

30-025-45413

Schlumberger

# Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01 MWD 0ft-21967 Survey Geodetic Report (Def Survey)

CIMAREX

**Report Date:** March 05, 2019 - 04:58 PM  
**Client:** Cimarex  
**Field:** NM Lea County (NAD 83)  
**Structure / Slot:** Cimarex Dos Equis 11-14 Federal Com 4H / Cimarex Dos Equis 11-14 Federal Com 4H  
**Well:** Cimarex Dos Equis 11-14 Federal Com 4H  
**Borehole:** ST01  
**UWI / API#:** Unknown / Unknown  
**Survey Name:** Final Surveys - Cimarex Dos Equis 11-14 Federal Com 4H ST01 MWD 0ft-21967  
**Survey Date:** January 18, 2019  
**Tort / AHD / DDI / ERD Ratio:** 239.663 \* / 10054.432 ft / 6.631 / 0.813  
**Coordinate Reference System:** NAD83 New Mexico State Plane, Eastern Zone, US Feet  
**Location Lat / Long:** N 32° 14' 16.59813", W 103° 39' 9.93101"  
**Location Grid N/E Y/X:** N 450964.240 RUS, E 751763.040 RUS  
**CRS Grid Convergence Angle:** 0.3631 \*  
**Grid Scale Factor:** 0.9999598  
**Version / Patch:** 2.10.753.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 179.645 \* (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** RKB  
**TVD Reference Elevation:** 3657.600 ft above MSL  
**Seabed / Ground Elevation:** 3631.600 ft above MSL  
**Magnetic Declination:** 6.728 \*  
**Total Gravity Field Strength:** 998.4343mgn (9.80665 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 47948.343 nT  
**Magnetic Dip Angle:** 59.920 \*  
**Declination Date:** February 21, 2019  
**Magnetic Declination Model:** HDGM 2019  
**North Reference:** Grid North  
**Grid Convergence Used:** 0.3631 \*  
**Total Corr Mag North->Grid North:** 6.3647 \*  
**Local Coord Referenced To:** Structure Reference Point

| Comments                    | MD<br>(R) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(R) | VSEC<br>(R) | NS<br>(R) | EW<br>(R) | DLS<br>(*100R) | Northing<br>(RUS) | Easting<br>(RUS) | Latitude<br>(N/S * °) | Longitude<br>(E/W * °) | Closure Azimuth<br>(°) | Closure<br>(R) |
|-----------------------------|-----------|-------------|------------------|------------|-------------|-----------|-----------|----------------|-------------------|------------------|-----------------------|------------------------|------------------------|----------------|
| SHL [530' FNL,<br>370' FWL] | 0.00      | 0.00        | 0.00             | 0.00       | 0.00        | 0.00      | 0.00      | N/A            | 450964.24         | 751763.04        | N 32 14 16.60         | W 103 39 9.93          | 0.00                   | 0.00           |
|                             | 201.00    | 0.47        | 278.05           | 201.00     | -0.12       | 0.12      | -0.82     | 0.23           | 450964.36         | 751762.22        | N 32 14 16.60         | W 103 39 9.94          | 278.05                 | 0.82           |
|                             | 391.00    | 0.48        | 242.95           | 390.99     | 0.12        | -0.14     | -2.30     | 0.15           | 450964.10         | 751760.74        | N 32 14 16.60         | W 103 39 9.96          | 266.58                 | 2.30           |
|                             | 483.00    | 0.49        | 245.09           | 482.99     | 0.46        | -0.48     | -3.00     | 0.02           | 450963.76         | 751760.04        | N 32 14 16.59         | W 103 39 9.97          | 260.93                 | 3.03           |
|                             | 573.00    | 0.61        | 252.53           | 572.98     | 0.76        | -0.78     | -3.80     | 0.15           | 450963.46         | 751759.24        | N 32 14 16.59         | W 103 39 9.98          | 258.35                 | 3.88           |
|                             | 663.00    | 0.74        | 243.20           | 662.98     | 1.16        | -1.19     | -4.78     | 0.19           | 450963.05         | 751758.26        | N 32 14 16.59         | W 103 39 9.99          | 256.01                 | 4.92           |
|                             | 753.00    | 0.83        | 245.80           | 752.97     | 1.68        | -1.72     | -5.89     | 0.11           | 450962.52         | 751757.15        | N 32 14 16.58         | W 103 39 10.00         | 253.73                 | 6.14           |
|                             | 843.00    | 0.81        | 234.04           | 842.96     | 2.32        | -2.36     | -7.00     | 0.19           | 450961.88         | 751756.04        | N 32 14 16.58         | W 103 39 10.01         | 251.37                 | 7.39           |
|                             | 933.00    | 0.82        | 238.61           | 932.95     | 3.02        | -3.07     | -8.07     | 0.07           | 450961.17         | 751754.97        | N 32 14 16.57         | W 103 39 10.03         | 249.17                 | 8.63           |
|                             | 1027.00   | 1.02        | 234.72           | 1026.94    | 3.84        | -3.90     | -9.32     | 0.22           | 450960.34         | 751753.72        | N 32 14 16.56         | W 103 39 10.04         | 247.29                 | 10.11          |
|                             | 1142.00   | 1.02        | 231.54           | 1141.92    | 5.06        | -5.13     | -10.96    | 0.05           | 450959.11         | 751752.08        | N 32 14 16.55         | W 103 39 10.06         | 244.92                 | 12.10          |
|                             | 1308.00   | 0.94        | 223.95           | 1307.90    | 6.95        | -7.03     | -13.06    | 0.09           | 450957.21         | 751749.98        | N 32 14 16.53         | W 103 39 10.08         | 241.71                 | 14.83          |
|                             | 1402.00   | 0.91        | 226.90           | 1401.88    | 8.01        | -8.09     | -14.14    | 0.06           | 450956.15         | 751748.90        | N 32 14 16.52         | W 103 39 10.10         | 240.21                 | 16.30          |
|                             | 1497.00   | 1.11        | 230.96           | 1496.87    | 9.09        | -9.19     | -15.41    | 0.22           | 450955.05         | 751747.63        | N 32 14 16.51         | W 103 39 10.11         | 239.19                 | 17.94          |
|                             | 1591.00   | 1.11        | 228.10           | 1590.85    | 10.27       | -10.37    | -16.79    | 0.06           | 450953.87         | 751746.25        | N 32 14 16.50         | W 103 39 10.13         | 238.30                 | 19.74          |
|                             | 1780.00   | 1.14        | 231.13           | 1779.82    | 12.65       | -12.77    | -19.62    | 0.04           | 450951.47         | 751743.42        | N 32 14 16.47         | W 103 39 10.16         | 236.93                 | 23.41          |
|                             | 1874.00   | 1.08        | 234.80           | 1873.80    | 13.74       | -13.87    | -21.07    | 0.10           | 450950.37         | 751741.97        | N 32 14 16.46         | W 103 39 10.18         | 236.64                 | 25.23          |
|                             | 1969.00   | 1.13        | 233.01           | 1968.78    | 14.81       | -14.95    | -22.55    | 0.06           | 450949.29         | 751740.49        | N 32 14 16.45         | W 103 39 10.19         | 236.46                 | 27.06          |
|                             | 2064.00   | 1.08        | 233.73           | 2063.76    | 15.90       | -16.04    | -24.02    | 0.05           | 450948.20         | 751739.02        | N 32 14 16.44         | W 103 39 10.21         | 236.26                 | 28.89          |
|                             | 2158.00   | 0.93        | 238.72           | 2157.75    | 16.81       | -16.96    | -25.39    | 0.18           | 450947.28         | 751737.65        | N 32 14 16.43         | W 103 39 10.23         | 236.25                 | 30.53          |
|                             | 2253.00   | 0.15        | 276.89           | 2252.74    | 17.19       | -17.35    | -26.17    | 0.86           | 450946.89         | 751736.87        | N 32 14 16.43         | W 103 39 10.24         | 236.46                 | 31.40          |
|                             | 2347.00   | 0.15        | 53.48            | 2346.74    | 17.10       | -17.26    | -26.19    | 0.30           | 450946.98         | 751736.85        | N 32 14 16.43         | W 103 39 10.24         | 236.61                 | 31.37          |
|                             | 2442.00   | 0.20        | 79.48            | 2441.74    | 17.00       | -17.16    | -25.93    | 0.10           | 450947.08         | 751737.11        | N 32 14 16.43         | W 103 39 10.23         | 236.51                 | 31.09          |
