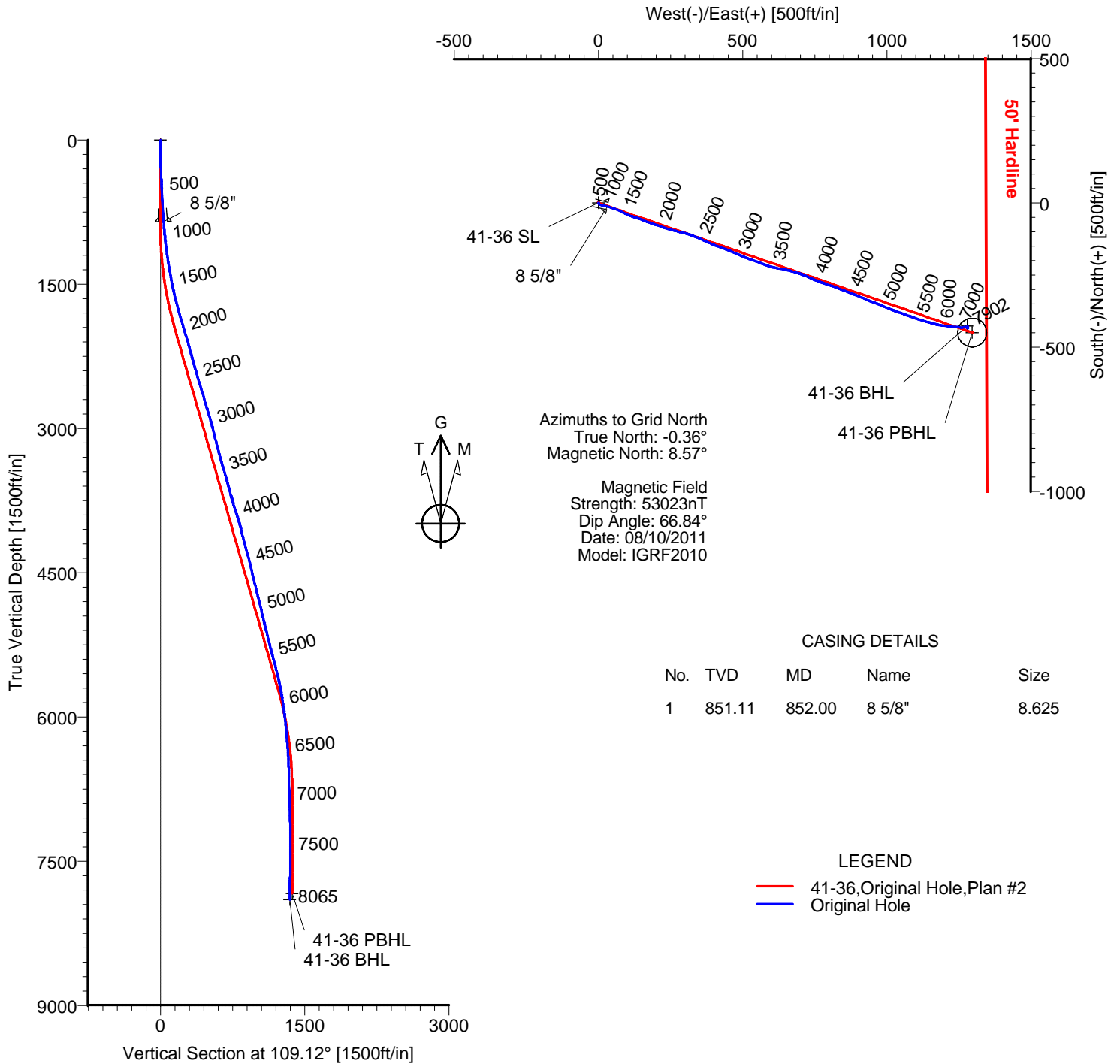


ANADARKO PETROLEUM

Field: Weld County, CO
Site: Carma 17-36 Pad
Well: 41-36
Wellpath: Original Hole



TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | Shape |
|------------|---------|---------|---------|---------------|----------------|---------------------|
| 41-36 SL | 0.00 | 0.00 | 0.00 | 40°11'15.468N | 104°56'47.680W | Point |
| 41-36 PBHL | 7833.00 | -449.37 | 1296.13 | 40°11'10.947N | 104°56'31.016W | Circle (Radius: 50) |
| 41-36 BHL | 7901.59 | -427.18 | 1278.96 | 40°11'11.168N | 104°56'31.235W | Point |

