

**SURVEY REPORT**

Cedar Canyon 28-27 Federal Com #5H

**COMPUTED OUTRUN KEEPER GYRO SURVEY**

|          |                                    |              |         |
|----------|------------------------------------|--------------|---------|
| CUSTOMER | OXY                                | SDI JOB NO.  | 407536  |
| PROJECT  | Cedar Canyon 28-27 Federal Com #5H | SDI DISTRICT | Midland |
| FIELD    | CEDAR CANYON 28 FED                | SDI KIT/UNIT |         |

**SITE INFORMATION**

|           |                               |          |
|-----------|-------------------------------|----------|
| Site Name | CEDAR CANYON 28 FED           | Section  |
| Lat/Long  | 32.1900837° N, 103.9981693° W | Township |
| Northing  | 433,034.13 ft                 | Range    |
| Easting   | 603,684.41 ft                 |          |

**MAP INFORMATION**

|                 |                                         |
|-----------------|-----------------------------------------|
| North Reference | Grid North                              |
| Grid Correction | -0.18 deg                               |
| System          | US State Plane 1927                     |
| Datum           | North American Datum 1927 (Clarke 1866) |
| Map Zone        | New Mexico East: 3001                   |

**WELL INFORMATION**

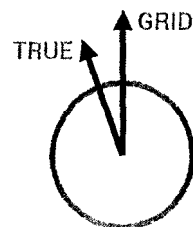
|          |                               |
|----------|-------------------------------|
| Lat/Long | 32.1900838° N, 103.9981693° W |
| Northing | 433,034.13 ft                 |
| Easting  | 603,684.41 ft                 |
| UWI      | 30-015-43645                  |

**DEPTH AND ELEVATION REFERENCE**

|                     |                              |
|---------------------|------------------------------|
| Ground Level        | 2948 ft above Mean Sea Level |
| Reference Datum     | KB                           |
| Reference Height    | 26.5 ft above G.L.           |
| Reference Elevation | 2974.5 ft                    |

**VERTICAL SECTION REFERENCE**

|                    |                   |
|--------------------|-------------------|
| +N/-S              | 0 ft              |
| +E/-W              | 0 ft              |
| Proposal Direction | 93.88°            |
| Calculation Method | Minimum Curvature |

**LOCAL GRAVITY REFERENCE INFORMATION**

|               |                       |
|---------------|-----------------------|
| Local Gravity | 998.541 mG [computed] |
| True to Grid  | subtract 0.18°        |

**WELL NOTES**

**OPERATORS**  
H.SANGHOTT

SDI Operator Name (Printed)

SIGNATURE

DATE

# SURVEY REPORT

Cedar Canyon 28-27 Federal Com #5H

COMPUTED OUTRUN KEEPER GYRO SURVEY

| MD      | INC  | AZIM   | TVD     | VS   | FN/S  | HE/AW | DLS     | CLOSURE<br>DIST | CLOSURE<br>DIR |
|---------|------|--------|---------|------|-------|-------|---------|-----------------|----------------|
| ft      | deg  | deg    | ft      | ft   | ft    | ft    | %/100ft | ft              | deg            |
| 0.00    | 0.00 | 0.00   | 0.00    | 0.00 | 0.00  | 0.00  | Invalid | 0.00            | 0.00           |
| 107.00  | 0.55 | 146.66 | 107.00  | 0.31 | -0.43 | 0.28  | 0.52    | 0.52            | 146.66         |
| 198.00  | 0.66 | 149.46 | 197.99  | 0.88 | -1.25 | 0.79  | 0.12    | 1.48            | 147.65         |
| 289.00  | 0.72 | 146.29 | 288.99  | 1.52 | -2.18 | 1.37  | 0.08    | 2.57            | 147.72         |
| 380.00  | 0.70 | 144.85 | 379.98  | 2.22 | -3.11 | 2.01  | 0.03    | 3.70            | 147.06         |
| 470.00  | 0.69 | 143.48 | 469.97  | 2.92 | -3.99 | 2.65  | 0.02    | 4.79            | 146.40         |
| 561.00  | 0.68 | 144.57 | 560.97  | 3.62 | -4.88 | 3.29  | 0.02    | 5.89            | 145.96         |
| 651.00  | 0.69 | 145.64 | 650.96  | 4.29 | -5.76 | 3.91  | 0.02    | 6.96            | 145.83         |
| 741.00  | 0.79 | 140.23 | 740.95  | 5.06 | -6.69 | 4.62  | 0.13    | 8.13            | 145.39         |
| 832.00  | 0.88 | 140.93 | 831.94  | 5.97 | -7.71 | 5.46  | 0.10    | 9.45            | 144.72         |
| 922.00  | 0.43 | 137.84 | 921.94  | 6.68 | -8.50 | 6.12  | 0.50    | 10.47           | 144.25         |
| 1012.00 | 0.04 | 130.19 | 1011.94 | 6.95 | -8.77 | 6.37  | 0.43    | 10.84           | 144.00         |
| 1106.00 | 0.05 | 130.57 | 1105.94 | 7.01 | -8.82 | 6.43  | 0.00    | 10.91           | 143.91         |
| 1201.00 | 0.03 | 121.67 | 1200.94 | 7.06 | -8.85 | 6.47  | 0.02    | 10.97           | 143.83         |
| 1295.00 | 0.03 | 33.04  | 1294.94 | 7.08 | -8.85 | 6.50  | 0.04    | 10.98           | 143.68         |
| 1389.00 | 0.02 | 45.40  | 1388.94 | 7.11 | -8.81 | 6.53  | 0.01    | 10.97           | 143.48         |
| 1483.00 | 0.02 | 62.74  | 1482.94 | 7.14 | -8.79 | 6.56  | 0.01    | 10.97           | 143.29         |
| 1578.00 | 0.02 | 51.62  | 1577.94 | 7.16 | -8.78 | 6.58  | 0.01    | 10.97           | 143.12         |
| 1672.00 | 0.02 | 42.35  | 1671.94 | 7.18 | -8.75 | 6.60  | 0.00    | 10.97           | 142.97         |
| 1766.00 | 0.02 | 5.24   | 1765.94 | 7.19 | -8.73 | 6.62  | 0.01    | 10.95           | 142.84         |
| 1860.00 | 0.02 | 30.80  | 1859.94 | 7.20 | -8.70 | 6.62  | 0.01    | 10.94           | 142.72         |
| 1955.00 | 0.02 | 28.97  | 1954.94 | 7.21 | -8.68 | 6.64  | 0.00    | 10.93           | 142.57         |
| 2049.00 | 0.01 | 145.44 | 2048.94 | 7.22 | -8.67 | 6.65  | 0.03    | 10.93           | 142.50         |
| 2143.00 | 0.04 | 166.13 | 2142.94 | 7.24 | -8.70 | 6.66  | 0.03    | 10.96           | 142.57         |
| 2237.00 | 0.03 | 169.13 | 2236.94 | 7.25 | -8.76 | 6.68  | 0.01    | 11.02           | 142.69         |
| 2331.00 | 0.04 | 189.39 | 2330.94 | 7.26 | -8.82 | 6.68  | 0.02    | 11.06           | 142.88         |
| 2426.00 | 0.03 | 209.88 | 2425.94 | 7.24 | -8.87 | 6.66  | 0.02    | 11.09           | 143.12         |
| 2520.00 | 0.04 | 201.80 | 2519.94 | 7.22 | -8.93 | 6.63  | 0.01    | 11.12           | 143.40         |
| 2614.00 | 0.09 | 211.50 | 2613.94 | 7.17 | -9.02 | 6.58  | 0.05    | 11.17           | 143.90         |
| 2708.00 | 0.03 | 189.65 | 2707.94 | 7.14 | -9.11 | 6.54  | 0.07    | 11.21           | 144.33         |
| 2803.00 | 0.02 | 175.42 | 2802.94 | 7.14 | -9.15 | 6.54  | 0.01    | 11.24           | 144.46         |
| 2897.00 | 0.01 | 185.33 | 2896.94 | 7.14 | -9.18 | 6.54  | 0.01    | 11.27           | 144.54         |

| MD      | INC   | AZIM   | TAVD    | VS     | IN/S    | HEAV   | DLS    | CLOSURE<br>DIST | CLOSURE<br>DIR |
|---------|-------|--------|---------|--------|---------|--------|--------|-----------------|----------------|
| ft      | deg   | deg    | ft      | ft     | ft      | ft     | %100ft | ft              | deg            |
| 2991.00 | 0.12  | 164.30 | 2990.94 | 7.17   | -9.28   | 6.56   | 0.11   | 11.36           | 144.73         |
| 3085.00 | 1.15  | 177.01 | 3084.93 | 7.32   | -10.31  | 6.64   | 1.10   | 12.26           | 147.23         |
| 3180.00 | 3.39  | 177.83 | 3179.85 | 7.73   | -14.07  | 6.79   | 2.36   | 15.62           | 154.23         |
| 3274.00 | 5.68  | 176.26 | 3273.55 | 8.64   | -21.49  | 7.20   | 2.44   | 22.66           | 161.47         |
| 3368.00 | 7.97  | 178.17 | 3366.88 | 9.90   | -32.64  | 7.71   | 2.44   | 33.54           | 166.71         |
| 3462.00 | 10.23 | 177.34 | 3459.69 | 11.50  | -47.49  | 8.31   | 2.42   | 48.21           | 170.08         |
| 3556.00 | 12.43 | 176.48 | 3551.85 | 13.75  | -65.93  | 9.31   | 2.34   | 66.59           | 171.96         |
| 3651.00 | 13.86 | 174.48 | 3644.36 | 16.92  | -87.47  | 11.04  | 1.58   | 88.16           | 172.81         |
| 3745.00 | 13.93 | 172.01 | 3735.61 | 21.09  | -109.88 | 13.69  | 0.64   | 110.73          | 172.90         |
| 3839.00 | 14.33 | 170.67 | 3826.76 | 26.07  | -132.56 | 17.15  | 0.55   | 133.66          | 172.63         |
| 3933.00 | 14.82 | 169.37 | 3917.74 | 31.74  | -155.85 | 21.25  | 0.63   | 157.29          | 172.23         |
| 4028.00 | 15.19 | 168.48 | 4009.50 | 38.09  | -179.98 | 25.98  | 0.45   | 181.85          | 171.79         |
| 4122.00 | 15.58 | 166.91 | 4100.13 | 45.04  | -204.34 | 31.30  | 0.61   | 206.72          | 171.29         |
| 4216.00 | 15.82 | 165.89 | 4190.63 | 52.68  | -229.06 | 37.28  | 0.39   | 232.08          | 170.76         |
| 4310.00 | 15.99 | 164.59 | 4281.03 | 60.91  | -253.97 | 43.84  | 0.42   | 257.73          | 170.21         |
| 4404.00 | 15.39 | 164.15 | 4371.53 | 69.40  | -278.45 | 50.69  | 0.65   | 283.03          | 169.68         |
| 4499.00 | 14.51 | 163.98 | 4463.31 | 77.70  | -302.02 | 57.41  | 0.93   | 307.43          | 169.24         |
| 4593.00 | 13.87 | 163.52 | 4554.44 | 85.62  | -324.14 | 63.86  | 0.69   | 330.37          | 168.85         |
| 4687.00 | 13.40 | 163.12 | 4645.79 | 93.40  | -345.37 | 70.22  | 0.51   | 352.44          | 168.51         |
| 4781.00 | 13.52 | 162.97 | 4737.21 | 101.18 | -366.30 | 76.60  | 0.13   | 374.22          | 168.19         |
| 4876.00 | 13.55 | 162.93 | 4829.57 | 109.12 | -387.55 | 83.11  | 0.04   | 396.36          | 167.90         |
| 4970.00 | 13.44 | 162.62 | 4920.98 | 117.02 | -408.49 | 89.61  | 0.14   | 418.21          | 167.63         |
| 5064.00 | 12.84 | 162.87 | 5012.52 | 124.72 | -428.90 | 95.95  | 0.64   | 439.50          | 167.39         |
| 5158.00 | 12.06 | 162.95 | 5104.31 | 131.97 | -448.27 | 101.90 | 0.82   | 459.70          | 167.19         |
| 5253.00 | 11.39 | 163.20 | 5197.32 | 138.83 | -466.74 | 107.53 | 0.72   | 478.96          | 167.03         |
| 5347.00 | 10.98 | 163.56 | 5289.54 | 145.21 | -484.20 | 112.74 | 0.44   | 497.16          | 166.89         |
| 5441.00 | 10.05 | 162.96 | 5381.96 | 151.25 | -500.63 | 117.68 | 0.99   | 514.28          | 166.77         |
| 5535.00 | 9.28  | 162.24 | 5474.62 | 156.97 | -515.70 | 122.39 | 0.84   | 530.02          | 166.65         |
| 5629.00 | 9.13  | 161.75 | 5567.42 | 162.58 | -529.99 | 127.04 | 0.18   | 545.01          | 166.52         |
| 5724.00 | 8.93  | 162.32 | 5661.24 | 168.12 | -544.17 | 131.64 | 0.22   | 559.87          | 166.40         |
| 5818.00 | 9.33  | 165.63 | 5754.05 | 173.19 | -558.50 | 135.75 | 0.70   | 574.77          | 166.34         |
| 5912.00 | 9.91  | 168.73 | 5846.73 | 177.69 | -573.81 | 139.22 | 0.83   | 590.46          | 166.36         |

