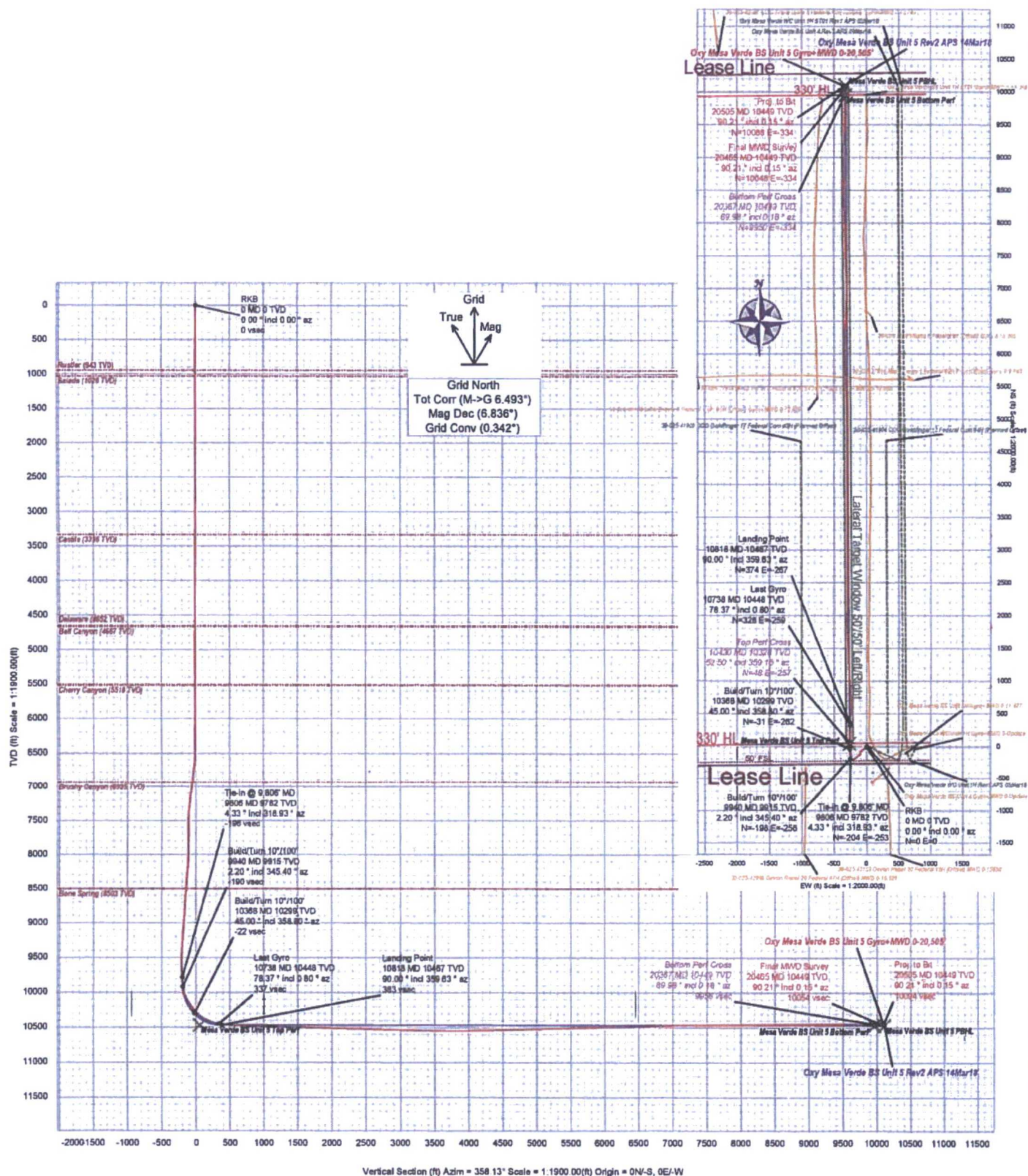




|                                          |         |                          |             |                         |                           |                          |                                            |
|------------------------------------------|---------|--------------------------|-------------|-------------------------|---------------------------|--------------------------|--------------------------------------------|
| <b>Borehole:</b>                         |         | <b>Well:</b>             |             | <b>Field:</b>           |                           | <b>Structure:</b>        |                                            |
| Original Borehole                        |         | Oxy Mesa Verde BS Unit 5 |             | NM Lea County (NAD 83)  |                           | Oxy Mesa Verde BS Unit 5 |                                            |
| <b>Gravity &amp; Magnetic Parameters</b> |         |                          |             | <b>Surface Location</b> |                           | <b>Miscellaneous</b>     |                                            |
| Model:                                   | HGM2018 | DS:                      | 60.811"     | Date:                   | 01-Mar-2018               | Lat:                     | N 32 12 39.89                              |
| MagDec:                                  | 8.838°  | Fls:                     | 40027.744mT | Gravity F.S.:           | 898.432mg (8.89866 Gauss) | Northing:                | 441093.329US                               |
|                                          |         |                          |             |                         |                           | Grid Conv:               | 0.3422"                                    |
|                                          |         |                          |             |                         |                           | Easting:                 | 739872.81US                                |
|                                          |         |                          |             |                         |                           | Scale Fact:              | 0.99996423                                 |
|                                          |         |                          |             |                         |                           | Slot:                    | Oxy Mesa Verde BS Unit 5                   |
|                                          |         |                          |             |                         |                           | TVD Ref:                 | RUG=25.6' (3587ft above MSL)               |
|                                          |         |                          |             |                         |                           | Plan:                    | Oxy Mesa Verde BS Unit 5 Rev'd APS 14Mar18 |



## Oxy Mesa Verde BS Unit 5 Gyro+MWD 0-20,505' Survey Geodetic Report



(Def Survey)

Report Date: March 24, 2018 - 03:41 PM  
Client: OXY  
Field: NM Lea County (NAD 83)  
Structure / Slot: Oxy Mesa Verde BS Unit 5 / Oxy Mesa Verde BS Unit 5  
Well: Oxy Mesa Verde BS Unit 5  
Borehole: Original Borehole  
UWI / API#: Uniform / 30-025-44185  
Survey Name: Oxy Mesa Verde BS Unit 5 Gyro+MWD 0-20,505'  
Survey Date: March 01, 2018  
Tort / AWD / DOI / ERD Ratio: 220.171' / 10669.417 ft / 6.660' / 1.012  
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet  
Location Lat / Long: N 32° 12' 38.64553" W 103° 41' 29.05511"  
Location Grid NE V/X: N 441063 320 NUS E 739872 600 NUS  
CRS Grid Convergence Angle: 0.3422°  
Grid Scale Factor: 0.9995423  
Version / Patch: 2.10.706.0

Survey / DLS Computation:  
Vertical Section Azimuth: Minimum Curvature / Lubinski  
Vertical Section Origin: 356.128° (Grid North)  
TVD Reference Datum: 0.000 ft, 0.000 ft  
TVD Reference Elevation: RKB-26.5'  
Seabed / Ground Elevation: 3567.000 ft above MSL  
Magnetic Declination: 3560.500 ft above MSL  
Total Gravity Field Strength: 998.432 Impn (9.80665 Based)  
Gravity Model: GARM4  
Total Magnetic Field Strength: 48627.764 nT  
Magnetic Dip Angle: 59.931°  
Declination Date: March 01, 2018  
Magnetic Declination Model: HDGM 2018  
North Reference: HDGM 2018  
Grid Convergence Used: Grid North  
Total Corr Mag North->Grid: 0.3422°  
North: 6.4934°  
Local Coord Referenced To: Well Head

HOBBS OCD  
MAY 10 2018

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| Comments | MD<br>(ft) | Incl<br>(°) | Azim GHD<br>(°) | TVD<br>(ft) | VEEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(770000) | Northing<br>(NUS) | Easting<br>(NUS) | Latitude<br>(NUS+°)          | Longitude<br>(EW+°) |
|----------|------------|-------------|-----------------|-------------|--------------|------------|------------|-----------------|-------------------|------------------|------------------------------|---------------------|
| RKB      | 26.50      | 0.00        | 0.00            | 26.50       | 0.00         | 0.00       | 0.00       | N/A             | 441063.32         | 739872.60        | N 32 12 39.65 W 103 41 29.06 |                     |
| SHL      | 87.00      | 0.50        | 227.56          | 87.00       | -0.13        | 0.00       | -0.22      | 0.03            | 441063.32         | 739872.60        | N 32 12 39.65 W 103 41 29.06 |                     |
|          | 182.00     | 0.50        | 223.98          | 182.00      | -0.63        | -0.14      | -0.86      | 0.12            | 441063.18         | 739872.38        | N 32 12 39.64 W 103 41 29.06 |                     |
|          | 273.00     | 0.46        | 214.95          | 272.99      | -1.22        | -0.69      | -1.36      | 0.09            | 441062.66         | 739871.74        | N 32 12 39.64 W 103 41 29.07 |                     |
|          | 364.00     | 0.60        | 221.54          | 363.99      | -1.88        | -1.94      | -1.90      | 0.14            | 441062.05         | 739871.14        | N 32 12 39.63 W 103 41 29.07 |                     |