Wellpath: (41-36/Original Hole)

Created By: Ivonne Gonzalez

Date: 08/06/2011

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

Archer

ARCHER

Survey Report

| | | | |
|---|---|---|-------------------------------------|
| Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Carma 17-36 Pad Well: 41-36 Wellpath: Original Hole | Date: 08/06/2011 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method: | Time: 09:08:58 Well: 41-36, Grid North 4831'GL+15'KB 4846.0 Well (0.00N,0.00E,109.12Azi) Minimum Curvature | Page: 1 Db: Sybase |
|---|---|---|-------------------------------------|

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

| | |
|---|--|
| Site: Carma 17-36 Pad Currently centered on 28-36 | |
| Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4831.00 ft | Northing: 1311692.24 ft Easting: 3154610.09 ft Latitude: 40 11 15.576 N Longitude: 104 56 47.832 W North Reference: Grid Grid Convergence: 0.36 deg |

| | |
|---|--|
| Well: 41-36 | Slot Name: 41-36 |
| Well Position: +N/-S -10.80 ft +E/-W 11.84 ft Position Uncertainty: 0.00 ft | Northing: 1311681.44 ft Easting : 3154621.93 ft Latitude: 40 11 15.469 N Longitude: 104 56 47.680 W |

| | |
|--|--|
| Wellpath: Original Hole Current Datum: 4831'GL+15'KB Magnetic Data: 08/10/2011 Field Strength: 53023 nT Vertical Section: Depth From (TVD) ft | Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.92 deg Mag Dip Angle: 66.84 deg +N/-S ft +E/-W ft Direction deg |
| 0.00 | 0.00 0.00 109.12 |

| | | | | |
|---|----------------------|-----------------------------|-----------------|------------------|
| Survey Program for Definitive Wellpath | | | | |
| Date: 08/06/2011 | Validated: No | Version: 0 | | |
| Actual From ft | To ft | Survey | Toolcode | Tool Name |
| 51.00 | 8020.00 | Survey #1 (51.00-8020.00) | MWD | Std MWD |
| 8065.00 | 8065.00 | Survey #2 (8065.00-8065.00) | Project | Projection |