# SURVEY REPORT

Cedar Canyon 28-27 Federal Com #5H

COMPUTED OUTFRAN KEEPER GYRO SURVEY

| MD      | INC   | AZIM   | AVD     | VS     | HW/S    | HE/W   | DLS      | CLOSURE<br>DIST | CLOSURE<br>DIR |
|---------|-------|--------|---------|--------|---------|--------|----------|-----------------|----------------|
| ft      | deg   | deg    | ft      | ft     | ft      | ft     | ft/100ft | ft              | deg            |
| 6006.00 | 10.37 | 170.76 | 5939.26 | 181.72 | -590.10 | 142.16 | 0.62     | 606.98          | 166.46         |
| 6101.00 | 10.29 | 169.74 | 6032.72 | 185.73 | -606.88 | 145.04 | 0.21     | 623.98          | 166.56         |
| 6195.00 | 10.31 | 168.45 | 6125.21 | 190.02 | -623.38 | 148.22 | 0.25     | 640.76          | 166.63         |
| 6289.00 | 10.00 | 166.10 | 6217.73 | 194.75 | -639.54 | 151.87 | 0.55     | 657.33          | 166.64         |
| 6383.00 | 10.03 | 164.99 | 6310.30 | 199.89 | -655.37 | 155.95 | 0.21     | 673.67          | 166.62         |
| 6478.00 | 9.80  | 164.55 | 6403.88 | 205.25 | -671.16 | 160.24 | 0.25     | 690.02          | 166.57         |
| 6572.00 | 9.87  | 164.23 | 6496.50 | 210.60 | -686.63 | 164.57 | 0.09     | 706.07          | 166.52         |
| 6666.00 | 9.95  | 163.61 | 6589.10 | 216.13 | -702.17 | 169.05 | 0.14     | 722.23          | 166.46         |
| 6760.00 | 9.48  | 160.80 | 6681.75 | 221.97 | -717.27 | 173.88 | 0.71     | 738.04          | 166.37         |
| 6854.00 | 9.24  | 157.68 | 6774.50 | 228.33 | -731.56 | 179.29 | 0.60     | 753.21          | 166.23         |
| 6949.00 | 8.85  | 154.72 | 6868.32 | 235.26 | -745.22 | 185.31 | 0.64     | 767.91          | 166.04         |
| 7043.00 | 8.42  | 150.54 | 6961.25 | 242.57 | -757.75 | 191.78 | 0.81     | 781.64          | 165.80         |
| 7137.00 | 8.60  | 143.44 | 7054.22 | 250.91 | -769.39 | 199.36 | 1.13     | 794.80          | 165.47         |
| 7231.00 | 8.63  | 138.66 | 7147.16 | 260.47 | -780.33 | 208.20 | 0.76     | 807.63          | 165.06         |
| 7326.00 | 8.42  | 135.47 | 7241.11 | 270.73 | -790.64 | 217.78 | 0.54     | 820.09          | 164.60         |
| 7420.00 | 7.33  | 128.89 | 7334.23 | 280.79 | -799.31 | 227.28 | 1.51     | 831.00          | 164.13         |
| 7514.00 | 7.13  | 123.35 | 7427.48 | 290.78 | -806.29 | 236.82 | 0.77     | 840.35          | 163.63         |
| 7608.00 | 7.51  | 120.31 | 7520.71 | 301.36 | -812.59 | 247.00 | 0.57     | 849.30          | 163.09         |
| 7703.00 | 8.22  | 115.77 | 7614.82 | 313.22 | -818.68 | 258.47 | 1.00     | 858.51          | 162.48         |
| 7797.00 | 8.34  | 108.62 | 7707.84 | 326.06 | -823.78 | 270.99 | 1.10     | 867.21          | 161.79         |
| 7891.00 | 8.10  | 99.88  | 7800.88 | 339.24 | -827.10 | 283.98 | 1.35     | 874.49          | 161.05         |

# Schlumberger

## Reservoir Development

Schlumberger Drilling and Measurements

9200 West Reno Avenue

Oklahoma City, Oklahoma 73127 USA

Phone: (405) 789-1515

Fax: (405) 789-1519

### Well Reference:

29, 24S, 29E, Eddy NM

-32.19008 -103.99817

I, Kalu Uga certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of December 21, 2016 through January 26, 2017, conduct or supervise the taking of the SlimPulse surveys from a depth of 8250.00 feet to a depth of 9002.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY USA INC. for the Cedar Canyon 28-27 Federal 5H Well (Original Hole) API No. 30-015-43645 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By

Kalu Uga

FS



Subscribed and Sworn to before me this 20 day of February (month) 2017 (yr)

My Commission expires:

12-20-2020

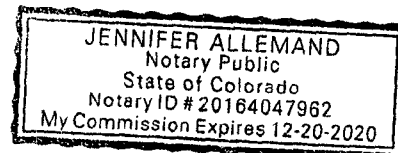


(signature)

Notary Public

Adams, Colorado

(County State)



# Cedar Canyon 28-27 Federal Com 5H Gyro + MWD 0 ft to Update Survey Geodetic Report (Non-Def Survey)



**Report Date:** February 07, 2017 - 02:54 PM  
**Client:** OXY  
**Field:** NM Eddy County (NAD 27)  
**Structure / Slot:** Oxy Cedar Canyon 28-27 Federal Com 5H / Oxy Cedar Canyon 28-27 Federal Com 5H  
**Well:** Oxy Cedar Canyon 28-27 Federal Com 5H  
**Borehole:** Original Borehole  
**UWI / API#:** Unknown / Unknown  
**Survey Name:** Cedar Canyon 28-27 Federal Com 5H Gyro + MWD 0 ft to Update  
**Survey Date:** January 03, 2017  
**Tort / AHD / DDI / ERD Ratio:** 142.812 ° / 1565.027 ft / 5.370 / 0.180  
**Coordinate Reference System:** NAD27 New Mexico State Plane, Eastern Zone, US Feet  
**Location Lat / Long:** N 32° 11' 24.30151", W 103° 59' 53.40953"  
**Location Grid N/E Y/X:** N 433034.130 ftUS, E 603684.410 ftUS  
**CRS Grid Convergence Angle:** 0.1786 °  
**Grid Scale Factor:** 0.9999214  
**Version / Patch:** 2.10.254.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 93.876 ° (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** RKB=26.5'  
**TVD Reference Elevation:** 2974.500 ft above MSL  
**Seabed / Ground Elevation:** 2948.000 ft above MSL  
**Magnetic Declination:** 7.203 °  
**Total Gravity Field Strength:** 998.4641mgn (9.80665 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 48164.947 nT  
**Magnetic Dip Angle:** 60.034 °  
**Declination Date:** January 03, 2017  
**Magnetic Declination Model:** HDGM 2016  
**North Reference:** Grid North  
**Grid Convergence Used:** 0.1786 °  
**Total Corr Mag North->Grid North:** 7.0242 °  
**Local Coord Referenced To:** Well Head

