



# Ryan Energy Technologies Survey Report



RCVD NOV20'06

OIL CONS. DIV.  
DIST. 3

Company: DEVON ENERGY CORPORATION Date: 11/1/2006 Time: 08:43:52 Page: 1  
Field: San Juan County, NM Co-ordinate(NE) Reference: Site: NEBU No. 416A, True North  
Site: NEBU No. 416A Vertical (TVD) Reference: SITE 0.0  
Well: Well #416 A Section (VS) Reference: Well (0.00N,0.00E,9.25Azi)  
Wellpath: Original Hole 30-045-33762 Survey Calculation Method: Minimum Curvature Db: Sybase

Field: San Juan County, NM

USA

Map System: US State Plane Coordinate System 1983

Geo Datum: GRS 1980

Sys Datum: Mean Sea Level

Map Zone:

New Mexico, Western Zone

Coordinate System:

Site Centre

Geomagnetic Model:

igrf2005

Site: NEBU No. 416A  
Sec. 21-31N-7W  
San Juan County, NM

Site Position: Northing: 2139549.96 ft Latitude: 36 52 46.000 N  
From: Geographic Easting: 2798895.42 ft Longitude: 107 34 27.000 W  
Position Uncertainty: 0.00 ft North Reference: True  
Ground Level: 6381.00 ft Grid Convergence: 0.16 deg

Well: Well #416 A

Slot Name:

Well Position: +N/-S 0.00 ft Northing: 2139549.96 ft Latitude: 36 52 46.000 N  
+E/-W 0.00 ft Easting: 2798895.42 ft Longitude: 107 34 27.000 W  
Position Uncertainty: 0.00 ft

Wellpath: Original Hole

Drilled From: Surface

Current Datum: SITE Height 0.00 ft Tie-on Depth: 0.00 ft  
Magnetic Data: 7/17/2006 Above System Datum: Mean Sea Level  
Field Strength: 51395 nT Declination: 10.42 deg  
Vertical Section: Depth From (TVD) +N/-S +E/-W Mag Dip Angle: 63.74 deg  
ft ft ft Direction deg  
0.00 0.00 0.00 9.25

## Survey Program for Definitive Wellpath

Date: 11/1/2006 Validated: No Version: 0  
Actual From To Survey Toolcode Tool Name  
ft ft  
323.00 3127.00 Survey #1 (323.00-3127.00) MWD  
3687.00 3687.00 Survey #2 (3687.00-3687.00) Project

## Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>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     |
| 323.00   | 1.20        | 122.90      | 322.98    | -1.84       | 2.84        | -1.36    | 0.37             | 0.37               | 0.00              | MWD          |
| 354.00   | 1.30        | 114.80      | 353.97    | -2.16       | 3.43        | -1.58    | 0.65             | 0.32               | -26.13            | MWD          |
| 385.00   | 1.00        | 75.80       | 384.96    | -2.24       | 4.01        | -1.57    | 2.64             | -0.97              | -125.81           | MWD          |
| 415.00   | 1.70        | 35.70       | 414.96    | -1.82       | 4.53        | -1.07    | 3.78             | 2.33               | -133.67           | MWD          |
| 446.00   | 2.80        | 12.50       | 445.93    | -0.70       | 4.96        | 0.10     | 4.54             | 3.55               | -74.84            | MWD          |
| 476.00   | 4.20        | 12.50       | 475.87    | 1.08        | 5.36        | 1.93     | 4.67             | 4.67               | 0.00              | MWD          |
| 507.00   | 5.40        | 9.70        | 506.77    | 3.63        | 5.85        | 4.52     | 3.94             | 3.87               | -9.03             | MWD          |
| 537.00   | 6.50        | 8.70        | 536.60    | 6.70        | 6.34        | 7.63     | 3.68             | 3.67               | -3.33             | MWD          |
| 567.00   | 7.30        | 8.00        | 566.39    | 10.27       | 6.86        | 11.24    | 2.68             | 2.67               | -2.33             | MWD          |
| 598.00   | 8.00        | 8.70        | 597.11    | 14.35       | 7.46        | 15.36    | 2.28             | 2.26               | 2.26              | MWD          |
| 628.00   | 8.80        | 10.40       | 626.79    | 18.67       | 8.19        | 19.74    | 2.79             | 2.67               | 5.67              | MWD          |
| 659.00   | 9.90        | 11.10       | 657.38    | 23.62       | 9.14        | 24.78    | 3.57             | 3.55               | 2.26              | MWD          |
| 689.00   | 11.20       | 12.20       | 686.87    | 29.00       | 10.25       | 30.27    | 4.38             | 4.33               | 3.67              | MWD          |
| 719.00   | 12.10       | 12.20       | 716.25    | 34.92       | 11.53       | 36.32    | 3.00             | 3.00               | 0.00              | MWD          |
| 750.00   | 12.70       | 13.60       | 746.53    | 41.41       | 13.02       | 42.96    | 2.16             | 1.94               | 4.52              | MWD          |
| 781.00   | 13.60       | 12.90       | 776.71    | 48.27       | 14.63       | 49.99    | 2.95             | 2.90               | -2.26             | MWD          |
| 812.00   | 14.50       | 11.50       | 806.79    | 55.63       | 16.22       | 57.51    | 3.10             | 2.90               | -4.52             | MWD          |
| 842.00   | 15.50       | 9.40        | 835.76    | 63.26       | 17.62       | 65.27    | 3.79             | 3.33               | -7.00             | MWD          |
| 873.00   | 16.70       | 9.40        | 865.55    | 71.74       | 19.03       | 73.87    | 3.87             | 3.87               | 0.00              | MWD          |
| 904.00   | 17.50       | 9.40        | 895.18    | 80.74       | 20.51       | 82.98    | 2.58             | 2.58               | 0.00              | MWD          |
| 937.00   | 18.30       | 9.70        | 926.58    | 90.74       | 22.20       | 93.13    | 2.44             | 2.42               | 0.91              | MWD          |



