

JUN 06 2017

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OXY

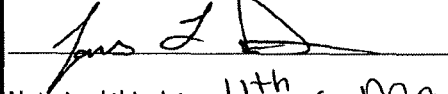
# SURVEY REPORT

CYPRESS 33 FEDERAL COM # 10H

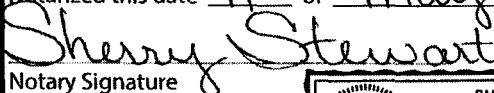
H&P 639

4/20/2017

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



Notarized this date 11<sup>th</sup> of May, 2017.



Notary Signature  
County of Midland  
State of Texas



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



Scientific Drilling

The Ultimate Partner In Wellbore Placement

**SURVEY REPORT**

CYPRESS 33 FEDERAL COM # 10H

COMPUTED KEEPER GYRO SURVEY

CUSTOMER OXY  
PROJECT Cypress 33 Federal Com # 10H  
FIELD Cypress 33 Federal Com # 10H

SDI JOB NO. OP.000774  
SDI DISTRICT Midland  
SDI KIT/UNIT

**SITE INFORMATION**

Site Name Cypress 33 Federal Com # 10H  
Lat/Long 32.2534488° N, 103.9937694° W  
Northing 456,103.96 ft  
Easting 646,307.95 ft

Section  
Township  
Range

**MAP INFORMATION**

North Reference Grid North  
Grid Correction -0.18 deg  
System US State Plane 1983  
Datum North American Datum 1983 (GRS 1980)  
Map Zone New Mexico East: 3001

**WELL INFORMATION**

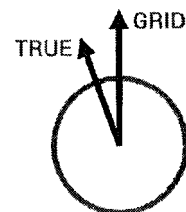
Lat/Long 32.2534488° N, 103.9937694° W  
Northing 456,103.96 ft  
Easting 646,307.95 ft  
UWI 30-015-44096

**DEPTH AND ELEVATION REFERENCE**

Ground Level 3081.3 ft above Mean Sea  
Level  
Reference Datum RKB  
Reference Height 26.5 ft above G.L.  
Reference Elevation 3107.8 ft

**VERTICAL SECTION REFERENCE**

+N/-S 0 ft  
+E/-W 0 ft  
Proposal Direction 250.96°  
Calculation Method Minimum Curvature

**LOCAL GRAVITY REFERENCE INFORMATION**

Local Gravity 998.534 mG [computed]  
True to Grid subtract 0.18°

**WELL NOTES**

Drop Gyro in 4 1/2 DP to 3000'

**OPERATORS**

Nathan Yerby

SDI Operator Name (Printed)

SIGNATURE

DATE



Scientific Drilling

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4/20/2017 3:15 PM Central Daylight Time

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# SURVEY REPORT

CYPRESS 33 FEDERAL COM # 10H

COMPUTED KEEPER GYRO SURVEY

| MD      | INC  | AZIM   | TVD     | VS    | IN/S   | HE/W   | 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           |
| 20.26   | 0.10 | 298.80 | 20.26   | 0.01  | 0.01   | -0.02  | 0.49    | 0.02            | 298.80         |
| 111.93  | 0.25 | 231.91 | 111.93  | 0.25  | -0.08  | -0.24  | 0.25    | 0.25            | 252.58         |
| 203.17  | 0.50 | 192.01 | 203.17  | 0.65  | -0.59  | -0.48  | 0.38    | 0.76            | 219.38         |
| 290.05  | 0.78 | 184.83 | 290.04  | 1.08  | -1.55  | -0.61  | 0.34    | 1.66            | 201.50         |
| 383.19  | 0.93 | 200.20 | 383.17  | 1.82  | -2.89  | -0.92  | 0.29    | 3.04            | 197.73         |
| 472.82  | 1.27 | 223.71 | 472.79  | 3.16  | -4.29  | -1.86  | 0.62    | 4.68            | 203.44         |
| 562.38  | 1.48 | 231.62 | 562.32  | 5.14  | -5.73  | -3.46  | 0.32    | 6.69            | 211.10         |
| 652.53  | 1.59 | 232.54 | 652.44  | 7.43  | -7.22  | -5.37  | 0.12    | 8.99            | 216.63         |
| 742.21  | 1.76 | 234.51 | 742.08  | 9.93  | -8.77  | -7.48  | 0.20    | 11.53           | 220.43         |
| 832.28  | 1.99 | 236.54 | 832.10  | 12.77 | -10.44 | -9.91  | 0.27    | 14.39           | 223.50         |
| 922.32  | 2.24 | 240.14 | 922.08  | 16.01 | -12.18 | -12.73 | 0.31    | 17.62           | 226.29         |
| 1012.69 | 2.40 | 243.41 | 1012.38 | 19.62 | -13.90 | -15.96 | 0.24    | 21.16           | 228.94         |
| 1107.54 | 2.48 | 243.98 | 1107.14 | 23.62 | -15.69 | -19.58 | 0.09    | 25.09           | 231.29         |
| 1201.91 | 2.38 | 252.71 | 1201.42 | 27.61 | -17.17 | -23.28 | 0.41    | 28.93           | 233.59         |
| 1296.17 | 2.07 | 288.33 | 1295.62 | 30.92 | -17.21 | -26.77 | 1.48    | 31.82           | 237.26         |
| 1391.20 | 2.56 | 292.19 | 1390.57 | 33.88 | -15.87 | -30.36 | 0.53    | 34.26           | 242.41         |
| 1485.65 | 2.71 | 290.41 | 1484.92 | 37.19 | -14.29 | -34.41 | 0.19    | 37.26           | 247.44         |
| 1580.60 | 2.17 | 290.82 | 1579.78 | 40.31 | -12.87 | -38.20 | 0.57    | 40.31           | 251.38         |
| 1675.35 | 2.01 | 289.78 | 1674.47 | 42.98 | -11.67 | -41.44 | 0.17    | 43.05           | 254.27         |
| 1769.59 | 1.94 | 289.97 | 1768.65 | 45.51 | -10.57 | -44.50 | 0.08    | 45.73           | 256.64         |
| 1864.31 | 1.94 | 287.07 | 1863.32 | 48.05 | -9.55  | -47.53 | 0.10    | 48.48           | 258.64         |
| 1958.50 | 1.84 | 283.14 | 1957.46 | 50.61 | -8.74  | -50.53 | 0.17    | 51.28           | 260.19         |
| 2052.94 | 1.70 | 281.37 | 2051.85 | 53.10 | -8.12  | -53.37 | 0.16    | 53.99           | 261.35         |
| 2147.58 | 1.44 | 276.46 | 2146.46 | 55.38 | -7.71  | -55.93 | 0.31    | 56.45           | 262.15         |
| 2242.43 | 0.98 | 276.64 | 2241.29 | 57.19 | -7.48  | -57.91 | 0.48    | 58.39           | 262.64         |
| 2337.14 | 0.79 | 200.87 | 2335.99 | 58.33 | -7.99  | -58.95 | 1.16    | 59.49           | 262.28         |
| 2431.60 | 0.77 | 219.91 | 2430.44 | 59.29 | -9.09  | -59.59 | 0.27    | 60.28           | 261.33         |
| 2494.39 | 0.43 | 219.07 | 2493.23 | 59.85 | -9.60  | -60.01 | 0.55    | 60.77           | 260.91         |
| 2557.32 | 0.29 | 143.14 | 2556.16 | 60.01 | -9.90  | -60.06 | 0.72    | 60.87           | 260.64         |
| 2652.02 | 1.13 | 121.90 | 2650.85 | 59.34 | -10.59 | -59.13 | 0.92    | 60.07           | 259.85         |
| 2746.55 | 1.98 | 137.02 | 2745.34 | 58.10 | -12.27 | -57.22 | 0.99    | 58.52           | 257.90         |