| Comments | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' '')     | Longitude<br>(E/W ° ' '') |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|------------------------------|---------------------------|
| SHL      | 0.00       | 0.00        | 0.00             | 0.00        | 0.00         | 0.00       | 0.00       | N/A              | 433034.13          | 603684.41         | N 32 11 24.30 W 103 59 53.41 |                           |
| RKB      | 26.50      | 0.00        | 0.00             | 26.50       | 0.00         | 0.00       | 0.00       | 0.00             | 433034.13          | 603684.41         | N 32 11 24.30 W 103 59 53.41 |                           |
|          | 107.00     | 0.55        | 146.66           | 107.00      | 0.23         | -0.32      | 0.21       | 0.68             | 433033.81          | 603684.62         | N 32 11 24.30 W 103 59 53.41 |                           |
|          | 198.00     | 0.66        | 149.46           | 197.99      | 0.79         | -1.14      | 0.72       | 0.13             | 433032.99          | 603685.13         | N 32 11 24.29 W 103 59 53.40 |                           |
|          | 289.00     | 0.72        | 146.29           | 288.99      | 1.44         | -2.07      | 1.30       | 0.08             | 433032.06          | 603685.71         | N 32 11 24.28 W 103 59 53.39 |                           |
|          | 380.00     | 0.70        | 144.85           | 379.98      | 2.14         | -3.00      | 1.94       | 0.03             | 433031.13          | 603686.35         | N 32 11 24.27 W 103 59 53.39 |                           |
|          | 470.00     | 0.69        | 143.48           | 469.97      | 2.84         | -3.88      | 2.58       | 0.02             | 433030.25          | 603686.99         | N 32 11 24.26 W 103 59 53.38 |                           |
|          | 561.00     | 0.68        | 144.57           | 560.97      | 3.53         | -4.76      | 3.22       | 0.02             | 433029.37          | 603687.63         | N 32 11 24.25 W 103 59 53.37 |                           |
|          | 651.00     | 0.69        | 145.64           | 650.96      | 4.21         | -5.64      | 3.83       | 0.02             | 433028.49          | 603688.24         | N 32 11 24.25 W 103 59 53.37 |                           |
|          | 741.00     | 0.79        | 140.23           | 740.95      | 4.97         | -6.57      | 4.54       | 0.14             | 433027.56          | 603688.95         | N 32 11 24.24 W 103 59 53.36 |                           |
|          | 832.00     | 0.88        | 140.93           | 831.94      | 5.88         | -7.59      | 5.38       | 0.10             | 433026.54          | 603689.79         | N 32 11 24.23 W 103 59 53.35 |                           |
|          | 922.00     | 0.43        | 137.84           | 921.94      | 6.59         | -8.38      | 6.04       | 0.50             | 433025.75          | 603690.45         | N 32 11 24.22 W 103 59 53.34 |                           |
|          | 1012.00    | 0.04        | 130.19           | 1011.94     | 6.86         | -8.65      | 6.29       | 0.43             | 433025.48          | 603690.70         | N 32 11 24.22 W 103 59 53.34 |                           |
|          | 1106.00    | 0.05        | 130.57           | 1105.94     | 6.92         | -8.70      | 6.35       | 0.01             | 433025.43          | 603690.76         | N 32 11 24.22 W 103 59 53.34 |                           |
|          | 1201.00    | 0.03        | 121.67           | 1200.94     | 6.98         | -8.74      | 6.40       | 0.02             | 433025.39          | 603690.81         | N 32 11 24.21 W 103 59 53.34 |                           |
|          | 1295.00    | 0.03        | 33.04            | 1294.94     | 7.01         | -8.73      | 6.43       | 0.04             | 433025.40          | 603690.84         | N 32 11 24.21 W 103 59 53.33 |                           |
|          | 1389.00    | 0.02        | 45.40            | 1388.94     | 7.03         | -8.70      | 6.46       | 0.01             | 433025.43          | 603690.87         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 1483.00    | 0.02        | 62.74            | 1482.94     | 7.06         | -8.68      | 6.49       | 0.01             | 433025.45          | 603690.89         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 1578.00    | 0.02        | 51.62            | 1577.94     | 7.08         | -8.66      | 6.51       | 0.00             | 433025.47          | 603690.92         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 1672.00    | 0.02        | 42.35            | 1671.94     | 7.11         | -8.64      | 6.54       | 0.00             | 433025.49          | 603690.95         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 1766.00    | 0.02        | 5.24             | 1765.94     | 7.12         | -8.61      | 6.55       | 0.01             | 433025.52          | 603690.96         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 1860.00    | 0.02        | 30.80            | 1859.94     | 7.12         | -8.58      | 6.56       | 0.01             | 433025.55          | 603690.97         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 1955.00    | 0.02        | 28.97            | 1954.94     | 7.14         | -8.55      | 6.58       | 0.00             | 433025.58          | 603690.99         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 2049.00    | 0.01        | 145.44           | 2048.94     | 7.15         | -8.54      | 6.59       | 0.03             | 433025.59          | 603691.00         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 2143.00    | 0.04        | 166.13           | 2142.94     | 7.17         | -8.58      | 6.60       | 0.03             | 433025.55          | 603691.01         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 2237.00    | 0.03        | 169.13           | 2236.94     | 7.18         | -8.64      | 6.61       | 0.01             | 433025.49          | 603691.02         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 2331.00    | 0.04        | 189.39           | 2330.94     | 7.19         | -8.70      | 6.61       | 0.02             | 433025.44          | 603691.02         | N 32 11 24.22 W 103 59 53.33 |                           |
|          | 2426.00    | 0.03        | 209.88           | 2425.94     | 7.17         | -8.75      | 6.60       | 0.02             | 433025.38          | 603691.00         | N 32 11 24.21 W 103 59 53.33 |                           |
|          | 2520.00    | 0.04        | 201.80           | 2519.94     | 7.15         | -8.80      | 6.57       | 0.01             | 433025.33          | 603690.98         | N 32 11 24.21 W 103 59 53.33 |                           |
|          | 2614.00    | 0.09        | 211.50           | 2613.94     | 7.11         | -8.89      | 6.52       | 0.05             | 433025.24          | 603690.93         | N 32 11 24.21 W 103 59 53.33 |                           |
|          | 2708.00    | 0.03        | 189.65           | 2707.94     | 7.07         | -8.98      | 6.48       | 0.07             | 433025.15          | 603690.89         | N 32 11 24.21 W 103 59 53.33 |                           |
|          | 2803.00    | 0.02        | 175.42           | 2802.94     | 7.07         | -9.02      | 6.47       | 0.01             | 433025.11          | 603690.88         | N 32 11 24.21 W 103 59 53.33 |                           |
|          | 2897.00    | 0.01        | 185.33           | 2896.94     | 7.07         | -9.05      | 6.47       | 0.01             | 433025.08          | 603690.88         | N 32 11 24.21 W 103 59 53.33 |                           |
|          | 2991.00    | 0.12        | 164.30           | 2990.94     | 7.10         | -9.15      | 6.50       | 0.12             | 433024.98          | 603690.91         | N 32 11 24.21 W 103 59 53.33 |                           |
|          | 3085.00    | 1.15        | 177.01           | 3084.93     | 7.25         | -10.19     | 6.58       | 1.10             | 433023.94          | 603690.99         | N 32 11 24.20 W 103 59 53.33 |                           |
|          | 3180.00    | 3.39        | 177.83           | 3179.85     | 7.66         | -13.95     | 6.73       | 2.36             | 433020.18          | 603691.14         | N 32 11 24.16 W 103 59 53.33 |                           |
|          | 3274.00    | 5.68        | 176.26           | 3273.55     | 8.57         | -21.37     | 7.14       | 2.44             | 433012.77          | 603691.55         | N 32 11 24.09 W 103 59 53.33 |                           |
|          | 3368.00    | 7.97        | 178.17           | 3366.88     | 9.83         | -32.52     | 7.65       | 2.45             | 433001.61          | 603692.06         | N 32 11 23.98 W 103 59 53.32 |                           |
|          | 3462.00    | 10.23       | 177.34           | 3459.69     | 11.43        | -47.38     | 8.25       | 2.41             | 432986.76          | 603692.66         | N 32 11 23.83 W 103 59 53.32 |                           |
|          | 3556.00    | 12.43       | 176.48           | 3551.85     | 13.68        | -65.81     | 9.26       | 2.35             | 432968.32          | 603693.67         | N 32 11 23.65 W 103 59 53.30 |                           |
|          | 3651.00    | 13.86       | 174.48           | 3644.36     | 16.86        | -87.35     | 10.98      | 1.58             | 432946.79          | 603695.39         | N 32 11 23.44 W 103 59 53.28 |                           |
|          | 3745.00    | 13.93       | 172.01           | 3735.61     | 21.02        | -109.76    | 13.64      | 0.64             | 432924.38          | 603698.04         | N 32 11 23.21 W 103 59 53.25 |                           |
|          | 3839.00    | 14.33       | 170.67           | 3826.76     | 26.01        | -132.44    | 17.09      | 0.55             | 432901.70          | 603701.50         | N 32 11 22.99 W 103 59 53.22 |                           |
|          | 3933.00    | 14.82       | 169.37           | 3917.74     | 31.68        | -155.74    | 21.20      | 0.63             | 432878.41          | 603705.61         | N 32 11 22.76 W 103 59 53.17 |                           |
|          | 4028.00    | 15.19       | 168.48           | 4009.50     | 38.02        | -179.87    | 25.92      | 0.46             | 432854.27          | 603710.33         | N 32 11 22.52 W 103 59 53.11 |                           |
|          | 4122.00    | 15.58       | 166.91           | 4100.13     | 44.98        | -204.24    | 31.24      | 0.61             | 432829.91          | 603715.65         | N 32 11 22.28 W 103 59 53.05 |                           |
|          | 4216.00    | 15.82       | 165.89           | 4190.62     | 52.62        | -228.96    | 37.23      | 0.39             | 432805.19          | 603721.63         | N 32 11 22.03 W 103 59 52.98 |                           |
|          | 4310.00    | 15.99       | 164.59           | 4281.03     | 60.85        | -253.87    | 43.79      | 0.42             | 432780.28          | 603728.20         | N 32 11 21.79 W 103 59 52.91 |                           |
|          | 4404.00    | 15.39       | 164.15           | 4371.52     | 69.34        | -278.35    | 50.64      | 0.65             | 432755.81          | 603735.04         | N 32 11 21.55 W 103 59 52.83 |                           |
|          | 4499.00    | 14.51       | 163.98           | 4463.31     | 77.64        | -301.91    | 57.36      | 0.93             | 432732.24          | 603741.77         | N 32 11 21.31 W 103 59 52.75 |                           |
|          | 4593.00    | 13.87       | 163.52           | 4554.44     | 85.57        | -324.04    | 63.81      | 0.69             | 432710.12          | 603748.21         | N 32 11 21.09 W 103 59 52.68 |                           |
|          | 4687.00    | 13.40       | 163.12           | 4645.79     | 93.35        | -345.26    | 70.17      | 0.51             | 432688.90          | 603754.57         | N 32 11 20.88 W 103 59 52.61 |                           |
|          | 4781.00    | 13.52       | 162.97           | 4737.21     | 101.13       | -366.19    | 76.55      | 0.13             | 432667.97          | 603760.95         | N 32 11 20.68 W 103 59 52.53 |                           |
|          | 4876.00    | 13.55       | 162.93           | 4829.57     | 109.07       | -387.45    | 83.07      | 0.03             | 432646.71          | 603767.47         | N 32 11 20.46 W 103 59 52.46 |                           |
|          | 4970.00    | 13.44       | 162.62           | 4920.97     | 116.97       | -408.40    | 89.56      | 0.14             | 432625.76          | 603773.97         | N 32 11 20.26 W 103 59 52.38 |                           |
|          | 5064.00    | 12.84       | 162.87           | 5012.51     | 124.67       | -428.81    | 95.90      | 0.64             | 432605.36          | 603780.31         | N 32 11 20.06 W 103 59 52.31 |                           |
|          | 5158.00    | 12.06       | 162.95           | 5104.30     | 131.92       | -448.18    | 101.86     | 0.83             | 432585.99          | 603786.26         | N 32 11 19.86 W 103 59 52.24 |                           |
|          | 5253.00    | 11.39       | 163.20           | 5197.32     | 138.78       | -466.65    | 107.48     | 0.71             | 432567.52          | 603791.88         | N 32 11 19.68 W 103 59 52.18 |                           |
|          | 5347.00    | 10.98       | 163.96           | 5289.53     | 145.16       | -484.12    | 112.70     | 0.44             | 432550.05          | 603797.10         | N 32 11 19.51 W 103 59 52.12 |                           |
|          | 5441.00    | 10.05       | 162.96           | 5381.95     | 151.20       | -500.55    | 117.63     | 1.00             | 432533.62          | 603802.03         | N 32 11 19.34 W 103 59 52.06 |                           |
|          | 5535.00    | 9.28        | 162.24           | 5474.62     | 156.92       | -515.61    | 122.35     | 0.83             | 432518.57          | 603806.75         | N 32 11 19.20 W 103 59 52.00 |                           |
|          | 5629.00    | 9.13        | 161.75           | 5567.41     | 162.53       | -529.91    | 127.00     | 0.18             | 432504.27          | 603811.40         | N 32 11 19.05 W 103 59 51.95 |                           |
|          | 5724.00    | 8.93        | 162.32           | 5661.23     | 168.07       | -544.09    | 131.60     | 0.23             | 432490.08          | 603816.00         | N 32 11 18.91 W 103 59 51.90 |                           |
|          | 5818.00    | 9.33        | 165.63           | 5754.04     | 173.14       | -558.42    | 135.70     | 0.70             | 432475.75          | 603820.10         | N 32 11 18.77 W 103 59 51.85 |                           |
|          | 5912.00    | 9.91        | 168.73           | 5846.72     | 177.64       | -573.74    | 139.18     | 0.83             | 432460.44          | 603823.57         | N 32 11 18.62 W 103 59 51.81 |                           |
|          | 6006.00    | 10.37       | 170.76           | 5939.25     | 181.67       | -590.02    | 142.11     | 0.62             | 432444.16          | 603826.51         | N 32 11 18.46 W 103 59 51.78 |                           |
|          | 6101.00    | 10.29       | 169.74           | 6032.71     | 185.69       | -606.81    | 145.00     | 0.21             | 432427.37          | 603829.40         | N 32 11 18.29 W 103 59 51.74 |                           |
|          | 6195.00    | 10.31       | 168.45           | 6125.20     | 189.97       | -623.31    | 148.18     | 0.25             | 432410.87          | 603832.58         | N 32 11 18.13 W 103 59 51.71 |                           |
|          | 6289.00    | 10.00       | 166.10           | 6217.72     | 194.70       | -639.47    | 151.82     | 0.56             | 432394.71          | 603836.22         | N 32 11 17.97 W 103 59 51.67 |                           |
|          | 6383.00    | 10.03       | 164.99           | 6310.29     | 199.84       | -655.30    | 155.90     | 0.21             | 432378.88          | 603840.30         | N 32 11 17.81 W 103 59 51.62 |                           |
|          | 6478.00    | 9.80        | 164.55           | 6403.87     | 205.20       | -671.09    | 160.20     | 0.25             | 432363.10          | 603844.60         | N 32 11 17.66 W 103 59 51.57 |                           |