|                             | 2536.00   | 0.40        | 89.01            | 2535.74    | 16.96       | -17.12    | -25.44    | 0.22           | 450947.12         | 751737.60        | N 32 14 16.43         | W 103 39 10.23         | 236.06                 | 30.67          |
|                             | 2725.00   | 0.54        | 95.33            | 2724.74    | 17.05       | -17.19    | -23.89    | 0.08           | 450947.05         | 751739.15        | N 32 14 16.43         | W 103 39 10.21         | 234.26                 | 29.44          |
|                             | 2820.00   | 0.66        | 90.26            | 2819.73    | 17.10       | -17.24    | -22.90    | 0.14           | 450947.00         | 751740.14        | N 32 14 16.43         | W 103 39 10.20         | 233.03                 | 28.66          |
|                             | 2914.00   | 0.72        | 95.24            | 2913.72    | 17.16       | -17.29    | -21.77    | 0.09           | 450946.95         | 751741.27        | N 32 14 16.43         | W 103 39 10.19         | 231.54                 | 27.80          |
|                             | 3009.00   | 0.93        | 94.46            | 3008.71    | 17.28       | -17.41    | -20.41    | 0.22           | 450946.83         | 751742.63        | N 32 14 16.43         | W 103 39 10.17         | 229.54                 | 26.82          |
|                             | 3103.00   | 1.16        | 94.08            | 3102.70    | 17.42       | -17.54    | -18.70    | 0.24           | 450946.71         | 751744.34        | N 32 14 16.43         | W 103 39 10.15         | 226.84                 | 25.63          |
|                             | 3198.00   | 1.26        | 93.86            | 3197.68    | 17.57       | -17.67    | -16.70    | 0.11           | 450946.57         | 751746.34        | N 32 14 16.42         | W 103 39 10.13         | 223.37                 | 24.31          |
|                             | 3293.00   | 1.30        | 93.24            | 3292.65    | 17.71       | -17.81    | -14.58    | 0.04           | 450946.44         | 751748.46        | N 32 14 16.42         | W 103 39 10.10         | 219.31                 | 23.01          |
|                             | 3387.00   | 1.65        | 94.13            | 3386.62    | 17.89       | -17.96    | -12.17    | 0.37           | 450946.28         | 751750.88        | N 32 14 16.42         | W 103 39 10.07         | 214.11                 | 21.69          |
|                             | 3482.00   | 1.08        | 84.60            | 3481.59    | 17.92       | -17.98    | -9.91     | 0.64           | 450946.26         | 751753.13        | N 32 14 16.42         | W 103 39 10.05         | 208.87                 | 20.53          |
|                             | 3576.00   | 0.72        | 74.29            | 3575.58    | 17.68       | -17.73    | -8.46     | 0.42           | 450946.51         | 751754.58        | N 32 14 16.42         | W 103 39 10.03         | 205.50                 | 19.65          |

| Comments | MD<br>(R) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(R) | VSEC<br>(R) | NS<br>(R) | EW<br>(R) | DLS<br>(°/100R) | Northing<br>(RUS) | Easting<br>(RUS) | Latitude<br>(N/S ° ' '') | Longitude<br>(E/W ° ' '') | Closure Azimuth<br>(°) | Closure<br>(R) |
|----------|-----------|-------------|------------------|------------|-------------|-----------|-----------|-----------------|-------------------|------------------|--------------------------|---------------------------|------------------------|----------------|
|          | 3671.00   | 0.63        | 74.40            | 3670.58    | 17.39       | -17.43    | -7.38     | 0.09            | 450946.81         | 751755.66        | N 32 14 16.43            | W 103 39 10.02            | 202.95                 | 18.93          |
|          | 3766.00   | 0.62        | 87.78            | 3765.57    | 17.23       | -17.27    | -6.36     | 0.15            | 450946.97         | 751756.68        | N 32 14 16.43            | W 103 39 10.01            | 200.23                 | 18.41          |
|          | 3861.00   | 0.51        | 98.20            | 3860.57    | 17.28       | -17.31    | -5.43     | 0.16            | 450946.93         | 751757.61        | N 32 14 16.43            | W 103 39 10.00            | 197.42                 | 18.14          |
|          | 3955.00   | 0.52        | 107.10           | 3954.56    | 17.47       | -17.50    | -4.61     | 0.09            | 450946.74         | 751758.43        | N 32 14 16.43            | W 103 39 9.99             | 194.76                 | 18.09          |
|          | 4050.00   | 0.56        | 119.79           | 4049.56    | 17.83       | -17.85    | -3.80     | 0.13            | 450946.39         | 751759.24        | N 32 14 16.42            | W 103 39 9.98             | 192.00                 | 18.25          |
|          | 4144.00   | 0.99        | 124.04           | 4143.55    | 18.52       | -18.54    | -2.72     | 0.46            | 450945.70         | 751760.32        | N 32 14 16.41            | W 103 39 9.96             | 188.36                 | 18.74          |
|          | 4239.00   | 1.74        | 129.98           | 4238.52    | 19.92       | -19.92    | -0.94     | 0.80            | 450944.32         | 751762.10        | N 32 14 16.40            | W 103 39 9.94             | 182.70                 | 19.95          |
|          | 4333.00   | 1.83        | 132.65           | 4332.48    | 21.86       | -21.86    | 1.26      | 0.13            | 450942.38         | 751764.30        | N 32 14 16.38            | W 103 39 9.92             | 176.71                 | 21.89          |
|          | 4428.00   | 1.59        | 156.28           | 4427.43    | 24.11       | -24.09    | 2.90      | 0.78            | 450940.15         | 751765.94        | N 32 14 16.36            | W 103 39 9.90             | 173.13                 | 24.27          |
|          | 4522.00   | 2.36        | 151.74           | 4521.38    | 27.02       | -26.99    | 4.35      | 0.84            | 450937.25         | 751767.38        | N 32 14 16.33            | W 103 39 9.88             | 170.85                 | 27.34          |
|          | 4616.00   | 2.11        | 158.81           | 4615.31    | 30.34       | -30.31    | 5.89      | 0.40            | 450933.93         | 751768.93        | N 32 14 16.30            | W 103 39 9.86             | 169.01                 | 30.87          |
|          | 4711.00   | 1.27        | 187.56           | 4710.27    | 33.02       | -32.98    | 6.38      | 1.23            | 450931.26         | 751769.42        | N 32 14 16.27            | W 103 39 9.86             | 169.05                 | 33.59          |
|          | 4806.00   | 1.01        | 219.40           | 4805.25    | 34.71       | -34.67    | 5.71      | 0.71            | 450929.57         | 751768.75        | N 32 14 16.25            | W 103 39 9.87             | 170.65                 | 35.14          |
|          | 4900.00   | 0.92        | 226.84           | 4899.23    | 35.86       | -35.83    | 4.63      | 0.16            | 450928.41         | 751767.67        | N 32 14 16.24            | W 103 39 9.88             | 172.63                 | 36.13          |
|          | 4995.00   | 0.91        | 226.90           | 4994.22    | 36.89       | -36.87    | 3.53      | 0.01            | 450927.37         | 751766.57        | N 32 14 16.23            | W 103 39 9.89             | 174.54                 | 37.04          |
|          | 5184.00   | 0.89        | 217.02           | 5183.20    | 39.07       | -39.06    | 1.55      | 0.08            | 450925.18         | 751764.59        | N 32 14 16.21            | W 103 39 9.92             | 177.73                 | 39.10          |
|          | 5279.00   | 0.88        | 219.37           | 5278.19    | 40.22       | -40.22    | 0.64      | 0.04            | 450924.02         | 751763.68        | N 32 14 16.20            | W 103 39 9.93             | 179.09                 | 40.22          |
|          | 5373.00   | 0.93        | 226.40           | 5372.18    | 41.30       | -41.30    | -0.37     | 0.13            | 450922.94         | 751762.67        | N 32 14 16.19            | W 103 39 9.94             | 180.51                 | 41.30          |
|          | 5468.00   | 0.97        | 236.20           | 5467.16    | 42.27       | -42.28    | -1.60     | 0.18            | 450921.96         | 751761.44        | N 32 14 16.18            | W 103 39 9.95             | 182.16                 | 42.31          |
