



WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

- Deepening Re-perf. Conv. to ENHR Conv. to SWD
- Conv. to GSW
- Plug Back: _____ Plug Back Total Depth _____
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

Spud Date or Recompletion Date Date Reached TD Completion Date or Recompletion Date

API No. 15 - _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite: _____

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Letter of Confidentiality Received
Date: _____
- Confidential Release Date: _____
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____



1048927

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

| | |
|---|---|
| Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Submitted Electronically <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(If no, Submit Copy)</i> List All E. Logs Run: | <input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum |
|---|---|

| CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used | | | | | | | |
|---|-------------------|---------------------------|-------------------|---------------|----------------|--------------|----------------------------|
| Report all strings set-conductor, surface, intermediate, production, etc. | | | | | | | |
| Purpose of String | Size Hole Drilled | Size Casing Set (In O.D.) | Weight Lbs. / Ft. | Setting Depth | Type of Cement | # Sacks Used | Type and Percent Additives |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| ADDITIONAL CEMENTING / SQUEEZE RECORD | | | | |
|--|------------------|----------------|--------------|----------------------------|
| Purpose: | Depth Top Bottom | Type of Cement | # Sacks Used | Type and Percent Additives |
| _____ Perforate _____ Protect Casing _____ Plug Back TD _____ Plug Off Zone | | | | |
| | | | | |

| Shots Per Foot | PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated | Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i> | Depth |
|----------------|---|--|-------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

Date of First, Resumed Production, SWD or ENHR. _____ Producing Method: Flowing Pumping Gas Lift Other *(Explain)* _____

| | | | | | |
|-----------------------------------|-----------|---------|-------------|---------------|---------|
| Estimated Production Per 24 Hours | Oil Bbls. | Gas Mcf | Water Bbls. | Gas-Oil Ratio | Gravity |
|-----------------------------------|-----------|---------|-------------|---------------|---------|

| | | |
|---|--|--|
| DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i> | METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <input type="checkbox"/> Other <i>(Specify)</i> _____ | PRODUCTION INTERVAL: _____ _____ |
|---|--|--|



Scientific Drilling

Orca Operating Company

McPherson County Kansas

Section 36-19S-1W

Alfred 1-36H

Sump Hole

Survey: Survey #1 MWD

Survey Completion Report

13 October, 2010



Scientific Drilling

| | |
|---|---|
| Company: Orca Operating Company | Local Co-ordinate Reference: Well Alfred 1-36H |
| Project: McPherson County Kansas | TVD Reference: 1-36H @ 1582.0usft |
| Site: Section 36-19S-1W | MD Reference: 1-36H @ 1582.0usft |
| Well: Alfred 1-36H | North Reference: True |
| Wellbore: Sump Hole | Survey Calculation Method: Minimum Curvature |
| Design: Sump Hole | Database: EDMOKC |

| | | | |
|--|-------------------------------------|--|--|
| Project McPherson County Kansas, McPherson County, South Central Kansas | | | |
| Map System: US State Plane 1983 | System Datum: Mean Sea Level | | |
| Geo Datum: North American Datum 1983 | | | |
| Map Zone: Kansas Southern Zone | | | |

| | | | |
|---------------------------------------|------------------------------------|--------------------------|------------------|
| Site Section 36-19S-1W | | | |
| Site Position: | Northing: 1,931,663.88 usft | Latitude: | 38° 21' 44.339 N |
| From: Lat/Long | Easting: 1,630,558.55 usft | Longitude: | 97° 23' 24.477 W |
| Position Uncertainty: 0.0 usft | Slot Radius: 0" | Grid Convergence: | 0.68 ° |

| | | | |
|---------------------------------------|-----------------------|---|------------------------------------|
| Well Alfred 1-36H, Mississippi | | | |
| Well Position | +N/-S 0.0 usft | Northing: 1,931,663.88 usft | Latitude: 38° 21' 44.339 N |
| | +E/-W 0.0 usft | Easting: 1,630,558.55 usft | Longitude: 97° 23' 24.477 W |
| Position Uncertainty | 0.0 usft | Wellhead Elevation: 1,582.0 usft | Ground Level: 1,566.0 usft |

| Wellbore Sump Hole | | | | | |
|---------------------------|------------|-------------|-----------------|---------------|---------------------|
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 04/07/10 | 4.45 | 66.47 | 52,823 |

| Design Sump Hole | | | | |
|-------------------------|-------------------------|--------------------------|--------------|---------------|
| Audit Notes: | | | | |
| Version: 1.0 | Phase: ACTUAL | Tie On Depth: 0.0 | | |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
| | 0.0 | 0.0 | 0.0 | 155.00 |

| Survey Program | | Date 10/02/10 |
|-----------------------|----------------|---------------------------|
| From (usft) | To (usft) | Survey (Wellbore) |
| 496.0 | 3,530.0 | Survey #1 MWD (Sump Hole) |
| Tool Name | Description | |
| MWD | MWD - Standard | |

| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) |
|-----------|---------|-------------------|------------|------------|------------|---------------|------------------|
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 |
| 496.0 | 1.36 | 114.80 | 496.0 | -2.5 | 5.3 | 4.5 | 0.27 |
| 752.0 | 1.00 | 112.61 | 751.9 | -4.6 | 10.2 | 8.5 | 0.14 |
| 1,007.0 | 0.47 | 113.99 | 1,006.9 | -5.9 | 13.2 | 10.9 | 0.21 |
| 1,263.0 | 0.57 | 123.91 | 1,262.9 | -7.0 | 15.2 | 12.8 | 0.05 |
| 1,519.0 | 0.17 | 137.87 | 1,518.9 | -8.0 | 16.5 | 14.2 | 0.16 |
| 1,769.0 | 0.24 | 333.51 | 1,768.9 | -7.8 | 16.5 | 14.1 | 0.16 |
| 1,871.0 | 0.18 | 183.48 | 1,870.9 | -7.8 | 16.4 | 14.0 | 0.40 |
| 1,901.0 | 0.38 | 143.93 | 1,900.9 | -7.9 | 16.5 | 14.1 | 0.89 |
| 1,930.0 | 0.50 | 171.82 | 1,929.9 | -8.1 | 16.5 | 14.3 | 0.83 |
| 1,959.0 | 1.20 | 154.35 | 1,958.9 | -8.5 | 16.7 | 14.8 | 2.55 |
| 1,989.0 | 3.04 | 167.03 | 1,988.8 | -9.6 | 17.0 | 15.9 | 6.29 |

