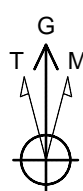
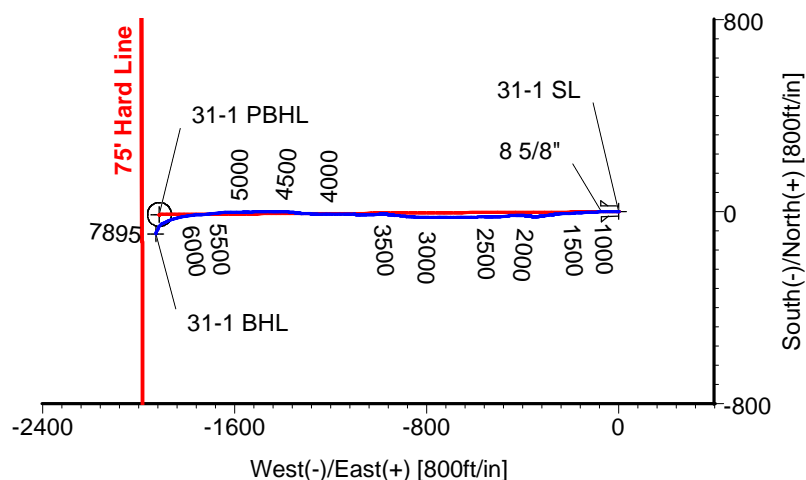
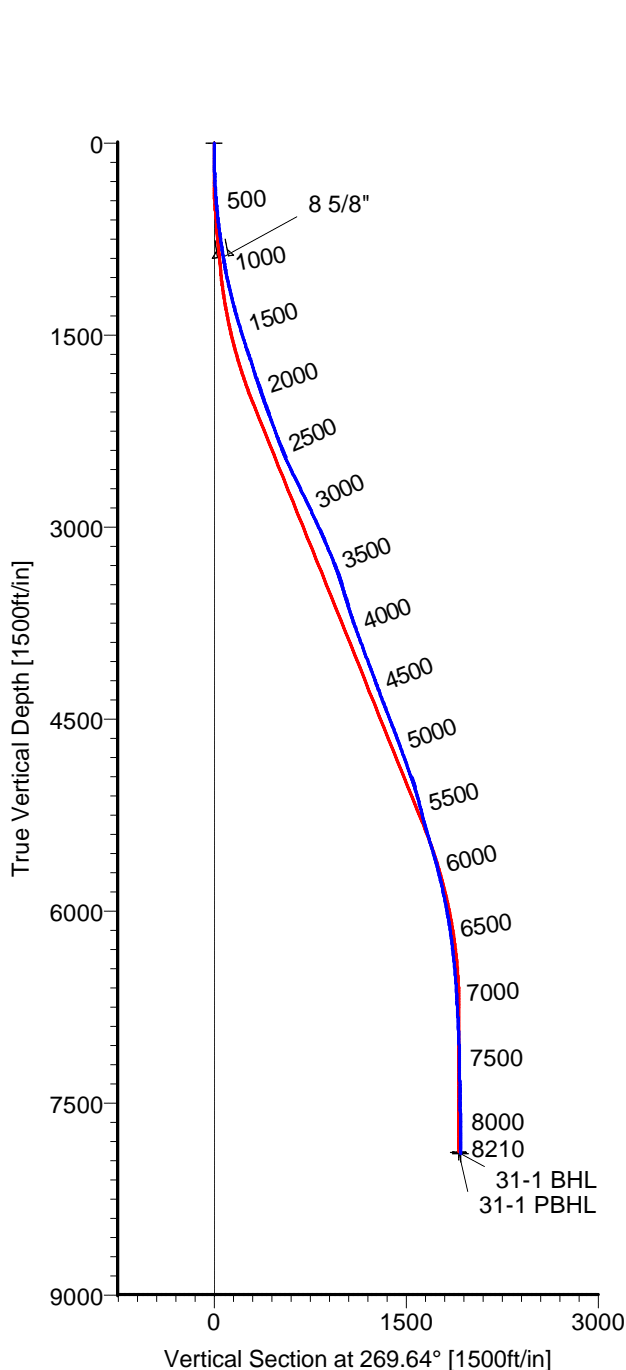