|          | 5563.00   | 1.03        | 233.15           | 5562.15    | 43.22       | -43.24    | -2.95     | 0.08            | 450921.00         | 751760.09        | N 32 14 16.17            | W 103 39 9.97             | 183.90                 | 43.34          |
|          | 5657.00   | 1.02        | 233.09           | 5656.13    | 44.22       | -44.25    | -4.29     | 0.01            | 450919.99         | 751758.75        | N 32 14 16.16            | W 103 39 9.98             | 185.54                 | 44.46          |
|          | 5752.00   | 0.99        | 240.44           | 5751.12    | 45.13       | -45.16    | -5.68     | 0.14            | 450919.08         | 751757.36        | N 32 14 16.15            | W 103 39 10.00            | 187.17                 | 45.52          |
|          | 5846.00   | 1.01        | 240.16           | 5845.10    | 45.93       | -45.97    | -7.11     | 0.02            | 450918.27         | 751755.93        | N 32 14 16.14            | W 103 39 10.02            | 188.79                 | 46.52          |
|          | 6036.00   | 0.97        | 236.07           | 6035.08    | 47.64       | -47.71    | -9.89     | 0.04            | 450916.54         | 751753.15        | N 32 14 16.13            | W 103 39 10.05            | 191.72                 | 48.72          |
|          | 6225.00   | 1.06        | 235.90           | 6224.05    | 49.50       | -49.58    | -12.67    | 0.05            | 450914.66         | 751750.37        | N 32 14 16.11            | W 103 39 10.08            | 194.34                 | 51.17          |
|          | 6320.00   | 1.06        | 243.02           | 6319.03    | 50.38       | -50.47    | -14.18    | 0.14            | 450913.77         | 751748.86        | N 32 14 16.10            | W 103 39 10.10            | 195.69                 | 52.42          |
|          | 6414.00   | 1.11        | 242.88           | 6413.01    | 51.18       | -51.28    | -15.77    | 0.05            | 450912.96         | 751747.27        | N 32 14 16.09            | W 103 39 10.12            | 197.09                 | 53.65          |
|          | 6509.00   | 0.99        | 242.28           | 6508.00    | 51.97       | -52.08    | -17.31    | 0.13            | 450912.16         | 751745.73        | N 32 14 16.08            | W 103 39 10.14            | 198.39                 | 54.88          |
|          | 6604.00   | 0.94        | 240.47           | 6602.98    | 52.73       | -52.85    | -18.72    | 0.06            | 450911.40         | 751744.33        | N 32 14 16.08            | W 103 39 10.15            | 199.50                 | 56.06          |
|          | 6698.00   | 0.97        | 237.45           | 6696.97    | 53.53       | -53.65    | -20.06    | 0.06            | 450910.59         | 751742.98        | N 32 14 16.07            | W 103 39 10.17            | 200.50                 | 57.28          |
|          | 6793.00   | 0.90        | 228.32           | 6791.96    | 54.45       | -54.58    | -21.29    | 0.17            | 450909.66         | 751741.75        | N 32 14 16.06            | W 103 39 10.18            | 201.31                 | 58.59          |
|          | 6887.00   | 0.81        | 234.53           | 6885.95    | 55.32       | -55.46    | -22.38    | 0.14            | 450908.78         | 751740.66        | N 32 14 16.05            | W 103 39 10.20            | 201.98                 | 59.81          |
|          | 6982.00   | 0.84        | 229.54           | 6980.94    | 56.15       | -56.30    | -23.46    | 0.08            | 450907.94         | 751739.58        | N 32 14 16.04            | W 103 39 10.21            | 202.62                 | 60.99          |
|          | 7076.00   | 0.84        | 222.43           | 7074.93    | 57.10       | -57.26    | -24.45    | 0.11            | 450906.99         | 751738.59        | N 32 14 16.03            | W 103 39 10.22            | 203.12                 | 62.26          |
|          | 7171.00   | 0.38        | 224.78           | 7169.92    | 57.84       | -57.99    | -25.14    | 0.48            | 450906.25         | 751737.90        | N 32 14 16.03            | W 103 39 10.23            | 203.44                 | 63.21          |
|          | 7265.00   | 0.23        | 220.65           | 7263.92    | 58.20       | -58.36    | -25.48    | 0.16            | 450905.88         | 751737.56        | N 32 14 16.02            | W 103 39 10.23            | 203.59                 | 63.68          |
|          | 7360.00   | 0.20        | 210.04           | 7358.92    | 58.49       | -58.65    | -25.69    | 0.05            | 450905.60         | 751737.35        | N 32 14 16.02            | W 103 39 10.23            | 203.66                 | 64.03          |
|          | 7454.00   | 0.20        | 29.24            | 7452.92    | 58.49       | -58.65    | -25.69    | 0.43            | 450905.60         | 751737.35        | N 32 14 16.02            | W 103 39 10.23            | 203.66                 | 64.03          |
|          | 7644.00   | 0.27        | 26.22            | 7642.92    | 57.80       | -57.96    | -25.33    | 0.04            | 450906.29         | 751737.71        | N 32 14 16.03            | W 103 39 10.23            | 203.61                 | 63.25          |
|          | 7739.00   | 0.32        | 0.39             | 7737.92    | 57.33       | -57.49    | -25.23    | 0.15            | 450906.75         | 751737.81        | N 32 14 16.03            | W 103 39 10.23            | 203.70                 | 62.78          |
|          | 7833.00   | 0.29        | 338.99           | 7831.92    | 56.85       | -57.00    | -25.32    | 0.12            | 450907.24         | 751737.72        | N 32 14 16.04            | W 103 39 10.23            | 203.95                 | 62.37          |
|          | 8022.00   | 0.53        | 308.97           | 8020.91    | 55.85       | -56.01    | -26.17    | 0.17            | 450908.23         | 751736.87        | N 32 14 16.05            | W 103 39 10.24            | 205.04                 | 61.82          |
|          | 8117.00   | 0.63        | 299.60           | 8115.91    | 55.31       | -55.47    | -26.96    | 0.14            | 450908.77         | 751736.08        | N 32 14 16.05            | W 103 39 10.25            | 205.92                 | 61.68          |
|          | 8211.00   | 0.70        | 291.48           | 8209.90    | 54.83       | -55.01    | -27.95    | 0.12            | 450909.23         | 751735.09        | N 32 14 16.06            | W 103 39 10.26            | 206.93                 | 61.70          |
|          | 8305.00   | 0.73        | 299.92           | 8303.89    | 54.32       | -54.50    | -29.00    | 0.12            | 450909.74         | 751734.04        | N 32 14 16.06            | W 103 39 10.27            | 208.02                 | 61.74          |
|          | 8400.00   | 0.83        | 299.04           | 8398.88    | 53.68       | -53.86    | -30.13    | 0.11            | 450910.38         | 751732.91        | N 32 14 16.07            | W 103 39 10.29            | 209.22                 | 61.72          |
|          | 8495.00   | 0.59        | 299.13           | 8493.88    | 53.10       | -53.29    | -31.16    | 0.25            | 450910.95         | 751731.89        | N 32 14 16.07            | W 103 39 10.30            | 210.31                 | 61.73          |
|          | 8589.00   | 0.62        | 296.43           | 8587.87    | 52.63       | -52.83    | -32.03    | 0.04            | 450911.41         | 751731.01        | N 32 14 16.08            | W 103 39 10.31            | 211.23                 | 61.78          |
|          | 8779.00   | 0.85        | 278.04           | 8777.86    | 51.96       | -52.17    | -34.35    | 0.17            | 450912.07         | 751728.69        | N 32 14 16.08            | W 103 39 10.33            | 213.36                 | 62.47          |
|          | 8873.00   | 0.97        | 280.26           | 8871.84    | 51.71       | -51.94    | -35.82    | 0.13            | 450912.31         | 751727.22        | N 32 14 16.09            | W 103 39 10.35            | 214.60                 | 63.09          |
|          | 8968.00   | 1.13        | 282.24           | 8966.83    | 51.36       | -51.59    | -37.53    | 0.17            | 450912.65         | 751725.51        | N 32 14 16.09            | W 103 39 10.37            | 216.03                 | 63.80          |
|          | 9062.00   | 1.24        | 284.04           | 9060.81    | 50.91       | -51.15    | -39.42    | 0.12            | 450913.09         | 751723.62        | N 32 14 16.09            | W 103 39 10.39            | 217.62                 | 64.58          |