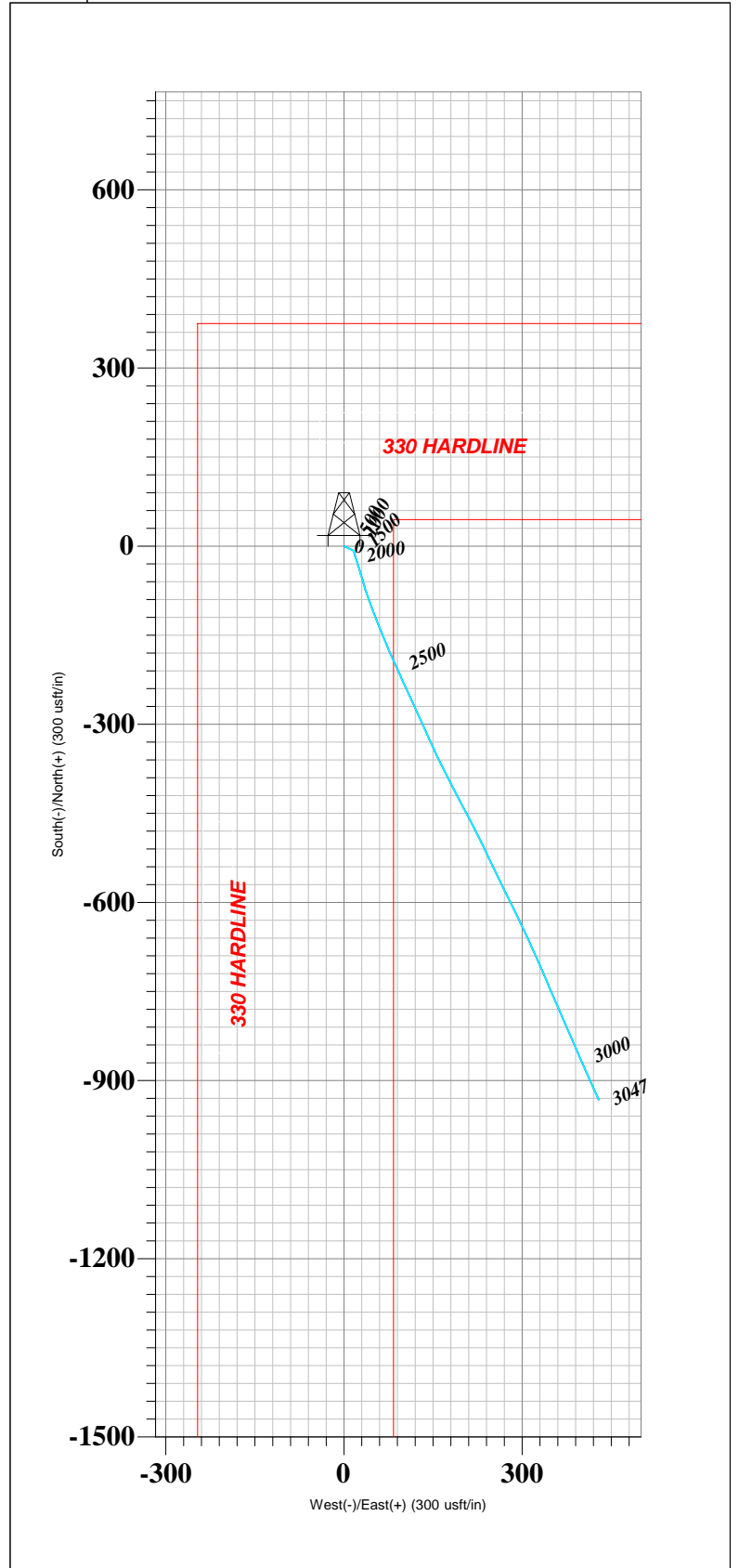
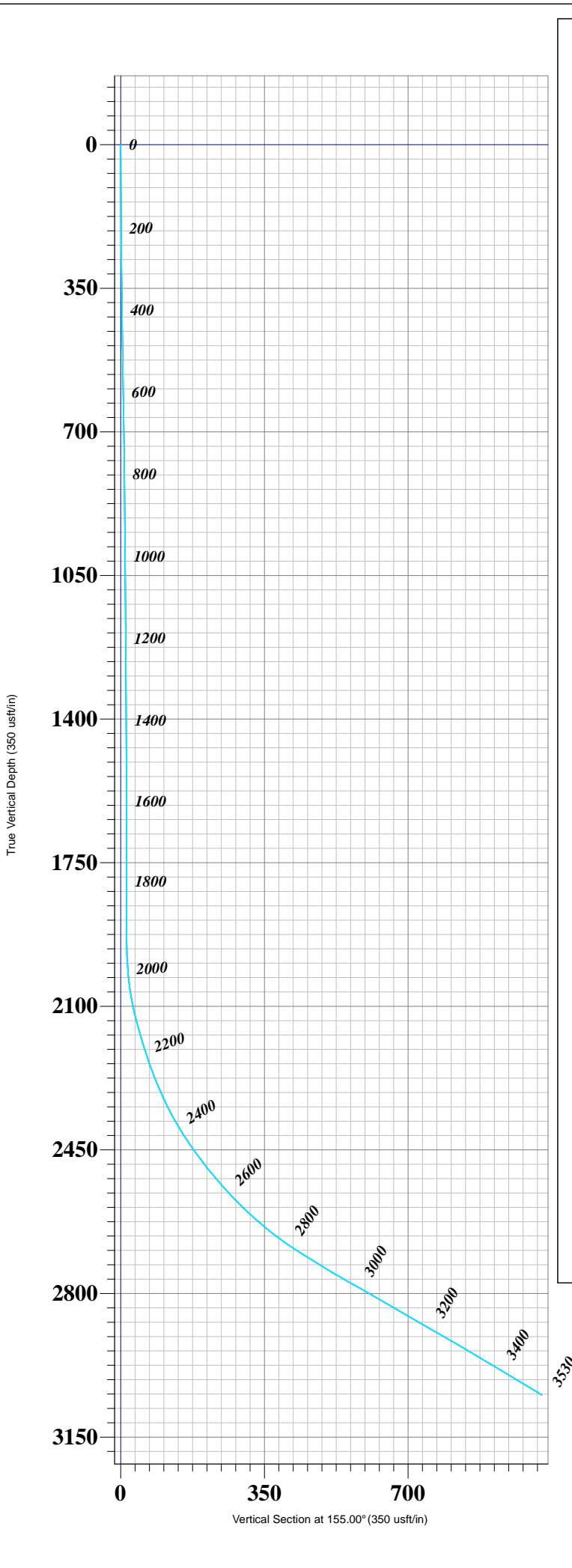
| | | | |
|------------------|-------------------------|-------------------------------------|--------------------|
| Company: | Orca Operating Company | Local Co-ordinate Reference: | Well Alfred 1-36H |
| Project: | McPherson County Kansas | TVD Reference: | 1-36H @ 1582.0usft |
| Site: | Section 36-19S-1W | MD Reference: | 1-36H @ 1582.0usft |
| Well: | Alfred 1-36H | North Reference: | True |
| Wellbore: | Sump Hole | Survey Calculation Method: | Minimum Curvature |
| Design: | Sump Hole | Database: | EDMOKC |