|          | 455.00     | 0.62        | 223.99          | 454.98      | -2.57        | -2.65      | -2.56      | 0.04            | 441061.38         | 739870.70        | N 32 12 39.62 W 103 41 29.08 |                     |
|          | 546.00     | 0.56        | 227.63          | 545.98      | -3.20        | -3.31      | -3.23      | 0.08            | 441060.01         | 739870.04        | N 32 12 39.62 W 103 41 29.09 |                     |
|          | 637.00     | 0.37        | 224.63          | 636.98      | -3.65        | -3.79      | -3.79      | 0.22            | 441059.01         | 739869.37        | N 32 12 39.61 W 103 41 29.10 |                     |
|          | 728.00     | 0.23        | 252.98          | 727.97      | -3.86        | -4.00      | -4.21      | 0.18            | 441058.32         | 739868.81        | N 32 12 39.61 W 103 41 29.10 |                     |
|          | 819.00     | 0.19        | 261.50          | 818.97      | -3.93        | -4.08      | -4.53      | 0.06            | 441058.24         | 739868.29        | N 32 12 39.61 W 103 41 29.11 |                     |
|          | 910.00     | 0.13        | 134.74          | 909.97      | -4.22        | -4.17      | -4.61      | 0.32            | 441068.15         | 739867.99        | N 32 12 39.60 W 103 41 29.11 |                     |
|          | 1001.00    | 0.33        | 117.39          | 1000.97     | -4.22        | -4.36      | -4.30      | 0.23            | 441068.96         | 739868.30        | N 32 12 39.60 W 103 41 29.11 |                     |
|          | 1092.00    | 0.30        | 117.20          | 1091.97     | -4.48        | -4.60      | -3.84      | 0.00            | 441068.72         | 739868.76        | N 32 12 39.60 W 103 41 29.10 |                     |
|          | 1182.00    | 0.33        | 114.16          | 1181.97     | -4.72        | -4.83      | -3.37      | 0.04            | 441068.48         | 739869.23        | N 32 12 39.60 W 103 41 29.09 |                     |
|          | 1282.00    | 0.18        | 104.88          | 1281.97     | -4.87        | -4.97      | -3.00      | 0.13            | 441068.35         | 739869.60        | N 32 12 39.60 W 103 41 29.09 |                     |
|          | 1376.00    | 0.07        | 71.03           | 1375.97     | -4.80        | -4.99      | -2.80      | 0.14            | 441068.33         | 739869.90        | N 32 12 39.60 W 103 41 29.09 |                     |
|          | 1471.00    | 0.05        | 38.76           | 1470.97     | -4.65        | -4.94      | -2.72      | 0.04            | 441068.36         | 739870.20        | N 32 12 39.60 W 103 41 29.09 |                     |
|          | 1566.00    | 0.04        | 302.79          | 1564.97     | -4.80        | -4.69      | -2.72      | 0.07            | 441068.43         | 739869.88        | N 32 12 39.60 W 103 41 29.09 |                     |
|          | 1660.00    | 0.07        | 320.72          | 1659.97     | -4.73        | -4.83      | -2.78      | 0.04            | 441068.45         | 739869.88        | N 32 12 39.60 W 103 41 29.09 |                     |
|          | 1754.00    | 0.11        | 292.35          | 1753.97     | -4.65        | -4.76      | -2.80      | 0.06            | 441068.57         | 739869.82        | N 32 12 39.60 W 103 41 29.09 |                     |
|          | 1849.00    | 0.10        | 234.52          | 1848.97     | -4.66        | -4.75      | -3.05      | 0.11            | 441068.56         | 739869.55        | N 32 12 39.60 W 103 41 29.09 |                     |
|          | 1943.00    | 0.16        | 220.74          | 1942.97     | -4.80        | -4.91      | -3.21      | 0.07            | 441068.41         | 739869.29        | N 32 12 39.60 W 103 41 29.09 |                     |
|          | 2038.00    | 0.21        | 215.64          | 2037.97     | -5.04        | -5.15      | -3.39      | 0.06            | 441068.17         | 739868.90        | N 32 12 39.59 W 103 41 29.09 |                     |
|          | 2133.00    | 0.18        | 211.01          | 2132.97     | -5.30        | -5.42      | -3.57      | 0.04            | 441067.90         | 739868.60        | N 32 12 39.59 W 103 41 29.10 |                     |
|          | 2227.00    | 0.13        | 209.93          | 2226.97     | -5.52        | -5.64      | -3.70      | 0.05            | 441067.66         | 739868.30        | N 32 12 39.59 W 103 41 29.10 |                     |
|          | 2322.00    | 0.17        | 205.19          | 2321.97     | -5.73        | -5.86      | -3.82      | 0.04            | 441067.46         | 739868.00        | N 32 12 39.59 W 103 41 29.10 |                     |
|          | 2417.00    | 0.23        | 200.66          | 2416.97     | -6.03        | -6.16      | -3.95      | 0.06            | 441067.16         | 739867.78        | N 32 12 39.58 W 103 41 29.10 |                     |
|          | 2511.00    | 0.26        | 182.70          | 2510.96     | -6.41        | -6.55      | -4.04      | 0.10            | 441066.77         | 739867.54        | N 32 12 39.58 W 103 41 29.10 |                     |
|          | 2606.00    | 0.32        | 182.28          | 2605.96     | -6.89        | -7.03      | -4.06      | 0.06            | 441066.29         | 739867.30        | N 32 12 39.58 W 103 41 29.10 |                     |
|          | 2701.00    | 0.39        | 142.31          | 2700.96     | -7.41        | -7.55      | -3.88      | 0.26            | 441065.78         | 739866.82        | N 32 12 39.57 W 103 41 29.10 |                     |
|          | 2795.00    | 0.53        | 139.20          | 2794.96     | -8.01        | -8.12      | -3.40      | 0.16            | 441065.20         | 739866.30        | N 32 12 39.57 W 103 41 29.10 |                     |
|          | 2889.00    | 0.69        | 130.72          | 2888.95     | -8.73        | -8.83      | -2.88      | 0.19            | 441064.49         | 739865.92        | N 32 12 39.56 W 103 41 29.10 |                     |