**SURVEY REPORT**

CYPRESS 33 FEDERAL COM # 10H

COMPUTED KEEPER GYRO SURVEY

| MD      | INC  | AZIM   | TVD     | VS    | 4N/S   | 4E/W   | DLS     | CLOSURE<br>DIST | CLOSURE<br>DIR |
|---------|------|--------|---------|-------|--------|--------|---------|-----------------|----------------|
| ft      | deg  | deg    | ft      | ft    | ft     | ft     | %/100ft | ft              | deg            |
| 2840.81 | 2.61 | 147.48 | 2839.53 | 56.94 | -15.27 | -54.96 | 0.80    | 57.04           | 254.47         |
| 2919.82 | 2.61 | 147.37 | 2918.46 | 56.09 | -18.30 | -53.03 | 0.01    | 56.09           | 250.96         |

# Oxy Cypress 33 Federal 10H Gyro+ MWD 0-15043 ftMD Survey Geodetic Report

(Def Survey)



Report Date: May 03, 2017 - 05:44 PM  
 Client: OXY  
 Field: NM Eddy County (NAD 83)  
 Structure / Slot: Oxy Cypress 33 Federal 10H / Oxy Cypress 33 Federal 10H  
 Well: Oxy Cypress 33 Federal 10H  
 Borehole: Original Borehole  
 UWI / API#: Unknown / Unknown  
 Survey Name: Oxy Cypress 33 Federal 10H Gyro+ MWD 0-15043 ftMD  
 Survey Date: April 13, 2017  
 Tort / AMD / DOI / ERD Ratio: 280 931 ° / 8195.243 ft / 8.419 / 0.621  
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet  
 Location Lat / Long: N 32° 15' 12.41570", W 103° 59' 37.58989"  
 Location Grid N/E Y/X: N 456103.960 NUS, E 646307.950 NUS  
 CRS Grid Convergence Angle: 0.1812 °  
 Grid Scale Factor: 0.99992171  
 Version / Patch: 2.10.254.6

Survey / DLS Computation: Minimum Curvature / Lubinski  
 Vertical Section Azimuth: 348.639 ° (Grid North)  
 Vertical Section Origin: 0.000 ft, 0.000 ft  
 TVD Reference Datum: RKB=26.5'  
 TVD Reference Elevation: 3107.800 ft above MSL  
 Seabed / Ground Elevation: 3081.300 ft above MSL  
 Magnetic Declination: 7.216 °  
 Total Gravity Field Strength: 998.4594mgm (9.80865 Based)  
 Gravity Model: GARM  
 Total Magnetic Field Strength: 48151.231 nT  
 Magnetic Dip Angle: 60.107 °  
 Declination Date: April 13, 2017  
 Magnetic Declination Model: HDGM 2018  
 North Reference: Grid North  
 Grid Convergence Used: 0.1812 °  
 Total Corr Mag North→Grid North: 7.0349 °  
 Local Coord Referenced To: Well Head

