

Schlumberger Drilling and Measurements  
Drilling Group  
Geo Market Area: South West Texas Basin  
7220 W I-H 20  
Midland, Texas 79706  
Phone : (432) 742-5400 (Main)  
Fax : (432) 742-5606 (Shared)

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**Schlumberger**

October 17, 2016

Cimarex Energy Company  
600 N. Marienfeld St., Ste. 600  
Midland, TX 79701

Re:

33, 26S, 27E, Eddy NM  
N 32.00082 W -104.19450

CLIENT: Cimarex Energy Company  
WELL: Klein 33 Federal Com 7H  
FIELD: Wildcat

RIG: Cactus 148  
COUNTY: eddy  
API NO: 30-015-42180  
JOB NO: 16MLD1056

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-5 No. 754900).  
Other information required by your office is as follows.

| <u>Name &amp; Title of<br/>Surveyor</u> | <u>Drainhole Number</u> | <u>Surveyed Depths</u> | <u>Dates Performed</u> | <u>Type of Survey</u> |
|-----------------------------------------|-------------------------|------------------------|------------------------|-----------------------|
| David Bucklaew                          | Klein 33 Federal Com    |                        |                        |                       |
| FS                                      | 7H                      | 6860.00 Ft to          | October 6, 2016 to     | SlimPulse             |
|                                         | Original Hole           | 14026.00 Ft            | October 12, 2016       | SlimPulse             |

If any other information is required, please contact the undersigned at the above letterhead and phone number.  
Sincerely,

Azamat Akkuzhin  
Field Service Manager

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Drilling Group  
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# Schlumberger

Well Reference:

33, 26S, 27E, Eddy NM  
N 32.00082 W -104.19450

I, David Bucklaew certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of October 06, 2016 through October 12, 2016, conduct or supervise the taking of the SlimPulse surveys from a depth of 6860.00 feet to a depth of 14026.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of Cimarex Energy Company for the Klein 33 Federal Com 7H Well (Original Hole) API No. 30-015-42180 in New Mexico; and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

By  
David Bucklaew

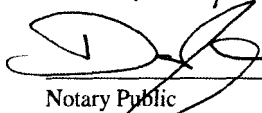
FS



Subscribed and Sworn to before me this OCTOBER day of 17<sup>th</sup> (month) 2016 (yr)

My Commission expires:

01/12/2020



Notary Public

HARRIS, TX.

(County State)

(signature)

## Cimarex Klein 33 Federal Com #7H MWD Off to 14097ft Survey Report



(Def Survey)

Report Date: October 13, 2016 - 09:29 AM  
 Client: Cimarex  
 Field: NM Eddy County (NAD 83)  
 Structure / Slot: Cimarex Klein 33 Federal Com #7H / Cimarex Klein 33 Federal Com #7H  
 Well: Cimarex Klein 33 Federal Com #7H  
 Borehole: Original Borehole  
 UWI / API#: Unknown / Unknown  
 Survey Name: Cimarex Klein 33 Federal Com #7H MWD Off to 14097ft  
 Survey Date: September 28, 2016  
 Tort / AHD / DDI / ERD Ratio: 218.115° / 7251.497 ft / 6.474 / 0.968  
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet  
 Location Lat / Long: N 32° 0' 2.93783", W 104° 11' 40.20876"  
 Location Grid N/E Y/X: N 364064.020 ftUS, E 584373.060 ftUS  
 CRS Grid Convergence Angle: 0.0736°  
 Grid Scale Factor: 0.99991121  
 Version / Patch: 2.10.254.0