|          | 2984.00    | 0.79        | 131.62          | 2983.95     | -9.56        | -9.63      | -1.77      | 0.11            | 441063.69         | 739865.42        | N 32 12 39.55 W 103 41 29.09 |                     |
|          | 3079.00    | 0.72        | 125.32          | 3078.94     | -10.37       | -10.41     | -0.79      | 0.11            | 441062.91         | 739871.81        | N 32 12 39.54 W 103 41 29.07 |                     |
|          | 3174.00    | 0.19        | 93.73           | 3173.93     | -10.75       | -10.76     | -0.15      | 0.80            | 441062.56         | 739872.41        | N 32 12 39.54 W 103 41 29.06 |                     |
|          | 3268.00    | 0.15        | 57.18           | 3267.93     | -10.70       | -10.71     | 0.11       | 0.12            | 441062.62         | 739872.71        | N 32 12 39.54 W 103 41 29.05 |                     |
|          | 3363.00    | 0.06        | 33.63           | 3362.93     | -10.62       | -10.62     | 0.26       | 0.10            | 441062.76         | 739872.96        | N 32 12 39.54 W 103 41 29.05 |                     |
|          | 3458.00    | 0.10        | 66.41           | 3457.93     | -10.57       | -10.56     | 0.38       | 0.04            | 441062.83         | 739873.16        | N 32 12 39.54 W 103 41 29.05 |                     |
|          | 3552.00    | 0.13        | 67.44           | 3551.93     | -10.50       | -10.49     | 0.50       | 0.03            | 441062.90         | 739873.36        | N 32 12 39.54 W 103 41 29.05 |                     |
|          | 3647.00    | 0.06        | 59.74           | 3646.93     | -10.44       | -10.42     | 0.70       | 0.03            | 441062.95         | 739873.56        | N 32 12 39.54 W 103 41 29.05 |                     |
|          | 3742.00    | 0.06        | 91.32           | 3741.93     | -10.42       | -10.40     | 0.79       | 0.03            | 441062.97         | 739873.81        | N 32 12 39.54 W 103 41 29.05 |                     |
|          | 3836.00    | 0.10        | 55.98           | 3835.93     | -10.36       | -10.35     | 0.91       | 0.07            | 441062.92         | 739873.51        | N 32 12 39.54 W 103 41 29.05 |                     |
|          | 3930.00    | 0.12        | 82.17           | 3929.93     | -10.32       | -10.29     | 1.07       | 0.06            | 441063.03         | 739873.67        | N 32 12 39.54 W 103 41 29.04 |                     |
|          | 4025.00    | 0.23        | 81.81           | 4024.93     | -10.29       | -10.25     | 1.36       | 0.12            | 441063.07         | 739873.96        | N 32 12 39.54 W 103 41 29.04 |                     |
|          | 4120.00    | 0.15        | 100.11          | 4119.93     | -10.30       | -10.25     | 1.67       | 0.10            | 441063.07         | 739874.27        | N 32 12 39.54 W 103 41 29.04 |                     |
|          | 4214.00    | 0.15        | 109.99          | 4213.93     | -10.37       | -10.31     | 1.91       | 0.03            | 441063.01         | 739874.51        | N 32 12 39.54 W 103 41 29.03 |                     |
|          | 4309.00    | 0.15        | 94.99           | 4308.93     | -10.43       | -10.36     | 2.15       | 0.04            | 441062.96         | 739874.75        | N 32 12 39.54 W 103 41 29.03 |                     |
|          | 4404.00    | 0.19        | 87.78           | 4403.93     | -10.44       | -10.37     | 2.43       | 0.05            | 441062.95         | 739875.05        | N 32 12 39.54 W 103 41 29.03 |                     |
|          | 4499.00    | 0.20        | 82.77           | 4498.93     | -10.43       | -10.34     | 2.75       | 0.02            | 441062.98         | 739875.35        | N 32 12 39.54 W 103 41 29.02 |                     |
|          | 4593.00    | 0.14        | 78.25           | 4592.93     | -10.39       | -10.29     | 3.03       | 0.07            | 441063.03         | 739875.65        | N 32 12 39.54 W 103 41 29.02 |                     |
|          | 4687.00    | 0.23        | 107.47          | 4686.93     | -10.43       | -10.32     | 3.32       | 0.14            | 441063.00         | 739875.92        | N 32 12 39.54 W 103 41 29.02 |                     |
|          | 4782.00    | 0.75        | 163.66          | 4781.93     | -11.09       | -10.98     | 3.67       | 0.68            | 441062.94         | 739876.22        | N 32 12 39.54 W 103 41 29.02 |                     |
|          | 4877.00    | 0.10        | 209.84          | 4876.92     | -11.76       | -11.65     | 3.87       | 0.86            | 441062.86         | 739876.52        | N 32 12 39.54 W 103 41 29.01 |                     |
|          | 4972.00    | 0.21        | 18.47           | 4971.92     | -11.42       | -11.55     | 3.82       | 0.72            | 441061.86         | 739876.82        | N 32 12 39.54 W 103 41 29.01 |                     |
|          | 5066.00    | 0.14        | 56.02           | 5065.92     | -11.42       | -11.29     | 4.02       | 0.32            | 441061.77         | 739877.12        | N 32 12 39.54 W 103 41 29.01 |                     |
|          | 5161.00    | 0.03        | 85.88           | 5160.92     | -11.30       | -11.19     | 4.28       | 0.14            | 441062.03         | 739877.42        | N 32 12 39.54 W 103 41 29.01 |                     |
|          | 5255.00    | 0.07        | 54.52           | 5254.92     | -11.30       | -11.16     | 4.41       | 0.12            | 441062.16         | 739877.71        | N 32 12 39.54 W 103 41 29.00 |                     |
|          | 5350.00    | 0.12        | 30.45           | 5349.92     | -11.24       | -11.10     | 4.46       | 0.05            | 441062.13         | 739878.00        | N 32 12 39.54 W 103 41 29.00 |                     |
|          | 5445.00    | 0.12        | 46.13           | 5444.92     | -10.97       | -10.88     | 4.57       | 0.06            | 441062.22         | 739878.29        | N 32 12 39.54 W 103 41 29.00 |                     |
|          | 5539.00    | 0.12        | 29.36           | 5538.92     | -10.83       | -10.68     | 4.81       | 0.04            | 441062.44         | 739878.58        | N 32 12 39.54 W 103 41 29.00 |                     |
