**APPENDIX E**

**PURGE LOGS**

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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 1** Date: **04-26-05** | Project No.: G4860111-T3 | Page 1 of 9 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Equipment: | | Personnel: | |
| HORIBA U 10 ☐ | HORIBA U22 ■ | D. Conner | |
| S/N: | S/N: | | |
| FID/PHOTO VAC ☐ | ORION 290A ☐ | EXPOSURE MONITORING | WELL CONDITION |
| INTERFACE PROBE ☐ | OVA 128 ☐ | Background:_____NA____PPM | Good ■ |
| HORIBA ORP ☐ | WATER LEVEL ☐ | Reading:_____NA_____PPM | Fair ☐ |
| | | | Poor ☐ |
| Total Well Depth (ft bgs): **240'** | Screen Interval (ft bgs): **130'-140'** | | |
| Static Water Level: NA | Depth to Product: NA | Pump Type: Peristaltic ☐ | Submersible ■ |
| Water Column: NA | Product Layer: NA | ☐ | Bladder Pump ☐ |
| Well Casing Diameter: 4" | | Pump Rate: 5.65 gpm | |
| Borehole Diameter: NA | Multiplier: NA | Liquid Ring<br>Purge Start Time: 1600 HRS | |
| Low Flow Method ☐ | | Purge Stop Time: 1700 HRS | |
| Minimal Purge Sampling ☐ | | Total volume Purged: 339 Gal. | |
| Criteria used to stop development: Dry Well ☐ | | Parameter Stabilization ■ | |

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 1615 | NA | NA | 7.51 | 0.853 | NA | 2.41 | 21.58 | NA | NA | Transcribed from field notes. |
| 1645 | NA | NA | 7.50 | 0.873 | NA | 2.93 | 20.35 | NA | 59 | |
| 1700 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Stop pump. |
| | | | | | | | | | | |
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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 1** Date: **04-27-05** | Project No.: G486111-T3 | Page 2 of 9 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Equipment: | | Personnel: | |
| HORIBA U 10 ☐ | HORIBA U22 ■ | D. Conner | |
| S/N: | S/N: | | |
| FID/PHOTO VAC ☐ | ORION 290A ☐ | EXPOSURE MONITORING | WELL CONDITION |
| INTERFACE PROBE ☐ | OVA 128 ☐ | Background:_____NA____PPM | Good ■ |
| HORIBA ORP ☐ | WATER LEVEL ☐ | Reading:_____NA_____PPM | Fair ☐ |
| | | | Poor ☐ |
| Total Well Depth (ft bgs): **240'** | Screen Interval (ft bgs): **130'-140'** | | |
| Static Water Level: NA | Depth to Product: NA | Pump Type: Peristaltic ☐ | Submersible ■ |
| Water Column: NA | Product Layer: NA | ☐ | Bladder Pump ☐ |
| Well Casing Diameter: 4" | | Pump Rate: 5.65 gpm | |
| Borehole Diameter: | Multiplier: | Liquid Ring Purge Start Time: 0758 HRS | |
| Low Flow Method ☐ | | Purge Stop Time: 1700 HRS | |
| Minimal Purge Sampling ☐ | | Total volume Purged: 2,723 Gal. | |
| Criteria used to stop development: Dry Well ☐ | | Parameter Stabilization ■ | |

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 0900 | NA | NA | 7.62 | 0.819 | NA | 2.27 | 21.07 | NA | 138 | |
| 0930 | NA | NA | 7.43 | 0.839 | 40.3 | 1.60 | 20.58 | NA | 101 | |
| 1000 | NA | NA | 7.58 | 0.844 | 693 | 5.89 | 20.12 | NA | 90 | First reading after zone surged. |
| 1030 | NA | NA | 7.49 | 0.851 | 182 | 3.06 | 20.71 | NA | 108 | |
| 1100 | NA | NA | 7.51 | 0.832 | 7.7 | 3.53 | 20.64 | NA | 112 | |
| 1130 | NA | NA | 7.49 | 0.848 | 3.14 | 3.68 | 20.51 | NA | 107 | |
| 1130 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Stop pump. |
| 1230 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Resume pumping. |

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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 1** Date: **04-27-05** | Project No.: G486111-T3 | Page 3 of 9 |
|---|---|---|---|

Equipment:

HORIBA U 10 ☐ HORIBA U22 ■

S/N: S/N:

FID/PHOTO VAC ☐ ORION 290A ☐

INTERFACE PROBE ☐ OVA 128 ☐

HORIBA ORP ☐ WATER LEVEL ☐

Personnel:

D. Conner

EXPOSURE MONITORING

Background:_____NA____PPM

Reading:_____NA_____PPM

WELL CONDITION

Good ■

Fair ☐

Poor ☐

| | | | |
|---|---|---|---|
| Total Well Depth (ft bgs): | **240'** | Screen Interval (ft bgs): | **130'-140'** |
| Static Water Level: | NA | Depth to Product: | NA |
| Water Column: | NA | Product Layer: | NA |
| Well Casing Diameter: | 4" | | |
| Borehole Diameter: | | Multiplier: | |

Pump Type: Peristaltic ☐ Submersible ■

☐ Bladder Pump ☐

Pump Rate: 5.65 gpm

Liquid Ring

Purge Start Time: 0758 HRS

Purge Stop Time: 1700 HRS

Total volume Purged: 2,723 Gal.

Low Flow Method ☐

Minimal Purge Sampling ☐

Criteria used to stop development: Dry Well ☐ Parameter Stabilization ■

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. °C) ( +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1300 | NA | NA | 7.54 | 0.847 | 55.2 | 4.08 | 20.92 | NA | 123 | Comments |
| 1330 | NA | NA | 7.49 | 0.849 | 5.66 | 5.41 | 20.09 | NA | 94 | |
| 1400 | NA | NA | 7.46 | 0.856 | 69.2 | 3.46 | 20.92 | NA | 106 | First reading after zone surged. |
| 1430 | NA | NA | 7.50 | 0.850 | 8.8 | 3.31 | 20.83 | NA | 105 | |
| 1500 | NA | NA | 7.44 | 0.852 | 3.08 | 3.40 | 20.49 | NA | 97 | |
| 1530 | NA | NA | 7.41 | 0.851 | 9.60 | 1.92 | 20.16 | NA | 95 | First reading after zone surged. |
| 1530 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1540 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |

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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 1** Date: **04-27-05** | Project No.: G486111-T3 | Page 4 of 9 |
|---|---|---|---|

Equipment:

HORIBA U 10 ☐ HORIBA U22 ■

S/N: S/N:

FID/PHOTO VAC ☐ ORION 290A ☐

INTERFACE PROBE ☐ OVA 128 ☐

HORIBA ORP ☐ WATER LEVEL ☐

Personnel:

D. Conner

EXPOSURE MONITORING

Background:_____NA____PPM

Reading:_____NA_____PPM

WELL CONDITION

Good ■

Fair ☐

Poor ☐

| | | | |
|---|---|---|---|
| Total Well Depth (ft bgs): | **240'** | Screen Interval (ft bgs): | **130'-140'** |
| Static Water Level: | NA | Depth to Product: | NA |
| Water Column: | NA | Product Layer: | NA |
| Well Casing Diameter: | 4" | | |
| Borehole Diameter: | | Multiplier: | |

Pump Type: Peristaltic ☐ Submersible ■

☐ Bladder Pump ☐

Pump Rate: 5.65 gpm

Liquid Ring

Purge Start Time: 0758 HRS

Purge Stop Time: 1700 HRS

Total volume Purged: 2,723 Gal.