|          | 9157.00   | 1.10        | 274.85           | 9155.79    | 50.57       | -50.82    | -41.33    | 0.25            | 450913.42         | 751721.71        | N 32 14 16.10            | W 103 39 10.42            | 219.12                 | 65.51          |
|          | 9251.00   | 1.06        | 259.89           | 9249.77    | 50.63       | -50.90    | -43.08    | 0.30            | 450913.34         | 751719.96        | N 32 14 16.10            | W 103 39 10.44            | 220.25                 | 66.69          |
|          | 9346.00   | 1.15        | 237.23           | 9344.75    | 51.29       | -51.57    | -44.75    | 0.47            | 450912.67         | 751718.29        | N 32 14 16.09            | W 103 39 10.46            | 220.95                 | 68.28          |
|          | 9440.00   | 1.49        | 213.40           | 9438.73    | 52.81       | -53.10    | -46.22    | 0.68            | 450911.14         | 751716.83        | N 32 14 16.08            | W 103 39 10.47            | 221.03                 | 70.40          |
|          | 9535.00   | 2.20        | 200.83           | 9533.68    | 55.54       | -55.84    | -47.54    | 0.86            | 450908.41         | 751715.50        | N 32 14 16.05            | W 103 39 10.49            | 220.41                 | 73.34          |
|          | 9629.00   | 1.84        | 194.03           | 9627.62    | 58.69       | -58.99    | -48.55    | 0.46            | 450905.26         | 751714.49        | N 32 14 16.02            | W 103 39 10.50            | 219.46                 | 76.40          |
|          | 9724.00   | 0.56        | 212.59           | 9722.60    | 60.55       | -60.86    | -49.17    | 1.39            | 450903.38         | 751713.87        | N 32 14 16.00            | W 103 39 10.51            | 218.94                 | 78.24          |
|          | 9813.00   | 0.62        | 48.49            | 9911.60    | 60.65       | -60.96    | -48.90    | 0.62            | 450903.28         | 751714.14        | N 32 14 16.00            | W 103 39 10.50            | 218.74                 | 78.15          |
|          | 10008.00  | 0.40        | 53.38            | 10006.59   | 60.12       | -60.42    | -48.25    | 0.24            | 450903.82         | 751714.79        | N 32 14 16.00            | W 103 39 10.50            | 218.61                 | 77.32          |
|          | 10102.00  | 0.41        | 46.24            | 10100.59   | 59.70       | -59.99    | -47.75    | 0.05            | 450904.25         | 751715.30        | N 32 14 16.01            | W 103 39 10.49            | 218.52                 | 76.67          |
|          | 10198.00  | 0.39        | 60.84            | 10196.59   | 59.30       | -59.60    | -47.21    | 0.11            | 450904.65         | 751715.83        | N 32 14 16.01            | W 103 39 10.49            | 218.39                 | 76.03          |
|          | 10292.00  | 0.53        | 66.66            | 10290.58   | 58.98       | -59.27    | -46.53    | 0.16            | 450904.98         | 751716.51        | N 32 14 16.01            | W 103 39 10.48            | 218.14                 | 75.35          |
|          | 10387.00  | 0.27        | 42.82            | 10385.58   | 58.64       | -58.93    | -45.98    | 0.32            | 450905.31         | 751717.06        | N 32 14 16.02            | W 103 39 10.47            | 217.96                 | 74.74          |
|          | 10576.00  | 0.66        | 32.51            | 10574.58   | 57.40       | -57.68    | -45.09    | 0.21            | 450906.56         | 751717.95        | N 32 14 16.03            | W 103 39 10.46            | 218.01                 | 73.22          |
|          | 10765.00  | 0.42        | 35.83            | 10763.57   | 55.93       | -56.20    | -44.10    | 0.13            | 450908.04         | 751718.94        | N 32 14 16.04            | W 103 39 10.45            | 218.12                 | 71.44          |
|          | 10954.00  | 0.62        | 260.12           | 10952.56   | 55.54       | -55.82    | -44.70    | 0.51            | 450908.42         | 751718.34        | N 32 14 16.05            | W 103 39 10.46            | 218.69                 | 71.51          |

| Comments | MD<br>(R) | Incl<br>(°) | Azlm Grid<br>(°) | TVD<br>(R) | VSEC<br>(R) | NS<br>(R) | EW<br>(R) | DLS<br>(°/100R) | Northing<br>(RUS) | Easting<br>(RUS) | Latitude<br>(N/S ° ' '') | Longitude<br>(E/W ° ' '') | Closure | Azimuth<br>(°) | Closure<br>(R) |
|----------|-----------|-------------|------------------|------------|-------------|-----------|-----------|-----------------|-------------------|------------------|--------------------------|---------------------------|---------|----------------|----------------|
|          | 11143.00  | 0.67        | 216.31           | 11141.55   | 56.60       | -56.88    | -46.36    | 0.26            | 450907.36         | 751716.68        | N 32 14 16.04            | W 103 39 10.47            | 219.18  |                | 73.39          |
|          | 11238.00  | 0.60        | 218.92           | 11236.55   | 57.43       | -57.72    | -47.01    | 0.08            | 450906.52         | 751716.04        | N 32 14 16.03            | W 103 39 10.48            | 219.16  |                | 74.44          |
|          | 11332.00  | 1.55        | 250.41           | 11330.53   | 58.23       | -58.53    | -48.51    | 1.15            | 450905.71         | 751714.53        | N 32 14 16.02            | W 103 39 10.50            | 219.65  |                | 76.02          |
|          | 11427.00  | 2.25        | 239.30           | 11425.48   | 59.59       | -59.91    | -51.33    | 0.83            | 450904.33         | 751711.72        | N 32 14 16.01            | W 103 39 10.53            | 220.59  |                | 78.89          |
|          | 11616.00  | 2.00        | 213.69           | 11614.35   | 64.20       | -64.55    | -56.35    | 0.51            | 450899.69         | 751706.70        | N 32 14 15.96            | W 103 39 10.59            | 221.12  |                | 85.68          |
|          | 11710.00  | 1.64        | 209.49           | 11708.30   | 66.72       | -67.09    | -57.92    | 0.41            | 450897.16         | 751705.12        | N 32 14 15.94            | W 103 39 10.61            | 220.81  |                | 88.63          |
|          | 11804.00  | 1.88        | 205.40           | 11802.26   | 69.28       | -69.65    | -59.24    | 0.29            | 450894.59         | 751703.80        | N 32 14 15.91            | W 103 39 10.63            | 220.38  |                | 91.44          |
|          | 11825.00  | 2.00        | 185.88           | 11823.25   | 69.95       | -70.32    | -59.43    | 3.18            | 450893.92         | 751703.62        | N 32 14 15.91            | W 103 39 10.63            | 220.20  |                | 92.07          |
|          | 11919.00  | 13.62       | 171.44           | 11916.22   | 82.58       | -82.94    | -57.94    | 12.44           | 450881.30         | 751705.10        | N 32 14 15.78            | W 103 39 10.61            | 214.94  |                | 101.18         |
|          | 11951.00  | 18.93       | 170.85           | 11946.93   | 91.45       | -91.80    | -56.56    | 16.60           | 450872.44         | 751706.49        | N 32 14 15.69            | W 103 39 10.60            | 211.64  |                | 107.82         |
|          | 11982.00  | 23.51       | 173.66           | 11975.82   | 102.57      | -102.92   | -55.07    | 15.13           | 450861.33         | 751707.97        | N 32 14 15.58            | W 103 39 10.58            | 208.15  |                | 116.73         |
|          | 12014.00  | 28.38       | 176.61           | 12004.59   | 116.52      | -116.86   | -53.92    | 15.74           | 450847.38         | 751709.13        | N 32 14 15.45            | W 103 39 10.57            | 204.77  |                | 128.70         |
|          | 12061.00  | 32.64       | 176.85           | 12045.07   | 140.35      | -140.68   | -52.58    | 9.07            | 450823.57         | 751710.48        | N 32 14 15.21            | W 103 39 10.55            | 200.49  |                | 150.18         |
|          | 12108.00  | 37.34       | 176.68           | 12083.56   | 167.26      | -167.58   | -51.04    | 10.00           | 450796.67         | 751712.01        | N 32 14 14.94            | W 103 39 10.54            | 196.94  |                | 175.18         |
