

Total Volume: ____

GEOFON INCORPORATED

## Groundwater Sampling
Multi-Port Well Field Data Sheet

(9)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Water Pressure Inside Casing: —

Well ID: MW-14
Sampling Zone No.: 5/4
Depth (ft): ~~330~~ 1456
Beginning of Session: 14.16
End of Session: 14.10

Start Time: 1117
Finish Time: 1219

Date: 8·7·03
Page: 1 of 1

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 146.82 | ✓ | 177.94 | ✓ | 177.94 | ✓ | ✓ | psi ↓ | 1136 | 7.50 | 3.3 | 28.35 | 35.1 |
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 109.88 | ✓ | 128.24 | ✓ | Had to re-set port to sample | | | | | | | | |
| 4 | 1 | — | — | — | — | — | — | — | — | ✓ | 109.·1 | ✓ | 141.66 | ✓ | 141.69 | ✓ | ✓ | 109.09 | 1207 | 7.23 | 0.70 | 22.97 | 55.90 |

8.7.03

**Notes:** Port 5: Clear + odorless  Port 4: Clear + odorless

Total Volume: ____

GEOFON INCORPORATED

# Groundwater Sampling

Multi-Port Well Field Data Sheet

(10)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Water Pressure Inside Casing: —

Well ID: MW-11
Sampling Zone No.: 4/3/2/1
Depth (ft): 524/429/259/149
Beginning of Session: 14.15
End of Session: 14.21

Start Time: 0720
Finish Time: 0851

Date: 8.7.03
Page: 1 of 1

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 121.89 | ✓ | 185.55 | ✓ | 185.34 | ✓ | ✓ | 122.02 | 0733 | 5.36 | 0.90 | 19.02 | 25.50 | >4 |
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 82.04 | ✓ | 142.58 | ✓ | 142.38 | ✓ | ✓ | 82.08 | 0802 | 5.77 | 95.0 | 19.32 | 35.20 | >3 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.24 | ✓ | 70.79 | ✓ | 70.72 | ✓ | ✓ | 14.29 | 0822 | 6.33 | 1.40 | 19.69 | 11.90 | >2 |
| 1 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.20 | ✓ | 31.99 | ✓ | 32.00 | ✓ | ✓ | 14.23 | 0844 | 6.33 | 0.45 | 20.19 | 49.50 | >1 |
| | | | | | | | | | | | | | | | | | | | | | | | 20.6.0 | |
| | | | | | | | | | | | 9 | — | | | | | | | | | | | | |
| | | | | | | | | | | | | 8.7.03 | | | | | | | | | | | | |

Notes:
Port 4: clear & odorless
Port 3: brownish yellow & odorless
Port 2: " "
Port 1: clear & odorless

Total Volume: ____

GEOFON INCORPORATED

# Groundwater Sampling

Multi-Port Well Field Data Sheet

(11)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Water Pressure Inside Casing: —

Well ID: MW-24
Sampling Zone No.: 4/3/2/1
Depth (ft): 554/435/373/279
Beginning of Session: 14.14
End of Session: 14.23

Start Time: 0927
Finish Time: 1054

Date: 8/7/03
Page: 10 of 1

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 114.12 | ✓ | 168.72 | ✓ | 168.78 | ✓ | ✓ | 114.07 | 0942 | 7.45 | 0.55 | 25.27 | 30.40 | } 4 |
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 62.20 | ✓ | 118.39 | ✓ | 118.41 | ✓ | ✓ | 62.24 | 1003 | 7.41 | 2.90 | 25.89 | 33.50 | } 3 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 35.07 | ✓ | 91.92 | ✓ | 91.92 | ✓ | ✓ | 35.09 | 1024 | 7.39 | 6.10 | 25.58 | 39.50 | } 2 |
| 1 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 14.23 | ✓ | 52.82 | ✓ | 52.77 | ✓ | ✓ | 14.24 | 1046 | 7.18 | 4.90 | 26.97 | 47.7 | } 1 |
| | | | | | | | | | | | | | | | | | | | | | | | 10.6.9 | |
| | | | | | | | | | | | | | | | | | | | | | | | 9— | |

Q —

8.7.03

**Notes:**
Port 4: Clear + odorless  Port 3: Clear + odorless
Port 2: " "  Port 1: " "

Total Volume: _____

GEOFON INCORPORATED

# Groundwater Sampling

Multi-Port Well Field Data Sheet

12

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Well ID: MW-22
Sampling Zone No.: 3/2/1
Depth (ft): 389/329/245
Beginning of Session: 14.07
End of Session: 14.11