Low Flow Method ☐

Minimal Purge Sampling ☐

Criteria used to stop development: Dry Well ☐ Parameter Stabilization ■

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 1550 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1600 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1605 | NA | NA | 7.38 | 0.850 | 233 | 2.10 | 20.18 | NA | 97 | First reading after zone surged. |
| 1630 | NA | NA | 7.36 | 0.852 | 63.2 | 1.87 | 20.08 | NA | 103 | |
| 1700 | NA | NA | 7.29 | 0.850 | 10.5 | 1.44 | 20.32 | NA | 97 | Stop pump. |
| | | | | | | | | | | |
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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 1** Date: **04-29-05** | Project No.: G486111-T3 | Page 5 of 9 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Equipment: | | Personnel: | |
| HORIBA U 10 ☐ | HORIBA U22 ■ | D. Conner | |
| S/N: | S/N: | | |
| FID/PHOTO VAC ☐ | ORION 290A ☐ | EXPOSURE MONITORING | WELL CONDITION |
| INTERFACE PROBE ☐ | OVA 128 ☐ | Background:_____NA____PPM | Good ■ |
| HORIBA ORP ☐ | WATER LEVEL ☐ | Reading:_____NA_____PPM | Fair ☐ |
| | | | Poor ☐ |
| Total Well Depth (ft bgs): **240'** | Screen Interval (ft bgs): **130'-140'** | | |
| Static Water Level: NA | Depth to Product: NA | Pump Type: Peristaltic ☐ | Submersible ■ |
| Water Column: NA | Product Layer: NA | ☐ | Bladder Pump ☐ |
| Well Casing Diameter: 4" | | Pump Rate: 6 gpm | |
| Borehole Diameter: | Multiplier: | Liquid Ring Purge Start Time: 0930 HRS | |
| Low Flow Method ☐ | | Purge Stop Time: 1615 HRS | |
| Minimal Purge Sampling ☐ | | Total volume Purged: 2,220 Gal. | |
| Criteria used to stop development: Dry Well ☐ | | Parameter Stabilization ■ | |

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 0930 | NA | NA | 7.42 | 0.841 | 200 | 1.72 | 20.87 | NA | 106 | First reading after zone surged. |
| 1000 | NA | NA | 7.41 | 0.842 | 5.2 | 1.45 | 20.75 | NA | 111 | |
| 1030 | NA | NA | 7.40 | 0.841 | 140 | 1.92 | 20.09 | NA | 110 | First reading after zone surged. |
| 1100 | NA | NA | 7.37 | 0.843 | 130 | 2.04 | 20.11 | NA | 108 | |
| 1130 | NA | NA | 7.38 | 0.843 | 22.5 | 1.87 | 20.84 | NA | 98 | |
| 1130 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Stop pump. |
| 1205 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Restart pump. |
| 1330 | NA | NA | 7.40 | 0.847 | 26.7 | 1.79 | 21.32 | NA | 139 | |

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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 1** Date: **04-29-05** | Project No.: G486111-T3 | Page 6 of 9 |
|---|---|---|---|

Equipment:

HORIBA U 10 ☐ HORIBA U22 ■

S/N: S/N:

FID/PHOTO VAC ☐ ORION 290A ☐

INTERFACE PROBE ☐ OVA 128 ☐

HORIBA ORP ☐ WATER LEVEL ☐

Personnel:

D. Conner

EXPOSURE MONITORING

Background:_____NA____PPM

Reading:_____NA_____PPM

WELL CONDITION

Good ■

Fair ☐

Poor ☐

| | | | |
|---|---|---|---|
| Total Well Depth (ft bgs): | **240'** | Screen Interval (ft bgs): | **130'-140'** |
| Static Water Level: | NA | Depth to Product: | NA |
| Water Column: | NA | Product Layer: | NA |
| Well Casing Diameter: | 4" | | |
| Borehole Diameter: | | Multiplier: | |

Pump Type: Peristaltic ☐ Submersible ■

☐ Bladder Pump ☐

Pump Rate: 6 gpm

Liquid Ring

Purge Start Time: 0930 HRS

Purge Stop Time: 1615 HRS

Total volume Purged: 2,220 Gal.

Low Flow Method ☐

Minimal Purge Sampling ☐

Criteria used to stop development: Dry Well ☐ Parameter Stabilization ■

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 1400 | NA | NA | 7.35 | 0.848 | 31.8 | 1.89 | 20.88 | NA | 121 | First reading after zone surged. |
| 1430 | NA | NA | 7.35 | 0.850 | 54.7 | 2.19 | 20.30 | NA | 114 | |
| 1500 | NA | NA | 7.29 | 0.848 | 39.6 | 1.33 | 20.10 | NA | 110 | First reading after zone surged. |
| 1505 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Stop pump. |
| | | | | | | | | | | |
| | | | | | | | | | | |
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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 1** Date: **05-02-05** | Project No.: G486111-T3 | Page 7 of 9 |
|---|---|---|---|

Equipment:

HORIBA U 10 ☐ HORIBA U22 ■

S/N: S/N:

FID/PHOTO VAC ☐ ORION 290A ☐

INTERFACE PROBE ☐ OVA 128 ☐

HORIBA ORP ☐ WATER LEVEL ☐

Personnel:

D. Conner

EXPOSURE MONITORING

Background:_____NA____PPM

Reading:_____NA_____PPM

WELL CONDITION

Good ■

Fair ☐

Poor ☐

| | | | |
|---|---|---|---|
| Total Well Depth (ft bgs): | **240'** | Screen Interval (ft bgs): | **130'-140'** |
| Static Water Level: | NA | Depth to Product: | NA |
| Water Column: | NA | Product Layer: | NA |
| Well Casing Diameter: | 4" | | |
| Borehole Diameter: | | Multiplier: | |

Pump Type: Peristaltic ☐ Submersible ■

☐ Bladder Pump ☐

Pump Rate: 6 gpm

Liquid Ring

Purge Start Time: 0835 HRS

Purge Stop Time: 1615 HRS

Total volume Purged: 2,760 Gal.

Low Flow Method ☐

Minimal Purge Sampling ☐

Criteria used to stop development: Dry Well ☐ Parameter Stabilization ■

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0835 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Comments Restart pump. |
| 0900 | NA | NA | 7.69 | 0.791 | 9.68 | 1.32 | 20.68 | NA | 133 | |
| 0930 | NA | NA | 7.54 | 0.820 | 1.51 | 1.33 | 20.38 | NA | 56 | |
| 1000 | NA | NA | 7.51 | 0.828 | 12.0 | 1.17 | 20.33 | NA | 75 | First reading after zone surged. |
| 1030 | NA | NA | 7.48 | 0.831 | 2.55 | 1.13 | 20.34 | NA | 81 | |
| 1035 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1040 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1050 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |

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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 1** Date: **05-02-05** | Project No.: G486111-T3 | Page 8 of 9 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Equipment: | | Personnel: | |
| HORIBA U 10 ☐ | HORIBA U22 ■ | D. Conner | |
| S/N: | S/N: | | |
| FID/PHOTO VAC ☐ | ORION 290A ☐ | EXPOSURE MONITORING | WELL CONDITION |
| INTERFACE PROBE ☐ | OVA 128 ☐ | Background:_____NA____PPM | Good ■ |
| HORIBA ORP ☐ | WATER LEVEL ☐ | Reading:_____NA_____PPM | Fair ☐ |
| | | | Poor ☐ |
| Total Well Depth (ft bgs): **240'** | Screen Interval (ft bgs): **130'-140'** | | |
| Static Water Level: NA | Depth to Product: NA | Pump Type: Peristaltic ☐ | Submersible ■ |
| Water Column: NA | Product Layer: NA | ☐ | Bladder Pump ☐ |
| Well Casing Diameter: 4" | | Pump Rate: 6 gpm | |
| Borehole Diameter: | Multiplier: | Liquid Ring Purge Start Time: 0835 HRS | |
| Low Flow Method ☐ | | Purge Stop Time: 1615 HRS | |
| Minimal Purge Sampling ☐ | | Total volume Purged: 2,760 Gal. | |
| Criteria used to stop development: Dry Well ☐ | | Parameter Stabilization ■ | |

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 1100 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1105 | NA | NA | 7.53 | 0.828 | 116 | 1.24 | 20.96 | NA | 69 | First reading after zone surged. |
| 1130 | NA | NA | 7.45 | 0.840 | 5.40 | 1.33 | 20.91 | NA | 71 | |
| 1340 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1440 | NA | NA | 7.42 | 0.846 | 1.49 | 0.98 | 22.21 | NA | 135 | |
| 1500 | NA | NA | 7.42 | 0.845 | 7.87 | 1.15 | 21.53 | NA | 96 | |
| 1515 | NA | NA | 7.38 | 0.847 | 17.8 | 1.05 | 20.71 | NA | 98 | |
| 1530 | NA | NA | 7.37 | 0.847 | 7.8 | 1.02 | 20.63 | NA | 89 | |