|          | 12155.00  | 42.15       | 175.47           | 12119.69   | 197.24      | -197.55   | -48.96    | 10.37           | 450766.70         | 751714.08        | N 32 14 14.65            | W 103 39 10.52            | 193.92  |                | 203.53         |
|          | 12203.00  | 46.86       | 175.49           | 12153.91   | 230.79      | -231.08   | -46.31    | 9.81            | 450733.17         | 751716.73        | N 32 14 14.31            | W 103 39 10.49            | 191.33  |                | 235.68         |
|          | 12250.00  | 50.67       | 175.46           | 12184.89   | 266.03      | -266.31   | -43.53    | 8.11            | 450697.94         | 751719.52        | N 32 14 13.97            | W 103 39 10.46            | 189.28  |                | 269.84         |
|          | 12297.00  | 55.27       | 177.66           | 12213.19   | 303.49      | -303.75   | -41.30    | 10.48           | 450660.50         | 751721.75        | N 32 14 13.60            | W 103 39 10.43            | 187.74  |                | 306.54         |
|          | 12344.00  | 58.55       | 178.78           | 12238.85   | 342.85      | -343.10   | -40.08    | 7.26            | 450621.15         | 751722.96        | N 32 14 13.21            | W 103 39 10.42            | 186.66  |                | 345.43         |
|          | 12392.00  | 61.10       | 179.36           | 12262.97   | 384.34      | -384.59   | -39.41    | 5.41            | 450579.67         | 751723.63        | N 32 14 12.80            | W 103 39 10.42            | 185.85  |                | 386.60         |
|          | 12439.00  | 66.09       | 179.33           | 12283.87   | 426.42      | -426.67   | -38.93    | 10.62           | 450537.59         | 751724.11        | N 32 14 12.38            | W 103 39 10.42            | 185.21  |                | 428.44         |
|          | 12451.00  | 67.63       | 179.35           | 12288.58   | 437.45      | -437.70   | -38.80    | 12.83           | 450526.56         | 751724.24        | N 32 14 12.27            | W 103 39 10.42            | 185.07  |                | 439.42         |
|          | 12609.00  | 79.56       | 181.74           | 12333.13   | 588.71      | -588.98   | -40.34    | 7.69            | 450375.29         | 751722.70        | N 32 14 10.77            | W 103 39 10.44            | 183.92  |                | 590.36         |
|          | 12703.00  | 83.45       | 182.95           | 12347.01   | 681.56      | -681.85   | -44.15    | 4.33            | 450282.42         | 751718.90        | N 32 14 9.85             | W 103 39 10.50            | 183.70  |                | 683.27         |
|          | 12798.00  | 87.63       | 183.22           | 12354.40   | 776.08      | -776.40   | -49.24    | 4.41            | 450187.87         | 751713.80        | N 32 14 8.92             | W 103 39 10.56            | 183.63  |                | 777.96         |
|          | 12893.00  | 90.28       | 182.82           | 12356.13   | 870.89      | -871.24   | -54.25    | 2.82            | 450093.03         | 751708.80        | N 32 14 7.98             | W 103 39 10.63            | 183.56  |                | 872.93         |
|          | 12988.00  | 90.10       | 181.27           | 12355.82   | 965.80      | -966.18   | -57.64    | 1.64            | 449998.10         | 751705.41        | N 32 14 7.04             | W 103 39 10.67            | 183.41  |                | 967.90         |
|          | 13083.00  | 90.03       | 180.89           | 12355.71   | 1060.77     | -1061.16  | -59.43    | 0.41            | 449903.12         | 751703.62        | N 32 14 6.10             | W 103 39 10.70            | 183.21  |                | 1062.83        |
|          | 13178.00  | 89.83       | 179.00           | 12355.82   | 1155.77     | -1156.16  | -59.34    | 2.00            | 449808.13         | 751703.71        | N 32 14 5.16             | W 103 39 10.71            | 182.94  |                | 1157.68        |
|          | 13273.00  | 90.69       | 177.88           | 12355.39   | 1250.74     | -1251.12  | -56.75    | 1.49            | 449713.17         | 751706.29        | N 32 14 4.22             | W 103 39 10.68            | 182.60  |                | 1252.41        |
|          | 13368.00  | 90.72       | 178.19           | 12354.22   | 1345.70     | -1346.06  | -53.49    | 0.33            | 449618.24         | 751709.55        | N 32 14 3.28             | W 103 39 10.65            | 182.28  |                | 1347.12        |
|          | 13462.00  | 90.38       | 177.20           | 12353.32   | 1439.64     | -1439.98  | -49.71    | 1.11            | 449524.33         | 751713.33        | N 32 14 2.35             | W 103 39 10.62            | 181.98  |                | 1440.83        |
|          | 13557.00  | 88.97       | 178.06           | 12353.86   | 1534.58     | -1534.89  | -45.78    | 1.74            | 449429.42         | 751717.26        | N 32 14 1.41             | W 103 39 10.58            | 181.71  |                | 1535.57        |
|          | 13652.00  | 89.28       | 176.87           | 12355.31   | 1629.49     | -1629.78  | -41.58    | 1.29            | 449334.53         | 751721.46        | N 32 14 0.47             | W 103 39 10.54            | 181.46  |                | 1630.31        |
|          | 13747.00  | 86.32       | 173.70           | 12358.96   | 1724.13     | -1724.37  | -33.78    | 4.56            | 449239.94         | 751729.26        | N 32 13 59.54            | W 103 39 10.45            | 181.12  |                | 1724.70        |
|          | 13842.00  | 91.10       | 178.01           | 12361.10   | 1818.85     | -1819.05  | -26.93    | 6.77            | 449145.27         | 751736.12        | N 32 13 58.60            | W 103 39 10.38            | 180.85  |                | 1819.25        |
|          | 13937.00  | 89.17       | 175.18           | 12360.87   | 1913.70     | -1913.87  | -21.28    | 3.61            | 449050.46         | 751741.76        | N 32 13 57.66            | W 103 39 10.32            | 180.64  |                | 1913.98        |
|          | 14032.00  | 89.83       | 176.93           | 12361.70   | 2008.50     | -2008.63  | -14.75    | 1.97            | 448955.69         | 751748.29        | N 32 13 56.72            | W 103 39 10.25            | 180.42  |                | 2008.69        |
|          | 14127.00  | 90.89       | 180.67           | 12361.11   | 2103.47     | -2103.59  | -12.76    | 4.09            | 448860.74         | 751750.28        | N 32 13 55.78            | W 103 39 10.23            | 180.35  |                | 2103.63        |
|          | 14221.00  | 92.06       | 182.32           | 12358.69   | 2197.39     | -2197.52  | -15.21    | 2.15            | 448766.81         | 751747.83        | N 32 13 54.85            | W 103 39 10.27            | 180.40  |                | 2197.58        |
|          | 14316.00  | 91.17       | 181.59           | 12356.01   | 2292.27     | -2292.43  | -18.45    | 1.21            | 448671.91         | 751744.59        | N 32 13 53.92            | W 103 39 10.31            | 180.46  |                | 2292.50        |
|          | 14411.00  | 93.30       | 180.76           | 12352.30   | 2387.16     | -2387.33  | -20.40    | 2.41            | 448577.01         | 751742.64        | N 32 13 52.98            | W 103 39 10.34            | 180.49  |                | 2387.42        |
|          | 14506.00  | 91.48       | 178.48           | 12348.34   | 2482.07     | -2482.24  | -19.77    | 3.07            | 448482.11         | 751743.28        | N 32 13 52.04            | W 103 39 10.34            | 180.46  |                | 2482.31        |
|          | 14600.00  | 91.79       | 179.96           | 12345.66   | 2576.02     | -2576.19  | -18.49    | 1.61            | 448388.16         | 751744.55        | N 32 13 51.11            | W 103 39 10.34            | 180.41  |                | 2576.25        |
|          | 14695.00  | 91.65       | 179.48           | 12342.81   | 2670.98     | -2671.14  | -18.02    | 0.53            | 448293.21         | 751745.02        | N 32 13 50.17            | W 103 39 10.34            | 180.39  |                | 2671.20        |
|          | 14790.00  | 90.34       | 179.97           | 12341.16   | 2765.96     | -2766.12  | -17.57    | 1.47            | 448198.23         | 751745.47        | N 32 13 49.23            | W 103 39 10.34            | 180.36  |                | 2766.18        |
|          | 14885.00  | 89.76       | 180.59           | 12341.08   | 2860.95     | -2861.12  | -18.03    | 0.89            | 448103.24         | 751745.01        | N 32 13 48.29            | W 103 39 10.35            | 180.36  |                | 2861.18        |