ANADARKO PETROLEUM

Field: Weld County, CO
Site: Bernhardt 3-1 Pad
Well: #31-1
Wellpath: Original Hole



Azimuths to Grid North
True North: -0.43°
Magnetic North: 8.63°

Magnetic Field
Strength: 53251nT
Dip Angle: 67.03°
Date: 5/5/2010
Model: IGRF2010

CASING DETAILS

| No. | TVD | MD | Name | Size |
|-----|--------|--------|--------|-------|
| 1 | 891.03 | 895.00 | 8 5/8" | 8.625 |

LEGEND

— #31-1, Original Hole, Plan #2a
— Original Hole

TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | Shape |
|-----------|---------|--------|----------|---------------|----------------|---------------------|
| 31-1 SL | 0.00 | 0.00 | 0.00 | 40°20'42.377N | 104°50'28.777W | Point |
| 31-1 PBHL | 7888.00 | -12.02 | -1913.48 | 40°20'42.398N | 104°50'53.490W | Circle (Radius: 50) |
| 31-1 BHL | 7895.21 | -92.52 | -1927.51 | 40°20'41.603N | 104°50'53.679W | Point |

Wellpath: (#31-1/Original Hole)

ALLIS-CHALMERS DIRECTIONAL DRILLING SERVICES
911 Regional Park Drive Houston, Texas 77060
Phone: 713-934-9600 Fax: 713-934-9067



DIRECTIONAL
DRILLING SERVICES

Allis-Chalmers Energy, Inc.

Survey Report

| | | | | |
|------------------------------------|--|---|-----------------------|----------------|
| Company: ANADARKO PETROLEUM | | Date: 6/5/2010 | Time: 09:07:01 | Page: 1 |
| Field: Weld County, CO | | Co-ordinate(NE) Reference: Well: #31-1, Grid North | | |
| Site: Bernhardt 3-1 Pad | | Vertical (TVD) Reference: 4826'GL+13'KB 4839.0 | | |
| Well: #31-1 | | Section (VS) Reference: Well (0.00N,0.00E,269.64Azi) | | |
| Wellpath: Original Hole | | Survey Calculation Method: Minimum Curvature Db: Sybase | | |

| | |
|--|--|
| Field: Weld County, CO | |
| Map System: US State Plane Coordinate System 1983 | Map Zone: Colorado, Northern Zone |
| Geo Datum: GRS 1980 | Coordinate System: Well Centre |
| Sys Datum: Mean Sea Level | Geomagnetic Model: IGRF2010 |

| | |
|--------------------------------------|-----------------------------------|
| Site: Bernhardt 3-1 Pad | |
| Site Position: | Northing: 1369310.76 ft |
| From: Geographic | Easting: 3183596.38 ft |
| Position Uncertainty: 0.00 ft | Latitude: 40 20 43.008 N |
| Ground Level: 4826.00 ft | Longitude: 104 50 28.824 W |
| | North Reference: Grid |
| | Grid Convergence: 0.43 deg |

| | |
|---------------------------------------|-----------------------------------|
| Well: #31-1 | Slot Name: 31-1 |
| Well Position: +N/-S -63.84 ft | Latitude: 40 20 42.377 N |
| +E/-W 4.15 ft | Longitude: 104 50 28.777 W |
| Position Uncertainty: 0.00 ft | |