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# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 1** Date: **05-02-05** | Project No.: G486111-T3 | Page 9 of 9 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Equipment: | | Personnel: | |
| HORIBA U 10 ☐ | HORIBA U22 ■ | D. Conner | |
| S/N: | S/N: | | |
| FID/PHOTO VAC ☐ | ORION 290A ☐ | EXPOSURE MONITORING | WELL CONDITION |
| INTERFACE PROBE ☐ | OVA 128 ☐ | Background:_____NA____PPM | Good ■ |
| HORIBA ORP ☐ | WATER LEVEL ☐ | Reading:_____NA_____PPM | Fair ☐ |
| | | | Poor ☐ |
| Total Well Depth (ft bgs): **240'** | Screen Interval (ft bgs): **130'-140'** | | |
| Static Water Level: NA | Depth to Product: NA | Pump Type: Peristaltic ☐ | Submersible ■ |
| Water Column: NA | Product Layer: NA | ☐ | Bladder Pump ☐ |
| Well Casing Diameter: 4" | | Pump Rate: 6 gpm | |
| Borehole Diameter: | Multiplier: | Liquid Ring Purge Start Time: 0835 HRS | |
| Low Flow Method ☐ | | Purge Stop Time: 1615 HRS | |
| Minimal Purge Sampling ☐ | | Total volume Purged: 2,760 Gal. | |
| Criteria used to stop development: Dry Well ☐ | | Parameter Stabilization ■ | |

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 1545 | NA | NA | 7.30 | 0.844 | 3.43 | 1.08 | 21.00 | NA | 94 | |
| 1600 | NA | NA | 7.31 | 0.845 | 1.07 | 1.08 | 20.30 | NA | 98 | |
| 1603 | NA | NA | 7.30 | 0.844 | 0.50 | 1.06 | 20.23 | NA | 102 | |
| 1606 | NA | NA | 7.29 | 0.846 | 0.80 | 0.98 | 20.27 | NA | 102 | |
| 1609 | NA | NA | 7.31 | 0.845 | 0.63 | 1.02 | 20.11 | NA | 101 | |
| 1612 | NA | NA | 7.30 | 0.845 | 0.68 | 1.00 | 20.14 | NA | 103 | |
| 1615 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Stop pump. |
| | | | | | | | | | | |

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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 2** Date: **04-28-05** | Project No.: G4860111-T3 | Page 1 of 5 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Equipment: | | Personnel: | |
| HORIBA U 10 ☐ | HORIBA U22 ■ | D. Conner | |
| S/N: | S/N: | | |
| FID/PHOTO VAC ☐ | ORION 290A ☐ | EXPOSURE MONITORING | WELL CONDITION |
| INTERFACE PROBE ☐ | OVA 128 ☐ | Background:_____NA____PPM | Good ■ |
| HORIBA ORP ☐ | WATER LEVEL ☐ | Reading:_____NA_____PPM | Fair ☐ |
| | | | Poor ☐ |
| Total Well Depth (ft bgs): **240'** | Screen Interval (ft bgs): **210'-220'** | | |
| Static Water Level: NA | Depth to Product: NA | Pump Type: Peristaltic ☐ | Submersible ■ |
| Water Column: NA | Product Layer: NA | ☐ | Bladder Pump ☐ |
| Well Casing Diameter: 4" | | Pump Rate: 6 gpm | |
| Borehole Diameter: NA | Multiplier: NA | Liquid Ring<br>Purge Start Time: 0930 HRS | |
| Low Flow Method ☐ | | Purge Stop Time: 1700 HRS | |
| Minimal Purge Sampling ☐ | | Total volume Purged: 2,520 Gal. | |
| Criteria used to stop development: Dry Well ☐ | | Parameter Stabilization ■ | |

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 0930 | NA | NA | 7.51 | 0.825 | 28.7 | 2.03 | 20.56 | NA | 149 | Transcribed from field notes. |
| 1000 | NA | NA | 7.45 | 0.706 | 30.6 | 1.70 | 19.98 | NA | 52 | First reading after zone surged. |
| 1030 | NA | NA | 7.41 | 0.839 | 20.8 | 1.50 | 19.90 | NA | 48 | First reading after zone surged. |
| 1100 | NA | NA | 7.41 | 0.841 | 3.99 | 1.40 | 19.81 | NA | 53 | |
| 1130 | NA | NA | 7.38 | 0.847 | 230 | 1.18 | 19.82 | NA | 36 | First reading after zone surged. |
| 1200 | NA | NA | 7.37 | 0.844 | 2.43 | 0.94 | 19.74 | NA | 15 | |
| 1230 | NA | NA | 7.36 | 0.846 | 2.12 | 1.10 | 19.83 | NA | 9 | |
| 1300 | NA | NA | 7.34 | 0.849 | 35.2 | 1.08 | 19.96 | NA | 15 | First reading after zone surged. |