| Survey | | | | | | | | |
|--------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|--|
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | |
| 2,019.0 | 5.15 | 167.68 | 2,018.8 | -11.7 | 17.5 | 18.0 | 7.03 | |
| 2,049.0 | 7.40 | 165.65 | 2,048.6 | -14.9 | 18.2 | 21.2 | 7.54 | |
| 2,079.0 | 10.30 | 161.79 | 2,078.2 | -19.3 | 19.6 | 25.7 | 9.86 | |
| 2,108.0 | 12.57 | 160.50 | 2,106.6 | -24.7 | 21.4 | 31.4 | 7.88 | |
| 2,139.0 | 14.64 | 162.54 | 2,136.8 | -31.6 | 23.7 | 38.7 | 6.85 | |
| 2,170.0 | 16.31 | 163.77 | 2,166.6 | -39.5 | 26.1 | 46.9 | 5.49 | |
| 2,197.0 | 17.18 | 162.62 | 2,192.5 | -47.0 | 28.4 | 54.6 | 3.45 | |
| 2,228.0 | 18.77 | 163.68 | 2,222.0 | -56.1 | 31.1 | 64.0 | 5.24 | |
| 2,258.0 | 19.99 | 164.98 | 2,250.3 | -65.7 | 33.8 | 73.9 | 4.31 | |
| 2,289.0 | 21.94 | 160.65 | 2,279.2 | -76.3 | 37.1 | 84.9 | 8.03 | |
| 2,320.0 | 24.23 | 160.54 | 2,307.7 | -87.8 | 41.1 | 96.9 | 7.39 | |
| 2,351.0 | 25.72 | 160.13 | 2,335.8 | -100.1 | 45.6 | 110.0 | 4.84 | |
| 2,381.0 | 27.83 | 159.04 | 2,362.6 | -112.8 | 50.3 | 123.4 | 7.22 | |
| 2,410.0 | 30.36 | 157.86 | 2,388.0 | -125.9 | 55.5 | 137.5 | 8.95 | |
| 2,441.0 | 32.91 | 158.56 | 2,414.4 | -141.0 | 61.5 | 153.8 | 8.31 | |
| 2,471.0 | 34.84 | 157.39 | 2,439.3 | -156.5 | 67.8 | 170.5 | 6.79 | |
| 2,503.0 | 36.76 | 156.30 | 2,465.2 | -173.7 | 75.1 | 189.2 | 6.32 | |
| 2,533.0 | 37.84 | 155.73 | 2,489.1 | -190.3 | 82.5 | 207.3 | 3.78 | |
| 2,564.0 | 39.77 | 156.12 | 2,513.2 | -208.0 | 90.4 | 226.8 | 6.28 | |
| 2,595.0 | 41.93 | 155.30 | 2,536.7 | -226.5 | 98.8 | 247.0 | 7.18 | |
| 2,624.0 | 42.61 | 155.44 | 2,558.1 | -244.2 | 106.9 | 266.5 | 2.37 | |
| 2,655.0 | 45.01 | 155.51 | 2,580.5 | -263.8 | 115.8 | 288.0 | 7.74 | |
| 2,686.0 | 47.28 | 155.47 | 2,602.0 | -284.1 | 125.1 | 310.4 | 7.32 | |
| 2,715.0 | 48.65 | 155.27 | 2,621.4 | -303.7 | 134.1 | 331.9 | 4.75 | |
| 2,746.0 | 50.41 | 155.85 | 2,641.5 | -325.2 | 143.8 | 355.5 | 5.85 | |
| 2,773.0 | 52.57 | 155.39 | 2,658.3 | -344.4 | 152.5 | 376.6 | 8.11 | |
| 2,802.0 | 54.76 | 153.40 | 2,675.5 | -365.5 | 162.6 | 400.0 | 9.36 | |
| 2,833.0 | 57.07 | 152.85 | 2,692.9 | -388.4 | 174.3 | 425.6 | 7.60 | |
| 2,863.0 | 58.32 | 152.53 | 2,708.9 | -410.9 | 185.9 | 450.9 | 4.26 | |
| 2,895.0 | 58.07 | 152.34 | 2,725.8 | -435.0 | 198.5 | 478.1 | 0.93 | |
| 2,926.0 | 58.61 | 152.37 | 2,742.1 | -458.4 | 210.7 | 504.5 | 1.74 | |
| 2,958.0 | 60.14 | 153.19 | 2,758.4 | -482.9 | 223.3 | 532.0 | 5.27 | |
| 2,988.0 | 60.54 | 154.27 | 2,773.2 | -506.2 | 234.8 | 558.0 | 3.40 | |
| 3,019.0 | 60.42 | 154.34 | 2,788.5 | -530.5 | 246.5 | 585.0 | 0.43 | |
| 3,050.0 | 60.20 | 154.04 | 2,803.8 | -554.8 | 258.3 | 611.9 | 1.10 | |
| 3,082.0 | 60.04 | 153.84 | 2,819.8 | -579.7 | 270.5 | 639.7 | 0.74 | |
| 3,112.0 | 59.97 | 153.59 | 2,834.8 | -603.0 | 282.0 | 665.7 | 0.76 | |
| 3,143.0 | 59.68 | 154.48 | 2,850.4 | -627.1 | 293.7 | 692.5 | 2.65 | |
| 3,174.0 | 59.93 | 154.56 | 2,866.0 | -651.3 | 305.2 | 719.3 | 0.84 | |
| 3,203.0 | 60.03 | 155.87 | 2,880.5 | -674.1 | 315.7 | 744.4 | 3.93 | |
| 3,233.0 | 60.49 | 156.02 | 2,895.3 | -697.9 | 326.4 | 770.4 | 1.59 | |
| 3,264.0 | 60.23 | 156.95 | 2,910.7 | -722.6 | 337.1 | 797.3 | 2.74 | |
| 3,293.0 | 59.35 | 156.68 | 2,925.3 | -745.6 | 347.0 | 822.4 | 3.14 | |
| 3,323.0 | 59.27 | 156.55 | 2,940.6 | -769.3 | 357.2 | 848.2 | 0.46 | |

| | |
|---|---|
| Company: Orca Operating Company | Local Co-ordinate Reference: Well Alfred 1-36H |
| Project: McPherson County Kansas | TVD Reference: 1-36H @ 1582.0usft |
| Site: Section 36-19S-1W | MD Reference: 1-36H @ 1582.0usft |
| Well: Alfred 1-36H | North Reference: True |
| Wellbore: Sump Hole | Survey Calculation Method: Minimum Curvature |
| Design: Sump Hole | Database: EDMOKC |

| Survey | | | | | | | | |
|--------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|--|
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | |
| 3,354.0 | 59.26 | 156.48 | 2,956.4 | -793.7 | 367.8 | 874.8 | 0.20 | |
| 3,386.0 | 59.00 | 156.34 | 2,972.8 | -818.9 | 378.8 | 902.3 | 0.90 | |
| 3,418.0 | 59.02 | 156.34 | 2,989.3 | -844.0 | 389.8 | 929.7 | 0.06 | |
| 3,450.0 | 58.91 | 156.07 | 3,005.8 | -869.1 | 400.9 | 957.1 | 0.80 | |
| 3,482.0 | 59.20 | 156.20 | 3,022.3 | -894.2 | 412.0 | 984.6 | 0.97 | |
| 3,530.0 | 59.20 | 156.20 | 3,046.8 | -931.9 | 428.6 | 1,025.8 | 0.00 | |

| | | |
|-------------------|--------------------|-------------|
| Checked By: _____ | Approved By: _____ | Date: _____ |
|-------------------|--------------------|-------------|



Vertical Section Azimuth
155.00

Survey: Survey #1 MWD (Alfred 1-36H/Sump Hole)
 Created By: Genie Lightfoot Date: 9:50, October 13 2010

WELL DETAILS: Alfred 1-36H

| Ground Level: | | 1566.0 | | | | | |
|---------------|-------|-------------|------------|-------------------|-------------------|------|--|
| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Slot | |
| 0.0 | 0.0 | 19319603.88 | 1630538.55 | 38° 21' 44.339" N | 97° 23' 24.477" W | | |

Sump Hole
 Bottom Hole From Surface
 3046.8' TVD 931.9' S & 428.6' E
 3530.0' MD 1025.8' VS @ 155.00 Az.