| | |
|---|---|
| Wellpath: Original Hole | Drilled From: Surface |
| Current Datum: 4826'GL+13'KB | Tie-on Depth: 0.00 ft |
| Magnetic Data: 5/5/2010 | Above System Datum: Mean Sea Level |
| Field Strength: 53251 nT | Declination: 9.05 deg |
| Vertical Section: Depth From (TVD) | Mag Dip Angle: 67.03 deg |
| ft | +N/-S |
| | +E/-W |
| | Direction |
| | deg |
| 0.00 | 0.00 |
| 0.00 | 0.00 |
| 0.00 | 269.64 |

| | | |
|---|----------------------|-----------------------------|
| Survey Program for Definitive Wellpath | | Version: 0 |
| Date: 6/5/2010 | Validated: No | Toolcode |
| Actual From | To | Tool Name |
| ft | ft | |
| 47.00 | 8165.00 | Survey #1 (47.00-8165.00) |
| 8210.00 | 8210.00 | Survey #2 (8210.00-8210.00) |
| | | MWD Project |
| | | Std MWD Projection |

| Survey | | | | | | | | | | |
|---------|-------|--------|---------|-------|---------|--------|-----------|-----------|-----------|--------------|
| MD | Incl | Azim | TVD | +N/-S | +E/-W | VS | DLS | Build | Turn | Tool/Comment |
| ft | deg | deg | ft | ft | ft | ft | deg/100ft | deg/100ft | deg/100ft | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | TIE LINE |
| 47.00 | 1.10 | 253.80 | 47.00 | -0.13 | -0.43 | 0.43 | 2.34 | 2.34 | 0.00 | MWD |
| 108.00 | 1.20 | 253.40 | 107.98 | -0.47 | -1.61 | 1.61 | 0.16 | 0.16 | -0.66 | MWD |
| 169.00 | 1.40 | 272.70 | 168.97 | -0.62 | -2.96 | 2.97 | 0.78 | 0.33 | 31.64 | MWD |
| 229.00 | 2.10 | 275.50 | 228.94 | -0.48 | -4.79 | 4.79 | 1.17 | 1.17 | 4.67 | MWD |
| 289.00 | 2.60 | 269.20 | 288.89 | -0.39 | -7.25 | 7.25 | 0.94 | 0.83 | -10.50 | MWD |
| 350.00 | 3.30 | 273.80 | 349.81 | -0.30 | -10.38 | 10.38 | 1.21 | 1.15 | 7.54 | MWD |
| 428.00 | 4.20 | 276.60 | 427.64 | 0.18 | -15.46 | 15.46 | 1.18 | 1.15 | 3.59 | MWD |
| 518.00 | 5.60 | 273.80 | 517.31 | 0.85 | -23.11 | 23.11 | 1.58 | 1.56 | -3.11 | MWD |
| 607.00 | 6.70 | 266.80 | 605.80 | 0.85 | -32.63 | 32.63 | 1.49 | 1.24 | -7.87 | MWD |
| 697.00 | 7.70 | 267.80 | 695.09 | 0.32 | -43.90 | 43.90 | 1.12 | 1.11 | 1.11 | MWD |
| 788.00 | 8.30 | 266.80 | 785.20 | -0.28 | -56.55 | 56.55 | 0.68 | 0.66 | -1.10 | MWD |
| 845.00 | 8.40 | 269.20 | 841.60 | -0.56 | -64.82 | 64.82 | 0.64 | 0.18 | 4.21 | MWD |
| 895.00 | 8.93 | 268.25 | 891.03 | -0.73 | -72.35 | 72.35 | 1.09 | 1.05 | -1.90 | 8 5/8" |
| 921.00 | 9.20 | 267.80 | 916.70 | -0.87 | -76.44 | 76.45 | 1.09 | 1.05 | -1.73 | MWD |
| 1012.00 | 11.30 | 267.10 | 1006.25 | -1.61 | -92.62 | 92.62 | 2.31 | 2.31 | -0.77 | MWD |
| 1102.00 | 12.70 | 268.50 | 1094.28 | -2.31 | -111.31 | 111.33 | 1.59 | 1.56 | 1.56 | MWD |
| 1192.00 | 13.90 | 267.80 | 1181.86 | -2.98 | -132.01 | 132.02 | 1.35 | 1.33 | -0.78 | MWD |
| 1280.00 | 14.30 | 264.30 | 1267.21 | -4.47 | -153.38 | 153.41 | 1.07 | 0.45 | -3.98 | MWD |
| 1369.00 | 16.20 | 266.10 | 1353.07 | -6.41 | -176.71 | 176.75 | 2.20 | 2.13 | 2.02 | MWD |
| 1460.00 | 16.90 | 268.50 | 1440.30 | -7.62 | -202.60 | 202.64 | 1.08 | 0.77 | 2.64 | MWD |
| 1550.00 | 17.60 | 265.70 | 1526.26 | -8.98 | -229.24 | 229.29 | 1.21 | 0.78 | -3.11 | MWD |