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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 2** Date: **04-28-05** | Project No.: G4860111-T3 | Page 2 of 5 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Equipment: | | Personnel: | |
| HORIBA U 10 ☐ | HORIBA U22 ■ | D. Conner | |
| S/N: | S/N: | | |
| FID/PHOTO VAC ☐ | ORION 290A ☐ | EXPOSURE MONITORING | WELL CONDITION |
| INTERFACE PROBE ☐ | OVA 128 ☐ | Background:_____NA____PPM | Good ■ |
| HORIBA ORP ☐ | WATER LEVEL ☐ | Reading:_____NA_____PPM | Fair ☐ |
| | | | Poor ☐ |
| Total Well Depth (ft bgs): **240'** | Screen Interval (ft bgs): **210'-220'** | | |
| Static Water Level: NA | Depth to Product: NA | Pump Type: Peristaltic ☐ | Submersible ■ |
| Water Column: NA | Product Layer: NA | ☐ | Bladder Pump ☐ |
| Well Casing Diameter: 4" | | Pump Rate: 6 gpm | |
| Borehole Diameter: NA | Multiplier: NA | Liquid Ring<br>Purge Start Time: 0930 HRS | |
| Low Flow Method ☐ | | Purge Stop Time: 1700 HRS | |
| Minimal Purge Sampling ☐ | | Total volume Purged: 2,520 Gal. | |
| Criteria used to stop development: Dry Well ☐ | | Parameter Stabilization ■ | |

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 1300 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Stop pump. |
| 1330 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Resume pumping. |
| 1400 | NA | NA | 7.37 | 0.852 | 2.30 | 0.96 | 20.25 | NA | 7 | |
| 1405 | NA | NA | -- | -- | 707 | -- | -- | -- | -- | First reading after zone surged. |
| 1430 | NA | NA | 7.32 | 0.849 | 3.57 | 1.03 | 20.66 | NA | -23 | |
| 1500 | NA | NA | 7.38 | 0.849 | 0.96 | 1.05 | 21.03 | NA | -5 | |
| 1505 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1520 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |

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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 2** Date: **04-28-05** | Project No.: G4860111-T3 | Page 3 of 5 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Equipment: | | Personnel: | |
| HORIBA U 10 ☐ | HORIBA U22 ■ | D. Conner | |
| S/N: | S/N: | | |
| FID/PHOTO VAC ☐ | ORION 290A ☐ | EXPOSURE MONITORING | WELL CONDITION |
| INTERFACE PROBE ☐ | OVA 128 ☐ | Background:_____NA____PPM | Good ■ |
| HORIBA ORP ☐ | WATER LEVEL ☐ | Reading:_____NA_____PPM | Fair ☐ |
| | | | Poor ☐ |
| Total Well Depth (ft bgs): **240'** | Screen Interval (ft bgs): **210'-220'** | | |
| Static Water Level: NA | Depth to Product: NA | Pump Type: Peristaltic ☐ | Submersible ■ |
| Water Column: NA | Product Layer: NA | ☐ | Bladder Pump ☐ |
| Well Casing Diameter: 4" | | Pump Rate: 6 gpm | |
| Borehole Diameter: NA | Multiplier: NA | Liquid Ring<br>Purge Start Time: 0930 HRS | |
| Low Flow Method ☐ | | Purge Stop Time: 1700 HRS | |
| Minimal Purge Sampling ☐ | | Total volume Purged: 2,520 Gal. | |
| Criteria used to stop development: Dry Well ☐ | | Parameter Stabilization ■ | |

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 1530 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1535 | NA | NA | 7.50 | 0.842 | 738 | 2.41 | 21.29 | NA | 17 | First reading after zone surged. |
| 1540 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1550 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1600 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1605 | NA | NA | 7.44 | 0.843 | 288 | 2.26 | 21.50 | NA | 31 | First reading after zone surged. |
| 1620 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 1630 | NA | NA | 7.45 | 0.849 | 6.7 | 2.34 | 20.80 | NA | 41 | First reading after zone surged. |