| Comments | MD<br>(ft) | Incl<br>(°) | Azlm Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(NUS) | Easting<br>(NUS) | 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              | 456103.96         | 646307.95        | N 32 15 12.42           | W 103 59 37.57           |
|          | 111.93     | 0.25        | 231.91           | 111.93      | -0.11        | -0.15      | -0.19      | 0.22             | 456103.81         | 646307.78        | N 32 15 12.41           | W 103 58 37.57           |
|          | 203.17     | 0.50        | 192.01           | 203.17      | -0.56        | -0.66      | -0.43      | 0.38             | 456103.30         | 646307.52        | N 32 15 12.41           | W 103 58 37.57           |
|          | 290.05     | 0.78        | 184.63           | 290.04      | -1.48        | -1.62      | -0.56      | 0.33             | 456102.34         | 646307.39        | N 32 15 12.40           | W 103 58 37.58           |
|          | 383.19     | 0.93        | 200.20           | 383.17      | -2.73        | -2.96      | -0.87      | 0.29             | 456101.00         | 646307.08        | N 32 15 12.39           | W 103 58 37.58           |
|          | 472.82     | 1.27        | 223.71           | 472.79      | -3.92        | -4.36      | -1.81      | 0.62             | 456099.60         | 646306.14        | N 32 15 12.37           | W 103 58 37.59           |
|          | 562.39     | 1.48        | 231.62           | 562.32      | -5.02        | -5.80      | -3.40      | 0.32             | 456098.16         | 646304.55        | N 32 15 12.36           | W 103 58 37.61           |
|          | 652.53     | 1.59        | 232.54           | 652.44      | -6.09        | -7.28      | -5.31      | 0.13             | 456096.68         | 646302.64        | N 32 15 12.34           | W 103 58 37.63           |
|          | 742.21     | 1.76        | 234.51           | 742.08      | -7.21        | -8.84      | -7.42      | 0.20             | 456095.12         | 646300.53        | N 32 15 12.33           | W 103 58 37.66           |
|          | 832.28     | 1.99        | 236.54           | 832.10      | -8.36        | -10.51     | -9.85      | 0.27             | 456093.46         | 646298.10        | N 32 15 12.31           | W 103 58 37.68           |
|          | 922.32     | 2.24        | 240.14           | 922.08      | -9.51        | -12.24     | -12.68     | 0.31             | 456091.72         | 646295.27        | N 32 15 12.29           | W 103 58 37.72           |
|          | 1012.69    | 2.40        | 243.41           | 1012.38     | -10.56       | -13.97     | -15.90     | 0.23             | 456089.99         | 646292.05        | N 32 15 12.28           | W 103 58 37.76           |
|          | 1107.54    | 2.48        | 243.96           | 1107.14     | -11.60       | -15.76     | -19.52     | 0.09             | 456088.20         | 646288.43        | N 32 15 12.28           | W 103 58 37.80           |
|          | 1201.91    | 2.38        | 252.71           | 1201.43     | -12.32       | -17.24     | -23.23     | 0.41             | 456086.72         | 646284.72        | N 32 15 12.25           | W 103 58 37.84           |
|          | 1296.17    | 2.07        | 288.33           | 1295.62     | -11.88       | -17.28     | -26.71     | 1.48             | 456086.68         | 646281.24        | N 32 15 12.25           | W 103 58 37.87           |
|          | 1391.20    | 2.56        | 292.18           | 1390.57     | -9.66        | -15.94     | -30.31     | 0.54             | 456088.02         | 646277.64        | N 32 15 12.26           | W 103 58 37.92           |
|          | 1485.65    | 2.71        | 290.41           | 1484.92     | -7.32        | -14.37     | -34.35     | 0.18             | 456089.59         | 646273.60        | N 32 15 12.27           | W 103 58 37.97           |
|          | 1580.60    | 2.17        | 290.82           | 1579.78     | -5.18        | -12.94     | -38.14     | 0.57             | 456091.02         | 646269.81        | N 32 15 12.29           | W 103 58 38.01           |
|          | 1675.35    | 2.01        | 289.78           | 1674.47     | -3.36        | -11.74     | -41.38     | 0.17             | 456092.22         | 646266.57        | N 32 15 12.30           | W 103 58 38.05           |
|          | 1769.59    | 1.64        | 289.97           | 1768.66     | -1.68        | -10.64     | -44.43     | 0.07             | 456093.32         | 646263.52        | N 32 15 12.31           | W 103 58 38.09           |
|          | 1864.31    | 1.94        | 287.07           | 1863.32     | -0.08        | -9.62      | -47.47     | 0.10             | 456094.34         | 646260.48        | N 32 15 12.32           | W 103 58 38.12           |
|          | 1958.50    | 1.84        | 283.14           | 1957.46     | 1.30         | -8.81      | -50.47     | 0.17             | 456095.15         | 646257.48        | N 32 15 12.33           | W 103 58 38.16           |
|          | 2052.94    | 1.70        | 281.37           | 2051.86     | 2.47         | -8.19      | -53.32     | 0.16             | 456095.77         | 646254.84        | N 32 15 12.34           | W 103 58 38.19           |
|          | 2147.58    | 1.44        | 276.46           | 2146.46     | 3.38         | -7.78      | -56.88     | 0.31             | 456096.18         | 646252.08        | N 32 15 12.34           | W 103 58 38.22           |
