



Endeavour

Wiley #23-3-97-1

Horizontal Directional Design

6/19/13

Endeavour International Corp

Sec. 23 T3N R97W (NAD83)

Wiley Pad



Standard Planning Report - Geographic

13 June, 2013

| | | | |
|------------------|------------------------------|-------------------------------------|--------------------------------------|
| Database: | EDM 2003.16 Single User Db | Local Co-ordinate Reference: | Well Wiley 23-3-97 H1 |
| Company: | Endeavour International Corp | TVD Reference: | WELL @ 6047.0ft (Original Well Elev) |
| Project: | Sec. 23 T3N R97W (NAD83) | MD Reference: | WELL @ 6047.0ft (Original Well Elev) |
| Site: | Wiley Pad | North Reference: | True |
| Well: | Wiley #23-3-97-1 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #2 | | |
| Design: | ST Plan #5 11Jun13 kjs | | |

| | | | |
|--------------------|--|----------------------|----------------|
| Project | Sec. 23 T3N R97W (NAD83), Rio Blanco, CO | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Central Zone | | |

| Site | | Wiley Pad | | | |
|-----------------------|----------|--------------|-----------------|-------------------|-------------------|
| Site Position: | | Northing: | 1,877,120.60 ft | Latitude: | 40° 12' 35.230 N |
| From: | Lat/Long | Easting: | 2,234,427.56 ft | Longitude: | 108° 14' 27.890 W |
| Position Uncertainty: | 0.0 ft | Slot Radius: | " | Grid Convergence: | -1.73 ° |

| Well | Wiley 23-3-97 H1 | | | | | |
|----------------------|------------------|--------|---------------------|-----------------|---------------|-------------------|
| Well Position | +N-S | 0.0 ft | Northing: | 1,877,120.60 ft | Latitude: | 40° 12' 35.230 N |
| | +E-W | 0.0 ft | Easting: | 2,234,427.56 ft | Longitude: | 108° 14' 27.890 W |
| Position Uncertainty | | 0.0 ft | Wellhead Elevation: | ft | Ground Level: | 6,022.0 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Wellbore #2 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF200510 | 12/31/2009 | 10.73 | 66.33 | 52,828 |

| | | | | | |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|--|
| Design | ST Plan #5 11Jun13 kjs | | | | |
| Audit Notes: | | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 10,496.7 | |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) | |
| | 0.0 | 0.0 | 0.0 | 177.58 | |

| Plan Sections | | | | | | | | | | |
|----------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|--------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
| 10,496.7 | 20.01 | 119.15 | 10,387.8 | -319.5 | 572.9 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 11,487.0 | 88.70 | 180.20 | 10,958.2 | -1,010.9 | 748.0 | 8.00 | 6.94 | 6.16 | 62.94 | LP #2 |
| 12,487.0 | 88.70 | 180.20 | 10,981.0 | -2,010.6 | 744.5 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 13,226.9 | 88.70 | 195.00 | 10,997.9 | -2,741.8 | 647.0 | 2.00 | 0.00 | 2.00 | 90.15 | |
| 15,000.0 | 88.70 | 195.00 | 11,038.0 | -4,454.1 | 188.2 | 0.00 | 0.00 | 0.00 | 0.00 | |

Database: EDM 2003.16 Single User Db
Company: Endeavour International Corp
Project: Sec. 23 T3N R97W (NAD83)
Site: Wiley Pad
Well: XXXXXXXXXX **Wiley #23-3-97-1**
Wellbore: Wellbore #2
Design: ST Plan #5 11Jun13 kjs