|          | 5634.00    | 0.12        | 43.18           | 5633.92     | -10.72       | -10.56     | 4.95       | 0.05            | 441062.49         | 739878.87        | N 32 12 39.54 W 103 41 29.00 |                     |
|          | 5728.00    | 0.10        | 57.27           | 5727.92     | -10.61       | -10.45     | 5.07       | 0.03            | 441062.76         | 739879.16        | N 32 12 39.54 W 103 41 29.00 |                     |
|          | 5823.00    | 0.09        | 54.29           | 5822.92     | -10.52       | -10.36     | 5.19       | 0.01            | 441062.97         | 739879.45        | N 32 12 39.54 W 103 41 29.00 |                     |
|          | 5917.00    | 0.06        | 43.82           | 5916.92     | -10.44       | -10.27     | 5.29       | 0.03            | 441063.02         | 739879.74        | N 32 12 39.54 W 103 41 29.00 |                     |
|          | 6012.00    | 0.07        | 44.44           | 6011.92     | -10.37       | -10.20     | 5.36       | 0.01            | 441063.15         | 739879.99        | N 32 12 39.54 W 103 41 28.99 |                     |
|          | 6106.00    | 0.07        | 75.71           | 6105.92     | -10.32       | -10.14     | 5.46       | 0.04            | 441063.18         | 739880.28        | N 32 12 39.54 W 103 41 28.99 |                     |
|          | 6200.00    | 0.10        | 49.41           | 6199.92     | -10.25       | -10.07     | 5.58       | 0.05            | 441063.25         | 739880.57        | N 32 12 39.54 W 103 41 28.99 |                     |
|          | 6295.00    | 0.46        | 125.20          | 6294.92     | -10.43       | -10.24     | 5.95       | 0.47            | 441063.48         | 739880.86        | N 32 12 39.54 W 103 41 28.99 |                     |
|          | 6390.00    | 2.82        | 233.01          | 6389.99     | -11.99       | -11.85     | 4.41       | 3.16            | 441061.07         | 739877.01        | N 32 12 39.53 W 103 41 29.00 |                     |
|          | 6484.00    | 6.24        | 241.01          | 6578.57     | -15.69       | -15.76     | -1.97      | 3.65            | 441077.56         | 739870.63        | N 32 12 39.49 W 103 41 29.08 |                     |

| 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>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' '') | Longitude<br>(E/W ° ' '') |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|-------------------|--------------------|-------------------|--------------------------|---------------------------|
|          | 6674.00    | 9.72        | 242.07           | 6672.64     | -21.56       | -22.02     | -13.58     | 3.67              | 441071.30          | 739859.02         | N 32 12 39.43 W          | 103 41 29.21              |
|          | 6758.00    | 13.31       | 242.22           | 6764.73     | -29.78       | -30.78     | -30.17     | 3.82              | 441062.54          | 739842.43         | N 32 12 39.34 W          | 103 41 29.41              |
|          | 6882.00    | 14.88       | 239.74           | 6885.94     | -40.17       | -41.83     | -50.03     | 1.59              | 441051.49          | 739822.57         | N 32 12 39.23 W          | 103 41 29.64              |
|          | 6957.00    | 13.60       | 232.19           | 6948.07     | -52.45       | -54.74     | -69.25     | 2.25              | 441038.58          | 739803.35         | N 32 12 39.11 W          | 103 41 29.86              |
|          | 7051.00    | 11.59       | 223.02           | 7039.81     | -65.63       | -68.42     | -84.43     | 3.01              | 441024.90          | 739788.17         | N 32 12 38.97 W          | 103 41 30.04              |
|          | 7146.00    | 8.87        | 209.42           | 7133.30     | -78.65       | -81.79     | -94.54     | 3.81              | 441011.54          | 739778.06         | N 32 12 38.84 W          | 103 41 30.16              |
|          | 7240.00    | 7.07        | 193.84           | 7226.40     | -90.41       | -93.72     | -99.49     | 2.97              | 440999.61          | 739773.12         | N 32 12 38.72 W          | 103 41 30.22              |
|          | 7334.00    | 4.96        | 170.93           | 7319.89     | -100.02      | -103.35    | -100.23    | 3.36              | 440989.98          | 739772.38         | N 32 12 38.63 W          | 103 41 30.23              |
|          | 7429.00    | 3.29        | 134.83           | 7414.66     | -106.08      | -109.33    | -97.65     | 3.17              | 440984.00          | 739774.96         | N 32 12 38.57 W          | 103 41 30.20              |
|          | 7523.00    | 1.52        | 71.33            | 7508.58     | -107.68      | -110.83    | -94.55     | 3.13              | 440982.49          | 739778.05         | N 32 12 38.55 W          | 103 41 30.16              |
|          | 7618.00    | 0.04        | 2.63             | 7603.57     | -107.28      | -110.39    | -93.36     | 1.59              | 440982.93          | 739779.25         | N 32 12 38.56 W          | 103 41 30.15              |
|          | 7712.00    | 0.09        | 46.24            | 7697.57     | -107.20      | -110.31    | -93.30     | 0.07              | 440983.01          | 739779.30         | N 32 12 38.56 W          | 103 41 30.15              |
|          | 7806.00    | 0.11        | 57.51            | 7791.57     | -107.11      | -110.21    | -93.17     | 0.03              | 440983.11          | 739779.43         | N 32 12 38.56 W          | 103 41 30.15              |
|          | 7901.00    | 0.43        | 256.36           | 7886.57     | -107.13      | -110.25    | -93.44     | 0.56              | 440983.08          | 739779.16         | N 32 12 38.56 W          | 103 41 30.15              |
|          | 7995.00    | 2.51        | 235.95           | 7980.54     | -108.30      | -111.48    | -95.49     | 2.25              | 440981.84          | 739777.11         | N 32 12 38.55 W          | 103 41 30.17              |