Scientific Drilling

Orca Operating Company

McPherson County Kansas

Section 36-19S-1W

Alfred 1-36H

Lateral #1

Design: Lateral #1

Survey Completion Report

18 October, 2010



Scientific Drilling

| | |
|---|---|
| Company: Orca Operating Company | Local Co-ordinate Reference: Well Alfred 1-36H |
| Project: McPherson County Kansas | TVD Reference: 1-36H @ 1582.0usft |
| Site: Section 36-19S-1W | MD Reference: 1-36H @ 1582.0usft |
| Well: Alfred 1-36H | North Reference: True |
| Wellbore: Lateral #1 | Survey Calculation Method: Minimum Curvature |
| Design: Lateral #1 | Database: EDMOKC |

| | | | |
|--|-------------------------------------|--|--|
| Project McPherson County Kansas, McPherson County, South Central Kansas | | | |
| Map System: US State Plane 1983 | System Datum: Mean Sea Level | | |
| Geo Datum: North American Datum 1983 | | | |
| Map Zone: Kansas Southern Zone | | | |

| | | | |
|---------------------------------------|------------------------------------|--------------------------|------------------|
| Site Section 36-19S-1W | | | |
| Site Position: | Northing: 1,931,663.88 usft | Latitude: | 38° 21' 44.339 N |
| From: Lat/Long | Easting: 1,630,558.55 usft | Longitude: | 97° 23' 24.477 W |
| Position Uncertainty: 0.0 usft | Slot Radius: 0" | Grid Convergence: | 0.68 ° |

| | | | |
|---------------------------------------|-----------------------|---|------------------------------------|
| Well Alfred 1-36H, Mississippi | | | |
| Well Position | +N/-S 0.0 usft | Northing: 1,931,663.88 usft | Latitude: 38° 21' 44.339 N |
| | +E/-W 0.0 usft | Easting: 1,630,558.55 usft | Longitude: 97° 23' 24.477 W |
| Position Uncertainty 0.0 usft | | Wellhead Elevation: 1,582.0 usft | Ground Level: 1,566.0 usft |

| Wellbore Lateral #1 | | | | | |
|----------------------------|------------|-------------|-----------------|---------------|---------------------|
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 04/07/10 | 4.45 | 66.47 | 52,823 |

| Design Lateral #1 | | | | | |
|--------------------------|-------------------------|------------------------------|--------------|---------------|--|
| Audit Notes: | | | | | |
| Version: 1.0 | Phase: ACTUAL | Tie On Depth: 3,233.0 | | | |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) | |
| | 0.0 | 0.0 | 0.0 | 155.00 | |

| Survey Program | | Date 10/13/10 | | | |
|-----------------------|-----------|-----------------------------------|-----------|----------------|--|
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 496.0 | 3,233.0 | Survey #1 MWD (Sump Hole) | MWD | MWD - Standard | |
| 3,260.0 | 6,955.0 | Survey #1 Lat #1 MWD (Lateral #1) | MWD | MWD - Standard | |

| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) |
|-----------|---------|-------------------|------------|------------|------------|---------------|------------------|
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 |
| 496.0 | 1.36 | 114.80 | 496.0 | -2.5 | 5.3 | 4.5 | 0.27 |
| 752.0 | 1.00 | 112.61 | 751.9 | -4.6 | 10.2 | 8.5 | 0.14 |
| 1,007.0 | 0.47 | 113.99 | 1,006.9 | -5.9 | 13.2 | 10.9 | 0.21 |
| 1,263.0 | 0.57 | 123.91 | 1,262.9 | -7.0 | 15.2 | 12.8 | 0.05 |
| 1,519.0 | 0.17 | 137.87 | 1,518.9 | -8.0 | 16.5 | 14.2 | 0.16 |
| 1,769.0 | 0.24 | 333.51 | 1,768.9 | -7.8 | 16.5 | 14.1 | 0.16 |
| 1,871.0 | 0.18 | 183.48 | 1,870.9 | -7.8 | 16.4 | 14.0 | 0.40 |
| 1,901.0 | 0.38 | 143.93 | 1,900.9 | -7.9 | 16.5 | 14.1 | 0.89 |
| 1,930.0 | 0.50 | 171.82 | 1,929.9 | -8.1 | 16.5 | 14.3 | 0.83 |
| 1,959.0 | 1.20 | 154.35 | 1,958.9 | -8.5 | 16.7 | 14.8 | 2.55 |

| | | | |
|------------------|-------------------------|-------------------------------------|--------------------|
| Company: | Orca Operating Company | Local Co-ordinate Reference: | Well Alfred 1-36H |
| Project: | McPherson County Kansas | TVD Reference: | 1-36H @ 1582.0usft |
| Site: | Section 36-19S-1W | MD Reference: | 1-36H @ 1582.0usft |
| Well: | Alfred 1-36H | North Reference: | True |
| Wellbore: | Lateral #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Lateral #1 | Database: | EDMOKC |