# Ryan Energy Technologied Survey Report



**Company:** DEVON ENERGY CORPORATION  
**Field:** San Juan County, NM  
**Site:** NEBU No. 416A  
**Well:** Well #416 A  
**Wellpath:** Original Hole

**Date:** 11/1/2006  
**Co-ordinate(NE) Reference:** Site: NEBU No. 416A, True North  
**Vertical (TVD) Reference:** SITE 0.0  
**Section (VS) Reference:** Well (0.00N,0.00E,9.25Azi)  
**Survey Calculation Method:** Minimum Curvature  
**Db:** Sybase

**Page:** 2

## Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|--------------|
| 968.00   | 19.40       | 9.70        | 955.92    | 100.61      | 23.89       | 103.14   | 3.55             | 3.55               | 0.00              | MWD          |
| 1000.00  | 20.40       | 10.10       | 986.00    | 111.34      | 25.76       | 114.03   | 3.15             | 3.12               | 1.25              | MWD          |
| 1030.00  | 21.20       | 10.40       | 1014.05   | 121.82      | 27.65       | 124.68   | 2.69             | 2.67               | 1.00              | MWD          |
| 1062.00  | 22.20       | 10.40       | 1043.78   | 133.46      | 29.79       | 136.51   | 3.12             | 3.12               | 0.00              | MWD          |
| 1093.00  | 23.20       | 9.70        | 1072.38   | 145.24      | 31.88       | 148.47   | 3.34             | 3.23               | -2.26             | MWD          |
| 1124.00  | 24.30       | 8.30        | 1100.75   | 157.57      | 33.83       | 160.96   | 3.99             | 3.55               | -4.52             | MWD          |
| 1155.00  | 25.20       | 8.00        | 1128.91   | 170.42      | 35.67       | 173.93   | 2.93             | 2.90               | -0.97             | MWD          |
| 1186.00  | 26.30       | 8.70        | 1156.83   | 183.74      | 37.62       | 187.40   | 3.68             | 3.55               | 2.26              | MWD          |
| 1217.00  | 27.60       | 8.70        | 1184.46   | 197.63      | 39.75       | 201.45   | 4.19             | 4.19               | 0.00              | MWD          |
| 1248.00  | 28.90       | 9.00        | 1211.77   | 212.13      | 42.01       | 216.12   | 4.22             | 4.19               | 0.97              | MWD          |
| 1279.00  | 30.20       | 9.70        | 1238.73   | 227.21      | 44.49       | 231.41   | 4.34             | 4.19               | 2.26              | MWD          |
| 1310.00  | 31.00       | 10.10       | 1265.42   | 242.76      | 47.21       | 247.19   | 2.66             | 2.58               | 1.29              | MWD          |
| 1341.00  | 31.80       | 9.40        | 1291.88   | 258.67      | 49.94       | 263.34   | 2.84             | 2.58               | -2.26             | MWD          |
| 1372.00  | 32.70       | 9.00        | 1318.09   | 275.00      | 52.58       | 279.88   | 2.98             | 2.90               | -1.29             | MWD          |
| 1402.00  | 33.70       | 8.30        | 1343.20   | 291.24      | 55.05       | 296.31   | 3.57             | 3.33               | -2.33             | MWD          |
| 1434.00  | 35.10       | 8.30        | 1369.60   | 309.13      | 57.66       | 314.38   | 4.37             | 4.37               | 0.00              | MWD          |
| 1464.00  | 36.40       | 9.00        | 1393.95   | 326.46      | 60.30       | 331.91   | 4.54             | 4.33               | 2.33              | MWD          |
| 1493.00  | 37.60       | 8.70        | 1417.11   | 343.70      | 62.98       | 349.36   | 4.18             | 4.14               | -1.03             | MWD          |
| 1524.00  | 38.40       | 8.70        | 1441.53   | 362.57      | 65.87       | 368.44   | 2.58             | 2.58               | 0.00              | MWD          |
| 1555.00  | 39.60       | 8.70        | 1465.63   | 381.85      | 68.82       | 387.95   | 3.87             | 3.87               | 0.00              | MWD          |
| 1585.00  | 41.20       | 8.30        | 1488.47   | 401.08      | 71.70       | 407.39   | 5.40             | 5.33               | -1.33             | MWD          |
| 1616.00  | 42.70       | 8.00        | 1511.53   | 421.60      | 74.63       | 428.11   | 4.88             | 4.84               | -0.97             | MWD          |
| 1648.00  | 43.00       | 8.30        | 1534.99   | 443.14      | 77.72       | 449.87   | 1.13             | 0.94               | 0.94              | MWD          |
| 1678.00  | 42.80       | 8.30        | 1556.96   | 463.35      | 80.67       | 470.29   | 0.67             | -0.67              | 0.00              | MWD          |
| 1710.00  | 42.80       | 8.30        | 1580.44   | 484.86      | 83.80       | 492.03   | 0.00             | 0.00               | 0.00              | MWD          |