|          | 8089.00    | 4.59        | 228.11           | 8074.35     | -111.81      | -115.15    | -100.00    | 2.27              | 440978.18          | 739772.61         | N 32 12 38.51 W          | 103 41 30.23              |
|          | 8184.00    | 6.12        | 226.24           | 8168.94     | -117.64      | -121.19    | -106.46    | 1.62              | 440972.14          | 739766.12         | N 32 12 38.45 W          | 103 41 30.30              |
|          | 8279.00    | 5.91        | 226.52           | 8263.41     | -124.27      | -128.06    | -113.69    | 0.22              | 440965.27          | 739758.91         | N 32 12 38.39 W          | 103 41 30.39              |
|          | 8373.00    | 5.95        | 226.62           | 8356.91     | -130.71      | -134.73    | -120.74    | 0.04              | 440958.59          | 739751.86         | N 32 12 38.32 W          | 103 41 30.47              |
|          | 8468.00    | 6.06        | 226.32           | 8451.39     | -137.32      | -141.58    | -127.95    | 0.12              | 440951.75          | 739744.86         | N 32 12 38.25 W          | 103 41 30.55              |
|          | 8562.00    | 6.07        | 226.28           | 8544.86     | -143.94      | -148.44    | -135.13    | 0.01              | 440944.89          | 739737.48         | N 32 12 38.18 W          | 103 41 30.64              |
|          | 8657.00    | 5.63        | 223.42           | 8639.37     | -150.57      | -155.29    | -141.96    | 0.56              | 440938.03          | 739730.64         | N 32 12 38.12 W          | 103 41 30.72              |
|          | 8752.00    | 4.90        | 225.39           | 8733.97     | -156.60      | -161.53    | -148.05    | 0.79              | 440931.80          | 739724.55         | N 32 12 38.06 W          | 103 41 30.79              |
|          | 8846.00    | 6.19        | 227.53           | 8827.52     | -162.62      | -167.77    | -154.65    | 1.39              | 440925.56          | 739717.96         | N 32 12 37.99 W          | 103 41 30.87              |
|          | 8941.00    | 6.07        | 231.29           | 8921.98     | -168.97      | -174.37    | -162.35    | 0.44              | 440918.96          | 739710.26         | N 32 12 37.93 W          | 103 41 30.96              |
|          | 9035.00    | 5.91        | 223.05           | 9015.47     | -175.37      | -181.01    | -169.53    | 0.93              | 440912.31          | 739703.08         | N 32 12 37.86 W          | 103 41 31.04              |
|          | 9130.00    | 5.75        | 232.67           | 9109.98     | -181.60      | -187.47    | -176.65    | 1.04              | 440905.85          | 739695.96         | N 32 12 37.80 W          | 103 41 31.12              |
|          | 9225.00    | 6.04        | 234.11           | 9204.48     | -187.15      | -193.29    | -184.49    | 0.34              | 440900.04          | 739688.12         | N 32 12 37.74 W          | 103 41 31.22              |
|          | 9319.00    | 6.01        | 226.61           | 9297.96     | -193.18      | -199.57    | -192.07    | 0.83              | 440893.76          | 739680.54         | N 32 12 37.68 W          | 103 41 31.30              |
|          | 9414.00    | 5.80        | 229.76           | 9392.46     | -199.45      | -206.08    | -199.35    | 0.40              | 440887.25          | 739673.26         | N 32 12 37.62 W          | 103 41 31.39              |
|          | 9508.00    | 6.07        | 262.69           | 9485.90     | -202.94      | -209.88    | -208.64    | 4.02              | 440883.45          | 739663.97         | N 32 12 37.58 W          | 103 41 31.50              |
|          | 9603.00    | 8.01        | 269.71           | 9580.09     | -203.31      | -210.65    | -220.97    | 1.48              | 440882.68          | 739651.64         | N 32 12 37.57 W          | 103 41 31.64              |
|          | 9697.00    | 6.53        | 287.67           | 9673.35     | -201.31      | -209.03    | -232.81    | 2.90              | 440884.30          | 739640.00         | N 32 12 37.59 W          | 103 41 31.78              |
|          | 9792.00    | 4.79        | 311.65           | 9767.89     | -196.74      | -204.73    | -240.71    | 3.03              | 440888.60          | 739631.90         | N 32 12 37.63 W          | 103 41 31.87              |
|          | 9887.00    | 2.36        | 1.14             | 9862.72     | -192.06      | -200.13    | -243.84    | 3.91              | 440893.20          | 739628.97         | N 32 12 37.68 W          | 103 41 31.90              |
|          | 9981.00    | 12.51       | 2.09             | 9955.81     | -179.94      | -187.99    | -243.23    | 10.80             | 440905.34          | 739629.38         | N 32 12 37.80 W          | 103 41 31.80              |
|          | 10076.00   | 21.39       | 357.02           | 10046.59    | -152.30      | -160.35    | -243.75    | 9.47              | 440932.97          | 739628.86         | N 32 12 38.07 W          | 103 41 31.90              |
|          | 10171.00   | 31.32       | 356.96           | 10131.61    | -110.18      | -118.29    | -245.97    | 10.45             | 440975.04          | 739626.64         | N 32 12 38.49 W          | 103 41 31.93              |
|          | 10265.00   | 35.76       | 352.77           | 10209.95    | -58.38       | -66.61     | -250.73    | 5.32              | 441026.71          | 739621.89         | N 32 12 39.00 W          | 103 41 31.98              |
|          | 10360.00   | 45.47       | 357.43           | 10282.00    | 3.28         | -5.09      | -255.75    | 10.70             | 441068.23          | 739618.86         | N 32 12 39.61 W          | 103 41 32.03              |
|          | 10454.00   | 54.92       | 359.66           | 10342.11    | 75.40        | 67.02      | -257.49    | 10.22             | 441160.33          | 739615.13         | N 32 12 40.32 W          | 103 41 32.05              |
|          | 10549.00   | 64.31       | 359.76           | 10390.11    | 157.23       | 148.88     | -257.90    | 9.88              | 441242.19          | 739614.72         | N 32 12 41.13 W          | 103 41 32.05              |