| Survey | | | | | | | | |
|--------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|--|
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | |
| 1,989.0 | 3.04 | 167.03 | 1,988.8 | -9.6 | 17.0 | 15.9 | 6.29 | |
| 2,019.0 | 5.15 | 167.68 | 2,018.8 | -11.7 | 17.5 | 18.0 | 7.03 | |
| 2,049.0 | 7.40 | 165.65 | 2,048.6 | -14.9 | 18.2 | 21.2 | 7.54 | |
| 2,079.0 | 10.30 | 161.79 | 2,078.2 | -19.3 | 19.6 | 25.7 | 9.86 | |
| 2,108.0 | 12.57 | 160.50 | 2,106.6 | -24.7 | 21.4 | 31.4 | 7.88 | |
| 2,139.0 | 14.64 | 162.54 | 2,136.8 | -31.6 | 23.7 | 38.7 | 6.85 | |
| 2,170.0 | 16.31 | 163.77 | 2,166.6 | -39.5 | 26.1 | 46.9 | 5.49 | |
| 2,197.0 | 17.18 | 162.62 | 2,192.5 | -47.0 | 28.4 | 54.6 | 3.45 | |
| 2,228.0 | 18.77 | 163.68 | 2,222.0 | -56.1 | 31.1 | 64.0 | 5.24 | |
| 2,258.0 | 19.99 | 164.98 | 2,250.3 | -65.7 | 33.8 | 73.9 | 4.31 | |
| 2,289.0 | 21.94 | 160.65 | 2,279.2 | -76.3 | 37.1 | 84.9 | 8.03 | |
| 2,320.0 | 24.23 | 160.54 | 2,307.7 | -87.8 | 41.1 | 96.9 | 7.39 | |
| 2,351.0 | 25.72 | 160.13 | 2,335.8 | -100.1 | 45.6 | 110.0 | 4.84 | |
| 2,381.0 | 27.83 | 159.04 | 2,362.6 | -112.8 | 50.3 | 123.4 | 7.22 | |
| 2,410.0 | 30.36 | 157.86 | 2,388.0 | -125.9 | 55.5 | 137.5 | 8.95 | |
| 2,441.0 | 32.91 | 158.56 | 2,414.4 | -141.0 | 61.5 | 153.8 | 8.31 | |
| 2,471.0 | 34.84 | 157.39 | 2,439.3 | -156.5 | 67.8 | 170.5 | 6.79 | |
| 2,503.0 | 36.76 | 156.30 | 2,465.2 | -173.7 | 75.1 | 189.2 | 6.32 | |
| 2,533.0 | 37.84 | 155.73 | 2,489.1 | -190.3 | 82.5 | 207.3 | 3.78 | |
| 2,564.0 | 39.77 | 156.12 | 2,513.2 | -208.0 | 90.4 | 226.8 | 6.28 | |
| 2,595.0 | 41.93 | 155.30 | 2,536.7 | -226.5 | 98.8 | 247.0 | 7.18 | |
| 2,624.0 | 42.61 | 155.44 | 2,558.1 | -244.2 | 106.9 | 266.5 | 2.37 | |
| 2,655.0 | 45.01 | 155.51 | 2,580.5 | -263.8 | 115.8 | 288.0 | 7.74 | |
| 2,686.0 | 47.28 | 155.47 | 2,602.0 | -284.1 | 125.1 | 310.4 | 7.32 | |
| 2,715.0 | 48.65 | 155.27 | 2,621.4 | -303.7 | 134.1 | 331.9 | 4.75 | |
| 2,746.0 | 50.41 | 155.85 | 2,641.5 | -325.2 | 143.8 | 355.5 | 5.85 | |
| 2,773.0 | 52.57 | 155.39 | 2,658.3 | -344.4 | 152.5 | 376.6 | 8.11 | |
| 2,802.0 | 54.76 | 153.40 | 2,675.5 | -365.5 | 162.6 | 400.0 | 9.36 | |
| 2,833.0 | 57.07 | 152.85 | 2,692.9 | -388.4 | 174.3 | 425.6 | 7.60 | |
| 2,863.0 | 58.32 | 152.53 | 2,708.9 | -410.9 | 185.9 | 450.9 | 4.26 | |
| 2,895.0 | 58.07 | 152.34 | 2,725.8 | -435.0 | 198.5 | 478.1 | 0.93 | |
| 2,926.0 | 58.61 | 152.37 | 2,742.1 | -458.4 | 210.7 | 504.5 | 1.74 | |
| 2,958.0 | 60.14 | 153.19 | 2,758.4 | -482.9 | 223.3 | 532.0 | 5.27 | |
| 2,988.0 | 60.54 | 154.27 | 2,773.2 | -506.2 | 234.8 | 558.0 | 3.40 | |
| 3,019.0 | 60.42 | 154.34 | 2,788.5 | -530.5 | 246.5 | 585.0 | 0.43 | |
| 3,050.0 | 60.20 | 154.04 | 2,803.8 | -554.8 | 258.3 | 611.9 | 1.10 | |
| 3,082.0 | 60.04 | 153.84 | 2,819.8 | -579.7 | 270.5 | 639.7 | 0.74 | |
| 3,112.0 | 59.97 | 153.59 | 2,834.8 | -603.0 | 282.0 | 665.7 | 0.76 | |
| 3,143.0 | 59.68 | 154.48 | 2,850.4 | -627.1 | 293.7 | 692.5 | 2.65 | |
| 3,174.0 | 59.93 | 154.56 | 2,866.0 | -651.3 | 305.2 | 719.3 | 0.84 | |
| 3,203.0 | 60.03 | 155.87 | 2,880.5 | -674.1 | 315.7 | 744.4 | 3.93 | |
| 3,233.0 | 60.49 | 156.02 | 2,895.3 | -697.9 | 326.4 | 770.4 | 1.59 | |
| 3,260.0 | 68.00 | 156.41 | 2,907.1 | -720.1 | 336.2 | 794.7 | 27.85 | |
| 3,289.0 | 74.96 | 158.59 | 2,916.3 | -745.5 | 346.7 | 822.1 | 25.03 | |

| | | | |
|------------------|-------------------------|-------------------------------------|--------------------|
| Company: | Orca Operating Company | Local Co-ordinate Reference: | Well Alfred 1-36H |
| Project: | McPherson County Kansas | TVD Reference: | 1-36H @ 1582.0usft |
| Site: | Section 36-19S-1W | MD Reference: | 1-36H @ 1582.0usft |
| Well: | Alfred 1-36H | North Reference: | True |
| Wellbore: | Lateral #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Lateral #1 | Database: | EDMOKC |

