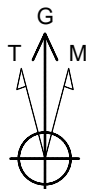


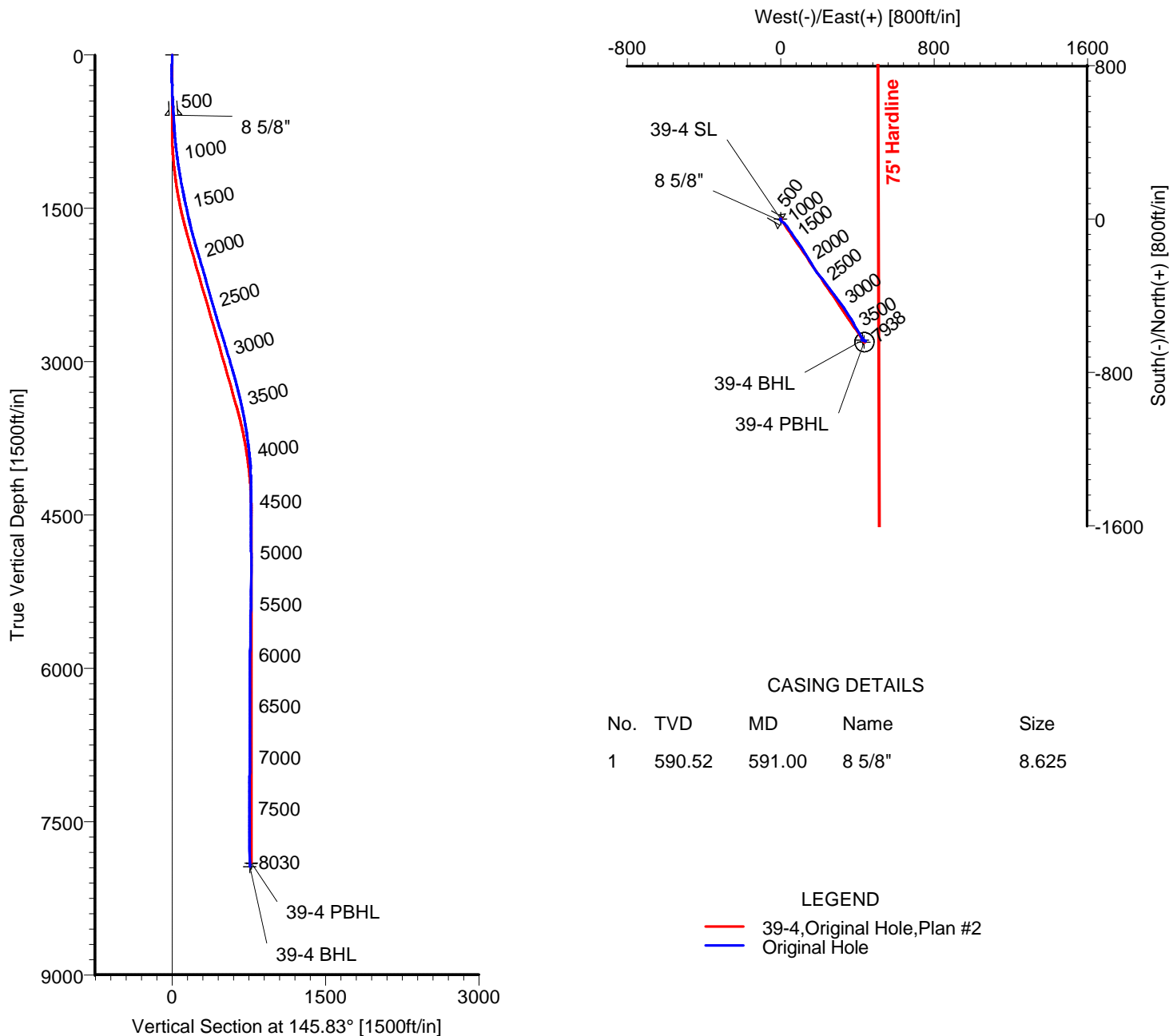
ANADARKO PETROLEUM

Field: Weld County, CO
Site: Spivey 9-4 Pad
Well: 39-4
Wellpath: Original Hole



Azimuths to Grid North
True North: -0.47°
Magnetic North: 8.40°

Magnetic Field
Strength: 53102nT
Dip Angle: 66.93°
Date: 05/10/2011
Model: IGRF2010



TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | Shape |
|-----------|---------|---------|--------|---------------|----------------|---------------------|
| 39-4 SL | 0.00 | 0.00 | 0.00 | 40°15'06.646N | 104°46'29.158W | Point |
| 39-4 PBHL | 7905.00 | -642.25 | 435.98 | 40°15'00.264N | 104°46'23.603W | Circle (Radius: 50) |
| 39-4 BHL | 8030.00 | -631.06 | 427.86 | 40°15'00.375N | 104°46'23.706W | Point |

Wellpath: (39-4/Original Hole)

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

Created By: Ivonne Gonzalez

Date: 05/10/2011



DIRECTIONAL
DRILLING SERVICES

Allis-Chalmers Energy, Inc.

Survey Report

| | | | |
|---|---|--|-------------------------------------|
| Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Spivey 9-4 Pad Well: 39-4 Wellpath: Original Hole | Date: 05/10/2011 Co-ordinate(NE) Reference: Vertical (TVD) Reference: Section (VS) Reference: Survey Calculation Method: | Time: 08:54:35 Well: 39-4, Grid North 4834'GL+15'KB 4849.0 Well (0.00N,0.00E,145.83Azi) Minimum Curvature | Page: 1 Db: Adapti |
|---|---|--|-------------------------------------|

| | |
|---|---|
| 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: Spivey 9-4 Pad Centered on 39-4 Site Position: From: Geographic Position Uncertainty: 0.00 ft Ground Level: 4834.00 ft | Northing: 1335419.65 ft Easting: 3202430.70 ft Latitude: 40 15 6.646 N Longitude: 104 46 29.158 W North Reference: Grid Grid Convergence: 0.47 deg |
|--|---|

| | |
|---|--|
| Well: 39-4 Well Position: +N/-S 0.00 ft +E/-W 0.00 ft Position Uncertainty: 0.00 ft | Slot Name: 39-4 Well Position: +N/-S 0.00 ft +E/-W 0.00 ft Position Uncertainty: 0.00 ft |
|---|--|

| | |
|--|---|
| Wellpath: Original Hole Current Datum: 4834'GL+15'KB Magnetic Data: 05/10/2011 Field Strength: 53102 nT Vertical Section: Depth From (TVD) ft | Drilled From: Surface Tie-on Depth: 0.00 ft Above System Datum: Mean Sea Level Declination: 8.87 deg Mag Dip Angle: 66.93 deg Direction: deg |
| 0.00 | 0.00 |

| | | | | |
|---|----------------------|-----------------------------|-----------------|------------------|
| Survey Program for Definitive Wellpath | | | | |
| Date: 05/10/2011 | Validated: No | Version: 0 | | |
| Actual From ft | To ft | Survey | Toolcode | Tool Name |
| 51.00 | 7985.00 | Survey #1 (51.00-7985.00) | MWD | Std MWD |
| 8030.00 | 8030.00 | Survey #2 (8030.00-8030.00) | MWD | Std MWD |