Allis-Chalmers Energy, Inc.

Survey Report

| | | | |
|------------------------------------|---|-----------------------|-------------------|
| Company: ANADARKO PETROLEUM | Date: 6/5/2010 | Time: 09:07:01 | Page: 2 |
| Field: Weld County, CO | Co-ordinate(NE) Reference: Well: #31-1, Grid North | | |
| Site: Bernhardt 3-1 Pad | Vertical (TVD) Reference: 4826'GL+13'KB 4839.0 | | |
| Well: #31-1 | Section (VS) Reference: Well (0.00N,0.00E,269.64Azi) | | |
| Wellpath: Original Hole | Survey Calculation Method: Minimum Curvature | | Db: Sybase |

Survey

| MD ft | Incl deg | Azim deg | TVD ft | +N/-S ft | +E/-W ft | VS ft | DLS deg/100ft | Build deg/100ft | Turn deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 1640.00 | 18.30 | 266.10 | 1611.88 | -10.96 | -256.91 | 256.97 | 0.79 | 0.78 | 0.44 | MWD |
| 1731.00 | 18.00 | 260.00 | 1698.36 | -14.37 | -285.01 | 285.10 | 2.11 | -0.33 | -6.70 | MWD |
| 1821.00 | 18.00 | 263.60 | 1783.95 | -18.34 | -312.53 | 312.63 | 1.24 | 0.00 | 4.00 | MWD |
| 1910.00 | 19.20 | 267.80 | 1868.31 | -20.43 | -340.82 | 340.94 | 2.02 | 1.35 | 4.72 | MWD |
| 2000.00 | 18.10 | 276.30 | 1953.60 | -19.47 | -369.51 | 369.62 | 3.25 | -1.22 | 9.44 | MWD |
| 2091.00 | 20.40 | 274.80 | 2039.50 | -16.59 | -399.37 | 399.46 | 2.59 | 2.53 | -1.65 | MWD |
| 2181.00 | 20.90 | 267.50 | 2123.73 | -15.98 | -431.04 | 431.13 | 2.91 | 0.56 | -8.11 | MWD |
| 2271.00 | 20.00 | 265.40 | 2208.06 | -17.91 | -462.42 | 462.52 | 1.29 | -1.00 | -2.33 | MWD |
| 2361.00 | 19.90 | 265.40 | 2292.66 | -20.37 | -493.03 | 493.15 | 0.11 | -0.11 | 0.00 | MWD |
| 2452.00 | 21.20 | 269.60 | 2377.87 | -21.73 | -524.92 | 525.05 | 2.16 | 1.43 | 4.62 | MWD |
| 2542.00 | 24.50 | 269.20 | 2460.80 | -22.10 | -559.87 | 559.99 | 3.67 | 3.67 | -0.44 | MWD |
| 2632.00 | 24.50 | 267.90 | 2542.70 | -23.05 | -597.17 | 597.31 | 0.60 | 0.00 | -1.44 | MWD |
| 2722.00 | 25.60 | 270.30 | 2624.23 | -23.63 | -635.27 | 635.40 | 1.66 | 1.22 | 2.67 | MWD |