Local Co-ordinate Reference: Well Wiley 23-3-97 H1
TVD Reference: WELL @ 6047.0ft (Original Well Elev)
MD Reference: WELL @ 6047.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (ft) | Map Easting (ft) | Latitude | Longitude |
|---|-----------------|-------------|---------------------|------------|------------|-------------------|------------------|------------------|-------------------|
| 10,496.7 | 20.01 | 119.15 | 10,387.8 | -319.5 | 572.9 | 1,876,783.95 | 2,234,990.54 | 40° 12' 32.073 N | 108° 14' 20.507 W |
| ST KOP 8°/100 - NE Corner - SE Corner | | | | | | | | | |
| 10,600.0 | 24.84 | 136.89 | 10,483.4 | -344.0 | 603.2 | 1,876,758.55 | 2,235,020.11 | 40° 12' 31.831 N | 108° 14' 20.116 W |
| 10,800.0 | 37.57 | 156.03 | 10,654.5 | -431.0 | 657.0 | 1,876,670.01 | 2,235,071.29 | 40° 12' 30.972 N | 108° 14' 19.423 W |
| 10,885.7 | 43.62 | 161.00 | 10,719.6 | -482.9 | 677.3 | 1,876,617.51 | 2,235,089.99 | 40° 12' 30.459 N | 108° 14' 19.161 W |
| Fort Hays Equiv | | | | | | | | | |
| 10,926.3 | 46.55 | 162.97 | 10,748.2 | -510.2 | 686.2 | 1,876,589.95 | 2,235,098.03 | 40° 12' 30.189 N | 108° 14' 19.047 W |
| Carlile | | | | | | | | | |
| 11,000.0 | 51.95 | 166.11 | 10,796.3 | -564.0 | 701.0 | 1,876,535.72 | 2,235,111.21 | 40° 12' 29.657 N | 108° 14' 18.856 W |
| 11,120.1 | 60.89 | 170.35 | 10,862.7 | -661.8 | 721.2 | 1,876,437.33 | 2,235,128.44 | 40° 12' 28.691 N | 108° 14' 18.596 W |
| Frontier | | | | | | | | | |
| 11,200.0 | 66.90 | 172.77 | 10,897.9 | -732.8 | 731.7 | 1,876,366.08 | 2,235,136.79 | 40° 12' 27.989 N | 108° 14' 18.461 W |
| 11,400.0 | 82.07 | 178.06 | 10,951.2 | -924.3 | 746.7 | 1,876,174.23 | 2,235,146.03 | 40° 12' 26.097 N | 108° 14' 18.267 W |
| 11,487.0 | 88.70 | 180.20 | 10,958.2 | -1,010.9 | 748.0 | 1,876,087.59 | 2,235,144.73 | 40° 12' 25.241 N | 108° 14' 18.250 W |
| Landing Pt Hold 88.7° Inc, 180.2° Az - LP #2 | | | | | | | | | |
| 11,600.0 | 88.70 | 180.20 | 10,960.8 | -1,123.9 | 747.6 | 1,875,974.67 | 2,235,140.93 | 40° 12' 24.125 N | 108° 14' 18.256 W |
| 11,800.0 | 88.70 | 180.20 | 10,965.3 | -1,323.8 | 746.9 | 1,875,774.83 | 2,235,134.21 | 40° 12' 22.149 N | 108° 14' 18.264 W |
| 12,000.0 | 88.70 | 180.20 | 10,969.9 | -1,523.8 | 746.2 | 1,875,575.00 | 2,235,127.48 | 40° 12' 20.174 N | 108° 14' 18.273 W |