| Comments   | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N S ° ' ") | Longitude<br>(E W ° ' ") |
|------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|            | 6572.00    | 9.87        | 164.23           | 6496.49     | 210.55       | -686.55    | 164.52     | 0.09             | 432347.63          | 603848.92         | N 32 11 17.50           | W 103 59 51.52           |
|            | 6666.00    | 9.95        | 163.61           | 6589.09     | 216.08       | -702.10    | 169.00     | 0.14             | 432332.09          | 603853.40         | N 32 11 17.35           | W 103 59 51.47           |
|            | 6760.00    | 9.48        | 160.80           | 6681.74     | 221.92       | -717.20    | 173.84     | 0.71             | 432316.99          | 603858.24         | N 32 11 17.20           | W 103 59 51.41           |
|            | 6854.00    | 9.24        | 157.68           | 6774.49     | 228.29       | -731.49    | 179.25     | 0.60             | 432302.70          | 603863.65         | N 32 11 17.06           | W 103 59 51.35           |
|            | 6949.00    | 8.85        | 154.72           | 6868.31     | 235.22       | -745.15    | 185.27     | 0.64             | 432289.04          | 603869.66         | N 32 11 16.92           | W 103 59 51.28           |
|            | 7043.00    | 8.42        | 150.54           | 6961.24     | 242.52       | -757.68    | 191.74     | 0.81             | 432276.51          | 603876.14         | N 32 11 16.80           | W 103 59 51.21           |
|            | 7137.00    | 8.60        | 143.44           | 7054.21     | 250.86       | -769.32    | 199.31     | 1.13             | 432264.87          | 603883.71         | N 32 11 16.68           | W 103 59 51.12           |
|            | 7231.00    | 8.63        | 138.66           | 7147.15     | 260.43       | -780.26    | 208.16     | 0.76             | 432253.93          | 603892.55         | N 32 11 16.57           | W 103 59 51.02           |
|            | 7326.00    | 8.42        | 135.47           | 7241.10     | 270.69       | -790.57    | 217.74     | 0.54             | 432243.62          | 603902.14         | N 32 11 16.47           | W 103 59 50.90           |
|            | 7420.00    | 7.33        | 128.89           | 7334.22     | 280.74       | -799.24    | 227.24     | 1.50             | 432234.95          | 603911.63         | N 32 11 16.39           | W 103 59 50.79           |
|            | 7514.00    | 7.13        | 123.35           | 7427.47     | 290.73       | -806.21    | 236.78     | 0.77             | 432227.98          | 603921.17         | N 32 11 16.32           | W 103 59 50.68           |
|            | 7608.00    | 7.51        | 120.31           | 7520.70     | 301.31       | -812.52    | 246.95     | 0.58             | 432221.67          | 603931.34         | N 32 11 16.25           | W 103 59 50.57           |
|            | 7703.00    | 8.22        | 115.77           | 7614.81     | 313.17       | -818.61    | 258.43     | 0.99             | 432215.59          | 603942.82         | N 32 11 16.19           | W 103 59 50.43           |
|            | 7797.00    | 8.34        | 108.62           | 7707.83     | 326.00       | -823.71    | 270.94     | 1.10             | 432210.49          | 603955.33         | N 32 11 16.14           | W 103 59 50.29           |
| Last Gyro  | 7891.00    | 8.10        | 99.88            | 7800.87     | 339.18       | -827.02    | 283.93     | 1.35             | 432207.18          | 603968.31         | N 32 11 16.11           | W 103 59 50.14           |
|            | 7933.00    | 7.76        | 94.21            | 7842.47     | 344.96       | -827.74    | 289.67     | 2.03             | 432206.46          | 603974.06         | N 32 11 16.10           | W 103 59 50.07           |
|            | 8027.00    | 9.47        | 85.23            | 7935.41     | 358.95       | -827.56    | 303.71     | 2.31             | 432206.64          | 603988.09         | N 32 11 16.10           | W 103 59 49.91           |
|            | 8091.00    | 10.26       | 84.57            | 7998.46     | 369.78       | -826.58    | 314.63     | 1.25             | 432207.62          | 603999.01         | N 32 11 16.11           | W 103 59 49.78           |
|            | 8250.00    | 15.76       | 99.85            | 8153.37     | 405.27       | -828.94    | 350.04     | 4.05             | 432205.26          | 604034.42         | N 32 11 16.09           | W 103 59 49.37           |
|            | 8344.00    | 23.34       | 118.32           | 8241.97     | 434.99       | -839.98    | 379.08     | 10.31            | 432194.22          | 604063.46         | N 32 11 15.98           | W 103 59 49.03           |
|            | 8438.00    | 28.86       | 96.92            | 8326.53     | 474.71       | -851.58    | 418.10     | 11.52            | 432182.62          | 604102.48         | N 32 11 15.86           | W 103 59 48.58           |
|            | 8532.00    | 33.65       | 80.97            | 8407.01     | 522.86       | -850.22    | 466.46     | 10.13            | 432183.97          | 604150.83         | N 32 11 15.87           | W 103 59 48.01           |
|            | 8626.00    | 41.95       | 76.35            | 8481.23     | 578.32       | -838.70    | 522.82     | 9.32             | 432195.50          | 604207.19         | N 32 11 15.99           | W 103 59 47.36           |
|            | 8720.00    | 51.43       | 70.05            | 8545.67     | 642.07       | -818.69    | 588.08     | 11.19            | 432215.50          | 604272.44         | N 32 11 16.18           | W 103 59 46.60           |
|            | 8814.00    | 59.12       | 78.30            | 8599.24     | 714.74       | -797.92    | 662.31     | 10.90            | 432236.28          | 604346.67         | N 32 11 16.39           | W 103 59 45.73           |
|            | 8908.00    | 67.97       | 83.06            | 8641.09     | 796.59       | -784.44    | 745.27     | 10.45            | 432249.75          | 604429.62         | N 32 11 16.52           | W 103 59 44.77           |
|            | 9002.00    | 78.86       | 82.42            | 8667.88     | 884.84       | -773.06    | 834.50     | 11.60            | 432261.13          | 604518.84         | N 32 11 16.63           | W 103 59 43.73           |
| Projection | 9099.00    | 89.50       | 82.00            | 8677.71     | 979.21       | -759.99    | 929.97     | 10.98            | 432274.20          | 604614.30         | N 32 11 16.75           | W 103 59 42.62           |

Survey Type: Non-Def Survey

Survey Error Model: ISCWSA Rev 0 \*\*\* 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

| Description | Part | MD From<br>(ft) | MD To<br>(ft) | EOU Freq<br>(ft) | Hole Size | Casing Diameter<br>(in) | Survey Tool Type         | Borehole / Survey                                                                     |
|-------------|------|-----------------|---------------|------------------|-----------|-------------------------|--------------------------|---------------------------------------------------------------------------------------|
|             | 1    | 0.000           | 26.500        | 1/98.425         | 30.000    | 30.000                  | NAL_NSG+MSHOT-Depth Only | Original Borehole / Cedar Canyon<br>28-27 Federal Com 5H Gyro +<br>MWD 0 ft to Update |
|             | 1    | 26.500          | 26.500        | Act Stns         | 30.000    | 30.000                  | NAL_NSG+MSHOT-Depth Only | Original Borehole / Cedar Canyon<br>28-27 Federal Com 5H Gyro +<br>MWD 0 ft to Update |
|             | 1    | 26.500          | 7891.000      | Act Stns         | 30.000    | 30.000                  | NAL_NSG+MSHOT            | Original Borehole / Cedar Canyon<br>28-27 Federal Com 5H Gyro +                       |
|             | 1    | 7891.000        | 9099.000      | Act Stns         | 30.000    | 30.000                  | NAL_MWD_PLUS_0.5_DEG     | Original Borehole / Cedar Canyon<br>28-27 Federal Com 5H Gyro +                       |

# Schlumberger

## Reservoir Development

Schlumberger Drilling and Measurements

9200 West Reno Avenue

Oklahoma City, Oklahoma 73127 USA

Phone: (405) 789-1515

Fax: (405) 789-1519

### Well Reference:

29, 24S, 29E, Eddy NM

-32.19008 -103.99817

I, Kalu Uga certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of December 21, 2016 through February 05, 2017, conduct or supervise the taking of the SlimPulse surveys from a depth of 8239.00 feet to a depth of 18674.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY USA INC. for the Cedar Canyon 28-27 Federal 5H Well (Side Track) API No. 30-015-43645 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By