|          | 14980.00  | 89.11       | 181.04           | 12342.01   | 2955.93     | -2956.11  | -19.38    | 0.83            | 448008.26         | 751743.66        | N 32 13 47.35            | W 103 39 10.37            | 180.38  |                | 2956.17        |
|          | 15075.00  | 90.07       | 183.16           | 12342.69   | 3050.83     | -3051.03  | -22.86    | 2.45            | 447913.33         | 751740.18        | N 32 13 46.41            | W 103 39 10.42            | 180.43  |                | 3051.12        |
|          | 15169.00  | 89.66       | 183.51           | 12342.91   | 3144.64     | -3144.87  | -28.33    | 0.57            | 447819.50         | 751734.71        | N 32 13 45.48            | W 103 39 10.49            | 180.52  |                | 3145.00        |
|          | 15265.00  | 90.45       | 181.45           | 12342.82   | 3240.51     | -3240.78  | -32.49    | 2.30            | 447723.60         | 751730.56        | N 32 13 44.53            | W 103 39 10.55            | 180.57  |                | 3240.94        |
|          | 15360.00  | 91.10       | 178.60           | 12341.54   | 3335.49     | -3335.76  | -32.53    | 3.08            | 447628.62         | 751730.51        | N 32 13 43.59            | W 103 39 10.56            | 180.56  |                | 3335.92        |
|          | 15455.00  | 90.10       | 177.51           | 12340.54   | 3430.45     | -3430.70  | -29.30    | 1.56            | 447533.69         | 751733.74        | N 32 13 42.65            | W 103 39 10.53            | 180.49  |                | 3430.82        |
|          | 15550.00  | 89.07       | 176.73           | 12341.23   | 3525.35     | -3525.57  | -24.53    | 1.36            | 447438.82         | 751738.51        | N 32 13 41.71            | W 103 39 10.48            | 180.40  |                | 3525.66        |
|          | 15645.00  | 89.14       | 178.34           | 12342.71   | 3620.27     | -3620.47  | -20.44    | 1.70            | 447343.92         | 751742.60        | N 32 13 40.78            | W 103 39 10.44            | 180.32  |                | 3620.53        |
|          | 15740.00  | 88.63       | 177.40           | 12344.56   | 3715.21     | -3715.38  | -16.91    | 1.13            | 447249.01         | 751746.13        | N 32 13 39.84            | W 103 39 10.40            | 180.26  |                | 3715.42        |
|          | 15835.00  | 90.55       | 177.42           | 12345.24   | 3810.13     | -3810.28  | -12.62    | 2.02            | 447154.12         | 751750.42        | N 32 13 38.90            | W 103 39 10.36            | 180.19  |                | 3810.30        |
|          | 15930.00  | 89.93       | 177.87           | 12344.85   | 3905.06     | -3905.19  | -8.55     | 0.70            | 447059.21         | 751754.49        | N 32 13 37.96            | W 103 39 10.32            | 180.13  |                | 3905.20        |
|          | 16024.00  | 89.31       | 179.67           | 12345.47   | 3999.04     | -3999.16  | -6.37     | 2.23            | 446965.25         | 751756.67        | N 32 13 37.03            | W 103 39 10.30            | 180.09  |                | 3999.16        |
|          | 16119.00  | 90.34       | 180.20           | 12345.76   | 4094.04     | -4094.16  | -6.26     | 1.22            | 446870.26         | 751756.78        | N 32 13 36.09            | W 103 39 10.31            | 180.09  |                | 4094.16        |
|          | 16214.00  | 90.38       | 180.51           | 12345.16   | 4189.03     | -4189.15  | -6.85     | 0.33            | 446775.26         | 751756.19        | N 32 13 35.15            | W 103 39 10.32            | 180.09  |                | 4189.16        |
|          | 16309.00  | 89.90       | 181.59           | 12344.93   | 4284.00     | -4284.14  | -8.59     | 1.24            | 446680.29         | 751754.45        | N 32 13 34.21            | W 103 39 10.35            | 180.11  |                | 4284.14        |
|          | 16404.00  | 90.76       | 180.80           | 12344.38   | 4378.96     | -4379.11  | -10.57    | 1.23            | 446585.31         | 751752.47        | N 32 13 33.27            | W 103 39 10.38            | 180.14  |                | 4379.12        |
|          | 16499.00  | 90.38       | 180.54           | 12343.44   | 4473.94     | -4474.10  | -11.68    | 0.48            | 446490.33         | 751751.36        | N 32 13 32.33            | W 103 39 10.40            | 180.15  |                | 4474.12        |
|          | 16594.00  | 89.76       | 180.83           | 12343.32   | 4568.93     | -4569.09  | -12.65    | 0.66            | 446395.34         | 751750.39        | N 32 13 31.39            |                           |         |                |                |

| 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 ° ' '') | Closure Azimuth<br>(°) | Closure<br>(ft) |
|------------------------------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|--------------------------|---------------------------|------------------------|-----------------|
| Section Line<br>Crossing [321'<br>FWL]         | 16787.00   | 91.06       | 182.00           | 12342.01    | 4761.79      | -4762.00   | -18.24     | 1.53             | 446202.44          | 751744.80         | N 32 13 29.48            | W 103 39 10.49            | 180.22                 | 4762.03         |
|                                                | 16879.00   | 90.72       | 180.63           | 12340.58    | 4853.74      | -4853.96   | -20.35     | 1.53             | 446110.48          | 751742.69         | N 32 13 28.57            | W 103 39 10.53            | 180.24                 | 4854.00         |
|                                                | 16974.00   | 90.52       | 178.71           | 12339.55    | 4948.73      | -4948.95   | -19.80     | 2.03             | 446015.50          | 751743.24         | N 32 13 27.63            | W 103 39 10.53            | 180.23                 | 4948.99         |
|                                                | 17068.00   | 90.38       | 179.49           | 12338.82    | 5042.72      | -5042.93   | -18.33     | 0.84             | 445921.52          | 751744.71         | N 32 13 26.70            | W 103 39 10.52            | 180.21                 | 5042.97         |
|                                                | 17164.00   | 90.24       | 179.92           | 12338.30    | 5138.72      | -5138.93   | -17.83     | 0.47             | 445825.53          | 751745.21         | N 32 13 25.75            | W 103 39 10.52            | 180.20                 | 5138.96         |
|                                                | 17258.00   | 90.58       | 179.56           | 12337.62    | 5232.72      | -5232.93   | -17.41     | 0.53             | 445731.53          | 751745.63         | N 32 13 24.82            | W 103 39 10.52            | 180.19                 | 5232.96         |
|                                                | 17353.00   | 90.24       | 180.08           | 12336.94    | 5327.72      | -5327.92   | -17.11     | 0.65             | 445636.54          | 751745.93         | N 32 13 23.88            | W 103 39 10.52            | 180.18                 | 5327.95         |
|                                                | 17448.00   | 90.69       | 179.37           | 12336.17    | 5422.71      | -5422.92   | -16.65     | 0.88             | 445541.55          | 751746.39         | N 32 13 22.94            | W 103 39 10.52            | 180.18                 | 5422.95         |
|                                                | 17543.00   | 90.24       | 177.62           | 12335.40    | 5517.69      | -5517.88   | -14.16     | 1.90             | 445446.59          | 751748.88         | N 32 13 22.00            | W 103 39 10.50            | 180.15                 | 5517.90         |
|                                                | 17638.00   | 90.65       | 178.19           | 12334.66    | 5612.64      | -5612.81   | -10.68     | 0.74             | 445351.66          | 751752.36         | N 32 13 21.06            | W 103 39 10.47            | 180.11                 | 5612.82         |
|                                                | 17733.00   | 89.55       | 178.14           | 12334.50    | 5707.61      | -5707.76   | -7.64      | 1.16             | 445256.72          | 751755.40         | N 32 13 20.12            | W 103 39 10.44            | 180.08                 | 5707.77         |
