

30-015-43773

NM OIL CONSERVATION  
ARTESIA DISTRICT

Schlumberger

H&amp;P 381

Cimarex

Final PvA

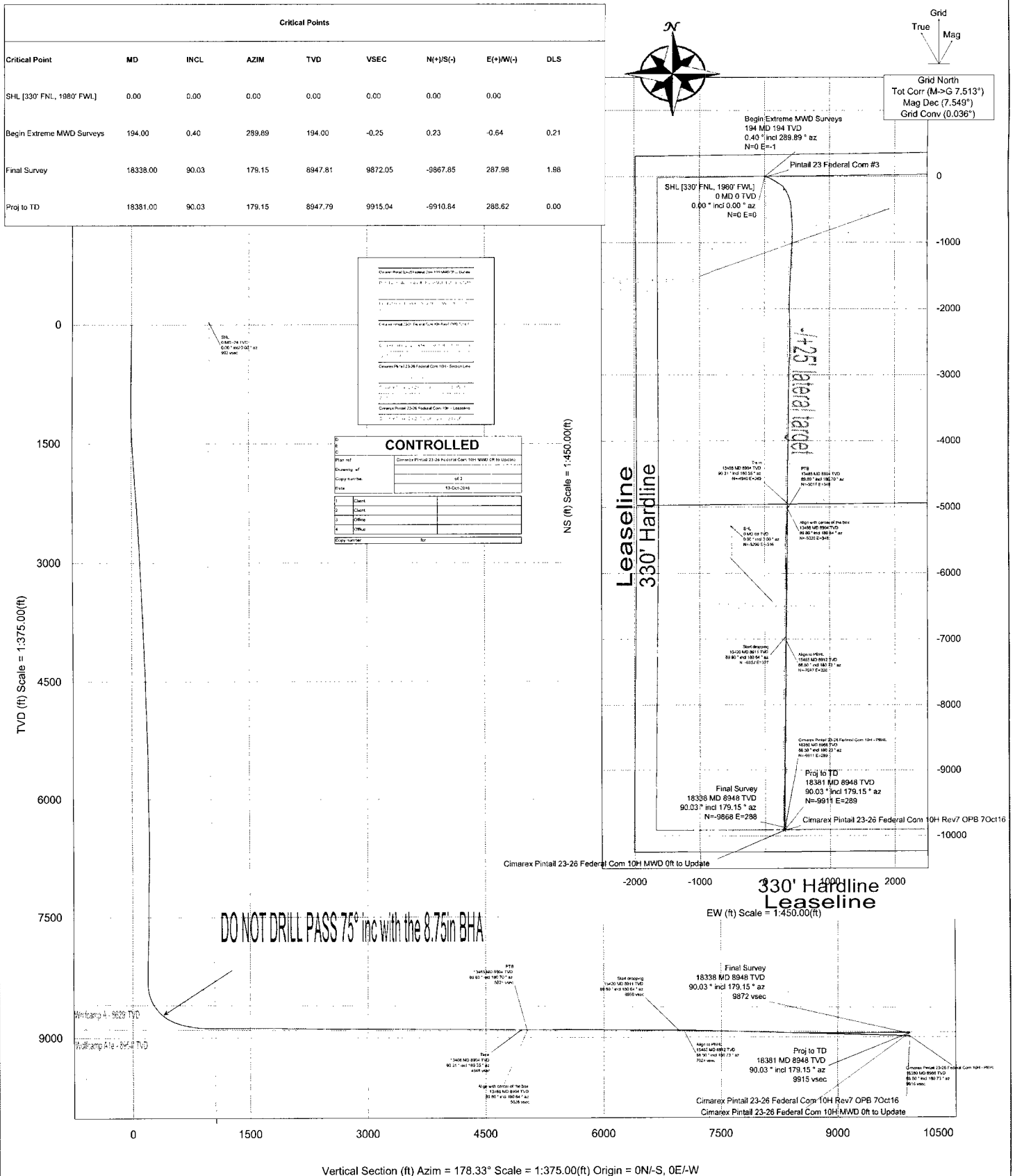
APR 24 2017

CIMAREX

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|                   |                               |                         |            |
|-------------------|-------------------------------|-------------------------|------------|
| Borehole:         | Well:                         | Field:                  | Structure: |
| Original Borehole | Pintail 23-26 Federal Com 10H | NM Eddy County (NAD 83) | H&P 381    |

|                                                                      |                                                                  |                                                               |
|----------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------|
| Gravity & Magnetic Parameters                                        | Surface Location                                                 | Miscellaneous                                                 |
| Model: HDGM 2016 Dip: 59.862° Date: 23-Sep-2016                      | NAD83 New Mexico State Plane, Eastern Zone, US Feet              | Cimarex Pintail                                               |
| MagDec: 7.549° FS: 48081.822nT Gravity FS: 998.435mg (8.80665 Based) | Lat: N 32 7 18.10 Northing: 408015.18NUS Grid Conv: 0.036°       | 23-26 Federal Com TVD Ref: RKB(3223.7ft above MSL)            |
|                                                                      | Lon: W 104 15 56.21 Easting: 562301.64NUS Scale Fact: 0.99990959 | 10H                                                           |
|                                                                      |                                                                  | Plan: Cimarex Pintail 23-26 Federal Com 10H MWD Off to Update |



APR 24 2017

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# Cimarex Pintail 23-26 Federal Com 10H MWD Off to 18381ft Survey Report



(Def Survey)

**Report Date:** October 13, 2016 - 01:56 PM  
**Client:** Cimarex  
**Field:** NM Eddy County (NAD 83)  
**Structure / Slot:** Cimarex Pintail 23-26 Federal Com 10H / Cimarex Pintail 23-26 Federal Com 10H  
**Well:** Cimarex Pintail 23-26 Federal Com 10H  
**Borehole:** Original Borehole  
**UWI / API#:** Unknown / 30-015-43773  
**Survey Name:** Cimarex Pintail 23-26 Federal Com 10H MWD Off to 18381ft  
**Survey Date:** September 23, 2016  
**Tort / AHD / DDI / ERD Ratio:** 229.041 ° / 10187.003 ft / 6.680 / 1.138  
**Coordinate Reference System:** NAD83 New Mexico State Plane, Eastern Zone, US Feet  
**Location Lat / Long:** N 32° 7' 18.10082", W 104° 15' 56.21358"  
**Location Grid N/E Y/X:** N 408015.180 ftUS, E 562301.640 ftUS  
**CRS Grid Convergence Angle:** 0.0360 °  
**Grid Scale Factor:** 0.99990959  
**Version / Patch:** 2.10.254.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 178.330 ° (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** RKB  
**TVD Reference Elevation:** 3323.700 ft above MSL  
**Seabed / Ground Elevation:** 3298.700 ft above MSL  
**Magnetic Declination:** 7.549 °  
**Total Gravity Field Strength:** 998.4349mgn (9.80665 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 48081.822 nT  
**Magnetic Dip Angle:** 59.862 °  
**Declination Date:** September 23, 2016  
**Magnetic Declination Model:** HDGM 2016  
**North Reference:** Grid North  
**Grid Convergence Used:** 0.0360 °  
**Total Corr Mag North->Grid North:** 7.5133 °  
**Local Coord Referenced To:** Structure Reference Point