Kalu Uga

FS



Subscribed and Sworn to before me this 20 day of February (month) 2017 (yr)

My Commission expires:

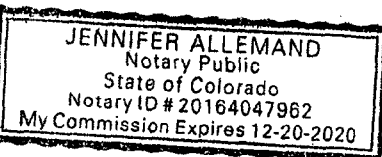
12-20-2020



Notary Public

Adams, Colorado

(County State)





**Cedar Canyon 28-27 Federal Com 5H ST01 Gyro+ MWD 0-18714 ft MD**  
**Survey Geodetic Report**  
 (Def Survey)

|                                      |                                                                               |                                             |                              |
|--------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------|------------------------------|
| <b>Report Date:</b>                  | February 06, 2017 - 04:20 PM                                                  | <b>Survey / DLS Computation:</b>            | Minimum Curvature / Lubinski |
| <b>Client:</b>                       | OXY                                                                           | <b>Vertical Section Azimuth:</b>            | 93.876 ° (Grid North)        |
| <b>Field:</b>                        | NM Eddy County (NAD 27)                                                       | <b>Vertical Section Origin:</b>             | 0.000 ft, 0.000 ft           |
| <b>Structure / Slot:</b>             | Oxy Cedar Canyon 28-27 Federal Com 5H / Oxy Cedar Canyon 28-27 Federal Com 5H | <b>TVD Reference Datum:</b>                 | RKB                          |
| <b>Well:</b>                         | Oxy Cedar Canyon 28-27 Federal Com 5H                                         | <b>TVD Reference Elevation:</b>             | 2974.500 ft above MSL        |
| <b>Borehole:</b>                     | ST01                                                                          | <b>Seabed / Ground Elevation:</b>           | 2948.000 ft above MSL        |
| <b>UWI / API#:</b>                   | Unknown / Unknown                                                             | <b>Magnetic Declination:</b>                | 7.196 °                      |
| <b>Survey Name:</b>                  | Cedar Canyon 28-27 Federal Com 5H ST01 Gyro+ MWD 0-18714 ft MD                | <b>Total Gravity Field Strength:</b>        | 998.4641mgN (9.80665 Based)  |
| <b>Survey Date:</b>                  | January 27, 2017                                                              | <b>Gravity Model:</b>                       | GARM                         |
| <b>Tort / AHD / DDI / ERD Ratio:</b> | 209.027 ° / 11217.724 ft / 6.701 / 1.285                                      | <b>Total Magnetic Field Strength:</b>       | 48157.797 nT                 |
| <b>Coordinate Reference System:</b>  | NAD27 New Mexico State Plane, Eastern Zone, US Feet                           | <b>Magnetic Dip Angle:</b>                  | 60.033 °                     |
| <b>Location Lat / Long:</b>          | N 32° 11' 24.30151", W 103° 59' 53.40953"                                     | <b>Declination Date:</b>                    | January 27, 2017             |
| <b>Location Grid N/E Y/X:</b>        | N 433034.130 ftUS, E 603684.410 ftUS                                          | <b>Magnetic Declination Model:</b>          | HOGM 2016                    |
| <b>CRS Grid Convergence Angle:</b>   | 0.1786 °                                                                      | <b>North Reference:</b>                     | Grid North                   |
| <b>Grid Scale Factor:</b>            | 0.9999214                                                                     | <b>Grid Convergence Used:</b>               | 0.1786 °                     |
| <b>Version / Patch:</b>              | 2.10.254.0                                                                    | <b>Total Corr Mag North-&gt;Grid North:</b> | 7.0178 °                     |
|                                      |                                                                               | <b>Local Coord Referenced To:</b>           | Well Head                    |