|                                                | 17829.00   | 90.45       | 178.54           | 12334.50    | 5803.58      | -5803.72   | -4.86      | 1.03             | 445160.76          | 751758.18         | N 32 13 19.17            | W 103 39 10.42            | 180.05                 | 5803.72         |
|                                                | 17923.00   | 89.90       | 177.68           | 12334.21    | 5897.54      | -5897.67   | -1.76      | 1.09             | 445066.82          | 751761.28         | N 32 13 18.24            | W 103 39 10.39            | 180.02                 | 5897.67         |
|                                                | 18018.00   | 89.38       | 177.37           | 12334.81    | 5992.48      | -5992.58   | 2.34       | 0.64             | 444971.92          | 751765.38         | N 32 13 17.30            | W 103 39 10.35            | 179.98                 | 5992.58         |
|                                                | 18113.00   | 88.80       | 178.39           | 12336.32    | 6087.42      | -6087.50   | 5.85       | 1.24             | 444877.00          | 751768.89         | N 32 13 16.36            | W 103 39 10.31            | 179.94                 | 6087.50         |
|                                                | 18208.00   | 89.17       | 179.88           | 12338.00    | 6182.40      | -6182.47   | 7.29       | 1.62             | 444782.03          | 751770.33         | N 32 13 15.42            | W 103 39 10.30            | 179.93                 | 6182.47         |
|                                                | 18303.00   | 88.07       | 179.35           | 12340.29    | 6277.37      | -6277.44   | 7.93       | 1.29             | 444687.07          | 751770.97         | N 32 13 14.48            | W 103 39 10.30            | 179.93                 | 6277.44         |
|                                                | 18398.00   | 88.04       | 180.88           | 12343.51    | 6372.31      | -6372.38   | 7.74       | 1.61             | 444592.13          | 751770.78         | N 32 13 13.54            | W 103 39 10.31            | 179.93                 | 6372.39         |
|                                                | 18493.00   | 89.69       | 181.57           | 12345.39    | 6467.25      | -6467.34   | 5.71       | 1.88             | 444497.18          | 751768.74         | N 32 13 12.60            | W 103 39 10.34            | 179.95                 | 6467.34         |
|                                                | 18588.00   | 90.48       | 180.76           | 12345.25    | 6562.21      | -6562.32   | 3.77       | 1.19             | 444402.20          | 751766.81         | N 32 13 11.66            | W 103 39 10.37            | 179.97                 | 6562.32         |
|                                                | 18683.00   | 90.31       | 181.11           | 12344.60    | 6657.19      | -6657.30   | 2.22       | 0.41             | 444307.22          | 751765.26         | N 32 13 10.72            | W 103 39 10.40            | 179.98                 | 6657.30         |
|                                                | 18778.00   | 90.83       | 181.10           | 12343.65    | 6752.15      | -6752.28   | 0.39       | 0.55             | 444212.25          | 751763.43         | N 32 13 9.78             | W 103 39 10.42            | 180.00                 | 6752.28         |
|                                                | 18873.00   | 91.10       | 180.19           | 12342.05    | 6847.12      | -6847.26   | -0.68      | 1.00             | 444117.27          | 751762.36         | N 32 13 8.84             | W 103 39 10.44            | 180.01                 | 6847.26         |
|                                                | 18968.00   | 89.86       | 179.09           | 12341.26    | 6942.11      | -6942.25   | -0.08      | 1.74             | 444022.28          | 751762.96         | N 32 13 7.91             | W 103 39 10.44            | 180.00                 | 6942.25         |
|                                                | 19063.00   | 89.17       | 178.87           | 12342.06    | 7037.10      | -7037.23   | 1.61       | 0.76             | 443927.31          | 751764.65         | N 32 13 6.97             | W 103 39 10.43            | 179.99                 | 7037.23         |
|                                                | 19158.00   | 90.21       | 179.07           | 12342.58    | 7132.09      | -7132.21   | 3.32       | 1.11             | 443832.33          | 751766.36         | N 32 13 6.03             | W 103 39 10.42            | 179.97                 | 7132.21         |
|                                                | 19253.00   | 89.93       | 178.17           | 12342.46    | 7227.08      | -7227.18   | 5.61       | 0.99             | 443737.36          | 751768.65         | N 32 13 5.09             | W 103 39 10.40            | 179.96                 | 7227.18         |
|                                                | 19343.00   | 89.42       | 177.46           | 12342.97    | 7317.03      | -7317.11   | 9.04       | 0.97             | 443647.43          | 751772.08         | N 32 13 4.20             | W 103 39 10.37            | 179.93                 | 7317.12         |
|                                                | 19438.00   | 89.24       | 179.66           | 12344.08    | 7412.00      | -7412.07   | 11.42      | 2.32             | 443552.48          | 751774.46         | N 32 13 3.26             | W 103 39 10.34            | 179.91                 | 7412.08         |
|                                                | 19533.00   | 88.90       | 179.34           | 12345.62    | 7506.99      | -7507.06   | 12.25      | 0.49             | 443457.50          | 751775.29         | N 32 13 2.32             | W 103 39 10.34            | 179.91                 | 7507.07         |
|                                                | 19627.00   | 89.11       | 179.27           | 12347.26    | 7600.97      | -7601.03   | 13.39      | 0.24             | 443363.53          | 751776.43         | N 32 13 1.39             | W 103 39 10.34            | 179.90                 | 7601.05         |
|                                                | 19722.00   | 89.07       | 179.63           | 12348.76    | 7695.96      | -7696.02   | 14.30      | 0.38             | 443268.55          | 751777.34         | N 32 13 0.45             | W 103 39 10.33            | 179.89                 | 7696.03         |
|                                                | 19817.00   | 89.35       | 180.76           | 12350.07    | 7790.94      | -7791.01   | 13.98      | 1.23             | 443173.56          | 751777.02         | N 32 12 59.51            | W 103 39 10.34            | 179.90                 | 7791.02         |
|                                                | 19912.00   | 89.35       | 181.08           | 12351.15    | 7885.91      | -7885.99   | 12.46      | 0.34             | 443078.58          | 751775.50         | N 32 12 58.57            | W 103 39 10.37            | 179.91                 | 7886.00         |
|                                                | 20007.00   | 89.69       | 181.23           | 12351.95    | 7980.88      | -7980.97   | 10.54      | 0.39             | 442983.61          | 751773.58         | N 32 12 57.63            | W 103 39 10.40            | 179.92                 | 7980.97         |
|                                                | 20102.00   | 89.93       | 181.66           | 12352.26    | 8075.83      | -8075.93   | 8.15       | 0.52             | 442888.65          | 751771.19         | N 32 12 56.69            | W 103 39 10.43            | 179.94                 | 8075.94         |
|                                                | 20197.00   | 89.35       | 179.49           | 12352.86    | 8170.81      | -8170.92   | 7.19       | 2.36             | 442793.66          | 751770.23         | N 32 12 55.75            | W 103 39 10.45            | 179.95                 | 8170.93         |
|                                                | 20292.00   | 89.04       | 180.00           | 12354.19    | 8265.80      | -8265.91   | 7.62       | 0.63             | 442698.68          | 751770.65         | N 32 12 54.81            | W 103 39 10.45            | 179.95                 | 8265.91         |
|                                                | 20387.00   | 89.48       | 179.28           | 12355.42    | 8360.79      | -8360.90   | 8.21       | 0.89             | 442603.69          | 751771.25         | N 32 12 53.87            | W 103 39 10.45            | 179.94                 | 8360.90         |
