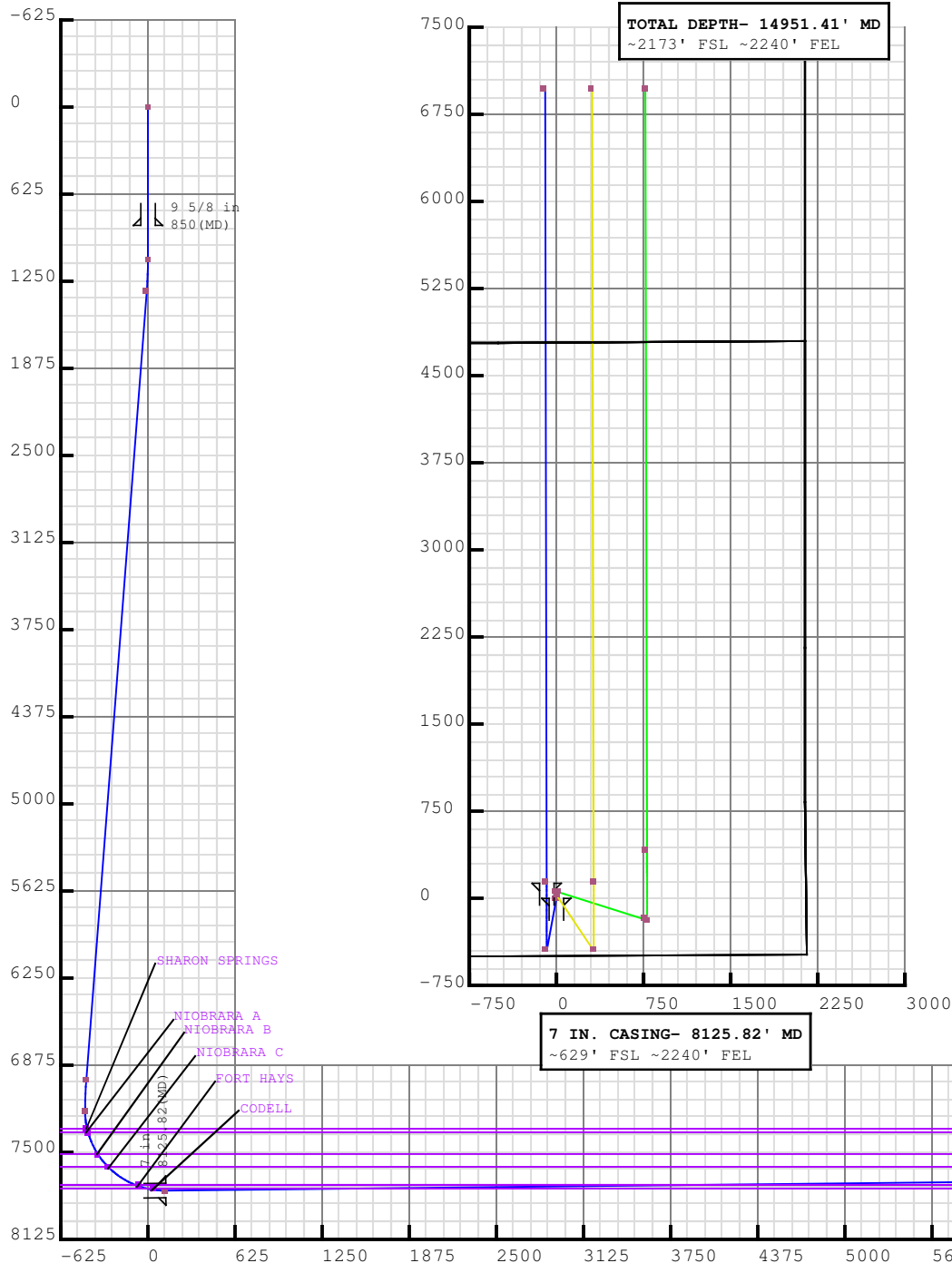


**5D Plan Report****Anadarko Petroleum**

Field Name: *WATTENBERG_ANADARKO_NAD 83*
Site Name: *HOWARD 15-27HZ*
Well Name: *HOWARD 25C-22HZ*
Plan: *WP01 PERMIT*





Plan Data for HOWARD 25C-22HZ

Field: WATTENBERG ANADARKO_NAD 83

Map Unit: USFt Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / Colorado North (ftUS)

Slot: HOWARD 25C-22HZ

Position:

Offset is from Site centre

+N/-S: -0.00USFt Northing: 1249373.86USFt Latitude: 40.016224°

+E/-W: -0.00USFt Easting: 3175072.22USFt Longitude: -104.874931°

Elevation Above VRD: 5033.00USFt

Plan Point Information:

| MD | Inc | Az | TVD | +N/-S | +E/-W | VSec | DLS | Toolface |
|----------|-------|--------|---------|---------|--------|---------|--------|----------|
| (USft) | (°) | (°) | (USft) | (USft) | (USft) | (USft) | (DLSU) | (°) |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0R |
| 1100.00 | 0.00 | 0.00 | 1100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.0R |
| 1322.92 | 4.46 | 190.30 | 1322.69 | -8.53 | -1.55 | -8.53 | 2.00 | 169.7L |
| 6996.77 | 4.46 | 190.30 | 6979.38 | -442.47 | -80.45 | -442.32 | 0.00 | 0.0R |
| 7219.69 | 0.00 | 0.00 | 7202.07 | -451.00 | -82.00 | -450.84 | 2.00 | 180.0L |
| 8125.82 | 90.61 | 359.89 | 7775.00 | 128.08 | -83.10 | 128.24 | 10.00 | 0.1L |
| 14951.41 | 90.61 | 359.89 | 7702.00 | 6953.28 | -96.04 | 6953.45 | 0.00 | 0.0R |