| 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 | 0.40 | 224.00 | 51.00 | -0.13 | -0.12 | 0.04 | 0.78 | 0.78 | 0.00 | MWD |
| 142.00 | 1.20 | 259.90 | 141.99 | -0.52 | -1.28 | -0.29 | 1.00 | 0.88 | 39.45 | MWD |
| 231.00 | 0.50 | 197.70 | 230.98 | -1.06 | -2.32 | -0.43 | 1.19 | -0.79 | -69.89 | MWD |
| 321.00 | 2.30 | 182.90 | 320.95 | -3.23 | -2.53 | 1.26 | 2.02 | 2.00 | -16.44 | MWD |
| 428.00 | 3.30 | 150.90 | 427.83 | -8.07 | -1.14 | 6.04 | 1.70 | 0.93 | -29.91 | MWD |
| 519.00 | 3.70 | 121.40 | 518.67 | -11.89 | 2.64 | 11.32 | 2.00 | 0.44 | -32.42 | MWD |
| 546.00 | 3.70 | 119.30 | 545.61 | -12.77 | 4.14 | 12.89 | 0.50 | 0.00 | -7.78 | MWD |
| 591.00 | 3.64 | 119.30 | 590.52 | -14.18 | 6.66 | 15.47 | 0.13 | -0.13 | 0.00 | 8 5/8" |
| 700.00 | 3.50 | 119.30 | 699.31 | -17.50 | 12.58 | 21.54 | 0.13 | -0.13 | 0.00 | MWD |
| 791.00 | 5.10 | 133.00 | 790.05 | -21.62 | 17.96 | 27.97 | 2.08 | 1.76 | 15.05 | MWD |
| 882.00 | 6.30 | 140.00 | 880.60 | -28.20 | 24.13 | 36.88 | 1.52 | 1.32 | 7.69 | MWD |
| 972.00 | 7.20 | 141.80 | 969.97 | -36.42 | 30.79 | 47.42 | 1.03 | 1.00 | 2.00 | MWD |
| 1064.00 | 8.40 | 146.00 | 1061.12 | -46.52 | 38.11 | 59.90 | 1.44 | 1.30 | 4.57 | MWD |
| 1154.00 | 9.50 | 144.90 | 1150.02 | -58.05 | 46.06 | 73.90 | 1.24 | 1.22 | -1.22 | MWD |
| 1245.00 | 10.40 | 147.70 | 1239.66 | -71.13 | 54.77 | 89.61 | 1.12 | 0.99 | 3.08 | MWD |
| 1336.00 | 10.70 | 147.40 | 1329.12 | -85.19 | 63.71 | 106.27 | 0.34 | 0.33 | -0.33 | MWD |
| 1427.00 | 12.50 | 142.80 | 1418.26 | -100.16 | 74.21 | 124.55 | 2.22 | 1.98 | -5.05 | MWD |
| 1518.00 | 12.00 | 142.10 | 1507.18 | -115.47 | 85.98 | 143.82 | 0.57 | -0.55 | -0.77 | MWD |
| 1608.00 | 12.30 | 147.00 | 1595.17 | -130.89 | 96.95 | 162.74 | 1.19 | 0.33 | 5.44 | MWD |
| 1699.00 | 14.30 | 148.10 | 1683.73 | -148.56 | 108.17 | 183.67 | 2.22 | 2.20 | 1.21 | MWD |
| 1790.00 | 15.30 | 147.40 | 1771.71 | -168.22 | 120.57 | 206.90 | 1.12 | 1.10 | -0.77 | MWD |

Allis-Chalmers Energy, Inc.

Survey Report

| | | |
|---|--|--|
| Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Spivey 9-4 Pad Well: 39-4 Wellpath: Original Hole | Date: 05/10/2011 Co-ordinate(NE) Reference: Well: 39-4, Grid North Vertical (TVD) Reference: 4834'GL+15'KB 4849.0 Section (VS) Reference: Well (0.00N,0.00E,145.83Azi) Survey Calculation Method: Minimum Curvature | Time: 08:54:35 Page: 2 Db: Adapti |
|---|--|--|