| 1740.00  | 42.80       | 8.70        | 1602.45   | 505.02      | 86.82       | 512.41   | 0.91             | 0.00               | 1.33              | MWD          |
| 1771.00  | 42.70       | 8.70        | 1625.22   | 525.82      | 90.00       | 533.45   | 0.32             | -0.32              | 0.00              | MWD          |
| 1802.00  | 42.60       | 8.70        | 1648.02   | 546.58      | 93.18       | 554.45   | 0.32             | -0.32              | 0.00              | MWD          |
| 1833.00  | 42.20       | 8.70        | 1670.91   | 567.25      | 96.34       | 575.36   | 1.29             | -1.29              | 0.00              | MWD          |
| 1865.00  | 42.20       | 8.70        | 1694.62   | 588.49      | 99.59       | 596.85   | 0.00             | 0.00               | 0.00              | MWD          |
| 1896.00  | 42.00       | 8.70        | 1717.62   | 609.04      | 102.73      | 617.63   | 0.65             | -0.65              | 0.00              | MWD          |
| 1927.00  | 41.80       | 9.00        | 1740.69   | 629.49      | 105.92      | 638.33   | 0.91             | -0.65              | 0.97              | MWD          |
| 1957.00  | 41.40       | 9.40        | 1763.13   | 649.16      | 109.10      | 658.25   | 1.60             | -1.33              | 1.33              | MWD          |
| 1988.00  | 41.30       | 9.40        | 1786.40   | 669.36      | 112.45      | 678.73   | 0.32             | -0.32              | 0.00              | MWD          |
| 2019.00  | 40.50       | 9.00        | 1809.83   | 689.40      | 115.69      | 699.03   | 2.72             | -2.58              | -1.29             | MWD          |
| 2050.00  | 39.80       | 8.70        | 1833.52   | 709.15      | 118.77      | 719.02   | 2.34             | -2.26              | -0.97             | MWD          |
| 2079.00  | 38.70       | 8.70        | 1855.98   | 727.28      | 121.54      | 737.36   | 3.79             | -3.79              | 0.00              | MWD          |
| 2114.00  | 37.10       | 8.30        | 1883.60   | 748.55      | 124.72      | 758.86   | 4.63             | -4.57              | -1.14             | MWD          |
| 2144.00  | 36.00       | 8.70        | 1907.70   | 766.22      | 127.36      | 776.72   | 3.75             | -3.67              | 1.33              | MWD          |
| 2172.00  | 34.90       | 8.70        | 1930.51   | 782.27      | 129.82      | 792.96   | 3.93             | -3.93              | 0.00              | MWD          |
| 2202.00  | 33.80       | 9.00        | 1955.27   | 798.99      | 132.42      | 809.89   | 3.71             | -3.67              | 1.00              | MWD          |
| 2233.00  | 32.90       | 9.40        | 1981.17   | 815.82      | 135.15      | 826.93   | 2.99             | -2.90              | 1.29              | MWD          |
| 2263.00  | 32.10       | 9.40        | 2006.47   | 831.72      | 137.78      | 843.05   | 2.67             | -2.67              | 0.00              | MWD          |
| 2295.00  | 31.00       | 10.10       | 2033.74   | 848.22      | 140.61      | 859.79   | 3.62             | -3.44              | 2.19              | MWD          |
| 2326.00  | 30.20       | 9.40        | 2060.42   | 863.77      | 143.29      | 875.57   | 2.83             | -2.58              | -2.26             | MWD          |
| 2357.00  | 29.50       | 9.40        | 2087.31   | 879.00      | 145.81      | 891.00   | 2.26             | -2.26              | 0.00              | MWD          |
| 2386.00  | 28.70       | 8.70        | 2112.65   | 892.92      | 148.03      | 905.11   | 3.00             | -2.76              | -2.41             | MWD          |
| 2418.00  | 27.40       | 8.70        | 2140.89   | 907.80      | 150.30      | 920.15   | 4.06             | -4.06              | 0.00              | MWD          |
| 2449.00  | 26.30       | 8.70        | 2168.55   | 921.64      | 152.42      | 934.15   | 3.55             | -3.55              | 0.00              | MWD          |
| 2480.00  | 25.20       | 8.70        | 2196.47   | 934.95      | 154.46      | 947.62   | 3.55             | -3.55              | 0.00              | MWD          |
| 2511.00  | 24.20       | 9.40        | 2224.63   | 947.74      | 156.49      | 960.57   | 3.36             | -3.23              | 2.26              | MWD          |
| 2540.00  | 23.30       | 10.10       | 2251.18   | 959.25      | 158.47      | 972.25   | 3.25             | -3.10              | 2.41              | MWD          |
| 2570.00  | 22.60       | 10.10       | 2278.80   | 970.77      | 160.52      | 983.95   | 2.33             | -2.33              | 0.00              | MWD          |