Plan Data for HOWARD 25C-22HZ

Formation Point Information:

| Name | TVD | Elevation | MD |
|----------------|---------|-----------|---------|
| | (USft) | (USft) | (USft) |
| FOX HILLS BASE | 808.00 | 4250.00 | 808.00 |
| SUSSEX | 4798.00 | 260.00 | 4808.77 |
| SHANNON | 5338.00 | -280.00 | 5350.41 |
| SHARON SPRINGS | 7334.00 | -2276.00 | 7352.81 |
| NIOBRARA A | 7360.00 | -2302.00 | 7379.69 |
| NIOBRARA B | 7518.00 | -2460.00 | 7554.32 |
| NIOBRARA C | 7615.00 | -2557.00 | 7680.81 |
| FORT HAYS | 7744.00 | -2686.00 | 7930.27 |
| CODELL | 7769.00 | -2711.00 | 8036.51 |

Plan Data for HOWARD 25C-22HZ

Casing Point Information:

| Name | MD | TVD |
|----------|---------|---------|
| | (USft) | (USft) |
| 9 5/8 in | 850.00 | 850.00 |
| 7 in | 8125.82 | 7774.99 |

LINER TOP- 7119.69' MD

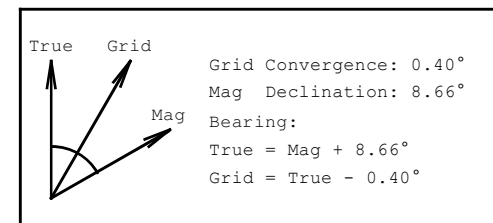
KOP- 7219.69

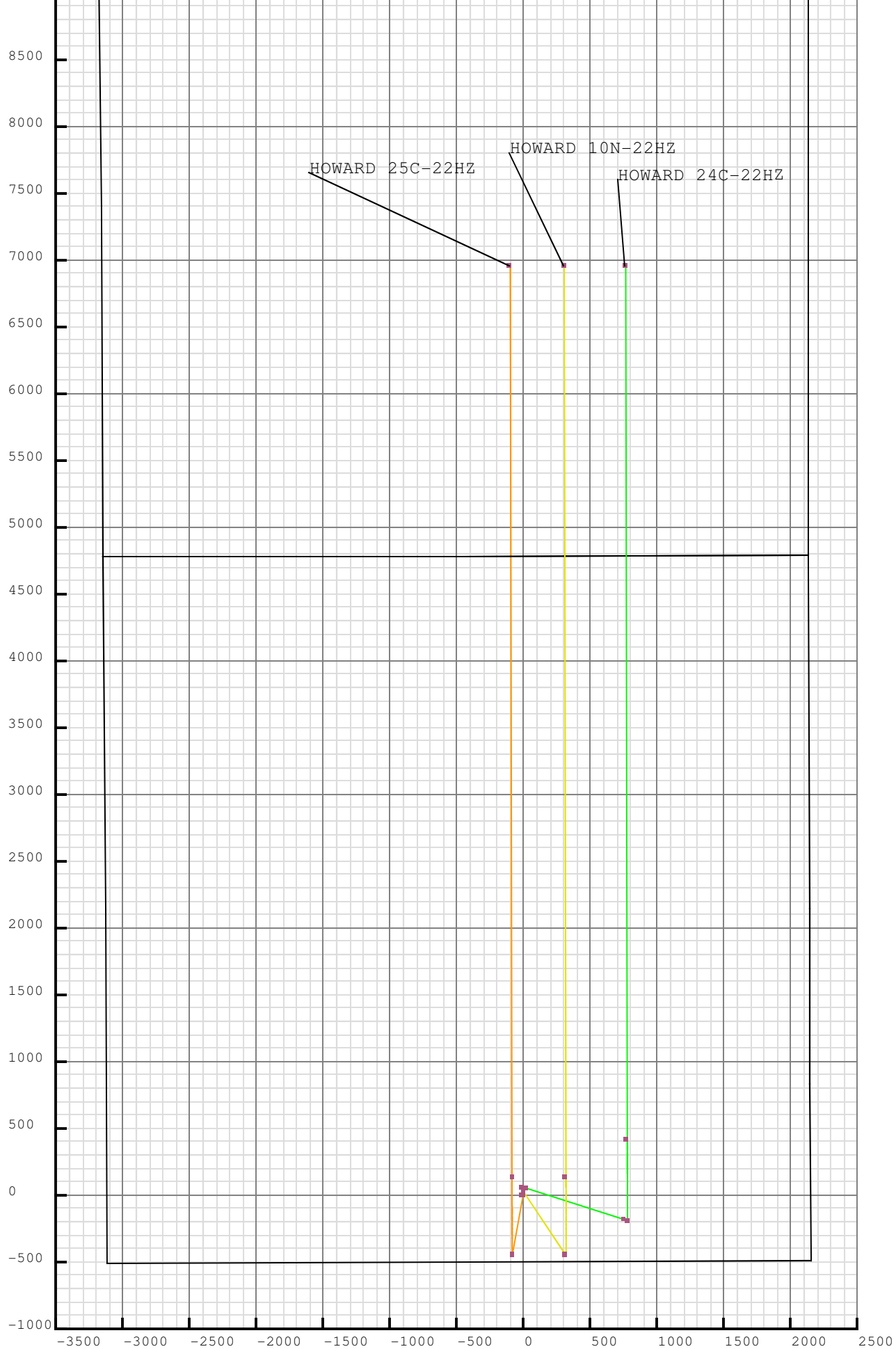
Plan Data for HOWARD 25C-22HZ

Target Set Information:

Name: 9

| Name | TVD | Lat | Long | Shape |
|------|---------|-----------|-------------|--------|
| | (USft) | (°) | (°) | |
| PBHL | 7702.00 | 40.035312 | -104.875274 | Cuboid |





Spider Plot - Top

Site: HOWARD 15-27HZ



Weatherford®



Plan Surveys for the HOWARD 25C-22HZ

| | | | |
|-------------------------------------|--|------------------------------------|---------------------------------|
| Site Name HOWARD 15-27HZ | Units : US ft | North Reference : True | Convergence Angle : 0.40 |
| | Position | Northing : 1249373.86 US ft | Latitude : 40.016224 |
| | | Easting : 3175072.22 US ft | Longitude : -104.874931 |
| | Elevation above: 5033.00 US ft Comment : | | |
| Slot Name HOWARD 25C-22HZ | Position (Offsets relative to Site Centre) | | |
| | +N / -S : -0.00 US ft | Northing : 1249373.86 US ft | Latitude : 40.016224 |
| | +E / -W : -0.00 US ft | Easting : 3175072.22 US ft | Longitude : -104.874931 |
| | Slot TVD Reference : Ground Elevation Elevation above : 5033.00 US ft Comment : | | |
| Well Name HOWARD 25C-22HZ | Type : Main well | UWI : | Plan : WP01 PERMIT |
| | Rig Height Drill Floor : 25.00 US ft | Comment : | |
| | Relative to : 5058.00 US ft | | |
| | Closure Distance : 6953.94 US ft | Closure Azimuth : 359.209° | |
| | Vertical Section (Position of Origin Relative to Slot) | | |
| | +N / -S : 0.00 US ft | | |
| | Magnetic Parameters | +E / -W : 0.00 US ft | Az : 359.89° |
| | Model : BGGM | Field Strength : 52686.9nT | Dec : 8.66° |
| | | Dip : 66.65° | Date : 22/May/2013 |

Target Set

Name : 9

Number of Targets : 1

Comment :

| TargetName: | Position (Relative to centre) | | | |
|-------------|-----------------------------------|---------------------|-----------------------------|---------------------|
| PBHL | +N / -S : 6953.28US ft | | Northing : 1256326.29 US ft | |
| Shape: | +E / -W : -96.04 US ft | | Latitude : 40°2'7.123200" | |
| | Longitude : -104°52'30.986400" | | | |
| Cuboid | TVD (Drill Floor) : 7702.00 US ft | | | |
| | Orientation | Azimuth : 0.00° | Inclination : 0.00° | |
| | Dimensions | Length : 1.00 US ft | Breadth : 1.00 US ft | Height : 1.00 US ft |

Casing Points (Relative to centre, TVD relative to Drill Floor)

| Name | MD (US ft) | Inc (°) | Az (°) | TVD (US ft) | N.Offset (US ft) | E.Offset (US ft) | Latitude (°) | Longitude (°) |
|----------|------------|---------|--------|-------------|------------------|------------------|--------------|---------------|
| 9 5/8 in | 850.00 | 0.00 | 0.00 | 850.00 | 0.00 | 0.00 | 40.016224 | -104.874931 |
| 7 in | 8125.82 | 90.61 | 359.89 | 7774.99 | 128.09 | -83.10 | 40.016576 | -104.875228 |

Well path created using minimum curvature

Salient Points (Relative to centre, TVD relative to Drill Floor)