|          | 2242.43    | 0.98        | 276.64           | 2241.29     | 4.00         | -7.55      | -57.87     | 0.48             | 456096.41         | 646250.09        | N 32 15 12.34           | W 103 58 38.24           |
|          | 2337.14    | 0.79        | 200.87           | 2335.99     | 3.69         | -8.07      | -58.90     | 1.16             | 456095.89         | 646249.05        | N 32 15 12.34           | W 103 58 38.26           |
|          | 2431.60    | 0.77        | 219.91           | 2430.44     | 2.75         | -9.16      | -59.54     | 0.27             | 456094.80         | 646248.41        | N 32 15 12.33           | W 103 58 38.26           |
|          | 2494.39    | 0.43        | 219.07           | 2493.23     | 2.33         | -8.67      | -59.96     | 0.54             | 456094.29         | 646247.99        | N 32 15 12.32           | W 103 58 38.27           |
|          | 2557.32    | 0.29        | 143.14           | 2556.16     | 2.04         | -9.98      | -60.02     | 0.73             | 456093.98         | 646247.84        | N 32 15 12.32           | W 103 58 38.27           |
|          | 2652.02    | 1.13        | 121.90           | 2650.85     | 1.18         | -10.67     | -59.08     | 0.91             | 456093.30         | 646248.88        | N 32 15 12.31           | W 103 58 38.26           |
|          | 2748.55    | 1.98        | 137.02           | 2745.34     | -0.85        | -12.35     | -57.17     | 0.99             | 456091.61         | 646250.78        | N 32 15 12.30           | W 103 58 38.24           |
|          | 2840.81    | 2.61        | 147.48           | 2839.53     | 4.24         | -15.35     | -54.91     | 0.80             | 456088.61         | 646253.04        | N 32 15 12.27           | W 103 58 38.21           |
|          | 2919.82    | 2.61        | 147.37           | 2918.46     | -7.59        | -18.39     | -52.97     | 0.01             | 456085.68         | 646254.98        | N 32 15 12.24           | W 103 58 38.19           |
|          | 3118.00    | 2.30        | 148.06           | 3116.45     | -15.53       | -25.58     | -48.47     | 0.16             | 456078.38         | 646259.48        | N 32 15 12.16           | W 103 58 38.14           |
|          | 3213.00    | 0.08        | 312.46           | 3211.43     | -17.27       | -27.17     | -47.53     | 2.50             | 456076.80         | 646260.42        | N 32 15 12.34           | W 103 58 38.12           |
|          | 3308.00    | 0.13        | 340.04           | 3306.43     | -17.11       | -27.02     | -47.62     | 0.07             | 456076.94         | 646260.34        | N 32 15 12.16           | W 103 58 38.13           |
|          | 3403.00    | 0.08        | 93.53            | 3401.43     | -17.02       | -26.92     | -47.59     | 0.19             | 456077.04         | 646260.37        | N 32 15 12.15           | W 103 58 38.12           |
|          | 3497.00    | 0.13        | 129.25           | 3495.43     | -17.12       | -26.99     | -47.44     | 0.09             | 456076.97         | 646260.52        | N 32 15 12.15           | W 103 58 38.12           |
|          | 3592.00    | 0.13        | 48.98            | 3590.43     | -17.15       | -26.99     | -47.27     | 0.18             | 456076.97         | 646260.66        | N 32 15 12.15           | W 103 58 38.12           |
|          | 3686.00    | 0.08        | 314.09           | 3684.43     | -17.04       | -26.88     | -47.24     | 0.17             | 456077.09         | 646260.71        | N 32 15 12.15           | W 103 58 38.12           |
|          | 3781.00    | 0.08        | 71.86            | 3779.43     | -16.98       | -26.81     | -47.22     | 0.14             | 456077.15         | 646260.73        | N 32 15 12.15           | W 103 58 38.12           |
|          | 3875.00    | 0.17        | 314.49           | 3873.43     | -16.86       | -26.69     | -47.26     | 0.23             | 456077.27         | 646260.69        | N 32 15 12.15           | W 103 58 38.12           |
|          | 3969.00    | 0.18        | 12.79            | 3967.43     | -16.81       | -26.45     | -47.33     | 0.18             | 456077.51         | 646260.63        | N 32 15 12.16           | W 103 58 38.12           |
|          | 4064.00    | 0.08        | 297.68           | 4062.43     | -16.43       | -26.27     | -47.35     | 0.19             | 456077.89         | 646260.80        | N 32 15 12.16           | W 103 58 38.12           |
|          | 4159.00    | 0.06        | 33.09            | 4157.43     | -16.36       | -26.20     | -47.39     | 0.11             | 456077.76         | 646260.57        | N 32 15 12.16           | W 103 58 38.12           |
|          | 4254.00    | 0.16        | 353.21           | 4252.43     | -16.19       | -26.03     | -47.37     | 0.13             | 456077.93         | 646260.58        | N 32 15 12.16           | W 103 58 38.12           |
|          | 4349.00    | 0.06        | 308.01           | 4347.43     | -16.02       | -25.88     | -47.43     | 0.13             | 456078.10         | 646260.53        | N 32 15 12.16           | W 103 58 38.12           |
|          | 4438.00    | 0.23        | 300.53           | 4434.43     | -15.86       | -25.75     | -47.62     | 0.20             | 456078.21         | 646260.34        | N 32 15 12.16           | W 103 58 38.13           |