| Comments | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
| SHL      | 0.00       | 0.00        | 0.00             | 0.00        | 0.00         | 0.00       | 0.00       | N/A              | 433034.13          | 603684.41         | N 32 11 24.30           | W 103 59 53.41           |
| RKB      | 26.50      | 0.00        | 0.00             | 26.50       | 0.00         | 0.00       | 0.00       | 0.00             | 433034.13          | 603684.41         | N 32 11 24.30           | W 103 59 53.41           |
|          | 107.00     | 0.55        | 146.66           | 107.00      | 0.23         | -0.32      | 0.21       | 0.68             | 433033.81          | 603684.62         | N 32 11 24.30           | W 103 59 53.41           |
|          | 198.00     | 0.66        | 149.46           | 197.99      | 0.79         | -1.14      | 0.72       | 0.13             | 433032.99          | 603685.13         | N 32 11 24.29           | W 103 59 53.40           |
|          | 289.00     | 0.72        | 146.29           | 288.99      | 1.44         | -2.07      | 1.30       | 0.08             | 433032.06          | 603685.71         | N 32 11 24.28           | W 103 59 53.39           |
|          | 380.00     | 0.70        | 144.85           | 379.98      | 2.14         | -3.00      | 1.94       | 0.03             | 433031.13          | 603686.35         | N 32 11 24.27           | W 103 59 53.39           |
|          | 470.00     | 0.69        | 143.48           | 469.97      | 2.84         | -3.88      | 2.58       | 0.02             | 433030.25          | 603686.99         | N 32 11 24.26           | W 103 59 53.38           |
|          | 561.00     | 0.68        | 144.57           | 560.97      | 3.53         | -4.76      | 3.22       | 0.02             | 433029.37          | 603687.63         | N 32 11 24.25           | W 103 59 53.37           |
|          | 651.00     | 0.69        | 145.64           | 650.96      | 4.21         | -5.64      | 3.83       | 0.02             | 433028.49          | 603688.24         | N 32 11 24.25           | W 103 59 53.37           |
|          | 741.00     | 0.79        | 140.23           | 740.95      | 4.97         | -6.57      | 4.54       | 0.14             | 433027.56          | 603688.95         | N 32 11 24.24           | W 103 59 53.36           |
|          | 832.00     | 0.88        | 140.93           | 831.94      | 5.88         | -7.59      | 5.38       | 0.10             | 433026.54          | 603689.79         | N 32 11 24.23           | W 103 59 53.35           |
|          | 922.00     | 0.43        | 137.84           | 921.94      | 6.59         | -8.38      | 6.04       | 0.50             | 433025.75          | 603690.45         | N 32 11 24.22           | W 103 59 53.34           |
|          | 1012.00    | 0.04        | 130.19           | 1011.94     | 6.86         | -8.65      | 6.29       | 0.43             | 433025.48          | 603690.70         | N 32 11 24.22           | W 103 59 53.34           |
|          | 1106.00    | 0.05        | 130.57           | 1105.94     | 6.92         | -8.70      | 6.35       | 0.01             | 433025.43          | 603690.76         | N 32 11 24.22           | W 103 59 53.34           |
|          | 1201.00    | 0.03        | 121.67           | 1200.94     | 6.98         | -8.74      | 6.40       | 0.02             | 433025.39          | 603690.81         | N 32 11 24.21           | W 103 59 53.34           |
|          | 1295.00    | 0.03        | 33.04            | 1294.94     | 7.01         | -8.73      | 6.43       | 0.04             | 433025.40          | 603690.84         | N 32 11 24.21           | W 103 59 53.33           |
|          | 1389.00    | 0.02        | 45.40            | 1388.94     | 7.03         | -8.70      | 6.46       | 0.01             | 433025.43          | 603690.87         | N 32 11 24.22           | W 103 59 53.33           |
|          | 1483.00    | 0.02        | 62.74            | 1482.94     | 7.06         | -8.68      | 6.49       | 0.01             | 433025.45          | 603690.89         | N 32 11 24.22           | W 103 59 53.33           |
|          | 1578.00    | 0.02        | 51.62            | 1577.94     | 7.08         | -8.66      | 6.51       | 0.00             | 433025.47          | 603690.92         | N 32 11 24.22           | W 103 59 53.33           |
|          | 1672.00    | 0.02        | 42.35            | 1671.94     | 7.11         | -8.64      | 6.54       | 0.00             | 433025.49          | 603690.95         | N 32 11 24.22           | W 103 59 53.33           |
|          | 1766.00    | 0.02        | 5.24             | 1765.94     | 7.12         | -8.61      | 6.55       | 0.01             | 433025.52          | 603690.96         | N 32 11 24.22           | W 103 59 53.33           |
|          | 1860.00    | 0.02        | 30.80            | 1859.94     | 7.12         | -8.58      | 6.56       | 0.01             | 433025.55          | 603690.97         | N 32 11 24.22           | W 103 59 53.33           |
|          | 1955.00    | 0.02        | 28.97            | 1954.94     | 7.14         | -8.55      | 6.58       | 0.00             | 433025.58          | 603690.99         | N 32 11 24.22           | W 103 59 53.33           |
|          | 2049.00    | 0.01        | 145.44           | 2048.94     | 7.15         | -8.54      | 6.59       | 0.03             | 433025.59          | 603691.00         | N 32 11 24.22           | W 103 59 53.33           |
|          | 2143.00    | 0.04        | 166.13           | 2142.94     | 7.17         | -8.58      | 6.60       | 0.03             | 433025.55          | 603691.01         | N 32 11 24.22           | W 103 59 53.33           |
|          | 2237.00    | 0.03        | 169.13           | 2236.94     | 7.18         | -8.64      | 6.61       | 0.01             | 433025.49          | 603691.02         | N 32 11 24.22           | W 103 59 53.33           |
|          | 2331.00    | 0.04        | 189.39           | 2330.94     | 7.19         | -8.70      | 6.61       | 0.02             | 433025.44          | 603691.02         | N 32 11 24.22           | W 103 59 53.33           |
|          | 2426.00    | 0.03        | 209.88           | 2425.94     | 7.17         | -8.75      | 6.60       | 0.02             | 433025.38          | 603691.00         | N 32 11 24.21           | W 103 59 53.33           |
|          | 2520.00    | 0.04        | 201.80           | 2519.94     | 7.15         | -8.80      | 6.57       | 0.01             | 433025.33          | 603690.98         | N 32 11 24.21           | W 103 59 53.33           |
|          | 2614.00    | 0.09        | 211.50           | 2613.94     | 7.11         | -8.89      | 6.52       | 0.05             | 433025.24          | 603690.93         | N 32 11 24.21           | W 103 59 53.33           |
|          | 2708.00    | 0.03        | 189.65           | 2707.94     | 7.07         | -8.98      | 6.48       | 0.07             | 433025.15          | 603690.89         | N 32 11 24.21           | W 103 59 53.33           |
|          | 2803.00    | 0.02        | 175.42           | 2802.94     | 7.07         | -9.02      | 6.47       | 0.01             | 433025.11          | 603690.88         | N 32 11 24.21           | W 103 59 53.33           |
|          | 2897.00    | 0.01        | 185.33           | 2896.94     | 7.07         | -9.05      | 6.47       | 0.01             | 433025.08          | 603690.88         | N 32 11 24.21           | W 103 59 53.33           |
|          | 2991.00    | 0.12        | 164.30           | 2990.94     | 7.10         | -9.15      | 6.50       | 0.12             | 433024.98          | 603690.91         | N 32 11 24.21           | W 103 59 53.33           |
|          | 3085.00    | 1.15        | 177.01           | 3084.93     | 7.25         | -10.19     | 6.58       | 1.10             | 433023.94          | 603690.99         | N 32 11 24.20           | W 103 59 53.33           |
|          | 3180.00    | 3.39        | 177.83           | 3179.85     | 7.66         | -13.95     | 6.73       | 2.36             | 433020.18          | 603691.14         | N 32 11 24.16           | W 103 59 53.33           |
|          | 3274.00    | 5.68        | 176.26           | 3273.55     | 8.57         | -21.37     | 7.14       | 2.44             | 433012.77          | 603691.55         | N 32 11 24.09           | W 103 59 53.33           |
|          | 3368.00    | 7.97        | 178.17           | 3366.88     | 9.83         | -32.52     | 7.65       | 2.45             | 433001.61          | 603692.06         | N 32 11 23.98           | W 103 59 53.32           |
|          | 3462.00    | 10.23       | 177.34           | 3459.69     | 11.43        | -47.38     | 8.25       | 2.41             | 432986.76          | 603692.66         | N 32 11 23.83           | W 103 59 53.32           |
|          | 3556.00    | 12.43       | 176.48           | 3551.85     | 13.68        | -65.81     | 9.26       | 2.35             | 432968.32          | 603693.67         | N 32 11 23.65           | W 103 59 53.30           |
|          | 3651.00    | 13.86       | 174.48           | 3644.36     | 16.86        | -87.35     | 10.98      | 1.58             | 432946.79          | 603695.39         | N 32 11 23.44           | W 103 59 53.28           |
|          | 3745.00    | 13.93       | 172.01           | 3735.61     | 21.02        | -109.76    | 13.64      | 0.84             | 432924.38          | 603698.04         | N 32 11 23.21           | W 103 59 53.25           |
|          | 3839.00    | 14.33       | 170.87           | 3826.76     | 26.01        | -132.44    | 17.09      | 0.55             | 432901.70          | 603701.50         | N 32 11 22.99           | W 103 59 53.22           |
|          | 3933.00    | 14.82       | 169.37           | 3917.74     | 31.68        | -155.74    | 21.20      | 0.63             | 432878.41          | 603705.61         | N 32 11 22.76           | W 103 59 53.17           |
|          | 4028.00    | 15.19       | 168.48           | 4009.50     | 38.02        | -179.87    | 25.92      | 0.46             | 432854.27          | 603710.33         | N 32 11 22.52           | W 103 59 53.11           |
|          | 4122.00    | 15.58       | 166.91           | 4100.13     | 44.98        | -204.24    | 31.24      | 0.61             | 432829.91          | 603715.65         | N 32 11 22.28           | W 103 59 53.05           |
|          | 4216.00    | 15.82       | 165.89           | 4190.62     | 52.62        | -228.96    | 37.23      | 0.39             | 432805.19          | 603721.63         | N 32 11 22.03           | W 103 59 52.98           |
|          | 4310.00    | 15.99       | 164.59           | 4281.03     | 60.85        | -253.87    | 43.79      | 0.42             | 432780.28          | 603728.20         | N 32 11 21.79           | W 103 59 52.91           |
|          | 4404.00    | 15.39       | 164.15           | 4371.52     | 69.34        | -278.35    | 50.64      | 0.65             | 432755.81          | 603735.04         | N 32 11 21.55           | W 103 59 52.83           |
|          | 4499.00    | 14.51       | 163.98           | 4463.31     | 77.64        | -301.91    | 57.36      | 0.93             | 432732.24          | 603741.77         | N 32 11 21.31           | W 103 59 52.75           |
|          | 4593.00    | 13.87       | 163.52           | 4554.44     | 85.57        | -324.04    | 63.81      | 0.89             | 432710.12          | 603748.21         | N 32 11 21.09           | W 103 59 52.68           |
|          | 4687.00    | 13.40       | 163.12           | 4645.79     | 93.35        | -345.26    | 70.17      | 0.51             | 432688.90          | 603754.57         | N 32 11 20.88           | W 103 59 52.61           |
|          | 4781.00    | 13.52       | 162.97           | 4737.21     | 101.13       | -366.19    | 76.55      | 0.13             | 432667.97          | 603760.95         | N 32 11 20.68           | W 103 59 52.53           |
|          | 4876.00    | 13.55       | 162.93           | 4829.57     | 109.07       | -387.45    | 83.07      | 0.03             | 432646.71          | 603767.47         | N 32 11 20.46           | W 103 59 52.46           |
|          | 4970.00    | 13.44       | 162.62           | 4920.97     | 116.97       | -408.40    | 89.56      | 0.14             | 432625.76          | 603773.97         | N 32 11 20.26           | W 103 59 52.38           |
|          | 5064.00    | 12.84       | 162.87           | 5012.51     | 124.67       | -428.81    | 95.90      | 0.64             | 432605.36          | 603780.31         | N 32 11 20.06           | W 103 59 52.31           |
|          | 5158.00    | 12.06       | 162.95           | 5104.30     | 131.92       | -448.18    | 101.86     | 0.83             | 432585.99          | 603786.26         | N 32 11 19.86           | W 103 59 52.24           |
|          | 5253.00    | 11.39       | 163.20           | 5197.32     | 138.78       | -466.65    | 107.48     | 0.71             | 432567.52          | 603791.88         | N 32 11 19.68           | W 103 59 52.18           |
|          | 5347.00    | 10.98       | 163.56           | 5289.53     | 145.16       | -484.12    | 112.70     | 0.44             | 432550.05          | 603797.10         | N 32 11 19.51           | W 103 59 52.12           |
|          | 5441.00    | 10.05       | 162.96           | 5381.95     | 151.20       | -500.55    | 117.63     | 1.00             | 432533.62          | 603802.03         | N 32 11 19.34           | W 103 59 52.06           |
|          | 5535.00    | 9.28        | 162.24           | 5474.62     | 156.92       | -515.61    | 122.35     | 0.83             | 432518.57          | 603806.75         | N 32 11 19.20           | W 103 59 52.00           |
|          | 5629.00    | 8.13        | 161.75           | 5567.41     | 162.53       | -529.91    | 127.00     | 0.18             | 432504.27          | 603811.40         | N 32 11 19.05           | W 103 59 51.95           |
|          | 5724.00    | 8.93        | 162.32           | 5661.23     | 168.07       | -544.09    | 131.60     | 0.23             | 432490.08          | 603816.00         | N 32 11 18.91           | W 103 59 51.90           |
|          | 5818.00    | 9.33        | 165.63           | 5754.04     | 173.14       | -558.42    | 135.70     | 0.70             | 432475.75          | 603820.10         | N 32 11 18.77           | W 103 59 51.85           |
|          | 5912.00    | 9.91        | 168.73           | 5846.72     | 177.64       | -573.74    | 139.18     | 0.83             | 432460.44          | 603823.57         | N 32 11 18.62           | W 103 59 51.81           |
|          | 6006.00    | 10.37       | 170.76           | 5939.25     | 181.67       | -590.02    | 142.11     | 0.62             | 432444.16          | 603826.51         | N 32 11 18.46           | W 103 59 51.78           |
|          | 6101.00    | 10.29       | 169.74           | 6032.71     | 185.69       | -606.81    | 145.00     | 0.21             | 432427.37          | 603829.40         | N 32 11 18.29           | W 103 59 51.74           |
|          | 6195.00    | 10.31       | 168.45           | 6125.20     | 189.97       | -623.31    | 148.18     | 0.25             | 432410.87          | 603832.58         | N 32 11 18.13           | W 103 59 51.71           |