| Comments                     | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|------------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
| SHL [330' FNL,<br>1980' FWL] | 0.00       | 0.00        | 0.00             | 0.00        | 0.00         | 0.00       | 0.00       | N/A              | 408015.18          | 562301.64         | N 32 7 18.10            | W 104 15 56.21           |
| Begin Extreme<br>MWD Surveys | 194.00     | 0.40        | 289.89           | 194.00      | -0.25        | 0.23       | -0.64      | 0.21             | 408015.41          | 562301.00         | N 32 7 18.10            | W 104 15 56.22           |
|                              | 260.00     | 0.40        | 288.88           | 260.00      | -0.41        | 0.38       | -1.07      | 0.01             | 408015.56          | 562300.57         | N 32 7 18.10            | W 104 15 56.23           |
|                              | 322.00     | 0.40        | 287.50           | 322.00      | -0.56        | 0.52       | -1.48      | 0.02             | 408015.70          | 562300.16         | N 32 7 18.11            | W 104 15 56.23           |
|                              | 411.00     | 0.60        | 302.30           | 410.99      | -0.92        | 0.86       | -2.17      | 0.27             | 408016.04          | 562299.47         | N 32 7 18.11            | W 104 15 56.24           |
|                              | 580.00     | 0.40        | 313.25           | 579.99      | -1.83        | 1.74       | -3.35      | 0.13             | 408016.92          | 562298.29         | N 32 7 18.12            | W 104 15 56.25           |
|                              | 671.00     | 0.62        | 320.70           | 670.98      | -2.45        | 2.34       | -3.89      | 0.25             | 408017.52          | 562297.75         | N 32 7 18.12            | W 104 15 56.26           |
|                              | 762.00     | 0.62        | 325.90           | 761.98      | -3.25        | 3.13       | -4.48      | 0.06             | 408018.30          | 562297.16         | N 32 7 18.13            | W 104 15 56.27           |
|                              | 853.00     | 0.62        | 304.04           | 852.97      | -3.96        | 3.81       | -5.17      | 0.26             | 408018.99          | 562296.47         | N 32 7 18.14            | W 104 15 56.27           |
|                              | 940.00     | 0.62        | 306.24           | 939.97      | -4.52        | 4.35       | -5.94      | 0.03             | 408019.53          | 562295.71         | N 32 7 18.14            | W 104 15 56.28           |
|                              | 1035.00    | 1.10        | 127.67           | 1034.96     | -4.26        | 4.10       | -5.63      | 1.81             | 408019.28          | 562296.01         | N 32 7 18.14            | W 104 15 56.28           |
|                              | 1129.00    | 4.24        | 107.68           | 1128.85     | -2.54        | 2.49       | -1.60      | 3.43             | 408017.67          | 562300.04         | N 32 7 18.13            | W 104 15 56.23           |
|                              | 1224.00    | 6.72        | 107.98           | 1223.41     | 0.50         | -0.29      | 7.03       | 2.61             | 408014.89          | 562300.67         | N 32 7 18.10            | W 104 15 56.13           |
|                              | 1319.00    | 7.16        | 107.50           | 1317.76     | 4.19         | -3.68      | 17.62      | 0.06             | 408011.50          | 562319.26         | N 32 7 18.06            | W 104 15 56.01           |
|                              | 1413.00    | 7.16        | 105.56           | 1411.07     | 7.73         | -6.91      | 28.51      | 0.53             | 408008.28          | 562330.15         | N 32 7 18.03            | W 104 15 55.88           |
|                              | 1508.00    | 8.26        | 110.98           | 1505.21     | 12.12        | -10.94     | 40.58      | 1.39             | 408004.24          | 562342.22         | N 32 7 17.99            | W 104 15 55.74           |
|                              | 1603.00    | 8.75        | 110.89           | 1599.16     | 17.52        | -15.96     | 53.71      | 0.52             | 407999.22          | 562355.34         | N 32 7 17.94            | W 104 15 55.59           |
|                              | 1698.00    | 8.26        | 115.92           | 1693.12     | 23.45        | -21.52     | 66.60      | 0.94             | 407993.67          | 562368.23         | N 32 7 17.89            | W 104 15 55.44           |
|                              | 1785.00    | 7.56        | 118.21           | 1779.29     | 29.19        | -26.95     | 77.26      | 0.88             | 407988.23          | 562378.89         | N 32 7 17.83            | W 104 15 55.32           |
|                              | 1875.00    | 7.34        | 118.60           | 1868.53     | 35.04        | -32.50     | 87.53      | 0.25             | 407982.68          | 562389.16         | N 32 7 17.78            | W 104 15 55.20           |
|                              | 1970.00    | 7.34        | 117.72           | 1962.75     | 41.08        | -38.23     | 98.23      | 0.12             | 407976.95          | 562399.86         | N 32 7 17.72            | W 104 15 55.07           |
|                              | 2065.00    | 7.34        | 117.81           | 2056.97     | 47.04        | -43.89     | 108.66     | 0.01             | 407971.30          | 562410.59         | N 32 7 17.67            | W 104 15 54.95           |
|                              | 2159.00    | 7.42        | 119.93           | 2150.20     | 53.18        | -49.72     | 119.54     | 0.30             | 407965.47          | 562421.16         | N 32 7 17.61            | W 104 15 54.82           |
|                              | 2254.00    | 7.03        | 119.62           | 2244.44     | 59.41        | -55.65     | 129.91     | 0.41             | 407959.54          | 562431.53         | N 32 7 17.55            | W 104 15 54.70           |
|                              | 2349.00    | 7.03        | 120.81           | 2338.73     | 65.55        | -61.50     | 139.95     | 0.15             | 407953.68          | 562441.58         | N 32 7 17.49            | W 104 15 54.59           |