| 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 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | TIE LINE |
| 51.00 | 1.20 | 155.50 | 51.00 | -0.49 | 0.22 | 0.37 | 2.35 | 2.35 | 0.00 | MWD |
| 140.00 | 1.20 | 174.50 | 139.98 | -2.26 | 0.70 | 1.40 | 0.45 | 0.00 | 21.35 | MWD |
| 229.00 | 1.60 | 132.30 | 228.95 | -4.03 | 1.71 | 2.93 | 1.21 | 0.45 | -47.42 | MWD |
| 320.00 | 2.50 | 110.20 | 319.89 | -5.57 | 4.51 | 6.08 | 1.30 | 0.99 | -24.29 | MWD |
| 398.00 | 2.80 | 108.10 | 397.81 | -6.75 | 7.92 | 9.69 | 0.40 | 0.38 | -2.69 | MWD |
| 486.00 | 3.20 | 100.00 | 485.69 | -7.84 | 12.38 | 14.26 | 0.66 | 0.45 | -9.20 | MWD |
| 579.00 | 3.20 | 102.40 | 578.55 | -8.85 | 17.47 | 19.40 | 0.14 | 0.00 | 2.58 | MWD |
| 670.00 | 3.20 | 102.80 | 669.40 | -9.96 | 22.43 | 24.45 | 0.02 | 0.00 | 0.44 | MWD |
| 761.00 | 3.20 | 103.50 | 760.26 | -11.11 | 27.37 | 29.50 | 0.04 | 0.00 | 0.77 | MWD |
| 808.00 | 3.30 | 102.80 | 807.19 | -11.72 | 29.97 | 32.15 | 0.23 | 0.21 | -1.49 | MWD |
| 852.00 | 3.54 | 103.49 | 851.11 | -12.31 | 32.52 | 34.76 | 0.56 | 0.55 | 1.57 | 8 5/8" |
| 881.00 | 3.70 | 103.90 | 880.05 | -12.75 | 34.30 | 36.59 | 0.56 | 0.55 | 1.40 | MWD |
| 972.00 | 4.90 | 117.60 | 970.79 | -15.25 | 40.60 | 43.35 | 1.73 | 1.32 | 15.05 | MWD |
| 1063.00 | 7.00 | 108.80 | 1061.30 | -18.84 | 49.29 | 52.74 | 2.51 | 2.31 | -9.67 | MWD |
| 1154.00 | 7.90 | 103.90 | 1151.53 | -22.13 | 60.61 | 64.52 | 1.21 | 0.99 | -5.38 | MWD |
| 1244.00 | 8.60 | 114.00 | 1240.61 | -26.36 | 72.76 | 77.38 | 1.79 | 0.78 | 11.22 | MWD |
| 1335.00 | 9.50 | 117.20 | 1330.47 | -32.56 | 85.66 | 91.60 | 1.13 | 0.99 | 3.52 | MWD |
| 1426.00 | 10.20 | 114.80 | 1420.13 | -39.37 | 99.65 | 107.05 | 0.89 | 0.77 | -2.64 | MWD |
| 1517.00 | 11.60 | 110.90 | 1509.49 | -46.01 | 115.52 | 124.21 | 1.74 | 1.54 | -4.29 | MWD |
| 1608.00 | 13.40 | 107.40 | 1598.33 | -52.43 | 134.13 | 143.90 | 2.15 | 1.98 | -3.85 | MWD |
| 1699.00 | 14.40 | 111.20 | 1686.66 | -59.67 | 154.74 | 165.75 | 1.49 | 1.10 | 4.18 | MWD |