| Comments  | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|-----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|           | 6289.00    | 10.00       | 166.10           | 6217.72     | 194.70       | -639.47    | 151.82     | 0.55             | 432394.71          | 603836.22         | N 32 11 17.97           | W 103 59 51.67           |
|           | 6383.00    | 10.03       | 164.99           | 6310.29     | 199.84       | -655.30    | 155.90     | 0.21             | 432378.88          | 603840.30         | N 32 11 17.81           | W 103 59 51.62           |
|           | 6478.00    | 9.80        | 164.55           | 6403.87     | 205.20       | -671.09    | 160.20     | 0.25             | 432363.10          | 603844.60         | N 32 11 17.66           | W 103 59 51.57           |
|           | 6572.00    | 9.87        | 164.23           | 6496.49     | 210.55       | -686.55    | 164.52     | 0.09             | 432347.63          | 603848.92         | N 32 11 17.50           | W 103 59 51.52           |
|           | 6666.00    | 9.95        | 163.61           | 6589.09     | 216.08       | -702.10    | 169.00     | 0.14             | 432332.09          | 603853.40         | N 32 11 17.35           | W 103 59 51.47           |
|           | 6760.00    | 9.48        | 160.80           | 6681.74     | 221.92       | -717.20    | 173.84     | 0.71             | 432316.99          | 603858.24         | N 32 11 17.20           | W 103 59 51.41           |
|           | 6854.00    | 9.24        | 157.68           | 6774.49     | 228.29       | -731.49    | 179.25     | 0.60             | 432302.70          | 603863.65         | N 32 11 17.06           | W 103 59 51.35           |
|           | 6949.00    | 8.85        | 154.72           | 6868.31     | 235.22       | -745.15    | 185.27     | 0.64             | 432289.04          | 603869.66         | N 32 11 16.92           | W 103 59 51.28           |
|           | 7043.00    | 8.42        | 150.54           | 6961.24     | 242.52       | -757.68    | 191.74     | 0.81             | 432276.51          | 603876.14         | N 32 11 16.80           | W 103 59 51.21           |
|           | 7137.00    | 8.60        | 143.44           | 7054.21     | 250.86       | -769.32    | 199.31     | 1.13             | 432264.87          | 603883.71         | N 32 11 16.68           | W 103 59 51.12           |
|           | 7231.00    | 8.63        | 138.66           | 7147.15     | 260.43       | -780.26    | 208.16     | 0.76             | 432253.93          | 603892.55         | N 32 11 16.57           | W 103 59 51.02           |
|           | 7326.00    | 8.42        | 135.47           | 7241.10     | 270.69       | -790.57    | 217.74     | 0.54             | 432243.62          | 603902.14         | N 32 11 16.47           | W 103 59 50.90           |
|           | 7420.00    | 7.33        | 128.89           | 7334.22     | 280.74       | -799.24    | 227.24     | 1.50             | 432234.95          | 603911.63         | N 32 11 16.39           | W 103 59 50.79           |
|           | 7514.00    | 7.13        | 123.35           | 7427.47     | 290.73       | -806.21    | 236.78     | 0.77             | 432227.98          | 603921.17         | N 32 11 16.32           | W 103 59 50.68           |
|           | 7608.00    | 7.51        | 120.31           | 7520.70     | 301.31       | -812.52    | 246.95     | 0.58             | 432221.67          | 603931.34         | N 32 11 16.25           | W 103 59 50.57           |
|           | 7703.00    | 8.22        | 115.77           | 7614.81     | 313.17       | -818.61    | 258.43     | 0.99             | 432215.59          | 603942.82         | N 32 11 16.19           | W 103 59 50.43           |
|           | 7797.00    | 8.34        | 108.62           | 7707.83     | 326.00       | -823.71    | 270.94     | 1.10             | 432210.49          | 603955.33         | N 32 11 16.14           | W 103 59 50.29           |
| Last Gyro | 7891.00    | 8.10        | 99.88            | 7800.87     | 339.18       | -827.02    | 283.93     | 1.35             | 432207.18          | 603968.31         | N 32 11 16.11           | W 103 59 50.14           |
|           | 7933.00    | 7.76        | 94.21            | 7842.47     | 344.96       | -827.74    | 289.67     | 2.03             | 432206.46          | 603974.06         | N 32 11 16.10           | W 103 59 50.07           |
| Tie-In    | 8027.00    | 9.47        | 85.23            | 7935.41     | 358.95       | -827.56    | 303.71     | 2.31             | 432206.64          | 603988.09         | N 32 11 16.10           | W 103 59 49.91           |
|           | 8091.00    | 10.26       | 84.57            | 7998.46     | 369.78       | -826.58    | 314.63     | 1.25             | 432207.62          | 603999.01         | N 32 11 16.11           | W 103 59 49.78           |
|           | 8239.00    | 12.13       | 82.55            | 8143.64     | 398.04       | -823.32    | 343.17     | 1.29             | 432210.88          | 604027.55         | N 32 11 16.14           | W 103 59 49.45           |
|           | 8302.00    | 19.08       | 65.30            | 8204.31     | 413.60       | -818.15    | 359.12     | 13.15            | 432216.05          | 604043.50         | N 32 11 16.19           | W 103 59 49.26           |
|           | 8334.00    | 23.45       | 65.65            | 8234.13     | 423.81       | -813.33    | 369.67     | 13.66            | 432220.86          | 604054.05         | N 32 11 16.24           | W 103 59 49.14           |
|           | 8428.00    | 30.83       | 67.23            | 8317.72     | 461.87       | -796.28    | 408.98     | 7.89             | 432237.92          | 604093.36         | N 32 11 16.41           | W 103 59 48.68           |
|           | 8522.00    | 38.28       | 70.71            | 8395.09     | 510.24       | -777.31    | 458.75     | 8.20             | 432256.89          | 604143.12         | N 32 11 16.60           | W 103 59 48.10           |
|           | 8616.00    | 51.88       | 81.82            | 8461.41     | 573.57       | -762.33    | 523.23     | 16.67            | 432271.86          | 604207.60         | N 32 11 16.74           | W 103 59 47.35           |
|           | 8710.00    | 60.20       | 84.82            | 8513.88     | 650.15       | -753.37    | 600.60     | 9.24             | 432280.82          | 604284.96         | N 32 11 16.83           | W 103 59 46.45           |
|           | 8804.00    | 67.92       | 86.66            | 8554.97     | 733.77       | -747.14    | 684.83     | 8.40             | 432287.05          | 604369.18         | N 32 11 16.89           | W 103 59 45.47           |
|           | 8898.00    | 74.54       | 88.90            | 8585.21     | 822.21       | -743.73    | 773.71     | 7.39             | 432290.46          | 604458.05         | N 32 11 16.92           | W 103 59 44.43           |
|           | 8992.00    | 82.44       | 89.94            | 8603.95     | 913.97       | -742.81    | 865.74     | 8.47             | 432291.38          | 604550.08         | N 32 11 16.92           | W 103 59 43.36           |
|           | 9048.00    | 88.69       | 90.38            | 8608.28     | 969.66       | -742.97    | 921.54     | 11.19            | 432291.22          | 604605.88         | N 32 11 16.92           | W 103 59 42.71           |
|           | 9096.00    | 88.62       | 90.75            | 8609.41     | 1017.56      | -743.44    | 969.53     | 0.78             | 432290.75          | 604653.86         | N 32 11 16.91           | W 103 59 42.16           |
|           | 9190.00    | 88.86       | 90.58            | 8611.47     | 1111.39      | -744.53    | 1063.50    | 0.31             | 432289.66          | 604747.82         | N 32 11 16.90           | W 103 59 41.06           |
|           | 9284.00    | 87.97       | 90.49            | 8614.07     | 1205.20      | -745.41    | 1157.46    | 0.95             | 432288.78          | 604841.77         | N 32 11 16.89           | W 103 59 39.97           |
|           | 9378.00    | 88.11       | 90.50            | 8617.29     | 1298.98      | -746.22    | 1251.40    | 0.15             | 432287.97          | 604935.71         | N 32 11 16.88           | W 103 59 38.88           |
|           | 9472.00    | 88.49       | 90.42            | 8620.08     | 1392.77      | -746.98    | 1345.35    | 0.41             | 432287.21          | 605029.65         | N 32 11 16.87           | W 103 59 37.78           |
|           | 9567.00    | 89.07       | 90.81            | 8622.10     | 1487.59      | -748.00    | 1440.32    | 0.74             | 432286.20          | 605124.82         | N 32 11 16.86           | W 103 59 36.68           |
|           | 9661.00    | 89.69       | 90.53            | 8623.12     | 1581.44      | -749.09    | 1534.31    | 0.72             | 432285.10          | 605218.60         | N 32 11 16.84           | W 103 59 35.58           |
|           | 9755.00    | 90.03       | 90.97            | 8623.35     | 1675.30      | -750.32    | 1628.30    | 0.59             | 432283.87          | 605312.58         | N 32 11 16.83           | W 103 59 34.49           |
|           | 9849.00    | 90.38       | 90.73            | 8623.01     | 1769.17      | -751.72    | 1722.29    | 0.45             | 432282.47          | 605406.56         | N 32 11 16.81           | W 103 59 33.40           |
|           | 9943.00    | 90.14       | 90.44            | 8622.58     | 1863.01      | -752.68    | 1816.29    | 0.40             | 432281.51          | 605500.55         | N 32 11 16.80           | W 103 59 32.30           |
|           | 10037.00   | 90.03       | 90.38            | 8622.44     | 1956.84      | -753.35    | 1910.28    | 0.13             | 432280.84          | 605594.54         | N 32 11 16.79           | W 103 59 31.21           |
|           | 10131.00   | 89.86       | 90.44            | 8622.53     | 2050.67      | -754.02    | 2004.28    | 0.19             | 432280.17          | 605688.53         | N 32 11 16.78           | W 103 59 30.12           |
|           | 10225.00   | 89.45       | 90.02            | 8623.10     | 2144.47      | -754.40    | 2098.28    | 0.62             | 432279.79          | 605782.52         | N 32 11 16.77           | W 103 59 29.02           |
|           | 10320.00   | 89.59       | 90.35            | 8623.90     | 2239.27      | -754.71    | 2193.27    | 0.38             | 432279.48          | 605877.51         | N 32 11 16.76           | W 103 59 27.92           |
|           | 10414.00   | 89.76       | 88.45            | 8624.43     | 2332.98      | -753.72    | 2287.26    | 2.03             | 432280.47          | 605971.49         | N 32 11 16.77           | W 103 59 26.82           |
|           | 10508.00   | 89.90       | 88.53            | 8624.71     | 2426.57      | -751.25    | 2381.23    | 0.17             | 432282.94          | 606065.45         | N 32 11 16.79           | W 103 59 25.73           |
|           | 10602.00   | 89.72       | 88.39            | 8625.02     | 2520.15      | -748.72    | 2475.20    | 0.24             | 432285.47          | 606159.41         | N 32 11 16.82           | W 103 59 24.64           |
|           | 10696.00   | 88.69       | 88.12            | 8626.32     | 2613.68      | -745.86    | 2569.14    | 1.13             | 432288.33          | 606253.34         | N 32 11 16.84           | W 103 59 23.54           |
|           | 10790.00   | 88.90       | 88.22            | 8628.30     | 2707.20      | -742.86    | 2663.07    | 0.25             | 432291.33          | 606347.27         | N 32 11 16.87           | W 103 59 22.45           |
|           | 10884.00   | 90.03       | 88.66            | 8629.18     | 2800.77      | -740.30    | 2757.03    | 1.29             | 432293.89          | 606441.22         | N 32 11 16.89           | W 103 59 21.36           |
|           | 10979.00   | 88.42       | 89.41            | 8630.46     | 2895.42      | -738.70    | 2852.01    | 1.87             | 432295.49          | 606536.19         | N 32 11 16.90           | W 103 59 20.25           |
|           | 11073.00   | 89.72       | 90.60            | 8631.99     | 2989.19      | -738.71    | 2945.99    | 1.87             | 432295.48          | 606630.16         | N 32 11 16.90           | W 103 59 19.16           |
|           | 11167.00   | 89.35       | 90.81            | 8632.75     | 3083.04      | -739.86    | 3039.98    | 0.45             | 432294.33          | 606724.14         | N 32 11 16.89           | W 103 59 18.06           |
|           | 11261.00   | 90.58       | 90.37            | 8632.81     | 3176.88      | -740.83    | 3133.97    | 1.39             | 432293.36          | 606818.13         | N 32 11 16.87           | W 103 59 16.97           |
|           | 11355.00   | 90.55       | 90.10            | 8631.88     | 3270.69      | -741.22    | 3227.97    | 0.29             | 432292.97          | 606912.12         | N 32 11 16.87           | W 103 59 15.88           |
|           | 11449.00   | 90.69       | 90.99            | 8630.86     | 3364.52      | -742.11    | 3321.96    | 0.96             | 432292.08          | 607006.10         | N 32 11 16.85           | W 103 59 14.78           |
|           | 11543.00   | 89.86       | 90.72            | 8630.41     | 3458.39      | -743.51    | 3415.94    | 0.93             | 432290.68          | 607100.08         | N 32 11 16.84           | W 103 59 13.69           |
|           | 11637.00   | 88.93       | 91.06            | 8631.41     | 3552.26      | -744.97    | 3509.93    | 1.05             | 432289.22          | 607194.05         | N 32 11 16.82           | W 103 59 12.60           |
|           | 11731.00   | 89.31       | 90.49            | 8632.85     | 3646.11      | -746.25    | 3603.91    | 0.73             | 432287.95          | 607288.03         | N 32 11 16.80           | W 103 59 11.51           |
|           | 11825.00   | 90.58       | 90.72            | 8632.94     | 3739.95      | -747.24    | 3697.90    | 1.37             | 432286.95          | 607382.01         | N 32 11 16.79           | W 103 59 10.41           |
|           | 12013.00   | 89.35       | 90.24            | 8633.05     | 3927.62      | -748.81    | 3885.89    | 0.70             | 432285.38          | 607569.98         | N 32 11 16.77           | W 103 59 8.22            |
|           | 12107.00   | 89.90       | 89.94            | 8633.67     | 4021.41      | -748.96    | 3979.89    | 0.67             | 432285.23          | 607663.97         | N 32 11 16.77           | W 103 59 7.13            |
|           | 12295.00   | 90.17       | 90.38            | 8633.56     | 4209.01      | -749.49    | 4167.88    | 0.27             | 432284.71          | 607851.96         | N 32 11 16.75           | W 103 59 4.94            |
|           | 12390.00   | 89.55       | 90.05            | 8633.79     | 4303.82      | -749.84    | 4262.88    | 0.74             | 432284.35          | 607946.95         | N 32 11 16.75           | W 103 59 3.83            |
|           | 12484.00   | 90.55       | 88.92            | 8633.71     | 4397.54      | -749.00    | 4356.88    | 1.61             | 432285.19          | 608040.93         | N 32 11 16.75           | W 103 59 2.74            |
|           | 12578.00   | 89.52       | 88.41            | 8633.65     | 4491.15      | -746.81    | 4450.85    | 1.22             | 432287.38          | 608134.90         | N 32 11 16.77           | W 103 59 1.65            |
|           | 12672.00   | 89.21       | 88.12            | 8634.69     | 4584.69      | -743.96    | 4544.80    | 0.45             | 432290.23          | 608228.84         | N 32 11 16.80           | W 103 59 0.55            |
|           | 12766.00   | 88.04       | 87.48            | 8636.95     | 4678.14      | -740.35    | 4638.70    | 1.42             | 432293.84          | 608322.74         | N 32 11 16.83           | W 103 58 59.46           |
|           | 12860.00   | 89.42       | 89.04            | 8639.03     | 4771.66      | -737.50    | 4732.63    | 2.22             | 432296.69          | 608416.66         | N 32 11 16.85           | W 103 58 58.37           |
|           | 12954.00   | 90.10       | 90.37            | 8639.42     | 4865.41      | -737.02    | 4826.63    | 1.59             | 432297.17          | 608510.65         | N 32 11 16.86           | W 103 58 57.27           |
|           | 13049.00   | 89.66       | 90.46            | 8639.62     | 4960.23      | -737.70    | 4921.62    | 0.47             | 432296.48          | 608605.64         | N 32 11 16.85           | W 103 58 56.17           |
|           | 13143.00   | 88.45       | 90.47            | 8641.17     | 5054.05      | -738.47    | 5015.60    | 1.29             | 432295.72          | 608699.61         | N 32 11 16.84           | W 103 58 55.08           |
|           | 13237.00   | 88.45       | 90.71            | 8643.71     | 5147.86      | -739.44    | 5109.57    | 0.26             | 432294.75          | 608793.56         | N 32 11 16.82           | W 103 58 53.98           |
|           | 13331.00   | 88.52       | 90.83            | 8646.20     | 5241.69      | -740.70    | 5203.52    | 0.15             | 432293.49          | 608887.51         | N 32 11 16.81           | W 103 58 52.89           |