|          | 10643.00   | 73.09       | 359.28           | 10424.22    | 244.70       | 236.37     | -258.84    | 9.35              | 441329.67          | 739613.97         | N 32 12 42.00 W          | 103 41 32.05              |
|          | 10738.00   | 78.37       | 0.80             | 10447.63    | 336.68       | 328.40     | -258.56    | 5.77              | 441421.70          | 739614.05         | N 32 12 42.91 W          | 103 41 32.04              |
|          | 10833.00   | 81.96       | 3.55             | 10456.00    | 384.82       | 376.63     | -256.72    | 9.18              | 441469.93          | 739615.89         | N 32 12 43.39 W          | 103 41 32.02              |
|          | 10928.00   | 86.86       | 3.71             | 10465.25    | 478.91       | 470.98     | -250.74    | 5.18              | 441564.26          | 739621.87         | N 32 12 44.32 W          | 103 41 31.94              |
|          | 11023.00   | 87.01       | 3.60             | 10468.09    | 531.59       | 523.78     | -247.36    | 0.35              | 441617.07          | 739625.25         | N 32 12 44.84 W          | 103 41 31.90              |
|          | 11118.00   | 87.42       | 1.11             | 10472.50    | 623.22       | 615.59     | -243.59    | 2.75              | 441708.88          | 739629.02         | N 32 12 45.75 W          | 103 41 31.85              |
|          | 11213.00   | 88.97       | 355.80           | 10482.31    | 896.93       | 889.05     | -255.57    | 1.22              | 441992.33          | 739617.04         | N 32 12 48.46 W          | 103 41 31.97              |
|          | 11308.00   | 88.56       | 355.87           | 10484.27    | 987.84       | 979.79     | -262.18    | 0.48              | 442073.06          | 739610.43         | N 32 12 49.36 W          | 103 41 32.04              |
|          | 11404.00   | 88.56       | 357.66           | 10486.58    | 1079.78      | 1071.61    | -267.37    | 1.95              | 442164.88          | 739605.24         | N 32 12 50.26 W          | 103 41 32.09              |
|          | 11500.00   | 88.83       | 357.92           | 10488.79    | 1169.75      | 1161.52    | -270.84    | 0.30              | 442254.78          | 739601.77         | N 32 12 51.15 W          | 103 41 32.13              |
|          | 11596.00   | 88.76       | 358.63           | 10490.86    | 1260.73      | 1252.45    | -273.58    | 0.79              | 442345.71          | 739599.04         | N 32 12 52.05 W          | 103 41 32.15              |
|          | 11692.00   | 89.04       | 358.69           | 10492.61    | 1351.71      | 1343.41    | -275.70    | 0.31              | 442436.68          | 739596.91         | N 32 12 52.95 W          | 103 41 32.17              |
|          | 11788.00   | 88.56       | 357.29           | 10494.58    | 1445.68      | 1437.33    | -279.00    | 1.57              | 442530.58          | 739593.61         | N 32 12 53.88 W          | 103 41 32.20              |
|          | 11884.00   | 88.25       | 357.21           | 10497.22    | 1540.63      | 1532.18    | -283.56    | 0.34              | 442625.43          | 739589.06         | N 32 12 54.82 W          | 103 41 32.25              |
|          | 11980.00   | 88.59       | 357.65           | 10499.81    | 1634.59      | 1626.05    | -287.77    | 0.59              | 442719.29          | 739584.84         | N 32 12 55.75 W          | 103 41 32.29              |
|          | 12076.00   | 88.45       | 357.53           | 10504.69    | 1823.52      | 1814.82    | -295.72    | 0.10              | 442908.05          | 739576.90         | N 32 12 57.62 W          | 103 41 32.37              |
|          | 12172.00   | 88.45       | 0.80             | 10507.07    | 1911.46      | 1902.77    | -297.00    | 3.71              | 442996.00          | 739575.62         | N 32 12 58.49 W          | 103 41 32.38              |
|          | 12268.00   | 88.42       | 1.15             | 10509.64    | 2005.31      | 1996.72    | -295.40    | 0.37              | 443089.94          | 739577.22         | N 32 12 59.42 W          | 103 41 32.35              |
|          | 12364.00   | 88.73       | 1.44             | 10512.00    | 2100.14      | 2091.66    | -293.25    | 0.45              | 443184.88          | 739579.36         | N 32 13 0.36 W           | 103 41 32.32              |
|          | 12460.00   | 88.49       | 0.65             | 10514.28    | 2193.98      | 2185.62    | -291.54    | 0.88              | 443278.84          | 739581.08         | N 32 13 1.29 W           | 103 41 32.30              |
|          | 12556.00   | 88.52       | 0.25             | 10518.76    | 2288.87      | 2280.58    | -290.79    | 0.42              | 443373.80          | 739581.82         | N 32 13 2.23 W           | 103 41 32.28              |
|          | 12652.00   | 88.45       | 359.79           | 10519.25    | 2382.79      | 2374.65    | -290.76    | 0.49              | 443467.76          | 739581.85         | N 32 13 3.16 W           | 103 41 32.27              |
|          | 12748.00   | 88.04       | 359.73           | 10521.33    | 2477.73      | 2469.53    | -291.16    | 0.62              | 443562.73          | 739581.46         | N 32 13 4.10 W           | 103 41 32.27              |
|          | 12844.00   | 88.45       | 359.89           | 10523.39    | 2571.66      | 2563.50    | -291.47    | 0.65              | 443658.70          | 739581.15         | N 32 13 5.03 W           | 103 41 32.27              |
|          | 12940.00   | 88.42       | 359.99           | 10525.96    | 2665.58      | 2657.47    | -291.57    | 0.11              | 443750.66          | 739581.05         | N 32 13 5.98 W           | 103 41 32.28              |
|          | 13036.00   | 88.45       | 0.33             | 10528.55    | 2760.49      | 2752.43    | -291.30    | 0.36              | 443845.62          | 739581.31         | N 32 13 6.90 W           | 103 41 32.25              |