ARCHER

Survey Report

| | | |
|---|---|--|
| Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Carma 17-36 Pad Well: 41-36 Wellpath: Original Hole | Date: 08/06/2011 Co-ordinate(NE) Reference: Well: 41-36, Grid North Vertical (TVD) Reference: 4831'GL+15'KB 4846.0 Section (VS) Reference: Well (0.00N,0.00E,109.12Azi) Survey Calculation Method: Minimum Curvature | Time: 09:08:58 Page: 2 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 |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 1789.00 | 15.10 | 111.20 | 1773.70 | -67.96 | 176.10 | 188.65 | 0.78 | 0.78 | 0.00 | MWD |
| 1880.00 | 16.50 | 107.70 | 1861.26 | -76.18 | 199.47 | 213.41 | 1.86 | 1.54 | -3.85 | MWD |
| 1971.00 | 16.90 | 109.10 | 1948.42 | -84.43 | 224.28 | 239.56 | 0.62 | 0.44 | 1.54 | MWD |
| 2062.00 | 16.40 | 105.60 | 2035.61 | -92.22 | 249.15 | 265.61 | 1.23 | -0.55 | -3.85 | MWD |
| 2152.00 | 16.20 | 104.20 | 2121.99 | -98.71 | 273.56 | 290.80 | 0.49 | -0.22 | -1.56 | MWD |
| 2243.00 | 15.50 | 102.80 | 2209.53 | -104.52 | 297.72 | 315.53 | 0.88 | -0.77 | -1.54 | MWD |
| 2334.00 | 15.10 | 110.20 | 2297.31 | -111.31 | 320.70 | 339.47 | 2.19 | -0.44 | 8.13 | MWD |
| 2425.00 | 16.40 | 113.70 | 2384.90 | -120.57 | 343.59 | 364.13 | 1.77 | 1.43 | 3.85 | MWD |
| 2516.00 | 16.70 | 114.40 | 2472.13 | -131.13 | 367.26 | 389.95 | 0.40 | 0.33 | 0.77 | MWD |
| 2607.00 | 17.20 | 112.60 | 2559.18 | -141.70 | 391.59 | 416.40 | 0.80 | 0.55 | -1.98 | MWD |
| 2698.00 | 16.50 | 110.20 | 2646.27 | -151.34 | 416.14 | 442.76 | 1.08 | -0.77 | -2.64 | MWD |
| 2788.00 | 15.70 | 109.50 | 2732.74 | -159.81 | 439.62 | 467.71 | 0.91 | -0.89 | -0.78 | MWD |
| 2879.00 | 17.10 | 113.70 | 2820.04 | -169.30 | 463.47 | 493.36 | 2.02 | 1.54 | 4.62 | MWD |
| 2970.00 | 16.40 | 113.70 | 2907.18 | -179.84 | 487.49 | 519.50 | 0.77 | -0.77 | 0.00 | MWD |
| 3061.00 | 14.30 | 112.30 | 2994.92 | -189.27 | 509.65 | 543.53 | 2.34 | -2.31 | -1.54 | MWD |
| 3152.00 | 13.90 | 108.10 | 3083.19 | -196.93 | 530.44 | 565.68 | 1.21 | -0.44 | -4.62 | MWD |
| 3243.00 | 14.30 | 109.80 | 3171.44 | -204.14 | 551.40 | 587.85 | 0.63 | 0.44 | 1.87 | MWD |
| 3334.00 | 15.70 | 112.60 | 3259.34 | -212.68 | 573.35 | 611.38 | 1.73 | 1.54 | 3.08 | MWD |
| 3425.00 | 15.30 | 105.60 | 3347.04 | -220.64 | 596.28 | 635.65 | 2.10 | -0.44 | -7.69 | MWD |
| 3515.00 | 16.50 | 100.30 | 3433.60 | -226.12 | 620.29 | 660.14 | 2.09 | 1.33 | -5.89 | MWD |
| 3606.00 | 16.40 | 100.70 | 3520.87 | -230.81 | 645.63 | 685.62 | 0.17 | -0.11 | 0.44 | MWD |
| 3697.00 | 15.00 | 106.30 | 3608.48 | -236.50 | 669.56 | 710.09 | 2.27 | -1.54 | 6.15 | MWD |
| 3788.00 | 15.00 | 106.30 | 3696.38 | -243.11 | 692.16 | 733.61 | 0.00 | 0.00 | 0.00 | MWD |
| 3879.00 | 17.90 | 113.30 | 3783.66 | -251.95 | 716.32 | 759.33 | 3.85 | 3.19 | 7.69 | MWD |