| Comments | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|          | 2443.00    | 6.94        | 121.73           | 2432.03     | 71.77        | -67.43     | 149.72     | 0.15             | 407947.75          | 562451.35         | N 32° 7' 17.43"         | W 104° 15' 54.47"        |
|          | 2538.00    | 6.94        | 121.91           | 2526.33     | 78.10        | -73.49     | 159.48     | 0.02             | 407941.70          | 562461.10         | N 32° 7' 17.37"         | W 104° 15' 54.36"        |
|          | 2632.00    | 6.45        | 121.51           | 2619.69     | 84.13        | -79.25     | 168.80     | 0.52             | 407935.94          | 562470.42         | N 32° 7' 17.32"         | W 104° 15' 54.25"        |
|          | 2727.00    | 6.14        | 122.22           | 2714.12     | 89.89        | -84.74     | 177.65     | 0.34             | 407930.44          | 562479.27         | N 32° 7' 17.26"         | W 104° 15' 54.15"        |
|          | 2822.00    | 5.74        | 120.41           | 2808.61     | 95.24        | -89.86     | 186.04     | 0.46             | 407925.33          | 562487.66         | N 32° 7' 17.21"         | W 104° 15' 54.05"        |
|          | 2916.00    | 5.52        | 120.72           | 2902.16     | 100.16       | -94.55     | 193.98     | 0.24             | 407920.64          | 562495.60         | N 32° 7' 17.16"         | W 104° 15' 53.96"        |
|          | 3011.00    | 5.44        | 120.41           | 2996.72     | 105.00       | -99.16     | 201.79     | 0.09             | 407916.03          | 562503.42         | N 32° 7' 17.12"         | W 104° 15' 53.87"        |
|          | 3106.00    | 5.52        | 119.93           | 3091.29     | 109.79       | -103.72    | 209.64     | 0.10             | 407911.47          | 562511.26         | N 32° 7' 17.03"         | W 104° 15' 53.78"        |
|          | 3200.00    | 5.44        | 119.31           | 3184.86     | 114.45       | -108.16    | 217.44     | 0.11             | 407907.03          | 562519.06         | N 32° 7' 17.03"         | W 104° 15' 53.69"        |
|          | 3295.00    | 5.13        | 121.91           | 3279.45     | 119.12       | -112.61    | 224.97     | 0.41             | 407902.58          | 562526.59         | N 32° 7' 16.99"         | W 104° 15' 53.60"        |
|          | 3389.00    | 4.82        | 123.94           | 3373.10     | 123.74       | -117.03    | 231.82     | 0.38             | 407898.16          | 562533.44         | N 32° 7' 16.94"         | W 104° 15' 53.52"        |
|          | 3484.00    | 4.82        | 123.45           | 3467.76     | 128.36       | -121.46    | 238.46     | 0.04             | 407893.73          | 562540.08         | N 32° 7' 16.90"         | W 104° 15' 53.44"        |
|          | 3579.00    | 4.82        | 125.26           | 3562.43     | 133.06       | -125.97    | 245.05     | 0.16             | 407889.23          | 562546.66         | N 32° 7' 16.85"         | W 104° 15' 53.37"        |
|          | 3673.00    | 4.51        | 124.73           | 3656.12     | 137.62       | -130.35    | 251.31     | 0.33             | 407884.84          | 562552.93         | N 32° 7' 16.81"         | W 104° 15' 53.29"        |
|          | 3768.00    | 4.11        | 127.02           | 3750.85     | 141.97       | -134.53    | 257.10     | 0.46             | 407880.66          | 562558.71         | N 32° 7' 16.77"         | W 104° 15' 53.23"        |
|          | 3862.00    | 4.02        | 126.93           | 3844.61     | 146.13       | -138.54    | 262.42     | 0.10             | 407876.86          | 562564.04         | N 32° 7' 16.73"         | W 104° 15' 53.16"        |
|          | 3957.00    | 3.80        | 129.75           | 3939.39     | 150.29       | -142.55    | 267.50     | 0.31             | 407872.84          | 562569.12         | N 32° 7' 16.69"         | W 104° 15' 53.10"        |
|          | 4052.00    | 3.62        | 130.63           | 4034.19     | 154.39       | -146.52    | 272.20     | 0.20             | 407868.68          | 562573.81         | N 32° 7' 16.65"         | W 104° 15' 53.05"        |
|          | 4146.00    | 3.31        | 133.94           | 4128.02     | 158.32       | -150.33    | 276.41     | 0.39             | 407864.86          | 562578.02         | N 32° 7' 16.61"         | W 104° 15' 53.00"        |
|          | 4241.00    | 3.54        | 134.56           | 4222.85     | 162.40       | -154.29    | 280.47     | 0.25             | 407860.90          | 562582.08         | N 32° 7' 16.57"         | W 104° 15' 52.95"        |
|          | 4335.00    | 3.40        | 136.45           | 4316.68     | 166.57       | -158.35    | 284.46     | 0.19             | 407856.85          | 562586.07         | N 32° 7' 16.53"         | W 104° 15' 52.91"        |
|          | 4430.00    | 2.03        | 155.62           | 4411.57     | 170.22       | -161.92    | 287.09     | 1.71             | 407853.27          | 562588.71         | N 32° 7' 16.50"         | W 104° 15' 52.88"        |
|          | 4524.00    | 1.81        | 160.12           | 4505.52     | 173.17       | -164.84    | 288.29     | 0.28             | 407850.36          | 562589.90         | N 32° 7' 16.47"         | W 104° 15' 52.86"        |
|          | 4619.00    | 1.81        | 162.05           | 4600.47     | 176.03       | -167.67    | 289.26     | 0.06             | 407847.52          | 562590.87         | N 32° 7' 16.44"         | W 104° 15' 52.85"        |
|          | 4714.00    | 1.81        | 168.58           | 4695.42     | 178.95       | -170.57    | 290.02     | 0.22             | 407844.62          | 562591.63         | N 32° 7' 16.41"         | W 104° 15' 52.84"        |
|          | 4809.00    | 1.81        | 172.67           | 4790.37     | 181.93       | -173.53    | 290.51     | 0.14             | 407841.67          | 562592.12         | N 32° 7' 16.38"         | W 104° 15' 52.84"        |
|          | 4903.00    | 1.72        | 174.48           | 4884.33     | 184.81       | -176.41    | 290.83     | 0.11             | 407838.79          | 562592.44         | N 32° 7' 16.35"         | W 104° 15' 52.83"        |
|          | 4998.00    | 1.90        | 173.07           | 4979.28     | 187.80       | -179.39    | 291.16     | 0.20             | 407835.81          | 562592.77         | N 32° 7' 16.32"         | W 104° 15' 52.83"        |