| MD (US ft) | Inc (°) | Az (°) | TVD (US ft) | N.Offset (US ft) | E.Offset (US ft) | Northing (US ft) | Easting (US ft) | DLS (°/100 US ft) | T.Face (°) | VS (US ft) | Comment |
|------------|---------|--------|-------------|------------------|------------------|------------------|-----------------|-------------------|------------|------------|------------------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1249373.86 | 3175072.22 | 0.00 | 0.00 | 0.00 | SURFACE |
| 808.00 | 0.00 | 0.00 | 808.00 | 0.00 | 0.00 | 1249373.86 | 3175072.22 | 0.00 | 0.00 | 0.00 | FOX HILLS BASE : |
| 850.00 | 0.00 | 0.00 | 850.00 | 0.00 | 0.00 | 1249373.86 | 3175072.22 | 0.00 | 0.00 | 0.00 | 9 5/8 in |
| 1100.00 | 0.00 | 0.00 | 1100.00 | 0.00 | 0.00 | 1249373.86 | 3175072.22 | 0.00 | 0.00 | 0.00 | BEGIN NUDGE |
| 1322.92 | 4.46 | 190.30 | 1322.69 | -8.53 | -1.55 | 1249365.32 | 3175070.73 | 2.00 | 190.30 | -8.53 | BEGIN HOLD |
| 4808.77 | 4.46 | 190.30 | 4798.00 | -275.13 | -50.02 | 1249098.38 | 3175024.14 | 0.00 | 0.00 | -275.03 | SUSSEX : |
| 5350.41 | 4.46 | 190.30 | 5338.00 | -316.56 | -57.56 | 1249056.91 | 3175016.90 | 0.00 | 0.00 | -316.45 | SHANNON : |
| 6996.77 | 4.46 | 190.30 | 6979.38 | -442.47 | -80.45 | 1248930.83 | 3174994.89 | 0.00 | 0.00 | -442.32 | BEGIN DROP |
| 7219.69 | 0.00 | 0.00 | 7202.07 | -451.00 | -82.00 | 1248922.29 | 3174993.40 | 2.00 | 180.00 | -450.84 | KOP |
| 7352.81 | 13.31 | 359.89 | 7334.00 | -435.60 | -82.03 | 1248937.69 | 3174993.26 | 10.00 | 359.89 | -435.45 | SHARON SPRINGS : |
| 7379.69 | 16.00 | 359.89 | 7360.00 | -428.80 | -82.04 | 1248944.49 | 3174993.20 | 10.00 | 0.00 | -428.65 | NIOBRARA A : |
| 7554.32 | 33.46 | 359.89 | 7518.00 | -356.03 | -82.18 | 1249017.26 | 3174992.55 | 10.00 | 0.00 | -355.87 | NIOBRARA B : |
| 7680.81 | 46.11 | 359.89 | 7615.00 | -275.24 | -82.33 | 1249098.04 | 3174991.83 | 10.00 | 0.00 | -275.09 | NIOBRARA C : |
| 7930.27 | 71.06 | 359.89 | 7744.00 | -64.03 | -82.73 | 1249309.24 | 3174989.94 | 10.00 | 0.00 | -63.87 | FORT HAYS : |
| 8036.51 | 81.68 | 359.89 | 7769.00 | 39.07 | -82.93 | 1249412.34 | 3174989.02 | 10.00 | 0.00 | 39.22 | CODELL : |

5D Plan Report

| Salient Points (Relative to centre, TVD relative to Drill Floor) | | | | | | | | | | | |
|--|------------|-----------|----------------|---------------------|---------------------|----------------------|--------------------|----------------------|---------------|---------------|-------------|
| MD (US ft) | Inc (°) | Az (°) | TVD (US ft) | N.Offset (US ft) | E.Offset (US ft) | Northing (US ft) | Easting (US ft) | DLS (°/100 US ft) | T.Face (°) | VS (US ft) | Comment |
| 8125.82 | 90.61 | 359.89 | 7775.00 | 128.08 | -83.10 | 1249501.35 | 3174988.22 | 10.00 | 0.00 | 128.24 | BEGIN HOLD |
| 8125.82 | 90.61 | 359.89 | 7774.99 | 128.09 | -83.10 | 1249501.36 | 3174988.22 | 0.00 | 0.00 | 128.25 | 7 in |