| 3970.00 | 17.90 | 114.00 | 3870.25 | -263.17 | 741.94 | 787.21 | 0.24 | 0.00 | 0.77 | MWD |
| 4061.00 | 16.40 | 109.80 | 3957.21 | -273.21 | 766.80 | 813.99 | 2.14 | -1.65 | -4.62 | MWD |
| 4152.00 | 14.10 | 108.40 | 4045.00 | -281.06 | 789.41 | 837.93 | 2.56 | -2.53 | -1.54 | MWD |
| 4243.00 | 14.40 | 109.10 | 4133.20 | -288.27 | 810.62 | 860.32 | 0.38 | 0.33 | 0.77 | MWD |
| 4333.00 | 15.30 | 110.20 | 4220.19 | -296.03 | 832.34 | 883.39 | 1.05 | 1.00 | 1.22 | MWD |
| 4424.00 | 15.30 | 111.90 | 4307.96 | -304.65 | 854.75 | 907.39 | 0.49 | 0.00 | 1.87 | MWD |
| 4515.00 | 14.30 | 112.30 | 4395.94 | -313.39 | 876.29 | 930.60 | 1.10 | -1.10 | 0.44 | MWD |
| 4606.00 | 13.00 | 110.20 | 4484.37 | -321.19 | 896.29 | 952.05 | 1.53 | -1.43 | -2.31 | MWD |
| 4697.00 | 13.20 | 113.30 | 4573.01 | -328.84 | 915.44 | 972.65 | 0.80 | 0.22 | 3.41 | MWD |
| 4788.00 | 13.70 | 113.70 | 4661.51 | -337.28 | 934.85 | 993.75 | 0.56 | 0.55 | 0.44 | MWD |
| 4878.00 | 14.80 | 109.10 | 4748.74 | -345.32 | 955.47 | 1015.87 | 1.75 | 1.22 | -5.11 | MWD |
| 4969.00 | 13.50 | 111.60 | 4836.98 | -353.04 | 976.33 | 1038.11 | 1.58 | -1.43 | 2.75 | MWD |
| 5060.00 | 13.20 | 113.30 | 4925.52 | -361.06 | 995.75 | 1059.08 | 0.54 | -0.33 | 1.87 | MWD |
| 5151.00 | 12.50 | 113.30 | 5014.24 | -369.06 | 1014.34 | 1079.27 | 0.77 | -0.77 | 0.00 | MWD |
| 5241.00 | 14.30 | 108.10 | 5101.79 | -376.37 | 1033.85 | 1100.10 | 2.40 | 2.00 | -5.78 | MWD |
| 5332.00 | 14.30 | 110.90 | 5189.97 | -383.87 | 1055.03 | 1122.57 | 0.76 | 0.00 | 3.08 | MWD |
| 5423.00 | 13.90 | 108.80 | 5278.23 | -391.40 | 1075.88 | 1144.73 | 0.71 | -0.44 | -2.31 | MWD |
| 5514.00 | 15.70 | 110.20 | 5366.21 | -399.18 | 1097.78 | 1167.97 | 2.02 | 1.98 | 1.54 | MWD |
| 5605.00 | 14.80 | 106.30 | 5454.01 | -406.69 | 1120.50 | 1191.89 | 1.50 | -0.99 | -4.29 | MWD |
| 5696.00 | 14.10 | 106.30 | 5542.13 | -413.06 | 1142.29 | 1214.57 | 0.77 | -0.77 | 0.00 | MWD |
| 5783.00 | 12.10 | 105.60 | 5626.86 | -418.49 | 1161.25 | 1234.26 | 2.31 | -2.30 | -0.80 | MWD |
| 5874.00 | 10.60 | 101.00 | 5716.08 | -422.65 | 1178.65 | 1252.07 | 1.92 | -1.65 | -5.05 | MWD |
| 5965.00 | 8.40 | 98.90 | 5805.82 | -425.28 | 1193.44 | 1266.90 | 2.45 | -2.42 | -2.31 | MWD |
| 6056.00 | 9.20 | 98.60 | 5895.75 | -427.40 | 1207.20 | 1280.59 | 0.88 | 0.88 | -0.33 | MWD |
| 6146.00 | 7.20 | 95.80 | 5984.83 | -429.04 | 1219.92 | 1293.16 | 2.27 | -2.22 | -3.11 | MWD |
| 6237.00 | 6.00 | 93.00 | 6075.22 | -429.87 | 1230.34 | 1303.27 | 1.36 | -1.32 | -3.08 | MWD |
| 6328.00 | 4.90 | 87.70 | 6165.81 | -429.96 | 1238.98 | 1311.46 | 1.33 | -1.21 | -5.82 | MWD |
| 6418.00 | 5.10 | 104.60 | 6255.47 | -430.81 | 1246.69 | 1319.03 | 1.65 | 0.22 | 18.78 | MWD |
| 6509.00 | 4.00 | 96.80 | 6346.19 | -432.21 | 1253.76 | 1326.16 | 1.38 | -1.21 | -8.57 | MWD |