Start Time: 0721
Finish Time: 0915

Date: 8/11/03
Page: 1 of 1

Water Pressure Inside Casing: —

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 116.74 | ✓ | 138.24 | ✓ | wrong port, had to adjust | | | | | | | | |
| 3 | 1 | — | — | — | — | — | — | — | — | — | 116.00 | ✓ | 130.23 | ✓ | 110.23 | ✓ | ✓ | 115.01 | 0738 | 5.44 | 0.70 | 21.19 | 51.8 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 89.61 | ✓ | 84.23 | ✓ | 84.24 | ✓ | ✓ | 89.97 | 0800 | 6.43 | 0.75 | 20.86 | 47.80 |
| 2 | 2 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 90.80 | ✓ | 104.02 | wrong port, adjust Arm in port | | | | | | | | | |
| 2 | 2 | — | — | — | — | — | — | — | — | ✓ | 90.80 | ✓ | wrong | — not in port | | | | | | | | | |
| 2 | 2 | — | — | — | — | — | — | — | — | ✓ | 87.82 | ✓ | | adjusting for port | | | | | | | | | |
| 2 | 2 | — | — | — | — | — | — | — | — | ✓ | 88.66 | ✓ | 90.80 | | adjusting for port | | | | | | | | |
| 2 | 2 | — | — | — | — | — | — | — | — | ✓ | 90.80 | ✓ | 84.73 | ✓ | 84.23 | ✓ | ✓ | 89.94 | 0840 | 6.23 | 4.80 | 21.44 | 47.20 |
| 1 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 53.23 | ✓ | 48.23 | ✓ | 48.27 | ✓ | ✓ | 53.24 | 0911 | 6.21 | 8.60 | 22.68 | 97.4 |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | @ 11.03 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |

3
2
1
10.07

**Notes:** Port 3: clear + odorless Port 2: clear + odorless
Port 1: 11 11

Total Volume: _____

GEOFON INCORPORATED

# Groundwater Sampling

Multi-Port Well Field Data Sheet

(13)

**JPL Pasadena**
Contract #: N68711-01-D-6008
Delivery Order #: 0001

Well ID: MW-12
Sampling Zone No.: 5/4/3/2/1
Depth (ft): 548/436/323/243/~~244~~140
Beginning of Session: 14.20
End of Session: 14.19
Start Time: 0948
Finish Time: 1200
Date: 8·11·03
Page: 1 of 1

Water Pressure Inside Casing: —

| Port # | Run # | Surface Function Checks: Shoe Out | Vacuum Check Valve Closed | Valve Open | Evacuate Container | Valve Closed | Shoe in | Arm In | Position Sampler: Deactivate Set Arm Locate Port | Arm out | Sample Collection Checks: Pressure in MP | Shoe Out | Zone Pressure | Open Valve | Zone Pressure | Close Valve | Shoe In | Pressure in MP | Water Quality Parameters: Time | PH | Turb. (NTU) | Temp. (oC) | Cond (mmhos) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | — | ✓ | 203.72 | ✓ | 204.02 | ✓ | 204.00 | ✓ | ✓ | 203.64 | 1003 | 6.72 | 6.00 | 24.09 | 43.10 | >5 |
| 4 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 154.73 | ✓ | 159.94 | ✓ | 159.85 | ✓ | ✓ | 155.34 | 1032 | 7.70 | 9.40 | 26.05 | 46.40 | >4 |
| 3 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 105.43 | ✓ | 111.38 | ✓ | 111.44 | ✓ | ✓ | 105.53 | 1059 | 7.64 | 0.60 | 24.31 | 39.20 | >3 |
| 2 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 70.53 | ✓ | 77.14 | ✓ | 77.18 | ✓ | ✓ | 70.65 | 1120 | 7.33 | ~~0.38~~ 1.38 | ~~24.35~~ 24.35 | ~~44.40~~ 44.40 | >2 |
| 1 | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | 26.09 | ✓ | 35.06 | ✓ | 35.04 | ✓ | ✓ | 26.13 | 1141 | 7.09 | 7.96 | 25.51 | 45.60 | >1 |
| | | | | | | | | | | | | | | | | | | | | | | | 4 | |
| | | | | | | | | | | | | | | | | | | | | | | | 10.03 | |
| | | | | | | | | | | | | | | | | | | | | | | | 1 | |

**Notes:**
Port 5: clear + odorless
Port 4: clear + odorless
Port 3: " "
Port 2: " "
Port 1: " "

Total Volume: _____