| Survey | | | | | | | | |
|--------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|--|
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | |
| 3,321.0 | 82.13 | 158.64 | 2,922.6 | -774.7 | 358.1 | 853.4 | 22.41 | |
| 3,353.0 | 84.33 | 160.40 | 2,926.4 | -804.4 | 369.2 | 885.1 | 8.78 | |
| 3,385.0 | 86.26 | 159.87 | 2,929.0 | -834.4 | 380.0 | 916.9 | 6.25 | |
| 3,417.0 | 87.30 | 160.93 | 2,930.8 | -864.5 | 390.8 | 948.7 | 4.64 | |
| 3,449.0 | 88.11 | 161.37 | 2,932.1 | -894.8 | 401.1 | 980.5 | 2.88 | |
| 3,481.0 | 89.69 | 160.84 | 2,932.7 | -925.1 | 411.5 | 1,012.3 | 5.21 | |
| 3,513.0 | 90.84 | 161.89 | 2,932.6 | -955.4 | 421.7 | 1,044.1 | 4.87 | |
| 3,545.0 | 91.19 | 161.72 | 2,932.0 | -985.8 | 431.7 | 1,075.8 | 1.22 | |
| 3,577.0 | 90.75 | 160.66 | 2,931.5 | -1,016.1 | 442.0 | 1,107.7 | 3.59 | |
| 3,609.0 | 89.87 | 159.52 | 2,931.3 | -1,046.1 | 452.9 | 1,139.5 | 4.50 | |
| 3,641.0 | 88.90 | 159.78 | 2,931.6 | -1,076.1 | 464.0 | 1,171.4 | 3.14 | |
| 3,673.0 | 88.81 | 159.35 | 2,932.3 | -1,106.1 | 475.2 | 1,203.3 | 1.37 | |
| 3,704.0 | 89.16 | 159.78 | 2,932.8 | -1,135.2 | 486.0 | 1,234.2 | 1.79 | |
| 3,736.0 | 89.16 | 159.08 | 2,933.3 | -1,165.1 | 497.2 | 1,266.1 | 2.19 | |
| 3,768.0 | 88.81 | 158.82 | 2,933.8 | -1,195.0 | 508.7 | 1,298.0 | 1.36 | |
| 3,800.0 | 89.08 | 157.94 | 2,934.4 | -1,224.7 | 520.5 | 1,330.0 | 2.88 | |
| 3,832.0 | 89.87 | 158.11 | 2,934.7 | -1,254.4 | 532.5 | 1,361.9 | 2.53 | |
| 3,864.0 | 90.31 | 157.15 | 2,934.7 | -1,284.0 | 544.7 | 1,393.9 | 3.30 | |
| 3,896.0 | 90.22 | 156.80 | 2,934.5 | -1,313.4 | 557.2 | 1,425.9 | 1.13 | |
| 3,928.0 | 89.96 | 156.01 | 2,934.5 | -1,342.8 | 570.0 | 1,457.9 | 2.60 | |
| 3,960.0 | 90.13 | 156.27 | 2,934.5 | -1,372.0 | 582.9 | 1,489.8 | 0.97 | |
| 3,992.0 | 90.04 | 155.34 | 2,934.4 | -1,401.2 | 596.1 | 1,521.8 | 2.92 | |
| 4,024.0 | 90.40 | 155.57 | 2,934.3 | -1,430.3 | 609.4 | 1,553.8 | 1.33 | |
| 4,056.0 | 90.57 | 155.39 | 2,934.0 | -1,459.4 | 622.6 | 1,585.8 | 0.77 | |
| 4,088.0 | 90.92 | 156.01 | 2,933.6 | -1,488.6 | 635.8 | 1,617.8 | 2.22 | |
| 4,120.0 | 90.84 | 155.39 | 2,933.1 | -1,517.8 | 649.0 | 1,649.8 | 1.95 | |
| 4,152.0 | 90.75 | 155.30 | 2,932.7 | -1,546.8 | 662.3 | 1,681.8 | 0.40 | |
| 4,184.0 | 89.25 | 154.25 | 2,932.7 | -1,575.8 | 676.0 | 1,713.8 | 5.72 | |
| 4,215.0 | 89.60 | 154.95 | 2,933.0 | -1,603.8 | 689.2 | 1,744.8 | 2.52 | |
| 4,247.0 | 89.52 | 155.21 | 2,933.2 | -1,632.8 | 702.7 | 1,776.8 | 0.85 | |
| 4,279.0 | 89.08 | 155.21 | 2,933.6 | -1,661.9 | 716.1 | 1,808.8 | 1.38 | |
| 4,311.0 | 88.46 | 156.18 | 2,934.3 | -1,691.0 | 729.3 | 1,840.8 | 3.60 | |
| 4,343.0 | 90.40 | 156.88 | 2,934.6 | -1,720.4 | 742.1 | 1,872.8 | 6.45 | |
| 4,375.0 | 90.84 | 158.03 | 2,934.3 | -1,749.9 | 754.3 | 1,904.8 | 3.85 | |
| 4,407.0 | 90.48 | 157.50 | 2,933.9 | -1,779.5 | 766.4 | 1,936.7 | 2.00 | |
| 4,439.0 | 90.75 | 158.03 | 2,933.6 | -1,809.2 | 778.5 | 1,968.7 | 1.86 | |
| 4,471.0 | 89.78 | 159.43 | 2,933.4 | -1,839.0 | 790.2 | 2,000.6 | 5.32 | |
| 4,503.0 | 89.34 | 158.47 | 2,933.7 | -1,868.8 | 801.6 | 2,032.5 | 3.30 | |
| 4,535.0 | 89.60 | 158.90 | 2,934.0 | -1,898.7 | 813.3 | 2,064.5 | 1.57 | |
| 4,567.0 | 89.08 | 158.10 | 2,934.3 | -1,928.4 | 825.0 | 2,096.4 | 2.98 | |
| 4,599.0 | 89.34 | 158.20 | 2,934.8 | -1,958.1 | 836.9 | 2,128.4 | 0.87 | |
| 4,630.0 | 89.16 | 158.10 | 2,935.2 | -1,986.9 | 848.4 | 2,159.3 | 0.66 | |
| 4,662.0 | 89.52 | 158.64 | 2,935.5 | -2,016.6 | 860.2 | 2,191.2 | 2.03 | |
| 4,694.0 | 89.87 | 157.94 | 2,935.7 | -2,046.4 | 872.1 | 2,223.2 | 2.45 | |
| 4,726.0 | 90.40 | 158.03 | 2,935.6 | -2,076.0 | 884.1 | 2,255.1 | 1.68 | |

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|------------------|-------------------------|-------------------------------------|--------------------|
| Company: | Orca Operating Company | Local Co-ordinate Reference: | Well Alfred 1-36H |
| Project: | McPherson County Kansas | TVD Reference: | 1-36H @ 1582.0usft |
| Site: | Section 36-19S-1W | MD Reference: | 1-36H @ 1582.0usft |
| Well: | Alfred 1-36H | North Reference: | True |
| Wellbore: | Lateral #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | Lateral #1 | Database: | EDMOKC |