|                                                | 20482.00   | 89.59       | 178.72           | 12356.19    | 8455.78      | -8455.88   | 9.87       | 0.60             | 442508.71          | 751772.91         | N 32 12 52.93            | W 103 39 10.44            | 179.93                 | 8455.89         |
|                                                | 20577.00   | 89.55       | 179.23           | 12356.91    | 8550.77      | -8550.86   | 11.57      | 0.54             | 442413.74          | 751774.61         | N 32 12 51.99            | W 103 39 10.43            | 179.92                 | 8550.87         |
|                                                | 20672.00   | 89.52       | 178.89           | 12357.68    | 8645.76      | -8645.85   | 13.13      | 0.36             | 442318.76          | 751776.17         | N 32 12 51.05            | W 103 39 10.42            | 179.91                 | 8645.86         |
|                                                | 20767.00   | 89.42       | 178.89           | 12358.55    | 8740.75      | -8740.83   | 14.97      | 0.11             | 442223.78          | 751778.01         | N 32 12 50.11            | W 103 39 10.40            | 179.90                 | 8740.84         |
|                                                | 20862.00   | 89.62       | 179.34           | 12359.35    | 8835.74      | -8835.81   | 16.44      | 0.52             | 442128.80          | 751779.47         | N 32 12 49.17            | W 103 39 10.39            | 179.89                 | 8835.83         |
|                                                | 20957.00   | 89.24       | 179.05           | 12360.30    | 8930.74      | -8930.80   | 17.77      | 0.50             | 442033.82          | 751780.81         | N 32 12 48.23            | W 103 39 10.38            | 179.89                 | 8930.81         |
|                                                | 21052.00   | 89.69       | 180.19           | 12361.18    | 9025.73      | -9025.79   | 18.40      | 1.29             | 441938.83          | 751781.44         | N 32 12 47.29            | W 103 39 10.38            | 179.88                 | 9025.81         |
|                                                | 21146.00   | 89.83       | 178.61           | 12361.58    | 9119.73      | -9119.78   | 19.38      | 1.69             | 441844.84          | 751782.42         | N 32 12 46.36            | W 103 39 10.38            | 179.88                 | 9119.80         |
|                                                | 21241.00   | 89.42       | 180.29           | 12362.20    | 9214.72      | -9214.77   | 20.30      | 1.82             | 441749.86          | 751783.34         | N 32 12 45.42            | W 103 39 10.37            | 179.87                 | 9214.79         |
|                                                | 21336.00   | 89.79       | 179.01           | 12362.85    | 9309.71      | -9309.76   | 20.88      | 1.40             | 441654.87          | 751783.92         | N 32 12 44.48            | W 103 39 10.37            | 179.87                 | 9309.79         |
|                                                | 21431.00   | 89.59       | 179.94           | 12363.37    | 9404.71      | -9404.76   | 21.75      | 1.00             | 441559.88          | 751784.79         | N 32 12 43.54            | W 103 39 10.37            | 179.87                 | 9404.78         |
|                                                | 21526.00   | 89.42       | 181.63           | 12364.19    | 9499.69      | -9499.74   | 20.45      | 1.79             | 441464.90          | 751783.48         | N 32 12 42.60            | W 103 39 10.39            | 179.88                 | 9499.76         |
|                                                | 21621.00   | 89.55       | 181.51           | 12365.04    | 9594.63      | -9594.70   | 17.84      | 0.19             | 441369.94          | 751780.88         | N 32 12 41.66            | W 103 39 10.43            | 179.89                 | 9594.72         |
|                                                | 21716.00   | 89.76       | 180.88           | 12365.61    | 9689.59      | -9689.68   | 15.86      | 0.70             | 441274.97          | 751778.90         | N 32 12 40.72            | W 103 39 10.46            | 179.91                 | 9689.69         |
|                                                | 21811.00   | 89.66       | 179.53           | 12366.10    | 9784.58      | -9784.68   | 15.52      | 1.42             | 441179.98          | 751778.56         | N 32 12 39.78            | W 103 39 10.47            | 179.91                 | 9784.69         |
|                                                | 21906.00   | 89.21       | 179.14           | 12367.03    | 9879.58      | -9879.66   | 16.62      | 0.63             | 441084.99          | 751779.66         | N 32 12 38.84            | W 103 39 10.47            | 179.90                 | 9879.68         |
|                                                | 21924.00   | 89.69       | 179.38           | 12367.20    | 9897.58      | -9897.66   | 16.86      | 2.98             | 441067.00          | 751779.90         | N 32 12 38.66            | W 103 39 10.46            | 179.90                 | 9897.68         |
| Last Survey<br>TD, PTB [101'<br>FSL, 328' FWL] | 21967.00   | 89.65       | 179.00           | 12367.45    | 9940.57      | -9940.66   | 17.46      | 0.89             | 441024.00          | 751780.50         | N 32 12 38.23            | W 103 39 10.46            | 179.90                 | 9940.67         |

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 \*\*\* 3-D 95.00% Confidence 2.7955 sigma

| 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 ° ° °) | Closure<br>Azimuth<br>(°) | Closure<br>(ft) |
|-----------------|------------|-----------------|------------------|------------------|--------------|-------------------------|----------------------------|----------------------------------------------------------------------------------------|--------------------|-------------------|-------------------------|--------------------------|---------------------------|-----------------|
| 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           | 26.000           | 1/98.425         | 14.750       | 10.750                  | NAL_MWD_IFR1+MS-Depth Only | ST01 / Final Surveys - Cimarex<br>Dos Equis 11-14 Federal Com 4H<br>ST01 MWD Off-21967 |                    |                   |                         |                          |                           |                 |
|                 | 1          | 26.000          | 26.000           | Act Stns         | 14.750       | 10.750                  | NAL_MWD_IFR1+MS-Depth Only | ST01 / Final Surveys - Cimarex<br>Dos Equis 11-14 Federal Com 4H<br>ST01 MWD Off-21967 |                    |                   |                         |                          |                           |                 |
|                 | 1          | 26.000          | 1224.000         | Act Stns         | 14.750       | 10.750                  | NAL_MWD_IFR1+MS            | ST01 / Final Surveys - Cimarex<br>Dos Equis 11-14 Federal Com 4H                       |                    |                   |                         |                          |                           |                 |
|                 | 1          | 1224.000        | 11847.000        | Act Stns         | 9.875        | 7.625                   | NAL_MWD_IFR1+MS            | ST01 / Final Surveys - Cimarex<br>Dos Equis 11-14 Federal Com 4H                       |                    |                   |                         |                          |                           |                 |
|                 | 1          | 11847.000       | 13118.000        | Act Stns         | 8.750        | 7.000                   | NAL_MWD_IFR1+MS            | ST01 / Final Surveys - Cimarex<br>Dos Equis 11-14 Federal Com 4H                       |                    |                   |                         |                          |                           |                 |
|                 | 1          | 13118.000       | 21967.000        | Act Stns         | 6.000        | 4.500                   | NAL_MWD_IFR1+MS            | ST01 / Final Surveys - Cimarex<br>Dos Equis 11-14 Federal Com 4H                       |                    |                   |                         |                          |                           |                 |