|          | 13132.00   | 88.45       | 359.83           | 10533.66    | 2849.31      | 2841.36    | -291.04    | 0.26              | 444034.54          | 739581.58         | N 32 13 7.77 W           | 103 41 32.24              |
|          | 13228.00   | 88.45       | 359.88           | 10536.23    | 3044.23      | 3036.33    | -291.28    | 0.05              | 444129.50          | 739581.34         | N 32 13 8.71 W           | 103 41 32.23              |
|          | 13324.00   | 88.45       | 359.72           | 10541.34    | 3233.08      | 3225.26    | -291.94    | 0.08              | 444318.42          | 739580.68         | N 32 13 11.58 W          | 103 41 32.23              |
|          | 13420.00   | 88.55       | 359.41           | 10543.80    | 3327.02      | 3319.22    | -292.65    | 0.35              | 444412.38          | 739579.96         | N 32 13 12.51 W          | 103 41 32.23              |
|          | 13516.00   | 88.83       | 359.88           | 10545.98    | 3421.96      | 3414.20    | -293.24    | 0.58              | 444507.35          | 739579.37         | N 32 13 13.45 W          | 103 41 32.23              |
|          | 13612.00   | 89.90       | 359.79           | 10547.03    | 3516.91      | 3509.19    | -293.51    | 1.13              | 444602.34          | 739579.10         | N 32 13 14.39 W          | 103 41 32.23              |
|          | 13708.00   | 89.97       | 359.67           | 10547.14    | 3610.87      | 3603.19    | -293.96    | 0.15              | 444696.33          | 739578.66         | N 32 13 15.32 W          | 103 41 32.23              |
|          | 13804.00   | 89.86       | 359.64           | 10547.42    | 3799.80      | 3792.18    | -295.09    | 0.06              | 444885.32          | 739577.52         | N 32 13 17.19 W          | 103 41 32.23              |
|          | 13900.00   | 90.38       | 0.09             | 10547.22    | 3894.76      | 3887.18    | -295.32    | 0.72              |                    |                   |                          |                           |

| 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>(RUS) | Easting<br>(RUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|-------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|-------------------|------------------|-------------------------|--------------------------|
|             | 16852.00   | 91.55       | 1.88             | 10486.27    | 6443.68      | 6436.66    | -320.05    | 0.64             | 447529.67         | 739552.57        | N 32 13 43.35           | W 103 41 32.33           |
|             | 16947.00   | 91.61       | 2.30             | 10483.74    | 6538.42      | 6531.56    | -316.58    | 0.44             | 447624.57         | 739558.03        | N 32 13 44.29           | W 103 41 32.29           |
|             | 17042.00   | 91.58       | 2.60             | 10481.18    | 6633.11      | 6626.44    | -312.52    | 0.32             | 447719.44         | 739560.09        | N 32 13 45.23           | W 103 41 32.23           |
|             | 17136.00   | 91.58       | 2.61             | 10478.58    | 6726.79      | 6720.30    | -308.25    | 0.01             | 447813.30         | 739564.36        | N 32 13 46.16           | W 103 41 32.18           |
|             | 17231.00   | 91.89       | 2.69             | 10475.71    | 6821.45      | 6815.16    | -303.86    | 0.34             | 447908.15         | 739568.75        | N 32 13 47.10           | W 103 41 32.12           |
|             | 17325.00   | 92.10       | 0.26             | 10472.43    | 6915.23      | 6909.06    | -301.45    | 2.59             | 448002.05         | 739571.17        | N 32 13 48.03           | W 103 41 32.06           |
|             | 17420.00   | 91.38       | 358.50           | 10469.55    | 7010.16      | 7004.01    | -302.47    | 2.00             | 448097.00         | 739570.14        | N 32 13 48.97           | W 103 41 32.09           |
|             | 17514.00   | 90.58       | 358.60           | 10467.94    | 7104.14      | 7097.97    | -304.85    | 0.86             | 448190.95         | 739567.76        | N 32 13 49.90           | W 103 41 32.11           |
|             | 17608.00   | 90.62       | 358.41           | 10466.96    | 7198.13      | 7191.93    | -307.30    | 0.21             | 448264.90         | 739565.31        | N 32 13 50.83           | W 103 41 32.13           |
|             | 17797.00   | 90.45       | 358.25           | 10465.19    | 7387.12      | 7380.84    | -312.81    | 0.12             | 448473.81         | 739559.80        | N 32 13 52.70           | W 103 41 32.18           |
|             | 17891.00   | 90.38       | 358.64           | 10464.51    | 7481.12      | 7474.80    | -315.36    | 0.42             | 448567.77         | 739557.25        | N 32 13 53.63           | W 103 41 32.21           |
|             | 17986.00   | 90.38       | 358.27           | 10463.88    | 7576.11      | 7569.77    | -317.92    | 0.39             | 448662.72         | 739554.69        | N 32 13 54.57           | W 103 41 32.23           |
|             | 18081.00   | 90.41       | 358.52           | 10463.23    | 7671.11      | 7664.73    | -320.58    | 0.27             | 448757.68         | 739552.03        | N 32 13 55.51           | W 103 41 32.25           |
|             | 18175.00   | 90.62       | 358.38           | 10462.46    | 7765.11      | 7758.69    | -323.13    | 0.19             | 448851.64         | 739549.49        | N 32 13 56.44           | W 103 41 32.28           |
|             | 18270.00   | 90.55       | 358.13           | 10461.58    | 7860.10      | 7853.64    | -326.02    | 0.27             | 448946.59         | 739546.60        | N 32 13 57.38           | W 103 41 32.30           |
|             | 18364.00   | 90.52       | 358.47           | 10460.70    | 7954.10      | 7947.59    | -328.81    | 0.36             | 449040.54         | 739543.81        | N 32 13 58.31           | W 103 41 32.33           |
|             | 18458.00   | 90.48       | 358.54           | 10459.88    | 8048.09      | 8041.56    | -331.28    | 0.09             | 449134.50         | 739541.36        | N 32 13 59.24           | W 103 41 32.35           |