| Comments          | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(%/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|-------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|                   | 15685.00   | 89.86       | 90.70            | 8687.60     | 7588.28      | -733.32    | 7556.00    | 0.75             | 432300.87          | 611239.80         | N 32 11 16.80           | W 103 58 25.52           |
|                   | 15779.00   | 89.35       | 89.97            | 8688.41     | 7682.10      | -733.87    | 7649.99    | 0.84             | 432300.32          | 611333.78         | N 32 11 16.79           | W 103 58 24.42           |
|                   | 15873.00   | 88.90       | 88.52            | 8689.85     | 7775.78      | -732.63    | 7743.97    | 1.61             | 432301.56          | 611427.75         | N 32 11 16.80           | W 103 58 23.33           |
|                   | 15968.00   | 88.45       | 88.75            | 8692.04     | 7870.36      | -730.37    | 7838.91    | 0.53             | 432303.82          | 611522.69         | N 32 11 16.82           | W 103 58 22.22           |
|                   | 16062.00   | 88.49       | 88.70            | 8694.55     | 7963.94      | -728.28    | 7932.86    | 0.07             | 432305.91          | 611616.63         | N 32 11 16.84           | W 103 58 21.13           |
|                   | 16156.00   | 88.45       | 88.52            | 8697.06     | 8057.51      | -726.00    | 8026.80    | 0.20             | 432308.19          | 611710.56         | N 32 11 16.86           | W 103 58 20.04           |
|                   | 16345.00   | 88.42       | 89.15            | 8702.23     | 8245.71      | -722.16    | 8215.69    | 0.33             | 432312.03          | 611899.43         | N 32 11 16.89           | W 103 58 17.84           |
|                   | 16533.00   | 88.80       | 91.04            | 8706.79     | 8433.24      | -722.47    | 8403.62    | 1.03             | 432311.72          | 612087.35         | N 32 11 16.88           | W 103 58 15.65           |
|                   | 16722.00   | 89.21       | 91.01            | 8710.07     | 8621.97      | -725.85    | 8592.56    | 0.22             | 432308.34          | 612276.28         | N 32 11 16.84           | W 103 58 13.45           |
|                   | 16910.00   | 89.17       | 91.20            | 8712.73     | 8809.74      | -729.48    | 8780.51    | 0.10             | 432304.71          | 612464.21         | N 32 11 16.80           | W 103 58 11.27           |
|                   | 17099.00   | 89.69       | 90.88            | 8714.61     | 8998.49      | -732.91    | 8969.47    | 0.32             | 432301.28          | 612653.15         | N 32 11 16.76           | W 103 58 9.07            |
|                   | 17287.00   | 89.62       | 91.80            | 8715.74     | 9186.30      | -737.30    | 9157.41    | 0.49             | 432296.89          | 612841.08         | N 32 11 16.71           | W 103 58 6.88            |
|                   | 17476.00   | 90.86       | 92.30            | 8714.95     | 9375.20      | -744.06    | 9346.28    | 0.71             | 432290.13          | 613029.94         | N 32 11 16.64           | W 103 58 4.69            |
|                   | 17570.00   | 92.58       | 92.64            | 8712.13     | 9469.13      | -748.11    | 9440.15    | 1.87             | 432286.08          | 613123.80         | N 32 11 16.59           | W 103 58 3.59            |
|                   | 17664.00   | 92.82       | 92.58            | 8707.70     | 9563.00      | -752.39    | 9533.95    | 0.26             | 432281.80          | 613217.59         | N 32 11 16.55           | W 103 58 2.50            |
|                   | 17854.00   | 91.17       | 88.73            | 8701.08     | 9752.54      | -754.55    | 9723.78    | 2.20             | 432279.64          | 613407.41         | N 32 11 16.52           | W 103 58 0.29            |
|                   | 18042.00   | 87.52       | 86.72            | 8703.23     | 9939.41      | -747.09    | 9911.58    | 2.22             | 432287.10          | 613595.19         | N 32 11 16.59           | W 103 57 58.11           |
|                   | 18199.00   | 87.76       | 87.19            | 8709.70     | 10095.13     | -738.76    | 10068.22   | 0.34             | 432295.43          | 613751.82         | N 32 11 16.67           | W 103 57 56.28           |
|                   | 18325.00   | 87.39       | 87.26            | 8715.03     | 10220.17     | -732.67    | 10193.96   | 0.30             | 432301.52          | 613877.55         | N 32 11 16.72           | W 103 57 54.82           |
|                   | 18482.00   | 87.70       | 87.78            | 8721.75     | 10376.06     | -725.88    | 10350.67   | 0.39             | 432308.31          | 614034.25         | N 32 11 16.78           | W 103 57 53.00           |
| Last MWD Survey   | 18674.00   | 86.94       | 89.65            | 8730.73     | 10567.06     | -721.58    | 10542.40   | 1.05             | 432312.61          | 614225.96         | N 32 11 16.82           | W 103 57 50.77           |
| Projection to bit | 18714.00   | 86.94       | 89.65            | 8732.86     | 10606.90     | -721.33    | 10582.34   | 0.00             | 432312.85          | 614265.90         | N 32 11 16.82           | W 103 57 50.30           |

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 \*\*\* 3-D 95.000% Confidence 2.7955 sigma  
Survey Program:

| Description | Part | MD From<br>(ft) | MD To<br>(ft) | EOU Freq<br>(ft) | Hole Size<br>(in) | Casing Diameter<br>(in) | Survey Tool Type         | Borehole / Survey                                                                     |
|-------------|------|-----------------|---------------|------------------|-------------------|-------------------------|--------------------------|---------------------------------------------------------------------------------------|
|             | 1    | 0.000           | 26.500        | 1/98.425         | 30.000            | 30.000                  | NAL_NSG+MSHOT-Depth Only | Original Borehole / Cedar Canyon<br>28-27 Federal Com 5H Gyro +<br>MWD 0 ft to Update |
|             | 1    | 26.500          | 26.500        | Act Stns         | 30.000            | 30.000                  | NAL_NSG+MSHOT-Depth Only | Original Borehole / Cedar Canyon<br>28-27 Federal Com 5H Gyro +<br>MWD 0 ft to Update |
|             | 1    | 26.500          | 7891.000      | Act Stns         | 30.000            | 30.000                  | NAL_NSG+MSHOT            | Original Borehole / Cedar Canyon<br>28-27 Federal Com 5H Gyro +                       |
|             | 1    | 7891.000        | 8091.000      | Act Stns         | 30.000            | 30.000                  | NAL_MWD_PLUS_0.5_DEG     | Original Borehole / Cedar Canyon<br>28-27 Federal Com 5H Gyro +                       |
|             | 1    | 8091.000        | 18714.000     | Act Stns         | 30.000            | 30.000                  | NAL_MWD_PLUS_0.5_DEG     | ST01 / Cedar Canyon 28-27<br>Federal Com 5H ST01 Gyro+                                |

OXY USA Inc.  
Cedar Canyon 28-27 Federal Com 5H  
API No. 30-015-43645

17-1/2" hole @ 667'  
13-3/8" csg @ 667'  
w/ 735sx-TOC-Surf Circ.

12-1/4" hole @ 8200'  
9-5/8" csg @ 8190'  
w/ 2620sx-TOC-960' CBL

8-1/2" hole @ 18714'  
5-1/2" liner @ 8055-18704'  
w/1790sx-TOC- 8055' Circ.

Perfs @ 8626-18482'

TD- 18714'M 8733'V

MAY 04 2017

OXY

Cedar Canyon 28-27 Federal Com #5H

H & P 639

12/30/2016

This survey is correct to the best of my knowledge and is supported by actual field data.

*[Signature]*

Notarized this date 19<sup>th</sup> of April, 2017.

*[Signature: Sherry Stewart]*

Notary Signature  
County of Midland  
State of Texas



SHERRY STEWART  
Notary Public, State of Texas  
My Commission Expires  
April 08, 2019

Scientific Drilling

The

In Wellbore Placement