| 14951.41 | 90.61 | 359.89 | 7702.00 | 6953.28 | -96.04 | 1256326.29 | 3174927.17 | 0.00 | 0.00 | 6953.45 | TD |
| Interpolated Points (Relative to centre, TVD relative to Drill Floor) | | | | | | | | | | | |
| MD (US ft) | Inc (°) | Az (°) | TVD (US ft) | N.Offset (US ft) | E.Offset (US ft) | DLS (°/100 US ft) | | T.Face (°) | | VS (US ft) | Comment |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | SURFACE |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | |
| 600.00 | 0.00 | 0.00 | 600.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | |
| 700.00 | 0.00 | 0.00 | 700.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | |
| 800.00 | 0.00 | 0.00 | 800.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | |
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | |
| 1000.00 | 0.00 | 0.00 | 1000.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | BEGIN NUDGE |
| 1100.00 | 0.00 | 0.00 | 1100.00 | 0.00 | 0.00 | 0.00 | | 0.00 | | 0.00 | |
| 1200.00 | 2.00 | 190.30 | 1199.98 | -1.72 | -0.31 | 2.00 | | 190.30 | | -1.72 | BEGIN HOLD |
| 1300.00 | 4.00 | 190.30 | 1299.84 | -6.87 | -1.25 | 2.00 | | 0.00 | | -6.86 | |
| 1322.92 | 4.46 | 190.30 | 1322.69 | -8.53 | -1.55 | 2.00 | | 0.00 | | -8.53 | |
| 1400.00 | 4.46 | 190.30 | 1399.54 | -14.42 | -2.62 | 0.00 | | 0.00 | | -14.42 | |
| 1500.00 | 4.46 | 190.30 | 1499.24 | -22.07 | -4.01 | 0.00 | | 0.00 | | -22.06 | |
| 1600.00 | 4.46 | 190.30 | 1598.94 | -29.72 | -5.40 | 0.00 | | 0.00 | | -29.71 | |
| 1700.00 | 4.46 | 190.30 | 1698.63 | -37.37 | -6.79 | 0.00 | | 0.00 | | -37.36 | |
| 1800.00 | 4.46 | 190.30 | 1798.33 | -45.02 | -8.18 | 0.00 | | 0.00 | | -45.00 | |
| 1900.00 | 4.46 | 190.30 | 1898.03 | -52.66 | -9.58 | 0.00 | | 0.00 | | -52.65 | |
| 2000.00 | 4.46 | 190.30 | 1997.73 | -60.31 | -10.97 | 0.00 | | 0.00 | | -60.29 | |
| 2100.00 | 4.46 | 190.30 | 2097.42 | -67.96 | -12.36 | 0.00 | | 0.00 | | -67.94 | |
| 2200.00 | 4.46 | 190.30 | 2197.12 | -75.61 | -13.75 | 0.00 | | 0.00 | | -75.58 | |
| 2300.00 | 4.46 | 190.30 | 2296.82 | -83.26 | -15.14 | 0.00 | | 0.00 | | -83.23 | |
| 2400.00 | 4.46 | 190.30 | 2396.52 | -90.91 | -16.53 | 0.00 | | 0.00 | | -90.87 | |
| 2500.00 | 4.46 | 190.30 | 2496.21 | -98.55 | -17.92 | 0.00 | | 0.00 | | -98.52 | |
| 2600.00 | 4.46 | 190.30 | 2595.91 | -106.20 | -19.31 | 0.00 | | 0.00 | | -106.16 | |
| 2700.00 | 4.46 | 190.30 | 2695.61 | -113.85 | -20.70 | 0.00 | | 0.00 | | -113.81 | |
| 2800.00 | 4.46 | 190.30 | 2795.31 | -121.50 | -22.09 | 0.00 | | 0.00 | | -121.46 | |
| 2900.00 | 4.46 | 190.30 | 2895.00 | -129.15 | -23.48 | 0.00 | | 0.00 | | -129.10 | |
| 3000.00 | 4.46 | 190.30 | 2994.70 | -136.79 | -24.87 | 0.00 | | 0.00 | | -136.75 | |
| 3100.00 | 4.46 | 190.30 | 3094.40 | -144.44 | -26.26 | 0.00 | | 0.00 | | -144.39 | |
| 3200.00 | 4.46 | 190.30 | 3194.10 | -152.09 | -27.65 | 0.00 | | 0.00 | | -152.04 | |
| 3300.00 | 4.46 | 190.30 | 3293.79 | -159.74 | -29.04 | 0.00 | | 0.00 | | -159.68 | |