ARCHER

Survey Report

| | |
|---|---|
| Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Carma 17-36 Pad Well: 41-36 Wellpath: Original Hole | Date: 08/06/2011 Co-ordinate(NE) Reference: Well: 41-36, Grid North Vertical (TVD) Reference: 4831'GL+15'KB 4846.0 Section (VS) Reference: Well (0.00N,0.00E,109.12Azi) 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 |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 6600.00 | 3.00 | 89.40 | 6437.02 | -432.56 | 1259.29 | 1331.50 | 1.20 | -1.10 | -8.13 | MWD |
| 6691.00 | 2.10 | 79.90 | 6527.93 | -432.24 | 1263.31 | 1335.20 | 1.09 | -0.99 | -10.44 | MWD |
| 6781.00 | 1.60 | 72.60 | 6617.88 | -431.58 | 1266.13 | 1337.65 | 0.61 | -0.56 | -8.11 | MWD |
| 6872.00 | 1.20 | 61.00 | 6708.85 | -430.74 | 1268.18 | 1339.31 | 0.54 | -0.44 | -12.75 | MWD |
| 6963.00 | 1.20 | 50.10 | 6799.83 | -429.66 | 1269.74 | 1340.43 | 0.25 | 0.00 | -11.98 | MWD |
| 7054.00 | 2.60 | 128.10 | 6890.79 | -430.32 | 1272.10 | 1342.88 | 2.89 | 1.54 | 85.71 | MWD |
| 7145.00 | 2.30 | 114.00 | 6981.71 | -432.34 | 1275.39 | 1346.65 | 0.74 | -0.33 | -15.49 | MWD |
| 7236.00 | 1.40 | 110.90 | 7072.66 | -433.48 | 1278.10 | 1349.58 | 0.99 | -0.99 | -3.41 | MWD |
| 7326.00 | 0.70 | 108.80 | 7162.64 | -434.05 | 1279.65 | 1351.23 | 0.78 | -0.78 | -2.33 | MWD |
| 7417.00 | 0.20 | 81.40 | 7253.64 | -434.21 | 1280.33 | 1351.92 | 0.58 | -0.55 | -30.11 | MWD |
| 7508.00 | 0.40 | 21.90 | 7344.64 | -433.89 | 1280.61 | 1352.08 | 0.38 | 0.22 | -65.38 | MWD |
| 7599.00 | 0.90 | 1.50 | 7435.63 | -432.88 | 1280.74 | 1351.88 | 0.60 | 0.55 | -22.42 | MWD |
| 7690.00 | 0.70 | 345.40 | 7526.63 | -431.63 | 1280.62 | 1351.35 | 0.33 | -0.22 | -17.69 | MWD |
| 7781.00 | 0.90 | 327.10 | 7617.62 | -430.49 | 1280.09 | 1350.48 | 0.35 | 0.22 | -20.11 | MWD |
| 7871.00 | 0.50 | 345.40 | 7707.61 | -429.51 | 1279.61 | 1349.71 | 0.50 | -0.44 | 20.33 | MWD |
| 7963.00 | 0.70 | 358.00 | 7799.60 | -428.56 | 1279.49 | 1349.28 | 0.26 | 0.22 | 13.70 | MWD |
| 7996.40 | 0.80 | 342.07 | 7833.00 | -428.14 | 1279.41 | 1349.07 | 0.69 | 0.30 | -47.68 | 41-36 PBHL |
| 8020.00 | 0.90 | 333.40 | 7856.60 | -427.82 | 1279.28 | 1348.83 | 0.69 | 0.42 | -36.75 | MWD |
| 8065.00 | 0.90 | 333.40 | 7901.59 | -427.18 | 1278.96 | 1348.33 | 0.00 | 0.00 | 0.00 | 41-36 BHL |

Targets

| Name | Description Dip. | Dir. | TVD ft | +N/-S ft | +E/-W ft | Map Northing ft | Map Easting ft | <--- Latitude ---> | | | <--- Longitude ---> | | |
|----------------------|---------------------|------|-----------|-------------|-------------|-----------------------|----------------------|--------------------|----|----------|---------------------|----|----------|
| 41-36 SL | | | 0.00 | 0.00 | 0.00 | 1311681.44 | 3154621.93 | 40 | 11 | 15.468 N | 104 | 56 | 47.680 W |
| 41-36 PBHL | | | 7833.00 | -449.37 | 1296.13 | 1311232.07 | 3155918.06 | 40 | 11 | 10.947 N | 104 | 56 | 31.016 W |
| -Circle (Radius: 50) | | | | | | | | | | | | | |
| 41-36 BHL | | | 7901.59 | -427.18 | 1278.96 | 1311254.26 | 3155900.89 | 40 | 11 | 11.168 N | 104 | 56 | 31.235 W |

Casing Points

| MD ft | TVD ft | Diameter in | Hole Size in | Name |
|----------|-----------|----------------|-----------------|--------|
| 852.00 | 851.11 | 8.625 | 9.875 | 8 5/8" |