|          | 4531.00    | 0.28        | 285.06           | 4529.37     | -14.53       | -24.94     | -50.40     | 3.22             | 456079.02         | 646257.55        | N 32 15 12.17           | W 103 58 38.16           |
|          | 4625.00    | 7.17        | 286.14           | 4622.96     | -10.62       | -22.61     | -56.64     | 4.14             | 456081.35         | 646249.32        | N 32 15 12.19           | W 103 58 38.25           |
|          | 4720.00    | 10.20       | 287.14           | 4718.86     | -3.87        | -18.49     | -72.38     | 3.19             | 456085.47         | 646235.58        | N 32 15 12.24           | W 103 58 38.41           |
|          | 4815.00    | 13.08       | 243.05           | 4810.07     | -2.74        | -20.88     | -90.03     | 9.57             | 456083.08         | 646217.92        | N 32 15 12.21           | W 103 58 38.62           |
|          | 4909.00    | 13.23       | 287.46           | 4901.83     | -0.41        | -22.48     | -109.82    | 10.50            | 456081.48         | 646198.13        | N 32 15 12.20           | W 103 58 38.85           |
|          | 5004.00    | 12.82       | 286.65           | 4994.39     | 9.78         | -16.20     | -130.29    | 0.47             | 456087.76         | 646177.67        | N 32 15 12.26           | W 103 58 39.09           |
|          | 5098.00    | 12.29       | 285.68           | 5088.14     | 19.26        | -10.47     | -148.91    | 0.59             | 456093.48         | 646158.06        | N 32 15 12.32           | W 103 58 39.32           |
|          | 5193.00    | 11.64       | 284.75           | 5179.08     | 28.11        | -5.27      | -168.90    | 0.73             | 456098.69         | 646139.06        | N 32 15 12.37           | W 103 58 39.54           |
|          | 5288.00    | 13.09       | 281.36           | 5271.87     | 36.48        | -0.71      | -188.72    | 1.71             | 456103.25         | 646119.25        | N 32 15 12.41           | W 103 58 39.77           |
|          | 5383.00    | 13.06       | 280.83           | 5363.44     | 44.80        | 3.38       | -209.58    | 0.13             | 456107.34         | 646098.39        | N 32 15 12.46           | W 103 58 40.01           |
|          | 5477.00    | 12.10       | 280.16           | 5456.15     | 52.31        | 7.16       | -229.93    | 1.02             | 456111.12         | 646078.04        | N 32 15 12.49           | W 103 58 40.25           |
|          | 5571.00    | 10.19       | 278.73           | 5548.38     | 58.78        | 10.16      | -247.84    | 2.05             | 456114.12         | 646060.12        | N 32 15 12.52           | W 103 58 40.46           |
|          | 5665.00    | 9.56        | 275.43           | 5640.98     | 63.89        | 12.16      | -263.83    | 0.90             | 456116.12         | 646044.14        | N 32 15 12.54           | W 103 58 40.84           |
|          | 5760.00    | 12.89       | 274.46           | 5734.15     | 68.06        | 13.73      | -282.25    | 3.51             | 456117.89         | 646025.72        | N 32 15 12.56           | W 103 58 41.66           |
|          | 5849.00    | 11.49       | 274.62           | 5819.89     | 79.99        | 16.88      | -322.04    | 0.74             | 456120.84         | 645986.94        | N 32 15 12.59           | W 103 58 41.32           |
|          | 6044.00    | 11.16       | 275.19           | 6012.04     | 85.22        | 18.48      | -340.63    | 0.37             | 456122.44         | 645967.35        | N 32 15 12.61           | W 103 58 41.54           |
|          | 6139.00    | 12.29       | 272.25           | 6105.06     | 90.21        | 19.71      | -359.89    | 1.35             | 456123.67         | 645948.09        | N 32 15 12.62           | W 103 58 41.76           |
|          | 6233.00    | 12.19       | 271.27           | 6196.92     | 94.74        | 20.32      | -379.80    | 0.25             | 456124.28         | 645928.18        | N 32 15 12.63           | W 103 58 41.99           |
|          | 6328.00    | 10.94       | 270.00           | 6289.99     | 98.71        | 20.54      | -398.85    | 1.34             | 456124.50         | 645909.13        | N 32 15 12.63           | W 103 58 42.21           |
|          | 6423.00    | 10.16       | 269.82           | 6383.38     | 102.11       | 20.52      | -416.24    | 0.82             | 456124.47         | 645891.74        | N 32 15 12.63           | W 103 58 42.42           |
|          | 6517.00    | 8.71        | 270.92           | 6478.11     | 105.23       | 20.60      | -431.65    | 1.55             | 456124.56         | 645876.34        | N 32 15 12.63           | W 103 58 42.60           |
|          | 6611.00    | 8.50        | 269.74           | 6569.05     | 108.08       | 20.69      | -445.71    | 0.29             | 456124.64         | 645862.27        | N 32 15 12.63           | W 103 58 42.76           |
|          | 6706.00    | 10.40       | 275.35           | 6662.76     | 111.90       | 21.46      | -461.27    | 2.22             | 456125.41         | 645846.71        | N 32 15 12.64           | W 103 58 42.94           |
|          | 6800.00    | 11.25       | 274.98           | 6755.08     | 116.92       | 23.04      | -478.85    | 0.91             | 456127.00         | 645829.13        | N 32 15 12.66           | W 103 58 43.14           |