| Survey | | | | | | | | |
|--------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|--|
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | |
| 4,758.0 | 91.01 | 158.73 | 2,935.2 | -2,105.8 | 895.9 | 2,287.1 | 2.90 | |
| 4,790.0 | 90.57 | 159.43 | 2,934.8 | -2,135.7 | 907.3 | 2,319.0 | 2.58 | |
| 4,822.0 | 90.40 | 159.61 | 2,934.5 | -2,165.6 | 918.5 | 2,350.9 | 0.77 | |
| 4,854.0 | 89.87 | 159.61 | 2,934.5 | -2,195.6 | 929.6 | 2,382.8 | 1.66 | |
| 4,886.0 | 89.78 | 158.38 | 2,934.5 | -2,225.5 | 941.1 | 2,414.7 | 3.85 | |
| 4,918.0 | 90.22 | 159.17 | 2,934.5 | -2,255.3 | 952.7 | 2,446.7 | 2.83 | |
| 4,950.0 | 90.13 | 158.55 | 2,934.5 | -2,285.2 | 964.2 | 2,478.6 | 1.96 | |
| 4,982.0 | 89.43 | 158.91 | 2,934.6 | -2,315.0 | 975.8 | 2,510.5 | 2.46 | |
| 5,014.0 | 89.60 | 158.99 | 2,934.8 | -2,344.9 | 987.3 | 2,542.4 | 0.59 | |
| 5,046.0 | 90.04 | 158.82 | 2,934.9 | -2,374.7 | 998.8 | 2,574.4 | 1.47 | |
| 5,078.0 | 90.31 | 158.55 | 2,934.8 | -2,404.5 | 1,010.5 | 2,606.3 | 1.19 | |
| 5,110.0 | 90.57 | 158.99 | 2,934.6 | -2,434.4 | 1,022.1 | 2,638.2 | 1.60 | |
| 5,142.0 | 90.66 | 158.73 | 2,934.3 | -2,464.2 | 1,033.6 | 2,670.1 | 0.86 | |
| 5,174.0 | 90.92 | 158.47 | 2,933.8 | -2,494.0 | 1,045.3 | 2,702.1 | 1.15 | |
| 5,206.0 | 91.10 | 158.38 | 2,933.3 | -2,523.7 | 1,057.0 | 2,734.0 | 0.63 | |
| 5,237.0 | 90.66 | 158.47 | 2,932.8 | -2,552.6 | 1,068.4 | 2,765.0 | 1.45 | |
| 5,269.0 | 91.10 | 159.08 | 2,932.3 | -2,582.4 | 1,080.0 | 2,796.9 | 2.35 | |
| 5,301.0 | 91.10 | 158.55 | 2,931.7 | -2,612.2 | 1,091.6 | 2,828.8 | 1.66 | |
| 5,333.0 | 90.48 | 158.64 | 2,931.2 | -2,642.0 | 1,103.3 | 2,860.7 | 1.96 | |
| 5,365.0 | 90.13 | 158.73 | 2,931.1 | -2,671.8 | 1,114.9 | 2,892.7 | 1.13 | |
| 5,397.0 | 89.69 | 158.91 | 2,931.1 | -2,701.7 | 1,126.5 | 2,924.6 | 1.49 | |
| 5,429.0 | 89.52 | 158.69 | 2,931.3 | -2,731.5 | 1,138.0 | 2,956.5 | 0.87 | |
| 5,461.0 | 88.11 | 157.94 | 2,932.0 | -2,761.2 | 1,149.9 | 2,988.5 | 4.99 | |
| 5,493.0 | 88.29 | 157.06 | 2,933.0 | -2,790.8 | 1,162.1 | 3,020.4 | 2.81 | |
| 5,525.0 | 88.81 | 157.94 | 2,933.8 | -2,820.3 | 1,174.3 | 3,052.4 | 3.19 | |
| 5,557.0 | 89.08 | 157.94 | 2,934.4 | -2,850.0 | 1,186.4 | 3,084.3 | 0.84 | |
| 5,589.0 | 89.43 | 157.94 | 2,934.8 | -2,879.6 | 1,198.4 | 3,116.3 | 1.09 | |
| 5,621.0 | 89.96 | 157.60 | 2,935.0 | -2,909.3 | 1,210.5 | 3,148.3 | 1.97 | |
| 5,653.0 | 90.22 | 157.68 | 2,934.9 | -2,938.9 | 1,222.6 | 3,180.2 | 0.85 | |
| 5,684.0 | 90.48 | 157.40 | 2,934.7 | -2,967.5 | 1,234.5 | 3,211.2 | 1.23 | |
| 5,716.0 | 90.31 | 157.15 | 2,934.5 | -2,997.0 | 1,246.9 | 3,243.2 | 0.94 | |
| 5,748.0 | 89.25 | 157.41 | 2,934.6 | -3,026.5 | 1,259.2 | 3,275.1 | 3.41 | |
| 5,780.0 | 89.69 | 157.94 | 2,934.9 | -3,056.1 | 1,271.4 | 3,307.1 | 2.15 | |
| 5,812.0 | 90.22 | 157.76 | 2,935.0 | -3,085.8 | 1,283.4 | 3,339.1 | 1.75 | |
| 5,844.0 | 90.84 | 157.94 | 2,934.7 | -3,115.4 | 1,295.5 | 3,371.0 | 2.02 | |
| 5,876.0 | 89.16 | 157.94 | 2,934.7 | -3,145.1 | 1,307.5 | 3,403.0 | 5.25 | |
| 5,908.0 | 88.11 | 157.41 | 2,935.4 | -3,174.7 | 1,319.7 | 3,434.9 | 3.68 | |
| 5,940.0 | 88.11 | 157.85 | 2,936.5 | -3,204.2 | 1,331.8 | 3,466.9 | 1.37 | |
| 5,972.0 | 88.64 | 157.24 | 2,937.4 | -3,233.8 | 1,344.1 | 3,498.8 | 2.52 | |
| 6,004.0 | 89.08 | 157.15 | 2,938.0 | -3,263.3 | 1,356.5 | 3,530.8 | 1.40 | |
| 6,036.0 | 88.99 | 157.15 | 2,938.6 | -3,292.8 | 1,368.9 | 3,562.8 | 0.28 | |
| 6,068.0 | 88.72 | 156.97 | 2,939.2 | -3,322.2 | 1,381.4 | 3,594.8 | 1.01 | |
| 6,100.0 | 89.34 | 157.85 | 2,939.8 | -3,351.8 | 1,393.6 | 3,626.7 | 3.36 | |
| 6,132.0 | 89.60 | 158.11 | 2,940.0 | -3,381.4 | 1,405.6 | 3,658.7 | 1.15 | |

| | |
|---|---|
| Company: Orca Operating Company | Local Co-ordinate Reference: Well Alfred 1-36H |
| Project: McPherson County Kansas | TVD Reference: 1-36H @ 1582.0usft |
| Site: Section 36-19S-1W | MD Reference: 1-36H @ 1582.0usft |
| Well: Alfred 1-36H | North Reference: True |
| Wellbore: Lateral #1 | Survey Calculation Method: Minimum Curvature |
| Design: Lateral #1 | Database: EDMOKC |