|             | 18553.00   | 90.48       | 358.24           | 10459.08    | 8143.09      | 8136.52    | -333.93    | 0.32             | 449229.45         | 739538.69        | N 32 14 0 18            | W 103 41 32.38           |
|             | 18648.00   | 90.58       | 358.33           | 10458.20    | 8238.08      | 8231.47    | -336.77    | 0.14             | 449324.40         | 739535.84        | N 32 14 1 12            | W 103 41 32.40           |
|             | 18742.00   | 90.58       | 358.31           | 10457.25    | 8332.08      | 8325.43    | -339.53    | 0.02             | 449418.35         | 739533.09        | N 32 14 2 05            | W 103 41 32.43           |
|             | 18837.00   | 90.34       | 358.44           | 10456.49    | 8427.07      | 8420.38    | -342.22    | 0.29             | 449513.30         | 739530.39        | N 32 14 2 99            | W 103 41 32.45           |
|             | 18931.00   | 90.34       | 0.32             | 10455.93    | 8521.04      | 8514.37    | -343.24    | 2.00             | 449607.29         | 739529.38        | N 32 14 3 92            | W 103 41 32.46           |
|             | 19026.00   | 90.34       | 0.26             | 10455.37    | 8615.97      | 8609.37    | -342.76    | 0.06             | 449702.28         | 739529.86        | N 32 14 4 86            | W 103 41 32.45           |
|             | 19121.00   | 90.58       | 0.02             | 10453.86    | 8803.85      | 8797.36    | -342.30    | 0.18             | 449800.26         | 739530.32        | N 32 14 5 72            | W 103 41 32.43           |
|             | 19309.00   | 90.34       | 0.39             | 10453.10    | 8898.79      | 8892.36    | -341.96    | 0.46             | 449885.26         | 739530.66        | N 32 14 6 66            | W 103 41 32.42           |
|             | 19404.00   | 90.58       | 0.49             | 10452.33    | 8993.71      | 8987.35    | -341.23    | 0.27             | 450080.24         | 739531.39        | N 32 14 7 60            | W 103 41 32.40           |
|             | 19498.00   | 90.34       | 0.19             | 10451.58    | 9087.63      | 9081.35    | -340.67    | 0.41             | 450174.24         | 739531.94        | N 32 14 8 53            | W 103 41 32.39           |
|             | 19593.00   | 90.55       | 0.26             | 10450.84    | 9182.57      | 9176.35    | -340.30    | 0.23             | 450269.23         | 739532.32        | N 32 14 10 47           | W 103 41 32.38           |
|             | 19687.00   | 90.52       | 0.31             | 10449.96    | 9276.50      | 9270.34    | -339.83    | 0.06             | 450363.22         | 739532.79        | N 32 14 11 40           | W 103 41 32.37           |
|             | 19782.00   | 90.24       | 0.28             | 10449.33    | 9371.42      | 9365.34    | -339.34    | 0.30             | 450458.21         | 739533.27        | N 32 14 12 34           | W 103 41 32.35           |
|             | 19876.00   | 90.55       | 0.73             | 10448.69    | 9465.34      | 9459.33    | -338.51    | 0.58             | 450552.20         | 739534.10        | N 32 14 13 27           | W 103 41 32.34           |
|             | 19971.00   | 90.10       | 0.75             | 10448.15    | 9560.24      | 9554.32    | -337.29    | 0.47             | 450647.18         | 739535.33        | N 32 14 14 21           | W 103 41 32.32           |
|             | 20065.00   | 89.69       | 0.37             | 10448.32    | 9654.16      | 9648.32    | -336.37    | 0.59             | 450741.17         | 739536.25        | N 32 14 15 14           | W 103 41 32.30           |
|             | 20160.00   | 89.73       | 0.61             | 10448.80    | 9749.07      | 9743.31    | -335.56    | 0.26             | 450836.17         | 739537.06        | N 32 14 16 08           | W 103 41 32.28           |
|             | 20254.00   | 89.93       | 0.51             | 10449.08    | 9842.99      | 9837.31    | -334.64    | 0.24             | 450930.16         | 739537.98        | N 32 14 17 01           | W 103 41 32.27           |
|             | 20349.00   | 89.93       | 0.22             | 10449.19    | 9937.92      | 9932.30    | -334.03    | 0.31             | 451025.15         | 739538.58        | N 32 14 17 55           | W 103 41 32.25           |
|             | 20443.00   | 90.21       | 360.00           | 10449.08    | 10031.86     | 10026.30   | -333.85    | 0.38             | 451119.14         | 739538.77        | N 32 14 18 88           | W 103 41 32.24           |
| Final MWD   | 20465.00   | 90.21       | 0.15             | 10449.00    | 10053.85     | 10048.30   | -333.82    | 0.68             | 451141.14         | 739538.79        | N 32 14 19 09           | W 103 41 32.24           |
| Survey      |            |             |                  |             |              |            |            |                  |                   |                  |                         |                          |
| Proj to Bit | 20505.00   | 90.21       | 0.15             | 10448.85    | 10093.82     | 10088.30   | -333.72    | 0.00             | 451181.14         | 739538.90        | N 32 14 19 49           | W 103 41 32.24           |

Survey Type: Dof Survey

Survey Error Model: ISWISA 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 Mesa Verde BS Unit 5 Gyro+MWD 0-20.505'    |
|             | 1    | 26.500          | 26.500        | Act Stns         | 30.000    | 30.000                  | NAL_NSG+MSHOT-Depth Only | Original Borehole / Oxy Mesa Verde BS Unit 5 Gyro+MWD 0-20.505'    |
|             | 1    | 26.500          | 10738.000     | Act Stns         | 30.000    | 30.000                  | NAL_NSG+MSHOT            | Original Borehole / Oxy Mesa Verde BS Unit 5 Gyro+MWD 0-10738.000' |
|             | 1    | 10738.000       | 20505.000     | Act Stns         | 30.000    | 30.000                  | NAL_MWD_PLUS_0_5_DEG     | Original Borehole / Oxy Mesa Verde BS Unit 5 Gyro+MWD 0-20505.000' |