|          | 5093.00    | 1.72        | 178.98           | 5074.24     | 190.79       | -182.38    | 291.37     | 0.27             | 407832.82          | 562592.99         | N 32° 7' 16.29"         | W 104° 15' 52.83"        |
|          | 5187.00    | 1.72        | 173.38           | 5168.15     | 193.61       | -185.19    | 291.56     | 0.18             | 407830.01          | 562593.18         | N 32° 7' 16.27"         | W 104° 15' 52.82"        |
|          | 5282.00    | 1.81        | 178.09           | 5263.15     | 196.53       | -188.11    | 291.78     | 0.18             | 407827.09          | 562593.39         | N 32° 7' 16.24"         | W 104° 15' 52.82"        |
|          | 5377.00    | 1.90        | 181.40           | 5358.10     | 199.60       | -191.18    | 291.79     | 0.15             | 407824.02          | 562593.40         | N 32° 7' 16.21"         | W 104° 15' 52.82"        |
|          | 5471.00    | 2.12        | 184.62           | 5452.04     | 202.89       | -194.47    | 291.61     | 0.26             | 407820.73          | 562593.22         | N 32° 7' 16.17"         | W 104° 15' 52.82"        |
|          | 5566.00    | 0.62        | 204.54           | 5547.01     | 205.10       | -196.69    | 291.25     | 1.63             | 407818.51          | 562592.87         | N 32° 7' 16.15"         | W 104° 15' 52.83"        |
|          | 5661.00    | 0.62        | 207.44           | 5642.01     | 206.01       | -197.61    | 290.80     | 0.03             | 407817.58          | 562592.42         | N 32° 7' 16.14"         | W 104° 15' 52.83"        |
|          | 5755.00    | 0.62        | 209.38           | 5736.00     | 206.89       | -198.51    | 290.32     | 0.02             | 407816.69          | 562591.93         | N 32° 7' 16.13"         | W 104° 15' 52.84"        |
|          | 5850.00    | 0.49        | 227.94           | 5831.00     | 207.59       | -199.23    | 289.77     | 0.23             | 407815.97          | 562591.38         | N 32° 7' 16.13"         | W 104° 15' 52.85"        |
|          | 6039.00    | 0.80        | 128.96           | 6019.99     | 208.64       | -200.28    | 289.46     | 0.40             | 407815.52          | 562591.08         | N 32° 7' 16.12"         | W 104° 15' 52.84"        |
|          | 6134.00    | 1.33        | 130.46           | 6114.97     | 209.81       | -201.41    | 291.33     | 0.56             | 407813.79          | 562592.94         | N 32° 7' 16.11"         | W 104° 15' 52.83"        |
|          | 6229.00    | 1.41        | 164.83           | 6209.95     | 211.69       | -203.25    | 292.47     | 0.86             | 407811.95          | 562594.08         | N 32° 7' 16.09"         | W 104° 15' 52.81"        |
|          | 6324.00    | 1.81        | 169.46           | 6304.91     | 214.31       | -205.85    | 293.05     | 0.44             | 407809.34          | 562594.66         | N 32° 7' 16.06"         | W 104° 15' 52.81"        |
|          | 6418.00    | 1.50        | 185.89           | 6398.87     | 217.00       | -208.54    | 293.20     | 0.60             | 407806.66          | 562594.81         | N 32° 7' 16.04"         | W 104° 15' 52.81"        |
|          | 6513.00    | 0.22        | 182.90           | 6493.86     | 218.41       | -209.96    | 293.06     | 1.35             | 407805.24          | 562594.67         | N 32° 7' 16.02"         | W 104° 15' 52.81"        |
|          | 6608.00    | 0.31        | 228.20           | 6588.86     | 218.76       | -210.31    | 292.86     | 0.23             | 407804.89          | 562594.47         | N 32° 7' 16.02"         | W 104° 15' 52.81"        |
|          | 6703.00    | 0.62        | 311.75           | 6683.85     | 218.57       | -210.14    | 292.28     | 0.70             | 407805.06          | 562593.40         | N 32° 7' 16.02"         | W 104° 15' 52.82"        |
|          | 6798.00    | 0.71        | 351.76           | 6778.85     | 217.63       | -209.21    | 291.82     | 0.49             | 407805.98          | 562593.43         | N 32° 7' 16.03"         | W 104° 15' 52.82"        |
|          | 6892.00    | 1.33        | 353.17           | 6872.83     | 215.97       | -207.56    | 291.60     | 0.66             | 407807.64          | 562593.22         | N 32° 7' 16.05"         | W 104° 15' 52.82"        |
|          | 6987.00    | 2.30        | 336.21           | 6967.79     | 213.10       | -204.72    | 290.70     | 1.16             | 407810.48          | 562592.32         | N 32° 7' 16.07"         | W 104° 15' 52.83"        |
|          | 7082.00    | 2.03        | 351.54           | 7062.72     | 209.67       | -201.31    | 289.69     | 0.67             | 407813.89          | 562591.30         | N 32° 7' 16.11"         | W 104° 15' 52.85"        |
|          | 7177.00    | 1.72        | 5.29             | 7157.67     | 206.58       | -198.22    | 289.57     | 0.57             | 407816.97          | 562591.18         | N 32° 7' 16.14"         | W 104° 15' 52.85"        |
|          | 7271.00    | 1.50        | 88.02            | 7251.64     | 205.17       | -196.78    | 290.93     | 2.27             | 407818.42          | 562592.54         | N 32° 7' 16.15"         | W 104° 15' 52.83"        |
|          | 7366.00    | 2.03        | 101.37           | 7346.60     | 205.55       | -197.06    | 293.82     | 0.70             | 407818.13          | 562595.43         | N 32° 7' 16.15"         | W 104° 15' 52.80"        |
|          | 7461.00    | 2.03        | 93.13            | 7441.54     | 206.07       | -197.49    | 297.15     | 0.31             | 407817.71          | 562598.76         | N 32° 7' 16.14"         | W 104° 15' 52.76"        |
|          | 7555.00    | 2.52        | 78.59            | 7535.46     | 205.86       | -197.17    | 300.84     | 0.80             | 407818.03          | 562602.45         | N 32° 7' 16.15"         | W 104° 15' 52.72"        |
|          | 7650.00    | 1.50        | 58.36            | 7630.40     | 204.88       | -196.11    | 303.95     | 1.29             | 407819.09          | 562605.56         | N 32° 7' 16.16"         | W 104° 15' 52.68"        |
|          | 7745.00    | 1.50        | 24.74            | 7725.37     | 203.15       | -194.32    | 305.52     | 0.91             | 407820.87          | 562607.14         | N 32° 7' 16.18"         | W 104° 15' 52.66"        |
|          | 7839.00    | 1.90        | 31.26            | 7819.33     | 200.74       | -191.87    | 306.85     | 0.47             | 407823.32          | 562608.46         | N 32° 7' 16.20"         | W 104° 15' 52.65"        |