| Comments          | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(ft/100ft) | Northing<br>(ft) | Easting<br>(ft) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|-------------------|------------|-------------|------------------|-------------|--------------|------------|------------|-------------------|------------------|-----------------|-------------------------|--------------------------|
|                   | 6895.00    | 10.83       | 273.62           | 6848.33     | 121.84       | 24.41      | -496.89    | 0.52              | 456128.37        | 645811.00       | N 32 15 12.69           | W 103 59 43.36           |
|                   | 7084.00    | 8.70        | 270.30           | 7034.58     | 129.32       | 25.61      | -529.01    | 1.17              | 456129.57        | 645778.98       | N 32 15 12.69           | W 103 59 43.73           |
|                   | 7178.00    | 8.91        | 272.18           | 7127.47     | 132.46       | 25.92      | -543.40    | 0.38              | 456129.88        | 645784.60       | N 32 15 12.69           | W 103 59 43.90           |
|                   | 7273.00    | 10.07       | 282.27           | 7221.18     | 137.51       | 27.97      | -558.86    | 2.13              | 456131.93        | 645749.13       | N 32 15 12.71           | W 103 59 44.08           |
|                   | 7482.00    | 11.31       | 285.85           | 7406.89     | 152.61       | 36.54      | -592.84    | 0.74              | 456140.60        | 645715.16       | N 32 15 12.80           | W 103 59 44.47           |
|                   | 7557.00    | 9.18        | 281.30           | 7500.38     | 159.78       | 40.57      | -609.22    | 2.42              | 456144.52        | 645698.78       | N 32 15 12.84           | W 103 59 44.66           |
|                   | 7652.00    | 8.99        | 285.17           | 7594.19     | 168.01       | 43.99      | -623.80    | 0.67              | 456147.95        | 645684.20       | N 32 15 12.87           | W 103 59 44.83           |
|                   | 7748.00    | 12.13       | 279.47           | 7688.59     | 172.81       | 47.54      | -640.63    | 3.52              | 456151.50        | 645667.37       | N 32 15 12.91           | W 103 59 45.03           |
|                   | 7840.00    | 11.32       | 276.16           | 7778.83     | 179.09       | 50.15      | -658.55    | 1.12              | 456154.11        | 645648.46       | N 32 15 12.93           | W 103 59 45.25           |
|                   | 7935.00    | 9.43        | 276.22           | 7872.07     | 184.25       | 52.00      | -676.56    | 1.90              | 456155.95        | 645631.45       | N 32 15 12.95           | W 103 59 45.45           |
|                   | 8058.00    | 8.55        | 272.21           | 7993.56     | 189.44       | 53.44      | -695.71    | 0.88              | 456157.40        | 645612.30       | N 32 15 12.97           | W 103 59 45.67           |
|                   | 8153.00    | 8.24        | 271.32           | 8087.54     | 192.59       | 53.87      | -709.57    | 0.35              | 456157.83        | 645598.43       | N 32 15 12.97           | W 103 59 45.83           |
|                   | 8247.00    | 7.80        | 266.01           | 8180.62     | 194.89       | 53.58      | -722.67    | 0.92              | 456157.54        | 645585.34       | N 32 15 12.97           | W 103 59 45.98           |
|                   | 8342.00    | 6.43        | 262.46           | 8274.89     | 196.07       | 52.44      | -734.38    | 1.51              | 456156.39        | 645573.63       | N 32 15 12.96           | W 103 59 46.12           |
|                   | 8437.00    | 4.64        | 263.58           | 8369.44     | 196.76       | 51.31      | -743.47    | 1.89              | 456155.26        | 645564.54       | N 32 15 12.95           | W 103 59 46.23           |
|                   | 8626.00    | 0.98        | 189.85           | 8558.22     | 195.91       | 48.85      | -751.34    | 2.36              | 456152.82        | 645556.87       | N 32 15 12.92           | W 103 59 46.32           |
|                   | 8720.00    | 1.01        | 243.05           | 8652.20     | 194.94       | 47.69      | -752.22    | 0.95              | 456151.65        | 645555.75       | N 32 15 12.91           | W 103 59 46.33           |
|                   | 8814.00    | 4.62        | 244.42           | 8746.07     | 193.78       | 45.68      | -756.38    | 3.84              | 456149.64        | 645551.64       | N 32 15 12.89           | W 103 59 46.38           |
|                   | 8909.00    | 7.48        | 238.31           | 8840.54     | 190.70       | 40.78      | -765.09    | 3.08              | 456144.74        | 645542.92       | N 32 15 12.84           | W 103 59 46.46           |
|                   | 8972.00    | 7.43        | 231.12           | 8903.01     | 187.39       | 36.07      | -771.75    | 1.48              | 456140.03        | 645536.26       | N 32 15 12.80           | W 103 59 46.58           |
|                   | 9036.00    | 7.03        | 225.65           | 8966.50     | 183.34       | 30.73      | -777.77    | 1.24              | 456134.69        | 645530.84       | N 32 15 12.74           | W 103 59 46.63           |
|                   | 9225.00    | 8.60        | 306.65           | 9154.25     | 188.04       | 31.67      | -796.98    | 5.58              | 456135.63        | 645511.04       | N 32 15 12.88           | W 103 59 46.85           |
|                   | 9319.00    | 10.02       | 322.67           | 9247.02     | 200.86       | 42.66      | -807.35    | 2.89              | 456146.81        | 645500.67       | N 32 15 13.09           | W 103 59 47.16           |
|                   | 9414.00    | 24.67       | 325.29           | 9337.45     | 226.83       | 85.85      | -823.74    | 15.44             | 456169.61        | 645484.28       | N 32 15 13.36           | W 103 59 47.48           |