| 12,200.0 | 88.70 | 180.20 | 10,974.4 | -1,723.7 | 745.5 | 1,875,375.16 | 2,235,120.76 | 40° 12' 18.198 N | 108° 14' 18.282 W |
| 12,400.0 | 88.70 | 180.20 | 10,979.0 | -1,923.7 | 744.8 | 1,875,175.33 | 2,235,114.04 | 40° 12' 16.222 N | 108° 14' 18.291 W |
| 12,487.0 | 88.70 | 180.20 | 10,981.0 | -2,010.7 | 744.5 | 1,875,088.40 | 2,235,111.12 | 40° 12' 15.363 N | 108° 14' 18.295 W |
| Begin 2°/100 Turn | | | | | | | | | |
| 12,600.0 | 88.69 | 182.46 | 10,983.6 | -2,123.6 | 741.9 | 1,874,975.60 | 2,235,105.09 | 40° 12' 14.247 N | 108° 14' 18.329 W |
| 12,800.0 | 88.69 | 186.46 | 10,988.1 | -2,322.9 | 726.4 | 1,874,776.85 | 2,235,083.54 | 40° 12' 12.278 N | 108° 14' 18.529 W |
| 13,000.0 | 88.69 | 190.46 | 10,992.7 | -2,520.6 | 697.0 | 1,874,580.10 | 2,235,048.18 | 40° 12' 10.324 N | 108° 14' 18.909 W |
| 13,200.0 | 88.70 | 194.46 | 10,997.3 | -2,715.8 | 653.8 | 1,874,386.29 | 2,234,999.18 | 40° 12' 8.395 N | 108° 14' 19.464 W |
| 13,226.9 | 88.70 | 195.00 | 10,997.9 | -2,741.8 | 647.0 | 1,874,360.50 | 2,234,991.56 | 40° 12' 8.138 N | 108° 14' 19.553 W |
| Hold 195° Az | | | | | | | | | |
| 13,400.0 | 88.70 | 195.00 | 11,001.8 | -2,909.0 | 602.2 | 1,874,194.77 | 2,234,941.74 | 40° 12' 6.487 N | 108° 14' 20.130 W |
| 13,600.0 | 88.70 | 195.00 | 11,006.3 | -3,102.1 | 550.5 | 1,874,003.28 | 2,234,884.19 | 40° 12' 4.579 N | 108° 14' 20.797 W |
| 13,800.0 | 88.70 | 195.00 | 11,010.9 | -3,295.3 | 498.7 | 1,873,811.80 | 2,234,826.64 | 40° 12' 2.670 N | 108° 14' 21.464 W |
| 14,000.0 | 88.70 | 195.00 | 11,015.4 | -3,488.4 | 447.0 | 1,873,620.31 | 2,234,769.08 | 40° 12' 0.762 N | 108° 14' 22.131 W |
| 14,200.0 | 88.70 | 195.00 | 11,019.9 | -3,681.5 | 395.2 | 1,873,428.82 | 2,234,711.53 | 40° 11' 58.854 N | 108° 14' 22.797 W |
| 14,400.0 | 88.70 | 195.00 | 11,024.5 | -3,874.7 | 343.5 | 1,873,237.34 | 2,234,653.98 | 40° 11' 56.945 N | 108° 14' 23.464 W |
| 14,600.0 | 88.70 | 195.00 | 11,029.0 | -4,067.8 | 291.7 | 1,873,045.85 | 2,234,596.42 | 40° 11' 55.037 N | 108° 14' 24.131 W |
| 14,800.0 | 88.70 | 195.00 | 11,033.5 | -4,260.9 | 240.0 | 1,872,854.36 | 2,234,538.87 | 40° 11' 53.129 N | 108° 14' 24.798 W |
| 15,000.0 | 88.70 | 195.00 | 11,038.0 | -4,454.1 | 188.2 | 1,872,662.88 | 2,234,481.31 | 40° 11' 51.220 N | 108° 14' 25.465 W |
| TD at 15000.0 | | | | | | | | | |