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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 2** Date: **04-28-05** | Project No.: G4860111-T3 | Page 4 of 5 |
|---|---|---|---|

Equipment:

HORIBA U 10 ☐ HORIBA U22 ■

S/N: S/N:

FID/PHOTO VAC ☐ ORION 290A ☐

INTERFACE PROBE ☐ OVA 128 ☐

HORIBA ORP ☐ WATER LEVEL ☐

Personnel:

D. Conner

EXPOSURE MONITORING

Background:_____NA____PPM

Reading:_____NA_____PPM

WELL CONDITION

Good ■

Fair ☐

Poor ☐

| | | | |
|---|---|---|---|
| Total Well Depth (ft bgs): | **240'** | Screen Interval (ft bgs): | **210'-220'** |
| Static Water Level: | NA | Depth to Product: | NA |
| Water Column: | NA | Product Layer: | NA |
| Well Casing Diameter: | 4" | | |
| Borehole Diameter: | NA | Multiplier: | NA |

Pump Type: Peristaltic ☐ Submersible ■

☐ Bladder Pump ☐

Pump Rate: 6 gpm

Liquid Ring

Purge Start Time: 0930 HRS

Purge Stop Time: 1700 HRS

Total volume Purged: 2,520 Gal.

Low Flow Method ☐

Minimal Purge Sampling ☐

Criteria used to stop development: Dry Well ☐ Parameter Stabilization ■

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1700 | NA | NA | 7.37 | 0.850 | 2.39 | 2.59 | 20.54 | NA | 47 | Comments |
| 1700 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Stop pump. |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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# Jet Propulsion Laboratory

# Well Development Log

| Location: **JPL** | Well No.: **MW-26 Screen 2** Date: **04-29-05** | Project No.: G4860111-T3 | Page 5 of 5 |
|---|---|---|---|

Equipment:

HORIBA U 10 ☐ HORIBA U22 ■

S/N: S/N:

FID/PHOTO VAC ☐ ORION 290A ☐

INTERFACE PROBE ☐ OVA 128 ☐

HORIBA ORP ☐ WATER LEVEL ☐

Personnel:

D. Conner

EXPOSURE MONITORING

Background:_____NA____PPM

Reading:_____NA_____PPM

WELL CONDITION

Good ■

Fair ☐

Poor ☐

| | | | |
|---|---|---|---|
| Total Well Depth (ft bgs): | **240'** | Screen Interval (ft bgs): | **210'-220'** |
| Static Water Level: | NA | Depth to Product: | NA |
| Water Column: | NA | Product Layer: | NA |
| Well Casing Diameter: | 4" | | |
| Borehole Diameter: | NA | Multiplier: | NA |

Pump Type: Peristaltic ☐ Submersible ■

☐ Bladder Pump ☐

Pump Rate: 6 gpm

Liquid Ring

Purge Start Time: 0705 HRS

Purge Stop Time: 0842 HRS

Total volume Purged: 582 Gal.

Low Flow Method ☐

Minimal Purge Sampling ☐

Criteria used to stop development: Dry Well ☐ Parameter Stabilization ■

| Time | Water Depth (btoc) | Volume Recovered (gal) | PH (units) +/- 0.2 | Conductivity (mS/cm) +/- 5% | Turbidity (NTU) +/- 10% | Dissolved Oxygen (mg/l) +/- 0.2 | Temp. (°C) +/- 3% | Salinity (%) - | ORP (mV) +/- 20 | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| 0710 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 0745 | -- | -- | -- | -- | -- | -- | -- | -- | -- | Surge zone. |
| 0800 | NA | NA | 7.55 | 0.821 | 8.70 | 2.21 | 20.12 | NA | 174 | First reading after zone surged. |
| 0830 | NA | NA | 7.50 | 0.828 | 0.98 | 2.24 | 20.48 | NA | 103 | |
| 0833 | NA | NA | 7.44 | 0.830 | 0.76 | 1.70 | 20.06 | NA | 102 | |
| 0836 | NA | NA | 7.45 | 0.830 | 0.66 | 1.88 | 20.34 | NA | 101 | |
| 0839 | NA | NA | 7.46 | 0.830 | 0.58 | 1.89 | 20.34 | NA | 100 | |
| 0842 | NA | NA | 7.44 | 0.831 | 0.52 | 1.89 | 20.26 | NA | 94 | |