| Comments | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|          | 7934.00    | 1.33        | 16.15            | 7914.29     | 198.37       | -189.47    | 307.97     | 0.74             | 407825.73          | 562609.58         | N 32° 7' 16.22"         | W 104° 15' 52.63"        |
|          | 8028.00    | 0.71        | 335.50           | 8008.28     | 196.79       | -187.89    | 308.03     | 0.98             | 407827.31          | 562609.65         | N 32° 7' 16.24"         | W 104° 15' 52.63"        |
|          | 8123.00    | 0.49        | 288.57           | 8103.28     | 196.11       | -187.23    | 307.40     | 0.55             | 407827.97          | 562609.02         | N 32° 7' 16.25"         | W 104° 15' 52.64"        |
|          | 8218.00    | 0.71        | 265.30           | 8198.27     | 196.00       | -187.14    | 306.43     | 0.34             | 407828.05          | 562608.04         | N 32° 7' 16.25"         | W 104° 15' 52.65"        |
|          | 8272.00    | 0.62        | 250.19           | 8252.27     | 196.11       | -187.27    | 305.82     | 0.36             | 407827.93          | 562607.44         | N 32° 7' 16.25"         | W 104° 15' 52.66"        |
|          | 8339.00    | 0.36        | 214.58           | 8319.26     | 196.39       | -187.57    | 305.36     | 0.58             | 407827.63          | 562606.98         | N 32° 7' 16.24"         | W 104° 15' 52.66"        |
|          | 8370.00    | 2.72        | 141.95           | 8350.25     | 197.06       | -188.23    | 305.76     | 13.56            | 407826.97          | 562607.37         | N 32° 7' 16.24"         | W 104° 15' 52.66"        |
|          | 8402.00    | 7.05        | 138.12           | 8382.13     | 199.17       | -190.29    | 307.54     | 8.50             | 407824.91          | 562609.15         | N 32° 7' 16.22"         | W 104° 15' 52.64"        |
|          | 8433.00    | 11.47       | 137.79           | 8412.72     | 202.97       | -193.99    | 310.88     | 14.26            | 407821.21          | 562612.50         | N 32° 7' 16.18"         | W 104° 15' 52.60"        |
|          | 8465.00    | 15.71       | 145.67           | 8443.82     | 209.04       | -199.93    | 315.47     | 14.43            | 407815.27          | 562617.08         | N 32° 7' 16.12"         | W 104° 15' 52.55"        |
|          | 8496.00    | 19.86       | 151.30           | 8473.33     | 217.27       | -208.02    | 320.37     | 14.48            | 407807.18          | 562621.98         | N 32° 7' 16.04"         | W 104° 15' 52.49"        |
|          | 8528.00    | 23.43       | 152.69           | 8503.07     | 227.85       | -218.44    | 325.90     | 11.27            | 407796.76          | 562627.51         | N 32° 7' 15.94"         | W 104° 15' 52.43"        |
|          | 8559.00    | 26.40       | 152.48           | 8531.18     | 239.61       | -230.03    | 331.91     | 9.58             | 407785.17          | 562633.52         | N 32° 7' 15.82"         | W 104° 15' 52.36"        |
|          | 8591.00    | 29.62       | 152.56           | 8559.43     | 253.14       | -243.36    | 338.84     | 10.06            | 407771.84          | 562640.45         | N 32° 7' 15.69"         | W 104° 15' 52.28"        |
|          | 8622.00    | 32.85       | 153.07           | 8585.93     | 267.64       | -257.66    | 346.18     | 10.45            | 407757.54          | 562647.79         | N 32° 7' 15.55"         | W 104° 15' 52.19"        |
|          | 8654.00    | 36.66       | 154.90           | 8612.22     | 284.26       | -274.06    | 354.17     | 12.34            | 407741.15          | 562655.78         | N 32° 7' 15.39"         | W 104° 15' 52.10"        |
|          | 8685.00    | 39.57       | 158.24           | 8636.61     | 302.03       | -291.61    | 361.76     | 11.50            | 407723.59          | 562663.37         | N 32° 7' 15.21"         | W 104° 15' 52.01"        |
|          | 8717.00    | 42.17       | 161.57           | 8660.81     | 321.90       | -311.27    | 368.94     | 10.60            | 407703.93          | 562670.54         | N 32° 7' 15.02"         | W 104° 15' 51.93"        |
|          | 8748.00    | 45.14       | 162.61           | 8683.24     | 342.44       | -331.64    | 375.51     | 9.86             | 407683.57          | 562677.12         | N 32° 7' 14.82"         | W 104° 15' 51.85"        |
|          | 8780.00    | 48.98       | 163.25           | 8705.03     | 365.02       | -354.03    | 382.38     | 12.09            | 407661.19          | 562683.99         | N 32° 7' 14.60"         | W 104° 15' 51.77"        |
|          | 8811.00    | 52.50       | 164.93           | 8724.65     | 388.29       | -377.11    | 388.95     | 12.10            | 407638.11          | 562690.56         | N 32° 7' 14.37"         | W 104° 15' 51.69"        |
|          | 8843.00    | 55.73       | 168.01           | 8743.40     | 413.65       | -402.31    | 395.00     | 12.75            | 407612.91          | 562696.60         | N 32° 7' 14.12"         | W 104° 15' 51.62"        |
|          | 8874.00    | 59.24       | 170.64           | 8760.07     | 439.47       | -427.99    | 399.83     | 13.39            | 407587.23          | 562701.43         | N 32° 7' 13.86"         | W 104° 15' 51.57"        |
|          | 8906.00    | 62.24       | 172.97           | 8775.71     | 467.20       | -455.62    | 403.80     | 11.32            | 407559.60          | 562705.40         | N 32° 7' 13.59"         | W 104° 15' 51.52"        |
|          | 8938.00    | 65.20       | 175.60           | 8789.88     | 495.81       | -484.16    | 406.65     | 11.83            | 407531.06          | 562708.25         | N 32° 7' 13.31"         | W 104° 15' 51.49"        |
|          | 8969.00    | 68.44       | 177.26           | 8802.08     | 524.29       | -512.60    | 408.42     | 11.55            | 407502.63          | 562710.02         | N 32° 7' 13.03"         | W 104° 15' 51.47"        |
|          | 9117.00    | 76.99       | 176.91           | 8846.01     | 665.44       | -653.60    | 415.61     | 5.78             | 407361.64          | 562717.21         | N 32° 7' 11.63"         | W 104° 15' 51.39"        |
|          | 9212.00    | 80.81       | 178.32           | 8864.30     | 758.64       | -746.72    | 419.48     | 4.28             | 407268.52          | 562721.08         | N 32° 7' 10.71"         | W 104° 15' 51.34"        |