# Ryan Energy Technologied Survey Report



**Company:** DEVON ENERGY CORPORATION  
**Field:** San Juan County, NM  
**Site:** NEBU No. 416A  
**Well:** Well #416 A  
**Wellpath:** Original Hole

**Date:** 11/1/2006 **Time:** 08:43:52 **Page:** 3  
**Co-ordinate(NE) Reference:** Site: NEBU No. 416A, True North  
**Vertical (TVD) Reference:** SITE 0.0  
**Section (VS) Reference:** Well (0.00N,0.00E,9.25Azi)  
**Survey Calculation Method:** Minimum Curvature **Db:** Sybase

## Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment    |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|-----------------|
| 2600.00  | 22.10       | 10.10       | 2306.55   | 982.00      | 162.52      | 995.36   | 1.67             | -1.67              | 0.00              | MWD             |
| 2630.00  | 21.20       | 10.10       | 2334.43   | 992.90      | 164.46      | 1006.42  | 3.00             | -3.00              | 0.00              | MWD             |
| 2659.00  | 20.60       | 8.70        | 2361.52   | 1003.10     | 166.15      | 1016.77  | 2.69             | -2.07              | -4.83             | MWD             |
| 2690.00  | 19.80       | 8.70        | 2390.62   | 1013.68     | 167.77      | 1027.47  | 2.58             | -2.58              | 0.00              | MWD             |
| 2721.00  | 19.30       | 8.30        | 2419.83   | 1023.94     | 169.31      | 1037.84  | 1.67             | -1.61              | -1.29             | MWD             |
| 2752.00  | 18.70       | 8.00        | 2449.14   | 1033.93     | 170.74      | 1047.93  | 1.96             | -1.94              | -0.97             | MWD             |
| 2784.00  | 17.70       | 8.00        | 2479.54   | 1043.83     | 172.13      | 1057.93  | 3.12             | -3.12              | 0.00              | MWD             |
| 2815.00  | 16.50       | 7.60        | 2509.17   | 1052.86     | 173.37      | 1067.04  | 3.89             | -3.87              | -1.29             | MWD             |
| 2846.00  | 15.30       | 7.30        | 2538.98   | 1061.28     | 174.47      | 1075.53  | 3.88             | -3.87              | -0.97             | MWD             |
| 2877.00  | 14.80       | 7.30        | 2568.92   | 1069.27     | 175.49      | 1083.57  | 1.61             | -1.61              | 0.00              | MWD             |
| 2908.00  | 14.50       | 7.30        | 2598.91   | 1077.04     | 176.49      | 1091.41  | 0.97             | -0.97              | 0.00              | MWD             |
| 2941.00  | 13.40       | 7.60        | 2630.94   | 1084.93     | 177.52      | 1099.36  | 3.34             | -3.33              | 0.91              | MWD             |
| 2970.00  | 12.80       | 5.80        | 2659.18   | 1091.46     | 178.29      | 1105.92  | 2.50             | -2.07              | -6.21             | MWD             |
| 3002.00  | 11.50       | 6.20        | 2690.46   | 1098.16     | 178.99      | 1112.65  | 4.07             | -4.06              | 1.25              | MWD             |
| 3033.00  | 10.60       | 4.40        | 2720.89   | 1104.07     | 179.54      | 1118.58  | 3.11             | -2.90              | -5.81             | MWD             |
| 3064.00  | 9.50        | 6.60        | 2751.41   | 1109.46     | 180.06      | 1123.97  | 3.76             | -3.55              | 7.10              | MWD             |
| 3096.00  | 8.50        | 7.30        | 2783.02   | 1114.43     | 180.66      | 1128.97  | 3.14             | -3.12              | 2.19              | MWD             |
| 3127.00  | 7.70        | 9.00        | 2813.71   | 1118.75     | 181.28      | 1133.34  | 2.69             | -2.58              | 5.48              | MWD             |
| 3687.00  | 7.70        | 9.00        | 3368.66   | 1192.86     | 193.01      | 1208.37  | 0.00             | 0.00               | 0.00              | PROJECTED to TD |



# DEVON ENERGY CORPORATION

Field: San Juan County, NM  
 Site: NEBU No. 416A  
 Well: Well #416 A  
 Wellpath: Original Hole  
 Plan: Plan #1  
 Plan vs Actual