|                   | 9508.00    | 24.56       | 304.72           | 9423.07     | 258.78       | 92.96      | -851.02    | 9.07              | 456196.91        | 645475.00       | N 32 15 13.57           | W 103 59 47.80           |
|                   | 9603.00    | 18.86       | 306.57           | 9511.30     | 284.77       | 113.79     | -879.28    | 6.18              | 456217.74        | 645462.75       | N 32 15 13.83           | W 103 59 48.09           |
|                   | 9698.00    | 25.42       | 323.24           | 9599.31     | 315.00       | 139.75     | -903.53    | 8.98              | 456243.70        | 645450.50       | N 32 15 14.15           | W 103 59 48.33           |
|                   | 9792.00    | 23.75       | 332.90           | 9684.82     | 351.46       | 172.78     | -924.23    | 4.62              | 456276.73        | 645438.79       | N 32 15 14.59           | W 103 59 48.44           |
|                   | 9887.00    | 33.95       | 356.81           | 9768.20     | 396.39       | 216.55     | -934.49    | 16.03             | 456320.60        | 645437.48       | N 32 15 15.19           | W 103 59 48.43           |
|                   | 9981.00    | 47.41       | 3.87             | 9839.36     | 456.05       | 277.58     | -933.55    | 15.14             | 456381.53        | 645379.90       | N 32 15 15.95           | W 103 59 48.36           |
|                   | 10076.00   | 61.54       | 4.08             | 9894.42     | 530.41       | 354.52     | -928.13    | 14.87             | 456458.46        | 645361.48       | N 32 15 16.82           | W 103 59 48.34           |
|                   | 10171.00   | 75.57       | 358.26           | 9929.09     | 615.51       | 442.66     | -925.54    | 15.82             | 456546.59        | 645377.33       | N 32 15 17.74           | W 103 59 48.39           |
|                   | 10265.00   | 89.42       | 356.64           | 9941.34     | 708.38       | 535.54     | -930.70    | 14.83             | 456639.36        | 645374.13       | N 32 15 18.68           | W 103 59 48.42           |
|                   | 10360.00   | 88.18       | 356.50           | 9943.33     | 802.06       | 630.45     | -933.90    | 3.28              | 456734.36        | 645360.78       | N 32 15 20.53           | W 103 59 48.57           |
|                   | 10454.00   | 89.35       | 352.31           | 9947.36     | 887.39       | 616.80     | -947.24    | 3.89              | 456920.70        | 645347.77       | N 32 15 21.48           | W 103 59 48.72           |
|                   | 10544.00   | 88.14       | 352.26           | 9949.49     | 1084.17      | 912.90     | -960.26    | 1.25              | 457016.79        | 645331.07       | N 32 15 22.90           | W 103 59 48.91           |
|                   | 10789.00   | 88.73       | 354.51           | 9953.45     | 1228.61      | 1056.87    | -976.96    | 1.60              | 457160.75        | 645327.24       | N 32 15 24.27           | W 103 59 49.03           |
|                   | 10833.00   | 91.89       | 355.51           | 9953.21     | 1272.33      | 1100.70    | -980.78    | 7.53              | 457204.57        | 645320.15       | N 32 15 25.20           | W 103 59 49.10           |
|                   | 10927.00   | 90.21       | 355.83           | 9951.49     | 1365.61      | 1194.41    | -987.98    | 1.82              | 457298.27        | 645305.77       | N 32 15 27.07           | W 103 59 49.19           |
|                   | 11022.00   | 86.82       | 356.84           | 9952.46     | 1459.74      | 1289.21    | -993.85    | 1.98              | 457393.06        | 645299.03       | N 32 15 28.94           | W 103 59 49.25           |
|                   | 11211.00   | 89.45       | 358.12           | 9955.64     | 1646.47      | 1477.99    | -1002.26   | 0.81              | 457581.83        | 645295.13       | N 32 15 30.81           | W 103 59 49.30           |
|                   | 11305.00   | 89.42       | 357.95           | 9956.57     | 1739.20      | 1571.93    | -1005.48   | 0.18              | 457675.77        | 645295.17       | N 32 15 31.74           | W 103 59 49.29           |
|                   | 11400.00   | 90.74       | 358.53           | 9956.85     | 1832.87      | 1666.89    | -1008.40   | 1.06              | 457770.71        | 645296.82       | N 32 15 32.68           | W 103 59 49.27           |
|                   | 11495.00   | 87.42       | 358.41           | 9956.79     | 1926.44      | 1761.82    | -1010.94   | 2.37              | 457866.94        | 645296.41       | N 32 15 33.62           | W 103 59 49.25           |
|                   | 11589.00   | 88.80       | 359.19           | 9963.53     | 2019.85      | 1855.68    | -1012.90   | 1.06              | 457959.49        | 645296.03       | N 32 15 34.55           | W 103 59 49.24           |
|                   | 11683.00   | 88.76       | 0.85             | 9967.17     | 2110.92      | 1949.60    | -1012.86   | 2.74              | 458053.41        | 645296.22       | N 32 15 35.49           | W 103 59 49.26           |
|                   | 11778.00   | 89.35       | 0.69             | 9968.74     | 2203.75      | 2044.58    | -1011.41   | 0.62              | 458148.37        | 645295.50       | N 32 15 36.36           | W 103 59 49.24           |
|                   | 11873.00   | 90.48       | 1.27             | 9968.88     | 2296.52      | 2139.56    | -1009.62   | 1.25              | 458243.35        | 645296.22       | N 32 15 37.36           | W 103 59 49.26           |
|                   | 11967.00   | 90.17       | 359.49           | 9968.34     | 2389.55      | 2233.55    | -1009.00   | 1.92              | 458337.33        | 645296.22       | N 32 15 38.30           | W 103 59 49.26           |