|          | 9307.00    | 85.63       | 179.77           | 8875.51     | 852.93       | -841.02    | 421.04     | 5.30             | 407174.24          | 562722.65         | N 32° 7' 9.78"          | W 104° 15' 51.32"        |
|          | 9403.00    | 89.83       | 182.00           | 8879.31     | 948.73       | -936.90    | 419.56     | 4.95             | 407078.36          | 562721.16         | N 32° 7' 8.83"          | W 104° 15' 51.34"        |
|          | 9498.00    | 89.59       | 181.99           | 8879.79     | 1043.54      | -1031.84   | 416.25     | 0.25             | 406983.43          | 562717.86         | N 32° 7' 7.89"          | W 104° 15' 51.38"        |
|          | 9593.00    | 90.03       | 183.19           | 8880.11     | 1138.27      | -1126.74   | 411.96     | 1.35             | 406888.54          | 562713.56         | N 32° 7' 6.95"          | W 104° 15' 51.43"        |
|          | 9689.00    | 89.97       | 182.70           | 8880.11     | 1233.96      | -1222.62   | 407.03     | 0.51             | 406792.68          | 562708.63         | N 32° 7' 6.00"          | W 104° 15' 51.49"        |
|          | 9784.00    | 90.00       | 182.61           | 8880.13     | 1328.69      | -1317.52   | 402.63     | 0.10             | 406697.79          | 562704.23         | N 32° 7' 5.06"          | W 104° 15' 51.78"        |
|          | 9880.00    | 90.10       | 183.11           | 8880.05     | 1424.39      | -1413.40   | 397.84     | 0.53             | 406601.92          | 562699.44         | N 32° 7' 4.11"          | W 104° 15' 51.60"        |
|          | 9975.00    | 89.72       | 183.37           | 8880.20     | 1519.04      | -1508.24   | 392.47     | 0.48             | 406507.08          | 562694.07         | N 32° 7' 3.17"          | W 104° 15' 51.66"        |
|          | 10165.00   | 89.97       | 181.80           | 8881.09     | 1708.59      | -1698.09   | 385.00     | 0.39             | 406317.25          | 562686.61         | N 32° 7' 1.30"          | W 104° 15' 51.75"        |
|          | 10261.00   | 89.52       | 180.95           | 8881.51     | 1804.45      | -1794.06   | 382.70     | 1.00             | 406221.29          | 562684.30         | N 32° 7' 0.35"          | W 104° 15' 51.78"        |
|          | 10356.00   | 89.28       | 180.01           | 8882.51     | 1899.38      | -1889.05   | 381.90     | 1.02             | 406126.31          | 562683.51         | N 32° 6' 59.41"         | W 104° 15' 51.79"        |
|          | 10452.00   | 89.35       | 179.41           | 8884.73     | 2090.33      | -2080.02   | 384.27     | 0.57             | 405935.35          | 562685.87         | N 32° 6' 57.52"         | W 104° 15' 51.76"        |
|          | 10547.00   | 89.35       | 179.41           | 8884.73     | 2090.33      | -2080.02   | 384.27     | 0.57             | 405935.35          | 562685.87         | N 32° 6' 57.52"         | W 104° 15' 51.76"        |
|          | 10642.00   | 89.24       | 179.63           | 8885.90     | 2185.31      | -2175.01   | 385.06     | 0.26             | 405840.37          | 562686.67         | N 32° 6' 56.58"         | W 104° 15' 51.75"        |
|          | 10738.00   | 89.21       | 177.98           | 8887.20     | 2281.29      | -2270.97   | 387.06     | 1.72             | 405744.42          | 562688.67         | N 32° 6' 55.63"         | W 104° 15' 51.73"        |
|          | 10833.00   | 88.80       | 178.57           | 8888.85     | 2376.28      | -2365.92   | 389.92     | 0.76             | 405649.48          | 562691.53         | N 32° 6' 54.69"         | W 104° 15' 51.70"        |
|          | 10928.00   | 89.72       | 180.40           | 8890.08     | 2471.24      | -2460.90   | 390.78     | 2.16             | 405554.51          | 562692.38         | N 32° 6' 53.75"         | W 104° 15' 51.69"        |
|          | 11024.00   | 89.42       | 180.50           | 8890.80     | 2567.18      | -2556.89   | 390.02     | 0.33             | 405458.52          | 562691.63         | N 32° 6' 52.80"         | W 104° 15' 51.70"        |
|          | 11119.00   | 90.03       | 181.37           | 8891.25     | 2662.08      | -2651.88   | 388.47     | 1.12             | 405363.55          | 562690.08         | N 32° 6' 51.86"         | W 104° 15' 51.72"        |
|          | 11214.00   | 90.89       | 182.73           | 8890.49     | 2756.87      | -2746.81   | 385.07     | 1.69             | 405268.62          | 562686.68         | N 32° 6' 50.92"         | W 104° 15' 51.76"        |
|          | 11310.00   | 89.42       | 182.53           | 8890.23     | 2852.60      | -2842.71   | 380.67     | 1.55             | 405172.74          | 562682.27         | N 32° 6' 49.97"         | W 104° 15' 51.81"        |
|          | 11405.00   | 89.83       | 181.21           | 8890.85     | 2947.41      | -2937.65   | 377.57     | 1.45             | 405077.80          | 562679.18         | N 32° 6' 49.03"         | W 104° 15' 51.85"        |
|          | 11500.00   | 90.34       | 181.54           | 8890.71     | 3042.28      | -3032.62   | 375.29     | 0.84             | 404982.84          | 562676.96         | N 32° 6' 48.09"         | W 104° 15' 51.87"        |
|          | 11596.00   | 89.86       | 181.57           | 8890.55     | 3138.12      | -3128.59   | 372.69     | 0.50             | 404886.88          | 562674.29         | N 32° 6' 47.14"         | W 104° 15' 51.90"        |
|          | 11691.00   | 89.21       | 181.11           | 8891.32     | 3232.99      | -3223.56   | 370.46     | 0.84             | 404791.92          | 562672.07         | N 32° 6' 46.20"         | W 104° 15' 51.93"        |
|          | 11786.00   | 89.24       | 180.96           | 8892.60     | 3327.87      | -3318.53   | 368.75     | 0.16             | 404696.95          | 562670.35         | N 32° 6' 45.26"         | W 104° 15' 51.95"        |
|          | 11881.00   | 89.90       | 181.04           | 8893.31     | 3422.77      | -3413.52   | 367.09     | 0.70             | 404601.98          | 562668.70         | N 32° 6' 44.32"         | W 104° 15' 51.97"        |
|          | 11977.00   | 90.07       | 180.74           | 8893.34     | 3518.67      | -3509.50   | 365.60     | 0.36             | 404506.00          | 562667.21         | N 32° 6' 43.37"         | W 104° 15' 51.99"        |
|          | 12072.00   | 88.32       | 179.99           | 8894.67     | 3613.60      | -3604.49   | 364.99     | 2.00             | 404411.02          | 562666.60         | N 32° 6' 42.43"         | W 104° 15' 52.00"        |