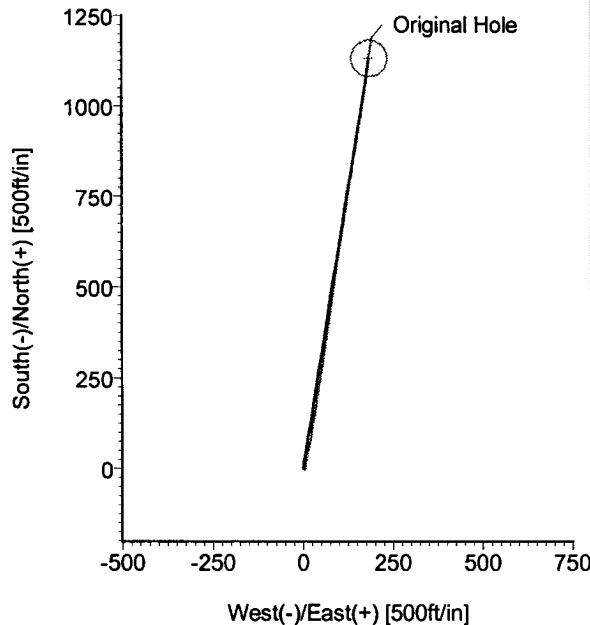
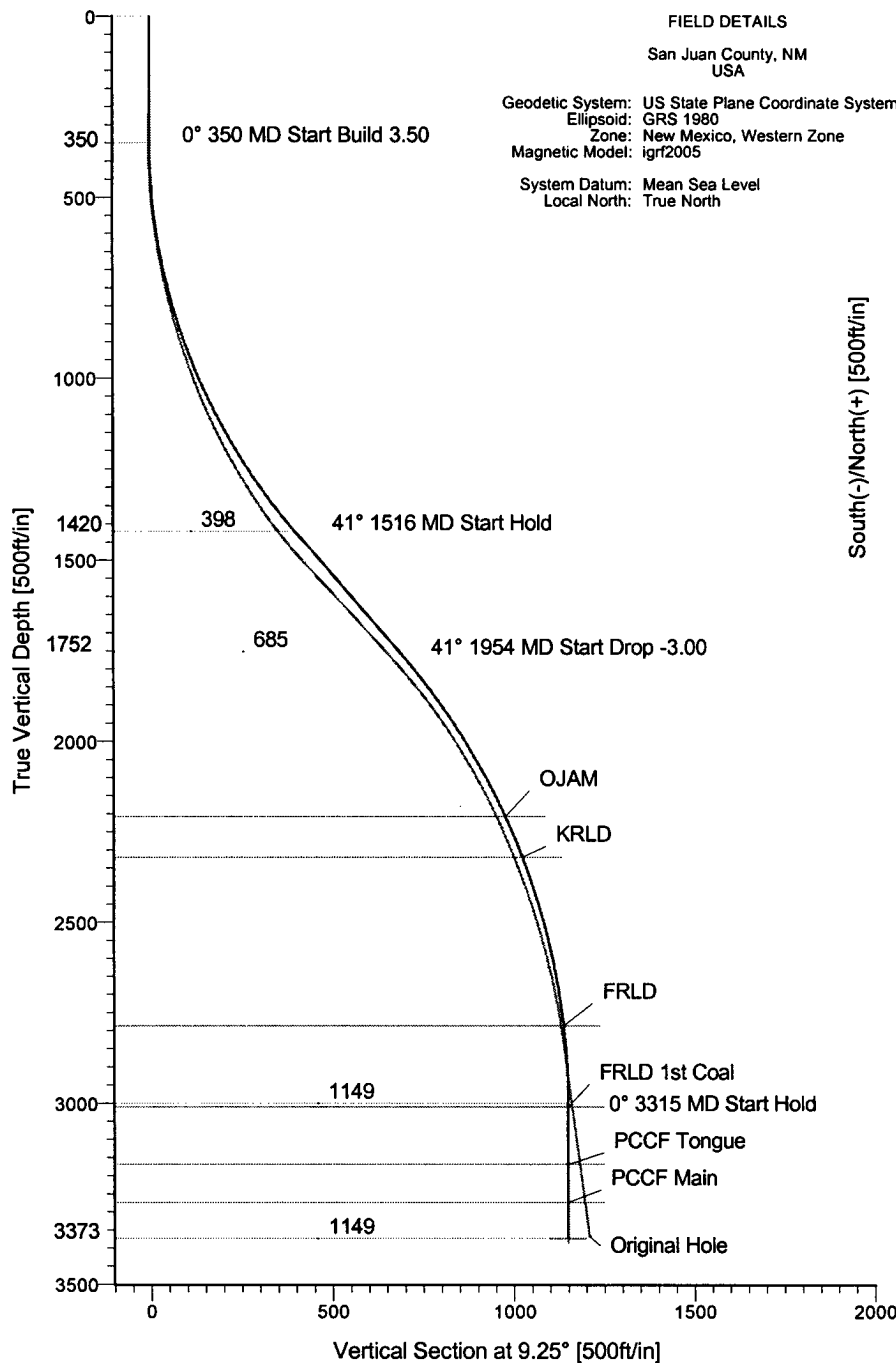
Azimuths to True North  
 Magnetic North: 10.42°

Magnetic Field  
 Strength: 51395nT  
 Dip Angle: 63.74°  
 Date: 7/17/2006  
 Model: igrf2005

## FIELD DETAILS

San Juan County, NM  
 USA

Geodetic System: US State Plane Coordinate System 1983  
 Ellipsoid: GRS 1980  
 Zone: New Mexico, Western Zone  
 Magnetic Model: igrf2005  
 System Datum: Mean Sea Level  
 Local North: True North



## SITE DETAILS

NEBU No. 416A  
 Sec. 21-31N-7W  
 San Juan County, NM  
 Site Centre Latitude: 36°52'46.000N  
 Longitude: 107°34'27.000W  
 Ground Level: 6381.00  
 Positional Uncertainty: 0.00  
 Convergence: 0.16

## WELLPATH DETAILS

| Rig:<br>Ref. Datum: | Original Hole   |                 |                      |
|---------------------|-----------------|-----------------|----------------------|
|                     | Origin<br>+N/-S | Origin<br>+E/-W | Starting<br>From TVD |
| V. Section<br>Angle | 9.25°           | 0.00            | 0.00                 |

## TARGET DETAILS

| Name | TVD     | +N/-S   | +E/-W  | Latitude      | Longitude      | Shape               |
|------|---------|---------|--------|---------------|----------------|---------------------|
| PBHL | 3373.00 | 1134.01 | 184.69 | 36°52'57.213N | 107°34'24.727W | Circle (Radius: 50) |