5D Plan Report

| Interpolated Points (Relative to centre, TVD relative to Drill Floor) | | | | | | | | | |
|--|------------|-----------|----------------|---------------------|---------------------|----------------------|---------------|---------------|------------|
| MD (US ft) | Inc (°) | Az (°) | TVD (US ft) | N.Offset (US ft) | E.Offset (US ft) | DLS (°/100 US ft) | T.Face (°) | VS (US ft) | Comment |
| 3400.00 | 4.46 | 190.30 | 3393.49 | -167.39 | -30.43 | 0.00 | 0.00 | -167.33 | |
| 3500.00 | 4.46 | 190.30 | 3493.19 | -175.03 | -31.82 | 0.00 | 0.00 | -174.97 | |
| 3600.00 | 4.46 | 190.30 | 3592.88 | -182.68 | -33.22 | 0.00 | 0.00 | -182.62 | |
| 3700.00 | 4.46 | 190.30 | 3692.58 | -190.33 | -34.61 | 0.00 | 0.00 | -190.26 | |
| 3800.00 | 4.46 | 190.30 | 3792.28 | -197.98 | -36.00 | 0.00 | 0.00 | -197.91 | |
| 3900.00 | 4.46 | 190.30 | 3891.98 | -205.63 | -37.39 | 0.00 | 0.00 | -205.55 | |
| 4000.00 | 4.46 | 190.30 | 3991.67 | -213.28 | -38.78 | 0.00 | 0.00 | -213.20 | |
| 4100.00 | 4.46 | 190.30 | 4091.37 | -220.92 | -40.17 | 0.00 | 0.00 | -220.85 | |
| 4200.00 | 4.46 | 190.30 | 4191.07 | -228.57 | -41.56 | 0.00 | 0.00 | -228.49 | |
| 4300.00 | 4.46 | 190.30 | 4290.77 | -236.22 | -42.95 | 0.00 | 0.00 | -236.14 | |
| 4400.00 | 4.46 | 190.30 | 4390.46 | -243.87 | -44.34 | 0.00 | 0.00 | -243.78 | |
| 4500.00 | 4.46 | 190.30 | 4490.16 | -251.52 | -45.73 | 0.00 | 0.00 | -251.43 | |
| 4600.00 | 4.46 | 190.30 | 4589.86 | -259.16 | -47.12 | 0.00 | 0.00 | -259.07 | |
| 4700.00 | 4.46 | 190.30 | 4689.56 | -266.81 | -48.51 | 0.00 | 0.00 | -266.72 | |
| 4800.00 | 4.46 | 190.30 | 4789.25 | -274.46 | -49.90 | 0.00 | 0.00 | -274.36 | |
| 4900.00 | 4.46 | 190.30 | 4888.95 | -282.11 | -51.29 | 0.00 | 0.00 | -282.01 | |
| 5000.00 | 4.46 | 190.30 | 4988.65 | -289.76 | -52.68 | 0.00 | 0.00 | -289.65 | |
| 5100.00 | 4.46 | 190.30 | 5088.35 | -297.40 | -54.07 | 0.00 | 0.00 | -297.30 | |
| 5200.00 | 4.46 | 190.30 | 5188.04 | -305.05 | -55.46 | 0.00 | 0.00 | -304.95 | |
| 5300.00 | 4.46 | 190.30 | 5287.74 | -312.70 | -56.85 | 0.00 | 0.00 | -312.59 | |
| 5400.00 | 4.46 | 190.30 | 5387.44 | -320.35 | -58.25 | 0.00 | 0.00 | -320.24 | |
| 5500.00 | 4.46 | 190.30 | 5487.14 | -328.00 | -59.64 | 0.00 | 0.00 | -327.88 | |
| 5600.00 | 4.46 | 190.30 | 5586.83 | -335.64 | -61.03 | 0.00 | 0.00 | -335.53 | |
| 5700.00 | 4.46 | 190.30 | 5686.53 | -343.29 | -62.42 | 0.00 | 0.00 | -343.17 | |
| 5800.00 | 4.46 | 190.30 | 5786.23 | -350.94 | -63.81 | 0.00 | 0.00 | -350.82 | |
| 5900.00 | 4.46 | 190.30 | 5885.93 | -358.59 | -65.20 | 0.00 | 0.00 | -358.46 | |
| 6000.00 | 4.46 | 190.30 | 5985.62 | -366.24 | -66.59 | 0.00 | 0.00 | -366.11 | |
| 6100.00 | 4.46 | 190.30 | 6085.32 | -373.89 | -67.98 | 0.00 | 0.00 | -373.75 | |
| 6200.00 | 4.46 | 190.30 | 6185.02 | -381.53 | -69.37 | 0.00 | 0.00 | -381.40 | |
| 6300.00 | 4.46 | 190.30 | 6284.71 | -389.18 | -70.76 | 0.00 | 0.00 | -389.05 | |
| 6400.00 | 4.46 | 190.30 | 6384.41 | -396.83 | -72.15 | 0.00 | 0.00 | -396.69 | |
| 6500.00 | 4.46 | 190.30 | 6484.11 | -404.48 | -73.54 | 0.00 | 0.00 | -404.34 | |
| 6600.00 | 4.46 | 190.30 | 6583.81 | -412.13 | -74.93 | 0.00 | 0.00 | -411.98 | |
| 6700.00 | 4.46 | 190.30 | 6683.50 | -419.77 | -76.32 | 0.00 | 0.00 | -419.63 | |
| 6800.00 | 4.46 | 190.30 | 6783.20 | -427.42 | -77.71 | 0.00 | 0.00 | -427.27 | |
| 6900.00 | 4.46 | 190.30 | 6882.90 | -435.07 | -79.10 | 0.00 | 0.00 | -434.92 | |
| 6996.77 | 4.46 | 190.30 | 6979.38 | -442.47 | -80.45 | 0.00 | 0.00 | -442.32 | BEGIN DROP |
| 7000.00 | 4.39 | 190.30 | 6982.60 | -442.72 | -80.49 | 2.00 | 180.00 | -442.56 | |
| 7100.00 | 2.39 | 190.30 | 7082.42 | -448.54 | -81.55 | 2.00 | 180.00 | -448.38 | |
| 7200.00 | 0.39 | 190.30 | 7182.38 | -450.93 | -81.99 | 2.00 | 180.00 | -450.78 | |
| 7219.69 | 0.00 | 0.00 | 7202.07 | -451.00 | -82.00 | 2.00 | 180.00 | -450.84 | KOP |