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 |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 1881.00 | 15.70 | 150.90 | 1859.40 | -189.09 | 133.03 | 231.17 | 1.12 | 0.44 | 3.85 | MWD |
| 1972.00 | 16.90 | 148.80 | 1946.74 | -211.16 | 145.87 | 256.64 | 1.47 | 1.32 | -2.31 | MWD |
| 2062.00 | 16.20 | 148.80 | 2033.01 | -233.09 | 159.15 | 282.24 | 0.78 | -0.78 | 0.00 | MWD |
| 2153.00 | 16.90 | 146.70 | 2120.24 | -255.01 | 172.99 | 308.14 | 1.01 | 0.77 | -2.31 | MWD |
| 2244.00 | 15.80 | 143.50 | 2207.56 | -276.02 | 187.62 | 333.75 | 1.56 | -1.21 | -3.52 | MWD |
| 2335.00 | 15.80 | 141.10 | 2295.12 | -295.62 | 202.77 | 358.48 | 0.72 | 0.00 | -2.64 | MWD |
| 2426.00 | 15.80 | 142.80 | 2382.69 | -315.13 | 218.04 | 383.19 | 0.51 | 0.00 | 1.87 | MWD |
| 2516.00 | 15.80 | 142.50 | 2469.29 | -334.61 | 232.91 | 407.66 | 0.09 | 0.00 | -0.33 | MWD |
| 2607.00 | 16.20 | 142.80 | 2556.76 | -354.55 | 248.12 | 432.71 | 0.45 | 0.44 | 0.33 | MWD |
| 2698.00 | 17.20 | 141.80 | 2643.92 | -375.24 | 264.12 | 458.80 | 1.14 | 1.10 | -1.10 | MWD |
| 2789.00 | 17.80 | 141.80 | 2730.71 | -396.74 | 281.04 | 486.10 | 0.66 | 0.66 | 0.00 | MWD |
| 2879.00 | 17.10 | 144.60 | 2816.57 | -418.34 | 297.21 | 513.05 | 1.21 | -0.78 | 3.11 | MWD |
| 2970.00 | 16.50 | 143.20 | 2903.68 | -439.59 | 312.70 | 539.34 | 0.80 | -0.66 | -1.54 | MWD |
| 3061.00 | 16.50 | 144.90 | 2990.94 | -460.51 | 327.88 | 565.17 | 0.53 | 0.00 | 1.87 | MWD |
| 3152.00 | 16.70 | 148.40 | 3078.15 | -482.22 | 342.16 | 591.15 | 1.12 | 0.22 | 3.85 | MWD |
| 3242.00 | 15.30 | 146.70 | 3164.66 | -503.16 | 355.45 | 615.94 | 1.64 | -1.56 | -1.89 | MWD |
| 3333.00 | 13.90 | 147.40 | 3252.72 | -522.40 | 367.94 | 638.88 | 1.55 | -1.54 | 0.77 | MWD |
| 3424.00 | 13.70 | 153.70 | 3341.10 | -541.27 | 378.60 | 660.48 | 1.67 | -0.22 | 6.92 | MWD |
| 3515.00 | 12.50 | 154.10 | 3429.73 | -559.79 | 387.68 | 680.90 | 1.32 | -1.32 | 0.44 | MWD |
| 3606.00 | 11.10 | 149.80 | 3518.80 | -576.23 | 396.38 | 699.38 | 1.82 | -1.54 | -4.73 | MWD |
| 3696.00 | 10.00 | 150.20 | 3607.28 | -590.49 | 404.63 | 715.82 | 1.22 | -1.22 | 0.44 | MWD |
| 3787.00 | 8.30 | 146.30 | 3697.12 | -602.82 | 412.20 | 730.27 | 1.99 | -1.87 | -4.29 | MWD |
| 3878.00 | 7.70 | 145.30 | 3787.23 | -613.29 | 419.31 | 742.93 | 0.68 | -0.66 | -1.10 | MWD |
| 3968.00 | 6.20 | 143.20 | 3876.57 | -622.14 | 425.66 | 753.82 | 1.69 | -1.67 | -2.33 | MWD |
| 4059.00 | 4.80 | 135.40 | 3967.15 | -628.79 | 431.27 | 762.47 | 1.74 | -1.54 | -8.57 | MWD |
| 4150.00 | 2.50 | 143.90 | 4057.96 | -633.10 | 435.12 | 768.20 | 2.59 | -2.53 | 9.34 | MWD |
| 4241.00 | 1.00 | 140.00 | 4148.91 | -635.32 | 436.80 | 770.97 | 1.65 | -1.65 | -4.29 | MWD |
| 4332.00 | 0.90 | 92.90 | 4239.90 | -635.96 | 438.02 | 772.19 | 0.84 | -0.11 | -51.76 | MWD |
| 4423.00 | 0.50 | 68.60 | 4330.90 | -635.85 | 439.11 | 772.71 | 0.54 | -0.44 | -26.70 | MWD |
| 4604.00 | 0.40 | 93.60 | 4511.89 | -635.60 | 440.47 | 773.27 | 0.12 | -0.06 | 13.81 | MWD |
| 4786.00 | 0.20 | 215.90 | 4693.89 | -635.90 | 440.92 | 773.77 | 0.29 | -0.11 | 67.20 | MWD |
| 4967.00 | 1.10 | 195.20 | 4874.88 | -637.83 | 440.28 | 775.01 | 0.51 | 0.50 | -11.44 | MWD |
| 5149.00 | 0.70 | 332.70 | 5056.87 | -638.53 | 439.31 | 775.04 | 0.93 | -0.22 | 75.55 | MWD |
| 5331.00 | 0.70 | 335.80 | 5238.85 | -636.53 | 438.34 | 772.84 | 0.02 | 0.00 | 1.70 | MWD |
| 5513.00 | 0.90 | 323.20 | 5420.83 | -634.37 | 437.03 | 770.32 | 0.15 | 0.11 | -6.92 | MWD |
| 5694.00 | 0.70 | 310.20 | 5601.82 | -632.52 | 435.34 | 767.84 | 0.15 | -0.11 | -7.18 | MWD |
| 5876.00 | 0.90 | 286.30 | 5783.80 | -631.40 | 433.12 | 765.66 | 0.21 | 0.11 | -13.13 | MWD |
| 6057.00 | 0.70 | 271.80 | 5964.78 | -630.97 | 430.65 | 763.92 | 0.16 | -0.11 | -8.01 | MWD |
| 6239.00 | 0.90 | 257.40 | 6146.76 | -631.24 | 428.14 | 762.74 | 0.16 | 0.11 | -7.91 | MWD |
| 6421.00 | 0.50 | 285.20 | 6328.75 | -631.35 | 425.98 | 761.61 | 0.28 | -0.22 | 15.27 | MWD |
| 6602.00 | 0.40 | 131.60 | 6509.75 | -631.56 | 425.69 | 761.62 | 0.48 | -0.06 | -84.86 | MWD |
| 6784.00 | 0.20 | 243.40 | 6691.75 | -632.12 | 425.88 | 762.20 | 0.28 | -0.11 | 61.43 | MWD |
| 6965.00 | 0.40 | 291.20 | 6872.75 | -632.04 | 425.01 | 761.64 | 0.17 | 0.11 | 26.41 | MWD |
| 7147.00 | 0.90 | 343.20 | 7054.73 | -630.44 | 424.00 | 759.75 | 0.40 | 0.27 | 28.57 | MWD |
| 7329.00 | 0.40 | 317.20 | 7236.72 | -628.60 | 423.16 | 757.76 | 0.31 | -0.27 | -14.29 | MWD |
| 7511.00 | 0.50 | 284.80 | 7418.72 | -627.93 | 421.96 | 756.53 | 0.15 | 0.05 | -17.80 | MWD |
| 7692.00 | 0.90 | 116.80 | 7599.71 | -628.37 | 422.46 | 757.18 | 0.77 | 0.22 | -92.82 | MWD |
| 7874.00 | 1.10 | 104.80 | 7781.68 | -629.46 | 425.43 | 759.74 | 0.16 | 0.11 | -6.59 | MWD |
| 7985.00 | 1.10 | 133.30 | 7892.66 | -630.47 | 427.23 | 761.59 | 0.49 | 0.00 | 25.68 | MWD |
| 7997.34 | 1.10 | 133.30 | 7905.00 | -630.63 | 427.41 | 761.82 | 0.00 | 0.00 | 0.00 | 39-4 PBHL |
| 8030.00 | 1.10 | 133.30 | 7937.66 | -631.06 | 427.86 | 762.43 | 0.00 | 0.00 | 0.00 | 39-4 BHL |