| | | | |
|------------------|------------------------------|-------------------------------------|--------------------------------------|
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| Project: | Sec. 23 T3N R97W (NAD83) | MD Reference: | WELL @ 6047.0ft (Original Well Elev) |
| Site: | Wiley Pad | North Reference: | True |
| Well: | Wiley #23-3-97-1 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Wellbore #2 | | |
| Design: | ST Plan #5 11Jun13 kjs | | |

| Targets | | | | | | | | | |
|---|-----------|----------|----------|----------|-------|--------------|--------------|------------------|-------------------|
| Target Name | | | | | | | | | |
| - hit/miss target | Dip Angle | Dip Dir. | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
| - Shape | (°) | (°) | (ft) | (ft) | (ft) | (ft) | (ft) | | |
| LP #2 | 0.00 | 0.00 | 10,958.2 | -1,010.9 | 748.0 | 1,876,087.59 | 2,235,144.73 | 40° 12' 25.241 N | 108° 14' 18.250 W |
| - plan hits target | | | | | | | | | |
| - Point | | | | | | | | | |
| NE Corner | 0.00 | 0.00 | 0.0 | -943.8 | 98.3 | 1,876,174.22 | 2,234,497.39 | 40° 12' 25.904 N | 108° 14' 26.623 W |
| - plan misses by 10417.4ft at 10496.7ft MD (10387.8 TVD, -319.5 N, 572.9 E) | | | | | | | | | |
| - Circle (radius 600.0) | | | | | | | | | |
| SE Corner | 0.00 | 0.00 | 0.0 | -2,273.8 | 87.5 | 1,874,845.19 | 2,234,446.47 | 40° 12' 12.763 N | 108° 14' 26.762 W |
| - plan misses by 10581.2ft at 10496.7ft MD (10387.8 TVD, -319.5 N, 572.9 E) | | | | | | | | | |
| - Circle (radius 600.0) | | | | | | | | | |

| Formations | | | | | |
|----------------|----------------|------------------------|-----------|------|---------------|
| Measured Depth | Vertical Depth | Name | Lithology | Dip | Dip Direction |
| (ft) | (ft) | | | (°) | (°) |
| | 11,238.0 | Dakota | | 1.30 | 177.58 |
| 10,885.7 | 10,708.0 | Fort Hays Equiv | | 1.30 | 177.58 |
| 11,120.1 | 10,847.0 | Frontier | | 1.30 | 177.58 |
| | 11,138.0 | Mowry | | 1.30 | 177.58 |
| 10,313.9 | 10,209.0 | Niobrara: Hot Wolf Mtn | | 1.30 | 177.58 |
| 5,978.0 | 5,978.0 | Sego-Lower | | | |
| | 11,400.0 | TD | | 1.30 | 177.58 |
| 1,805.0 | 1,805.0 | Mesaverde | | | |
| 6,318.0 | 6,318.0 | Castlegate | | 1.30 | 177.58 |
| | 10,937.0 | Frontier Target | | 1.30 | 177.58 |
| 10,926.3 | 10,736.0 | Carlile | | 1.30 | 177.58 |
| 9,937.6 | 9,857.0 | Niobrara: Wolf Mtn | | 1.30 | 177.58 |
| 9,117.8 | 9,090.0 | Niobrara: Buck Peak | | 1.30 | 177.58 |
| 4,718.0 | 4,718.0 | Rollins | | | |
| 5,843.0 | 5,843.0 | Mancos | | | |
| 9,566.7 | 9,510.0 | Niobrara: Tow Creek | | 1.30 | 177.58 |

| Plan Annotations | | | | |
|------------------|----------------|-------------------|------------|--------------------------------------|
| Measured Depth | Vertical Depth | Local Coordinates | | Comment |
| (ft) | (ft) | +N/-S (ft) | +E/-W (ft) | |
| 10,496.7 | 10,387.8 | -319.5 | 572.9 | ST KOP 8°/100 |
| 11,487.0 | 10,958.2 | -1,010.9 | 748.0 | Landing Pt Hold 88.7° Inc, 180.2° Az |
| 12,487.0 | 10,981.0 | -2,010.7 | 744.5 | Begin 2°/100 Turn |
| 13,226.9 | 10,997.9 | -2,741.8 | 647.0 | Hold 195° Az |
| 15,000.0 | 11,038.0 | -4,454.1 | 188.2 | TD at 15000.0 |