| Comments | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|          | 12168.00   | 89.52       | 180.54           | 8896.48     | 3709.52      | -3700.47   | 364.55     | 1.37             | 404315.05          | 562666.16         | N 32 6 41.48            | W 104 15 52.00           |
|          | 12263.00   | 88.62       | 180.39           | 8898.03     | 3804.44      | -3795.45   | 363.78     | 0.96             | 404220.08          | 562665.39         | N 32 6 40.54            | W 104 15 52.01           |
|          | 12359.00   | 90.65       | 181.21           | 8898.64     | 3900.35      | -3891.44   | 362.44     | 2.28             | 404124.10          | 562664.04         | N 32 6 39.59            | W 104 15 52.03           |
|          | 12454.00   | 89.66       | 181.05           | 8898.38     | 3995.23      | -3986.42   | 360.56     | 1.06             | 404029.13          | 562662.17         | N 32 6 38.65            | W 104 15 52.05           |
|          | 12549.00   | 89.97       | 180.37           | 8898.69     | 4090.15      | -4081.41   | 359.39     | 0.79             | 403934.15          | 562660.99         | N 32 6 37.71            | W 104 15 52.07           |
|          | 12645.00   | 89.90       | 180.32           | 8898.80     | 4186.09      | -4177.40   | 358.81     | 0.09             | 403838.16          | 562660.42         | N 32 6 36.76            | W 104 15 52.07           |
|          | 12740.00   | 89.69       | 181.19           | 8899.14     | 4281.00      | -4272.40   | 357.56     | 0.94             | 403743.18          | 562659.16         | N 32 6 35.82            | W 104 15 52.09           |
|          | 12835.00   | 89.24       | 181.19           | 8900.02     | 4375.88      | -4367.37   | 355.59     | 0.47             | 403648.21          | 562657.19         | N 32 6 34.88            | W 104 15 52.11           |
|          | 12931.00   | 89.48       | 180.41           | 8901.10     | 4471.78      | -4463.35   | 354.24     | 0.85             | 403552.24          | 562655.85         | N 32 6 33.93            | W 104 15 52.13           |
|          | 13026.00   | 89.83       | 180.22           | 8901.58     | 4566.72      | -4558.35   | 353.72     | 0.51             | 403457.25          | 562655.33         | N 32 6 32.99            | W 104 15 52.13           |
|          | 13122.00   | 89.93       | 180.11           | 8901.70     | 4662.68      | -4654.35   | 353.45     | 0.11             | 403361.26          | 562655.05         | N 32 6 32.04            | W 104 15 52.14           |
|          | 13217.00   | 89.86       | 181.61           | 8901.88     | 4757.58      | -4749.34   | 352.02     | 1.58             | 403266.28          | 562653.63         | N 32 6 31.10            | W 104 15 52.16           |
|          | 13313.00   | 88.52       | 180.65           | 8903.23     | 4853.45      | -4845.31   | 350.13     | 1.72             | 403170.32          | 562651.73         | N 32 6 30.15            | W 104 15 52.18           |
|          | 13408.00   | 90.31       | 180.55           | 8904.20     | 4948.37      | -4940.29   | 349.13     | 1.89             | 403075.35          | 562650.74         | N 32 6 29.21            | W 104 15 52.19           |
|          | 13506.00   | 89.79       | 181.58           | 8904.12     | 5046.26      | -5038.27   | 347.31     | 1.18             | 402977.37          | 562648.92         | N 32 6 28.24            | W 104 15 52.21           |
|          | 13601.00   | 89.79       | 182.44           | 8904.47     | 5141.06      | -5133.21   | 343.98     | 0.91             | 402882.44          | 562645.59         | N 32 6 27.30            | W 104 15 52.25           |
|          | 13697.00   | 89.76       | 183.08           | 8904.84     | 5236.77      | -5229.10   | 339.36     | 0.67             | 402786.56          | 562640.97         | N 32 6 26.36            | W 104 15 52.31           |
|          | 13792.00   | 91.75       | 183.81           | 8903.59     | 5331.38      | -5323.91   | 333.65     | 2.23             | 402691.76          | 562635.26         | N 32 6 25.42            | W 104 15 52.37           |
|          | 13887.00   | 91.13       | 184.44           | 8901.20     | 5425.86      | -5418.64   | 326.82     | 0.93             | 402597.04          | 562628.43         | N 32 6 24.48            | W 104 15 52.45           |
|          | 13988.00   | 89.93       | 183.10           | 8900.27     | 5526.40      | -5519.41   | 320.18     | 1.78             | 402496.28          | 562621.79         | N 32 6 23.48            | W 104 15 52.53           |
|          | 14084.00   | 88.90       | 179.11           | 8901.25     | 5622.26      | -5615.37   | 318.33     | 4.29             | 402400.33          | 562619.94         | N 32 6 22.53            | W 104 15 52.55           |
|          | 14179.00   | 89.18       | 179.09           | 8902.84     | 5717.24      | -5710.34   | 319.82     | 0.30             | 402305.37          | 562621.43         | N 32 6 21.59            | W 104 15 52.54           |
|          | 14275.00   | 89.14       | 178.00           | 8904.25     | 5813.23      | -5806.30   | 322.26     | 1.14             | 402209.42          | 562623.87         | N 32 6 20.64            | W 104 15 52.51           |
|          | 14370.00   | 89.31       | 178.56           | 8905.53     | 5908.22      | -5901.25   | 325.11     | 0.82             | 402114.48          | 562626.72         | N 32 6 19.70            | W 104 15 52.48           |
|          | 14466.00   | 89.00       | 178.79           | 8906.95     | 6004.20      | -5997.21   | 327.33     | 0.40             | 402018.52          | 562628.94         | N 32 6 18.75            | W 104 15 52.45           |
|          | 14561.00   | 89.38       | 178.08           | 8908.29     | 6099.19      | -6092.17   | 329.92     | 0.85             | 401923.58          | 562631.53         | N 32 6 17.81            | W 104 15 52.42           |
|          | 14657.00   | 89.79       | 179.04           | 8908.99     | 6195.19      | -6188.13   | 332.33     | 1.09             | 401827.62          | 562633.94         | N 32 6 16.87            | W 104 15 52.40           |
|          | 14752.00   | 89.31       | 179.66           | 8909.73     | 6290.17      | -6283.12   | 333.41     | 0.83             | 401732.64          | 562635.02         | N 32 6 15.93            | W 104 15 52.38           |
|          | 14848.00   | 89.31       | 180.65           | 8910.89     | 6386.11      | -6379.11   | 333.15     | 1.03             | 401636.66          | 562634.76         | N 32 6 14.98            | W 104 15 52.39           |
|          | 14943.00   | 89.38       | 180.86           | 8911.98     | 6481.02      | -6474.10   | 331.90     | 0.23             | 401541.68          | 562633.51         | N 32 6 14.04            | W 104 15 52.40           |
|          | 15038.00   | 89.38       | 181.80           | 8913.00     | 6575.89      | -6569.07   | 329.69     | 0.99             | 401446.72          | 562631.30         | N 32 6 13.10            | W 104 15 52.43           |
|          | 15133.00   | 89.66       | 180.95           | 8913.80     | 6670.75      | -6664.03   | 327.41     | 0.84             | 401351.76          | 562629.02         | N 32 6 12.16            | W 104 15 52.46           |
|          | 15229.00   | 89.69       | 180.36           | 8914.34     | 6766.67      | -6760.03   | 326.32     | 0.62             | 401255.78          | 562627.93         | N 32 6 11.21            | W 104 15 52.47           |
|          | 15324.00   | 89.38       | 180.29           | 8915.12     | 6861.61      | -6855.02   | 325.78     | 0.33             | 401160.79          | 562627.39         | N 32 6 10.27            | W 104 15 52.48           |
|          | 15420.00   | 89.52       | 180.84           | 8916.04     | 6957.53      | -6951.01   | 324.83     | 0.59             | 401064.81          | 562626.44         | N 32 6 9.32             | W 104 15 52.49           |
|          | 15515.00   | 89.62       | 180.84           | 8916.75     | 7052.43      | -7046.00   | 323.44     | 0.11             | 400969.83          | 562625.05         | N 32 6 8.38             | W 104 15 52.50           |
|          | 15610.00   | 88.66       | 180.20           | 8918.18     | 7147.35      | -7140.98   | 322.58     | 1.21             | 400874.86          | 562624.19         | N 32 6 7.44             | W 104 15 52.52           |
|          | 15706.00   | 88.87       | 179.97           | 8920.24     | 7243.28      | -7236.96   | 322.43     | 0.32             | 400778.89          | 562624.04         | N 32 6 6.49             | W 104 15 52.52           |
|          | 15801.00   | 89.45       | 180.23           | 8921.64     | 7338.23      | -7331.95   | 322.27     | 0.67             | 400683.91          | 562623.88         | N 32 6 5.55             | W 104 15 52.52           |
|          | 15897.00   | 88.69       | 179.79           | 8923.20     | 7434.17      | -7427.94   | 322.25     | 0.91             | 400587.93          | 562623.86         | N 32 6 4.60             | W 104 15 52.52           |
|          | 15992.00   | 88.18       | 179.22           | 8925.79     | 7529.12      | -7522.90   | 323.07     | 0.80             | 400492.98          | 562624.68         | N 32 6 3.66             | W 104 15 52.51           |
|          | 16087.00   | 88.49       | 180.65           | 8928.55     | 7624.04      | -7617.85   | 323.18     | 1.54             | 400398.03          | 562624.79         | N 32 6 2.72             | W 104 15 52.51           |
|          | 16183.00   | 88.69       | 180.11           | 8930.91     | 7719.95      | -7713.82   | 322.54     | 0.60             | 400302.07          | 562624.15         | N 32 6 1.77             | W 104 15 52.52           |
|          | 16278.00   | 88.56       | 180.96           | 8933.19     | 7814.85      | -7808.79   | 321.66     | 0.90             | 400207.11          | 562623.27         | N 32 6 0.83             | W 104 15 52.53           |
|          | 16374.00   | 88.25       | 180.03           | 8935.86     | 7910.74      | -7904.75   | 320.83     | 1.27             | 400111.16          | 562622.44         | N 32 5 59.88            | W 104 15 52.54           |
|          | 16469.00   | 89.31       | 180.60           | 8937.89     | 8005.66      | -7999.72   | 320.31     | 1.47             | 400016.20          | 562621.92         | N 32 5 58.94            | W 104 15 52.55           |
|          | 16565.00   | 88.49       | 179.45           | 8939.73     | 8101.60      | -8095.70   | 320.26     | 1.27             | 399920.23          | 562621.87         | N 32 5 57.99            | W 104 15 52.55           |
|          | 16660.00   | 88.18       | 179.98           | 8942.49     | 8196.53      | -8190.66   | 320.74     | 0.65             | 399825.28          | 562622.35         | N 32 5 57.05            | W 104 15 52.54           |
|          | 16755.00   | 88.04       | 180.72           | 8945.62     | 8291.42      | -8285.61   | 320.16     | 0.79             | 399730.34          | 562621.77         | N 32 5 56.11            | W 104 15 52.55           |
|          | 16850.00   | 88.69       | 181.59           | 8948.33     | 8386.26      | -8380.55   | 318.24     | 1.14             | 399635.41          | 562619.85         | N 32 5 55.17            | W 104 15 52.58           |
|          | 16946.00   | 89.90       | 181.22           | 8949.52     | 8482.12      | -8476.51   | 315.89     | 1.32             | 399539.45          | 562617.50         | N 32 5 54.22            | W 104 15 52.60           |
|          | 17041.00   | 90.14       | 181.59           | 8949.48     | 8576.98      | -8571.48   | 313.56     | 0.46             | 399444.49          | 562615.17         | N 32 5 53.28            | W 104 15 52.63           |
|          | 17136.00   | 89.66       | 182.53           | 8949.65     | 8671.78      | -8666.42   | 310.14     | 1.11             | 399349.56          | 562611.76         | N 32 5 52.34            | W 104 15 52.67           |
|          | 17232.00   | 89.83       | 182.53           | 8950.08     | 8767.52      | -8762.32   | 305.91     | 0.18             | 399253.67          | 562607.52         | N 32 5 51.39            | W 104 15 52.72           |
|          | 17327.00   | 89.97       | 181.02           | 8950.24     | 8862.34      | -8857.27   | 302.96     | 1.60             | 399158.72          | 562604.58         | N 32 5 50.45            | W 104 15 52.76           |
|          | 17423.00   | 89.52       | 181.11           | 8950.67     | 8958.23      | -8953.26   | 301.18     | 0.48             | 399062.75          | 562602.79         | N 32 5 49.50            | W 104 15 52.78           |
|          | 17518.00   | 90.21       | 181.80           | 8950.89     | 9053.09      | -9048.23   | 298.77     | 1.03             | 398967.79          | 562600.38         | N 32 5 48.56            | W 104 15 52.81           |
|          | 17613.00   | 90.24       | 181.22           | 8950.52     | 9147.94      | -9143.19   | 296.26     | 0.61             | 398872.83          | 562597.88         | N 32 5 47.62            | W 104 15 52.84           |