| 2812.00 | 27.10 | 269.60 | 2704.88 | -23.67 | -675.21 | 675.35 | 1.70 | 1.67 | -0.78 | MWD |
| 2902.00 | 26.40 | 268.50 | 2785.25 | -24.34 | -715.72 | 715.85 | 0.95 | -0.78 | -1.22 | MWD |
| 2993.00 | 25.00 | 269.90 | 2867.24 | -24.90 | -755.17 | 755.31 | 1.68 | -1.54 | 1.54 | MWD |
| 3083.00 | 24.30 | 270.30 | 2949.04 | -24.84 | -792.71 | 792.85 | 0.80 | -0.78 | 0.44 | MWD |
| 3173.00 | 25.20 | 272.70 | 3030.78 | -23.84 | -830.37 | 830.50 | 1.50 | 1.00 | 2.67 | MWD |
| 3261.00 | 23.20 | 274.50 | 3111.04 | -21.60 | -866.36 | 866.48 | 2.42 | -2.27 | 2.05 | MWD |
| 3351.00 | 22.20 | 275.50 | 3194.07 | -18.57 | -900.96 | 901.06 | 1.19 | -1.11 | 1.11 | MWD |
| 3441.00 | 22.40 | 277.00 | 3277.34 | -14.86 | -934.91 | 934.98 | 0.67 | 0.22 | 1.67 | MWD |
| 3532.00 | 20.10 | 274.10 | 3362.15 | -11.62 | -967.72 | 967.77 | 2.78 | -2.53 | -3.19 | MWD |
| 3623.00 | 16.50 | 268.90 | 3448.54 | -10.75 | -996.25 | 996.29 | 4.34 | -3.96 | -5.71 | MWD |
| 3713.00 | 17.40 | 263.00 | 3534.63 | -12.64 | -1022.38 | 1022.44 | 2.16 | 1.00 | -6.56 | MWD |
| 3803.00 | 17.10 | 272.00 | 3620.60 | -13.82 | -1048.97 | 1049.03 | 2.98 | -0.33 | 10.00 | MWD |
| 3892.00 | 18.40 | 272.40 | 3705.36 | -12.77 | -1076.08 | 1076.14 | 1.47 | 1.46 | 0.45 | MWD |
| 3981.00 | 20.20 | 271.70 | 3789.36 | -11.73 | -1105.48 | 1105.53 | 2.04 | 2.02 | -0.79 | MWD |
| 4071.00 | 20.50 | 271.30 | 3873.74 | -10.91 | -1136.76 | 1136.81 | 0.37 | 0.33 | -0.44 | MWD |
| 4162.00 | 20.40 | 269.90 | 3959.00 | -10.58 | -1168.55 | 1168.60 | 0.55 | -0.11 | -1.54 | MWD |
| 4252.00 | 20.60 | 270.30 | 4043.30 | -10.52 | -1200.07 | 1200.11 | 0.27 | 0.22 | 0.44 | MWD |
| 4343.00 | 19.70 | 270.60 | 4128.73 | -10.28 | -1231.42 | 1231.46 | 1.00 | -0.99 | 0.33 | MWD |
| 4414.00 | 20.10 | 269.90 | 4195.49 | -10.17 | -1255.58 | 1255.62 | 0.66 | 0.56 | -0.99 | MWD |
| 4504.00 | 21.30 | 273.80 | 4279.69 | -9.12 | -1287.36 | 1287.39 | 2.03 | 1.33 | 4.33 | MWD |