5D Plan Report

| Interpolated Points (Relative to centre, TVD relative to Drill Floor) | | | | | | | | | |
|--|------------|-----------|----------------|---------------------|---------------------|----------------------|---------------|---------------|------------|
| MD (US ft) | Inc (°) | Az (°) | TVD (US ft) | N.Offset (US ft) | E.Offset (US ft) | DLS (°/100 US ft) | T.Face (°) | VS (US ft) | Comment |
| 7300.00 | 8.03 | 359.89 | 7282.12 | -445.38 | -82.01 | 10.00 | 359.89 | -445.22 | |
| 7400.00 | 18.03 | 359.89 | 7379.42 | -422.86 | -82.05 | 10.00 | 0.00 | -422.70 | |
| 7500.00 | 28.03 | 359.89 | 7471.33 | -383.79 | -82.13 | 10.00 | 0.00 | -383.63 | |
| 7600.00 | 38.03 | 359.89 | 7555.06 | -329.35 | -82.23 | 10.00 | 0.00 | -329.19 | |
| 7700.00 | 48.03 | 359.89 | 7628.07 | -261.19 | -82.36 | 10.00 | 0.00 | -261.04 | |
| 7800.00 | 58.03 | 359.89 | 7688.13 | -181.40 | -82.51 | 10.00 | 0.00 | -181.24 | |
| 7900.00 | 68.03 | 359.89 | 7733.42 | -92.39 | -82.68 | 10.00 | 0.00 | -92.23 | |
| 8000.00 | 78.03 | 359.89 | 7762.57 | 3.14 | -82.86 | 10.00 | 0.00 | 3.30 | |
| 8100.00 | 88.03 | 359.89 | 7774.69 | 102.27 | -83.05 | 10.00 | 0.00 | 102.43 | |
| 8125.82 | 90.61 | 359.89 | 7775.00 | 128.08 | -83.10 | 10.00 | 0.00 | 128.24 | BEGIN HOLD |
| 8200.00 | 90.61 | 359.89 | 7774.20 | 202.26 | -83.24 | 0.00 | 0.00 | 202.42 | |
| 8300.00 | 90.61 | 359.89 | 7773.13 | 302.26 | -83.43 | 0.00 | 0.00 | 302.42 | |
| 8400.00 | 90.61 | 359.89 | 7772.06 | 402.25 | -83.62 | 0.00 | 0.00 | 402.41 | |
| 8500.00 | 90.61 | 359.89 | 7770.99 | 502.25 | -83.81 | 0.00 | 0.00 | 502.41 | |
| 8600.00 | 90.61 | 359.89 | 7769.92 | 602.24 | -84.00 | 0.00 | 0.00 | 602.40 | |
| 8700.00 | 90.61 | 359.89 | 7768.85 | 702.23 | -84.19 | 0.00 | 0.00 | 702.39 | |
| 8800.00 | 90.61 | 359.89 | 7767.79 | 802.23 | -84.38 | 0.00 | 0.00 | 802.39 | |
| 8900.00 | 90.61 | 359.89 | 7766.72 | 902.22 | -84.57 | 0.00 | 0.00 | 902.38 | |
| 9000.00 | 90.61 | 359.89 | 7765.65 | 1002.22 | -84.76 | 0.00 | 0.00 | 1002.38 | |
| 9100.00 | 90.61 | 359.89 | 7764.58 | 1102.21 | -84.95 | 0.00 | 0.00 | 1102.37 | |
| 9200.00 | 90.61 | 359.89 | 7763.51 | 1202.20 | -85.14 | 0.00 | 0.00 | 1202.37 | |
| 9300.00 | 90.61 | 359.89 | 7762.44 | 1302.20 | -85.32 | 0.00 | 0.00 | 1302.36 | |
| 9400.00 | 90.61 | 359.89 | 7761.37 | 1402.19 | -85.51 | 0.00 | 0.00 | 1402.35 | |
| 9500.00 | 90.61 | 359.89 | 7760.30 | 1502.19 | -85.70 | 0.00 | 0.00 | 1502.35 | |
| 9600.00 | 90.61 | 359.89 | 7759.23 | 1602.18 | -85.89 | 0.00 | 0.00 | 1602.34 | |
| 9700.00 | 90.61 | 359.89 | 7758.16 | 1702.17 | -86.08 | 0.00 | 0.00 | 1702.34 | |
| 9800.00 | 90.61 | 359.89 | 7757.09 | 1802.17 | -86.27 | 0.00 | 0.00 | 1802.33 | |
| 9900.00 | 90.61 | 359.89 | 7756.02 | 1902.16 | -86.46 | 0.00 | 0.00 | 1902.33 | |
| 10000.00 | 90.61 | 359.89 | 7754.95 | 2002.16 | -86.65 | 0.00 | 0.00 | 2002.32 | |
| 10100.00 | 90.61 | 359.89 | 7753.88 | 2102.15 | -86.84 | 0.00 | 0.00 | 2102.31 | |
| 10200.00 | 90.61 | 359.89 | 7752.81 | 2202.15 | -87.03 | 0.00 | 0.00 | 2202.31 | |
| 10300.00 | 90.61 | 359.89 | 7751.74 | 2302.14 | -87.22 | 0.00 | 0.00 | 2302.30 | |
| 10400.00 | 90.61 | 359.89 | 7750.67 | 2402.13 | -87.41 | 0.00 | 0.00 | 2402.30 | |
| 10500.00 | 90.61 | 359.89 | 7749.60 | 2502.13 | -87.60 | 0.00 | 0.00 | 2502.29 | |
| 10600.00 | 90.61 | 359.89 | 7748.54 | 2602.12 | -87.79 | 0.00 | 0.00 | 2602.29 | |
| 10700.00 | 90.61 | 359.89 | 7747.47 | 2702.12 | -87.98 | 0.00 | 0.00 | 2702.28 | |
| 10800.00 | 90.61 | 359.89 | 7746.40 | 2802.11 | -88.17 | 0.00 | 0.00 | 2802.27 | |
| 10900.00 | 90.61 | 359.89 | 7745.33 | 2902.10 | -88.36 | 0.00 | 0.00 | 2902.27 | |
| 11000.00 | 90.61 | 359.89 | 7744.26 | 3002.10 | -88.55 | 0.00 | 0.00 | 3002.26 | |
| 11100.00 | 90.61 | 359.89 | 7743.19 | 3102.09 | -88.74 | 0.00 | 0.00 | 3102.26 | |
| 11200.00 | 90.61 | 359.89 | 7742.12 | 3202.09 | -88.93 | 0.00 | 0.00 | 3202.25 | |