| Comments     | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude -<br>(E/W ° ' ") |
|--------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|----------------------------|
|              | 17708.00   | 89.83       | 181.32           | 8950.46     | 9242.82      | -9238.17   | 294.16     | 0.44             | 398777.87          | 562595.77         | N 32 5 46.68            | W 104 15 52.86             |
|              | 17803.00   | 90.93       | 183.22           | 8949.83     | 9337.58      | -9333.08   | 290.40     | 2.31             | 398682.96          | 562592.01         | N 32 5 45.75            | W 104 15 52.91             |
|              | 17899.00   | 89.93       | 182.32           | 8949.11     | 9433.29      | -9428.97   | 285.76     | 1.40             | 398587.08          | 562587.37         | N 32 5 44.80            | W 104 15 52.96             |
|              | 17894.00   | 90.69       | 181.18           | 8948.60     | 9528.12      | -9523.92   | 282.86     | 1.44             | 398492.14          | 562584.47         | N 32 5 43.86            | W 104 15 53.00             |
|              | 18089.00   | 89.86       | 179.06           | 8948.14     | 9623.06      | -9618.91   | 282.66     | 2.40             | 398397.16          | 562584.27         | N 32 5 42.92            | W 104 15 53.00             |
|              | 18184.00   | 90.76       | 179.00           | 8947.63     | 9718.05      | -9713.90   | 284.27     | 0.95             | 398302.18          | 562585.88         | N 32 5 41.98            | W 104 15 52.98             |
|              | 18279.00   | 89.38       | 178.18           | 8947.51     | 9813.05      | -9808.86   | 286.60     | 1.69             | 398207.22          | 562588.22         | N 32 5 41.04            | W 104 15 52.95             |
| Final Survey | 18338.00   | 90.03       | 179.15           | 8947.81     | 9872.05      | -9867.85   | 287.98     | 1.98             | 398148.25          | 562589.59         | N 32 5 40.45            | W 104 15 52.94             |
| Prof to TD   | 18381.00   | 90.03       | 179.15           | 8947.79     | 9915.04      | -9910.84   | 288.62     | 0.00             | 398105.25          | 562590.23         | N 32 5 40.03            | W 104 15 52.93             |

Survey Type: Def Survey

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

Survey Program:

| Description | Part | MD From<br>(ft) | MD To<br>(ft) | EOU Freq<br>(ft) | Hole Size<br>(in) | Casing Diameter<br>(in) | Survey Tool Type                    | Borehole / Survey                                                                  |
|-------------|------|-----------------|---------------|------------------|-------------------|-------------------------|-------------------------------------|------------------------------------------------------------------------------------|
|             | 1    | 0.000           | 25.000        | 1/98.425         | 30.000            | 30.000                  | NAL_MWD_PLUS_0.5_DEG-<br>Depth Only | Original Borehole / Cimarex Pintail<br>23-26 Federal Com 10H MWD 0ft<br>to 18381ft |
|             | 1    | 25.000          | 25.000        | Act Stns         | 30.000            | 30.000                  | NAL_MWD_PLUS_0.5_DEG-<br>Depth Only | Original Borehole / Cimarex Pintail<br>23-26 Federal Com 10H MWD 0ft<br>to 18381ft |
|             | 1    | 25.000          | 18381.000     | Act Stns         | 30.000            | 30.000                  | NAL_MWD_PLUS_0.5_DEG                | Original Borehole / Cimarex Pintail<br>23-26 Federal Com 10H MWD 0ft               |