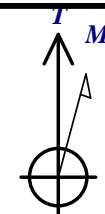
| Survey | | | | | | | | |
|-----------------------------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|--|
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | |
| 6,164.0 | 88.99 | 156.98 | 2,940.4 | -3,411.0 | 1,417.9 | 3,690.6 | 4.01 | |
| 6,200.0 | 89.34 | 156.27 | 2,941.0 | -3,444.1 | 1,432.1 | 3,726.6 | 2.20 | |
| 6,232.0 | 90.22 | 155.92 | 2,941.1 | -3,473.3 | 1,445.1 | 3,758.6 | 2.96 | |
| 6,264.0 | 90.48 | 155.21 | 2,940.9 | -3,502.4 | 1,458.3 | 3,790.6 | 2.36 | |
| 6,296.0 | 90.22 | 156.36 | 2,940.7 | -3,531.6 | 1,471.5 | 3,822.6 | 3.68 | |
| 6,327.0 | 90.04 | 155.57 | 2,940.6 | -3,559.9 | 1,484.1 | 3,853.6 | 2.61 | |
| 6,359.0 | 89.78 | 155.65 | 2,940.7 | -3,589.1 | 1,497.3 | 3,885.6 | 0.85 | |
| 6,391.0 | 89.87 | 155.48 | 2,940.8 | -3,618.2 | 1,510.5 | 3,917.6 | 0.60 | |
| 6,423.0 | 90.31 | 155.30 | 2,940.7 | -3,647.3 | 1,523.9 | 3,949.6 | 1.49 | |
| 6,455.0 | 90.66 | 155.13 | 2,940.5 | -3,676.4 | 1,537.3 | 3,981.6 | 1.22 | |
| 6,487.0 | 91.28 | 155.39 | 2,939.9 | -3,705.4 | 1,550.7 | 4,013.6 | 2.10 | |
| 6,519.0 | 91.10 | 155.65 | 2,939.3 | -3,734.5 | 1,563.9 | 4,045.6 | 0.99 | |
| 6,551.0 | 91.28 | 155.48 | 2,938.6 | -3,763.7 | 1,577.2 | 4,077.6 | 0.77 | |
| 6,583.0 | 91.80 | 155.30 | 2,937.7 | -3,792.7 | 1,590.5 | 4,109.6 | 1.72 | |
| 6,615.0 | 91.98 | 155.21 | 2,936.7 | -3,821.8 | 1,603.9 | 4,141.5 | 0.63 | |
| 6,647.0 | 92.15 | 155.13 | 2,935.5 | -3,850.8 | 1,617.3 | 4,173.5 | 0.59 | |
| 6,678.0 | 92.07 | 154.86 | 2,934.4 | -3,878.9 | 1,630.4 | 4,204.5 | 0.91 | |
| 6,710.0 | 92.51 | 155.04 | 2,933.1 | -3,907.9 | 1,643.9 | 4,236.5 | 1.49 | |
| 6,742.0 | 92.77 | 154.69 | 2,931.6 | -3,936.8 | 1,657.5 | 4,268.4 | 1.36 | |
| 6,774.0 | 93.21 | 155.48 | 2,930.0 | -3,965.8 | 1,671.0 | 4,300.4 | 2.82 | |
| 6,806.0 | 93.47 | 155.65 | 2,928.1 | -3,994.9 | 1,684.2 | 4,332.3 | 0.97 | |
| 6,838.0 | 93.74 | 155.13 | 2,926.1 | -4,023.9 | 1,697.5 | 4,364.3 | 1.83 | |
| 6,870.0 | 93.74 | 155.74 | 2,924.0 | -4,052.9 | 1,710.8 | 4,396.2 | 1.90 | |
| 6,902.0 | 94.00 | 155.21 | 2,921.8 | -4,082.0 | 1,724.0 | 4,428.1 | 1.84 | |
| 6,913.0 | 94.09 | 155.83 | 2,921.1 | -4,092.0 | 1,728.6 | 4,439.1 | 5.68 | |
| 6,955.0 | 94.43 | 158.20 | 2,917.9 | -4,130.5 | 1,744.9 | 4,481.0 | 5.69 | |
| TGT Lateral 1 Alfred 1-36H | | | | | | | | |

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|-------------------|--------------------|-------------|
| Checked By: _____ | Approved By: _____ | Date: _____ |
|-------------------|--------------------|-------------|



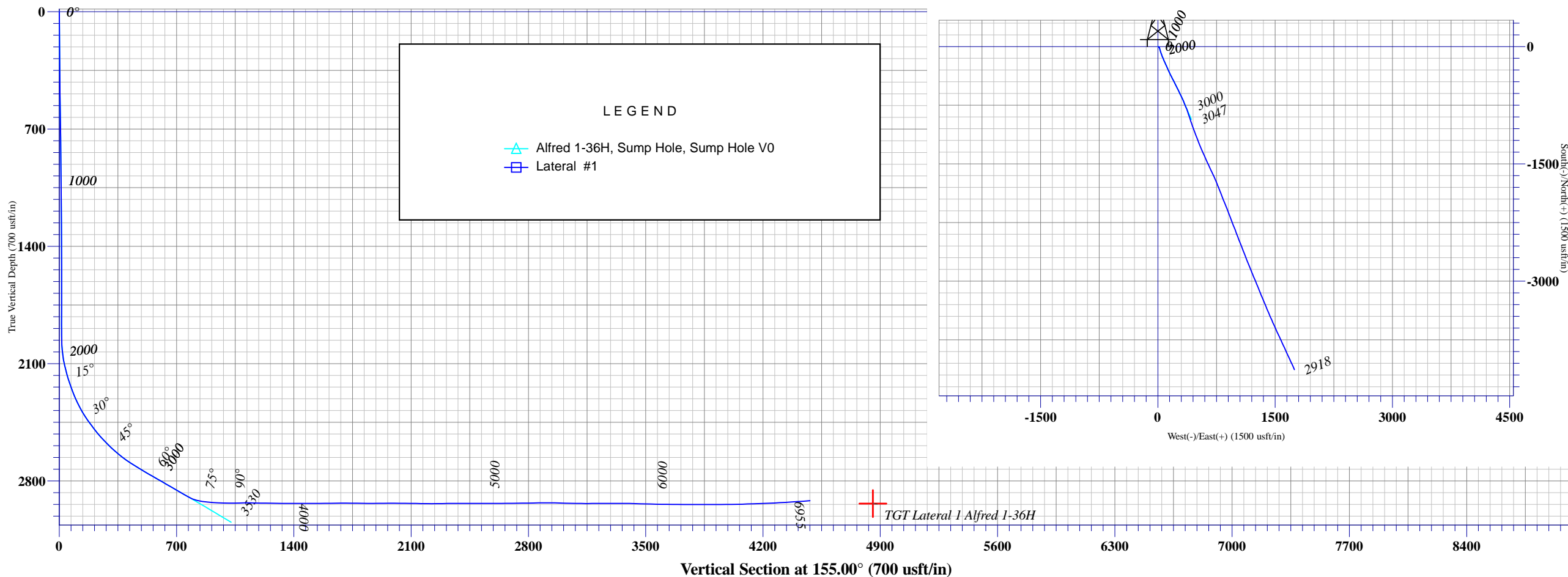
Orca Operating Company

Field: McPherson County Kansas
 Site: Section 36-19S-1W
 Well: Alfred 1-36H
 Wellpath: Lateral #1
 Plan: Lateral #1



Azimuths to True North
 Magnetic North: 4.45°

Magnetic Field
 Strength: 52822.6snT
 Dip Angle: 66.47°
 Date: 04/07/2010
 Model: IGRF2010



Vertical Section Azimuth
 155.00

Sump Hole
 Bottom Hole from Surface:
 3046.8' TVD 931.9' S & 428.6' E
 3530.0' MD 1025.8' VS @ 155.0 Azimuth

Lateral #1
 Bottom Hole From Surface:
 2917.9' TVD 4130.5' S & 1744.9' E
 6955.0' MD 4481.0' VS @ 155.0 Az.



| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Slot |
|-------|-------|------------|------------|------------------|------------------|------|
| 0.0 | 0.0 | 1931663.88 | 1630558.55 | 38° 21' 44.339 N | 97° 23' 24.477 W | |

Design: Lateral #1 (Alfred 1-36H/Lateral #1)

Created By: Genie Lightfoot Date: 15:07, October 18 2010