| 4592.00 | 20.60 | 273.40 | 4361.87 | -7.14 | -1318.76 | 1318.78 | 0.81 | -0.80 | -0.45 | MWD |
| 4682.00 | 21.60 | 277.70 | 4445.84 | -3.98 | -1350.99 | 1350.99 | 2.05 | 1.11 | 4.78 | MWD |
| 4770.00 | 21.60 | 274.50 | 4527.66 | -0.54 | -1383.19 | 1383.16 | 1.34 | 0.00 | -3.64 | MWD |
| 4861.00 | 20.80 | 271.30 | 4612.50 | 1.14 | -1416.04 | 1416.01 | 1.55 | -0.88 | -3.52 | MWD |
| 4951.00 | 20.10 | 267.50 | 4696.84 | 0.83 | -1447.47 | 1447.43 | 1.67 | -0.78 | -4.22 | MWD |
| 5041.00 | 19.40 | 269.60 | 4781.54 | 0.05 | -1477.87 | 1477.84 | 1.11 | -0.78 | 2.33 | MWD |
| 5130.00 | 20.40 | 268.20 | 4865.23 | -0.54 | -1508.15 | 1508.13 | 1.24 | 1.12 | -1.57 | MWD |
| 5221.00 | 20.10 | 268.20 | 4950.60 | -1.53 | -1539.63 | 1539.61 | 0.33 | -0.33 | 0.00 | MWD |
| 5311.00 | 16.80 | 272.00 | 5035.97 | -1.56 | -1568.10 | 1568.08 | 3.90 | -3.67 | 4.22 | MWD |
| 5401.00 | 15.50 | 268.90 | 5122.42 | -1.34 | -1593.12 | 1593.10 | 1.73 | -1.44 | -3.44 | MWD |
| 5490.00 | 14.90 | 266.10 | 5208.30 | -2.34 | -1616.43 | 1616.41 | 1.07 | -0.67 | -3.15 | MWD |
| 5580.00 | 14.80 | 266.00 | 5295.30 | -3.93 | -1639.44 | 1639.43 | 0.11 | -0.11 | -0.11 | MWD |
| 5671.00 | 16.40 | 266.40 | 5382.94 | -5.55 | -1663.86 | 1663.86 | 1.76 | 1.76 | 0.44 | MWD |
| 5761.00 | 16.50 | 266.10 | 5469.26 | -7.22 | -1689.29 | 1689.30 | 0.15 | 0.11 | -0.33 | MWD |
| 5850.00 | 16.90 | 262.90 | 5554.51 | -9.68 | -1714.73 | 1714.76 | 1.13 | 0.45 | -3.60 | MWD |
| 5938.00 | 15.10 | 265.00 | 5639.09 | -12.26 | -1738.85 | 1738.89 | 2.15 | -2.05 | 2.39 | MWD |
| 6029.00 | 13.70 | 264.30 | 5727.23 | -14.36 | -1761.38 | 1761.44 | 1.55 | -1.54 | -0.77 | MWD |
| 6119.00 | 12.30 | 262.20 | 5814.93 | -16.72 | -1781.48 | 1781.55 | 1.64 | -1.56 | -2.33 | MWD |
| 6210.00 | 11.90 | 262.50 | 5903.90 | -19.26 | -1800.39 | 1800.47 | 0.44 | -0.44 | 0.33 | MWD |
| 6300.00 | 11.10 | 261.10 | 5992.10 | -21.81 | -1818.15 | 1818.25 | 0.94 | -0.89 | -1.56 | MWD |