|                   | 12062.00   | 91.38       | 359.60           | 9967.06     | 2481.82      | 2328.54    | -1009.75   | 1.28              | 458432.31        | 645296.22       | N 32 15 39.25           | W 103 59 49.27           |
|                   | 12251.00   | 91.86       | 359.15           | 9961.72     | 2567.44      | 2517.45    | -1011.81   | 0.35              | 458521.21        | 645296.22       | N 32 15 40.16           | W 103 59 49.27           |
|                   | 12346.00   | 91.55       | 359.98           | 9958.89     | 2760.67      | 2612.41    | -1012.53   | 0.93              | 458616.16        | 645296.22       | N 32 15 41.09           | W 103 59 49.27           |
|                   | 12534.00   | 90.64       | 359.64           | 9955.30     | 2945.08      | 2800.37    | -1013.16   | 0.52              | 458904.10        | 645296.22       | N 32 15 42.95           | W 103 59 49.27           |
|                   | 12828.00   | 90.21       | 359.74           | 9954.60     | 3037.33      | 2894.36    | -1013.66   | 0.47              | 458998.09        | 645296.22       | N 32 15 43.89           | W 103 59 49.29           |
|                   | 12816.00   | 89.90       | 359.58           | 9954.42     | 3221.86      | 3082.36    | -1014.76   | 0.18              | 459186.07        | 645296.22       | N 32 15 44.76           | W 103 59 49.31           |
|                   | 12911.00   | 90.14       | 358.81           | 9954.39     | 3315.25      | 3177.35    | -1016.09   | 0.86              | 459281.05        | 645296.22       | N 32 15 45.76           | W 103 59 49.31           |
|                   | 13100.00   | 90.17       | 359.76           | 9953.87     | 3500.99      | 3366.33    | -1018.45   | 0.50              | 459470.02        | 645296.22       | N 32 15 46.63           | W 103 59 49.29           |
|                   | 13289.00   | 90.86       | 0.74             | 9952.18     | 3686.12      | 3556.32    | -1017.62   | 0.63              | 459568.99        | 645296.22       | N 32 15 47.60           | W 103 59 49.28           |
|                   | 13384.00   | 91.27       | 359.44           | 9950.41     | 3779.21      | 3650.30    | -1017.47   | 1.43              | 459753.97        | 645296.22       | N 32 15 50.44           | W 103 59 49.35           |
|                   | 13573.00   | 91.41       | 356.98           | 9946.99     | 3965.51      | 3839.14    | -1023.38   | 1.30              | 459942.79        | 645296.22       | N 32 15 51.46           | W 103 59 49.55           |
|                   | 13762.00   | 90.56       | 357.08           | 9942.76     | 4152.46      | 4027.86    | -1033.17   | 0.46              | 460131.50        | 645296.22       | N 32 15 52.50           | W 103 59 49.45           |
|                   | 13950.00   | 90.52       | 357.65           | 9941.00     | 4338.27      | 4215.65    | -1041.81   | 0.30              | 460319.27        | 645296.22       | N 32 15 53.48           | W 103 59 49.64           |
|                   | 14138.00   | 90.48       | 357.23           | 9939.38     | 4524.05      | 4403.46    | -1050.21   | 0.22              | 460507.06        | 645296.22       | N 32 15 54.51           | W 103 59 49.71           |
|                   | 14326.00   | 91.48       | 358.81           | 9936.15     | 4709.50      | 4591.31    | -1056.70   | 0.99              | 460694.90        | 645296.22       | N 32 15 55.78           | W 103 59 49.71           |
|                   | 14515.00   | 90.83       | 0.20             | 9932.34     | 4895.07      | 4780.26    | -1058.33   | 0.81              | 460883.83        | 645296.22       | N 32 15 56.82           | W 103 59 49.72           |
|                   | 14608.00   | 90.10       | 359.73           | 9931.57     | 4987.24      | 4874.25    | -1058.39   | 0.92              | 460977.82        | 645296.22       | N 32 15 57.85           | W 103 59 49.72           |
|                   | 14703.00   | 90.00       | 359.81           | 9931.49     | 5079.47      | 4968.25    | -1058.77   | 0.14              | 461071.81        | 645296.22       | N 32 15 58.75           | W 103 59 49.72           |
|                   | 14892.00   | 90.41       | 359.79           | 9930.81     | 5264.89      | 5157.25    | -1059.43   | 0.22              | 461260.79        | 645296.22       | N 32 15 59.71           | W 103 59 49.72           |
|                   | 14987.00   | 90.03       | 359.90           | 9930.45     | 5359.08      | 5252.25    | -1059.68   | 0.42              | 461355.79        | 645296.22       | N 32 15 60.68           | W 103 59 49.72           |
| Final MWD Survey  | 15003.00   | 90.34       | 0.19             | 9930.40     | 5373.76      | 5268.25    | -1059.67   | 2.65              | 461371.78        | 645296.22       | N 32 15 61.61           | W 103 59 49.72           |
| Projection to bit | 15043.00   | 90.34       | 0.19             | 9930.16     | 5412.95      | 5308.25    | -1059.54   | 0.00              | 461411.78        | 645296.22       | N 32 15 62.54           | W 103 59 49.71           |

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 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 / Oxy Cypress<br>33 Federal 10H Gyro+ MWD 0-15043 RMD    |
|             | 1    | 26.500          | 26.500        | Act Stns         | 30.000                            | 30.000 NAL_NSG+MSHOT-Depth Only | Original Borehole / Oxy Cypress<br>33 Federal 10H Gyro+ MWD 0-15043 RMD    |
|             | 1    | 26.500          | 2919.820      | Act Stns         | 30.000                            | 30.000 NAL_NSG+MSHOT            | Original Borehole / Oxy Cypress<br>33 Federal 10H Gyro+ MWD 0-2919.820 RMD |
|             | 1    | 2919.820        | 15043.000     | Act Stns         | 30.000                            | 30.000 NAL_MWD_PLUS_0.5_DEG     | Original Borehole / Oxy Cypress<br>33 Federal 10H Gyro+ MWD 0-15043 RMD    |