Allis-Chalmers Energy, Inc.

Survey Report

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|---|--|
| Company: ANADARKO PETROLEUM Field: Weld County, CO Site: Spivey 9-4 Pad Well: 39-4 Wellpath: Original Hole | Date: 05/10/2011 Co-ordinate(NE) Reference: Well: 39-4, Grid North Vertical (TVD) Reference: 4834'GL+15'KB 4849.0 Section (VS) Reference: Well (0.00N,0.00E,145.83Azi) Survey Calculation Method: Minimum Curvature Db: Adapti |
|---|--|

Targets

| Name | Description | Dir. | TVD ft | +N/-S ft | +E/-W ft | Map Northing ft | Map Easting ft | <---- Latitude ----> | | | <--- Longitude ---> | | | | |
|----------------------|-------------|------|-----------|-------------|-------------|-----------------------|----------------------|----------------------|-----|-------|---------------------|-----|-----|--------|---|
| | | | | | | | | Deg | Min | Sec | Deg | Min | Sec | | |
| 39-4 SL | | | 0.00 | 0.00 | 0.00 | 1335419.65 | 3202430.70 | 40 | 15 | 6.646 | N | 104 | 46 | 29.158 | W |
| 39-4 PBHL | | | 7905.00 | -642.25 | 435.98 | 1334777.40 | 3202866.69 | 40 | 15 | 0.264 | N | 104 | 46 | 23.603 | W |
| -Circle (Radius: 50) | | | | | | | | | | | | | | | |
| 39-4 BHL | | | 7937.66 | -631.06 | 427.86 | 1334788.59 | 3202858.56 | 40 | 15 | 0.375 | N | 104 | 46 | 23.706 | W |

Casing Points

| MD ft | TVD ft | Diameter in | Hole Size in | Name |
|----------|-----------|----------------|-----------------|--------|
| 591.00 | 590.52 | 8.625 | 9.875 | 8 5/8" |