Allis-Chalmers Energy, Inc.

Survey Report

| | |
|---|--|
| Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Bernhardt 3-1 Pad Well: #31-1 Wellpath: Original Hole | Date: 6/5/2010 Time: 09:07:01 Page: 3 Co-ordinate(NE) Reference: Well: #31-1, Grid North Vertical (TVD) Reference: 4826'GL+13'KB 4839.0 Section (VS) Reference: Well (0.00N,0.00E,269.64Azi) Survey Calculation Method: Minimum Curvature Db: Sybase |
|---|--|

Survey

| MD ft | Incl deg | Azim deg | TVD ft | +N/-S ft | +E/-W ft | VS ft | DLS deg/100ft | Build deg/100ft | Turn deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 6435.00 | 8.70 | 256.20 | 6125.08 | -26.26 | -1840.91 | 1841.03 | 1.88 | -1.78 | -3.63 | MWD |
| 6570.00 | 7.50 | 253.40 | 6258.73 | -31.21 | -1859.27 | 1859.42 | 0.94 | -0.89 | -2.07 | MWD |
| 6704.00 | 6.30 | 246.00 | 6391.76 | -36.70 | -1874.36 | 1874.56 | 1.11 | -0.90 | -5.52 | MWD |
| 6836.00 | 5.10 | 244.60 | 6523.10 | -42.16 | -1886.28 | 1886.51 | 0.92 | -0.91 | -1.06 | MWD |
| 6972.00 | 3.80 | 241.10 | 6658.69 | -46.93 | -1895.69 | 1895.94 | 0.98 | -0.96 | -2.57 | MWD |
| 7107.00 | 3.30 | 238.60 | 6793.43 | -51.12 | -1902.92 | 1903.20 | 0.39 | -0.37 | -1.85 | MWD |
| 7242.00 | 3.70 | 231.60 | 6928.18 | -55.85 | -1909.65 | 1909.96 | 0.43 | 0.30 | -5.19 | MWD |
| 7378.00 | 2.70 | 228.10 | 7063.97 | -60.71 | -1915.47 | 1915.82 | 0.75 | -0.74 | -2.57 | MWD |
| 7512.00 | 2.30 | 187.00 | 7197.85 | -65.49 | -1918.15 | 1918.52 | 1.34 | -0.30 | -30.67 | MWD |
| 7693.00 | 3.50 | 202.10 | 7378.62 | -74.22 | -1920.67 | 1921.10 | 0.78 | 0.66 | 8.34 | MWD |
| 7873.00 | 2.30 | 207.00 | 7558.38 | -82.52 | -1924.38 | 1924.86 | 0.68 | -0.67 | 2.72 | MWD |
| 8053.00 | 1.90 | 195.40 | 7738.26 | -88.62 | -1926.81 | 1927.33 | 0.32 | -0.22 | -6.44 | MWD |
| 8165.00 | 1.20 | 185.50 | 7850.22 | -91.58 | -1927.42 | 1927.95 | 0.67 | -0.62 | -8.84 | MWD |
| 8202.79 | 1.20 | 185.50 | 7888.00 | -92.37 | -1927.49 | 1928.03 | 0.00 | 0.00 | 0.00 | 31-1 PBHL |
| 8210.00 | 1.20 | 185.50 | 7895.21 | -92.52 | -1927.51 | 1928.05 | 0.00 | 0.00 | 0.00 | 31-1 BHL |

Targets

| Name | Description Dip. Dir. | TVD ft | +N/-S ft | +E/-W ft | Map Northing ft | Map Easting ft | <---- Latitude ----><--- Longitude ---> | | |
|----------------------|--------------------------|-----------|-------------|-------------|-----------------------|----------------------|---|----|----------|
| 31-1 SL | | 0.00 | 0.00 | 0.00 | 1369246.923183600.52 | | 40 | 20 | 42.377 N |
| 31-1 PBHL | | 7888.00 | -12.02 | -1913.48 | 1369234.903181687.05 | | 40 | 20 | 42.398 N |
| -Circle (Radius: 50) | | | | | | | | | |
| 31-1 BHL | | 7895.21 | -92.52 | -1927.51 | 1369154.403181673.01 | | 40 | 20 | 41.603 N |

Casing Points

| MD ft | TVD ft | Diameter in | Hole Size in | Name |
|----------|-----------|----------------|-----------------|--------|
| 895.00 | 891.03 | 8.625 | 9.875 | 8 5/8" |