5D Plan Report

| Interpolated Points (Relative to centre, TVD relative to Drill Floor) | | | | | | | | | |
|--|------------|-----------|----------------|---------------------|---------------------|----------------------|---------------|---------------|---------|
| MD (US ft) | Inc (°) | Az (°) | TVD (US ft) | N.Offset (US ft) | E.Offset (US ft) | DLS (°/100 US ft) | T.Face (°) | VS (US ft) | Comment |
| 11300.00 | 90.61 | 359.89 | 7741.05 | 3302.08 | -89.12 | 0.00 | 0.00 | 3302.25 | |
| 11400.00 | 90.61 | 359.89 | 7739.98 | 3402.07 | -89.31 | 0.00 | 0.00 | 3402.24 | |
| 11500.00 | 90.61 | 359.89 | 7738.91 | 3502.07 | -89.50 | 0.00 | 0.00 | 3502.23 | |
| 11600.00 | 90.61 | 359.89 | 7737.84 | 3602.06 | -89.69 | 0.00 | 0.00 | 3602.23 | |
| 11700.00 | 90.61 | 359.89 | 7736.77 | 3702.06 | -89.88 | 0.00 | 0.00 | 3702.22 | |
| 11800.00 | 90.61 | 359.89 | 7735.70 | 3802.05 | -90.07 | 0.00 | 0.00 | 3802.22 | |
| 11900.00 | 90.61 | 359.89 | 7734.63 | 3902.05 | -90.26 | 0.00 | 0.00 | 3902.21 | |
| 12000.00 | 90.61 | 359.89 | 7733.56 | 4002.04 | -90.44 | 0.00 | 0.00 | 4002.21 | |
| 12100.00 | 90.61 | 359.89 | 7732.49 | 4102.03 | -90.63 | 0.00 | 0.00 | 4102.20 | |
| 12200.00 | 90.61 | 359.89 | 7731.42 | 4202.03 | -90.82 | 0.00 | 0.00 | 4202.19 | |
| 12300.00 | 90.61 | 359.89 | 7730.36 | 4302.02 | -91.01 | 0.00 | 0.00 | 4302.19 | |
| 12400.00 | 90.61 | 359.89 | 7729.29 | 4402.02 | -91.20 | 0.00 | 0.00 | 4402.18 | |
| 12500.00 | 90.61 | 359.89 | 7728.22 | 4502.01 | -91.39 | 0.00 | 0.00 | 4502.18 | |
| 12600.00 | 90.61 | 359.89 | 7727.15 | 4602.00 | -91.58 | 0.00 | 0.00 | 4602.17 | |
| 12700.00 | 90.61 | 359.89 | 7726.08 | 4702.00 | -91.77 | 0.00 | 0.00 | 4702.17 | |
| 12800.00 | 90.61 | 359.89 | 7725.01 | 4801.99 | -91.96 | 0.00 | 0.00 | 4802.16 | |
| 12900.00 | 90.61 | 359.89 | 7723.94 | 4901.99 | -92.15 | 0.00 | 0.00 | 4902.15 | |
| 13000.00 | 90.61 | 359.89 | 7722.87 | 5001.98 | -92.34 | 0.00 | 0.00 | 5002.15 | |
| 13100.00 | 90.61 | 359.89 | 7721.80 | 5101.97 | -92.53 | 0.00 | 0.00 | 5102.14 | |
| 13200.00 | 90.61 | 359.89 | 7720.73 | 5201.97 | -92.72 | 0.00 | 0.00 | 5202.14 | |
| 13300.00 | 90.61 | 359.89 | 7719.66 | 5301.96 | -92.91 | 0.00 | 0.00 | 5302.13 | |
| 13400.00 | 90.61 | 359.89 | 7718.59 | 5401.96 | -93.10 | 0.00 | 0.00 | 5402.13 | |
| 13500.00 | 90.61 | 359.89 | 7717.52 | 5501.95 | -93.29 | 0.00 | 0.00 | 5502.12 | |
| 13600.00 | 90.61 | 359.89 | 7716.45 | 5601.94 | -93.48 | 0.00 | 0.00 | 5602.11 | |
| 13700.00 | 90.61 | 359.89 | 7715.38 | 5701.94 | -93.67 | 0.00 | 0.00 | 5702.11 | |
| 13800.00 | 90.61 | 359.89 | 7714.31 | 5801.93 | -93.86 | 0.00 | 0.00 | 5802.10 | |
| 13900.00 | 90.61 | 359.89 | 7713.24 | 5901.93 | -94.05 | 0.00 | 0.00 | 5902.10 | |
| 14000.00 | 90.61 | 359.89 | 7712.17 | 6001.92 | -94.24 | 0.00 | 0.00 | 6002.09 | |
| 14100.00 | 90.61 | 359.89 | 7711.11 | 6101.92 | -94.43 | 0.00 | 0.00 | 6102.09 | |
| 14200.00 | 90.61 | 359.89 | 7710.04 | 6201.91 | -94.62 | 0.00 | 0.00 | 6202.08 | |
| 14300.00 | 90.61 | 359.89 | 7708.97 | 6301.90 | -94.81 | 0.00 | 0.00 | 6302.07 | |
| 14400.00 | 90.61 | 359.89 | 7707.90 | 6401.90 | -95.00 | 0.00 | 0.00 | 6402.07 | |
| 14500.00 | 90.61 | 359.89 | 7706.83 | 6501.89 | -95.19 | 0.00 | 0.00 | 6502.06 | |
| 14600.00 | 90.61 | 359.89 | 7705.76 | 6601.89 | -95.37 | 0.00 | 0.00 | 6602.06 | |
| 14700.00 | 90.61 | 359.89 | 7704.69 | 6701.88 | -95.56 | 0.00 | 0.00 | 6702.05 | |
| 14800.00 | 90.61 | 359.89 | 7703.62 | 6801.87 | -95.75 | 0.00 | 0.00 | 6802.05 | |
| 14900.00 | 90.61 | 359.89 | 7702.55 | 6901.87 | -95.94 | 0.00 | 0.00 | 6902.04 | |
| 14951.41 | 90.61 | 359.89 | 7702.00 | 6953.28 | -96.04 | 0.00 | 0.00 | 6953.45 | TD |

5D Plan Report

| Formation Points | (Relative to centre, TVD relative to Drill Floor) | | |
|------------------|--|----------------|--|
| Name | MD (US ft) | TVD (US ft) | |
| FOX HILLS BASE | 808.00 | 808.00 | |
| SUSSEX | 4808.77 | 4798.00 | |
| SHANNON | 5350.41 | 5338.00 | |
| SHARON SPRINGS | 7352.81 | 7334.00 | |
| NIOBRARA A | 7379.69 | 7360.00 | |
| NIOBRARA B | 7554.32 | 7518.00 | |
| NIOBRARA C | 7680.81 | 7615.00 | |
| FORT HAYS | 7930.27 | 7744.00 | |
| CODELL | 8036.51 | 7769.00 | |