Survey / DLS Computation: Minimum Curvature / Lubinski  
 Vertical Section Azimuth: 358.710° (Grid North)  
 Vertical Section Origin: 0.000 ft, 0.000 ft  
 TVD Reference Datum: RKB  
 TVD Reference Elevation: 3221.000 ft above MSL  
 Seabed / Ground Elevation: 3197.000 ft above MSL  
 Magnetic Declination: 7.440°  
 Total Gravity Field Strength: 998.4326mgm (9.80665 Based)  
 Gravity Model: GARM  
 Total Magnetic Field Strength: 46044.551 nT  
 Magnetic Dip Angle: 59.705°  
 Declination Date: September 28, 2016  
 Magnetic Declination Model: HDGM 2016  
 North Reference: Grid North  
 Grid Convergence Used: 0.0736°  
 Total Corr Mag North->Grid North: 7.3660°  
 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 Cimarex Klein 33 Federal Com 7H | 0.00       | 0.00        | 318.00           | 0.00        | 0.00         | 0.00       | 0.00       | N/A              | 364064.02          | 584373.06         | N 32° 0' 2.94"          | W 104° 11' 40.21"        |
|                                     | 176.00     | 0.40        | 215.85           | 176.00      | -0.49        | -0.50      | -0.36      | 0.23             | 364063.52          | 584372.70         | N 32° 0' 2.93"          | W 104° 11' 40.21"        |
|                                     | 266.00     | 0.49        | 179.06           | 266.00      | -1.13        | -1.14      | -0.54      | 0.33             | 364062.88          | 584372.52         | N 32° 0' 2.93"          | W 104° 11' 40.22"        |
|                                     | 352.00     | 0.31        | 185.27           | 351.99      | -1.72        | -1.74      | -0.55      | 0.21             | 364062.28          | 584372.51         | N 32° 0' 2.92"          | W 104° 11' 40.22"        |
|                                     | 476.00     | 0.31        | 198.18           | 475.99      | -2.37        | -2.39      | -0.69      | 0.06             | 364061.63          | 584372.37         | N 32° 0' 2.91"          | W 104° 11' 40.22"        |
|                                     | 564.00     | 0.49        | 197.79           | 563.99      | -2.95        | -2.97      | -0.88      | 0.20             | 364061.05          | 584372.18         | N 32° 0' 2.91"          | W 104° 11' 40.22"        |
|                                     | 651.00     | 0.49        | 188.49           | 650.99      | -3.67        | -3.70      | -1.05      | 0.09             | 364060.32          | 584372.01         | N 32° 0' 2.90"          | W 104° 11' 40.22"        |
|                                     | 733.00     | 0.40        | 262.48           | 732.98      | -4.05        | -4.08      | -1.38      | 0.66             | 364059.94          | 584371.68         | N 32° 0' 2.90"          | W 104° 11' 40.22"        |
|                                     | 824.00     | 0.80        | 271.91           | 823.98      | -4.05        | -4.10      | -2.33      | 0.45             | 364059.92          | 584370.73         | N 32° 0' 2.90"          | W 104° 11' 40.24"        |
|                                     | 913.00     | 0.40        | 232.91           | 912.97      | -4.19        | -4.27      | -3.20      | 0.62             | 364059.75          | 584369.86         | N 32° 0' 2.90"          | W 104° 11' 40.25"        |
|                                     | 1021.00    | 0.80        | 296.98           | 1020.97     | -4.06        | -4.15      | -4.17      | 0.67             | 364059.87          | 584368.89         | N 32° 0' 2.90"          | W 104° 11' 40.26"        |
|                                     | 1114.00    | 0.71        | 313.81           | 1113.96     | -3.34        | -3.46      | -5.17      | 0.26             | 364060.56          | 584367.89         | N 32° 0' 2.90"          | W 104° 11' 40.27"        |
|                                     | 1208.00    | 0.71        | 354.14           | 1207.96     | -2.35        | -2.48      | -5.65      | 0.52             | 364061.54          | 584367.41         | N 32° 0' 2.91"          | W 104° 11' 40.27"        |
|                                     | 1303.00    | 0.88        | 23.10            | 1302.95     | -1.10        | -1.22      | -5.42      | 0.45             | 364062.80          | 584367.64         | N 32° 0' 2.93"          | W 104° 11' 40.27"        |
|                                     | 1397.00    | 1.50        | 40.77            | 1396.93     | 0.47         | 0.38       | -4.33      | 0.76             | 364064.40          | 584366.73         | N 32° 0' 2.94"          | W 104° 11' 40.26"        |
|                                     | 1490.00    | 2.12        | 51.61            | 1489.88     | 2.41         | 2.37       | -2.19      | 0.76             | 364066.39          | 584370.87         | N 32° 0' 2.96"          | W 104° 11' 40.23"        |
|                                     | 1583.00    | 1.10        | 356.82           | 1582.85     | 4.34         | 4.33       | -0.89      | 1.87             | 364068.34          | 584372.17         | N 32° 0' 2.98"          | W 104° 11' 40.22"        |
|                                     | 1677.00    | 1.20        | 2.70             | 1676.83     | 6.23         | 6.21       | -0.90      | 0.16             | 364070.23          | 584372.16         | N 32° 0' 3.00"          | W 104° 11' 40.22"        |
|                                     | 1770.00    | 0.71        | 286.14           | 1769.82     | 7.37         | 7.34       | -2.18      | 1.34             | 364071.36          | 584371.66         | N 32° 0' 3.01"          | W 104° 11' 40.22"        |
|                                     | 1866.00    | 0.49        | 330.08           | 1865.81     | 7.91         | 7.86       | -2.18      | 0.51             | 364071.88          | 584370.88         | N 32° 0' 3.02"          | W 104° 11' 40.23"        |
|                                     | 1964.00    | 0.62        | 332.06           | 1963.81     | 8.72         | 8.66       | -2.69      | 0.14             | 364072.68          | 584370.37         | N 32° 0' 3.02"          | W 104° 11' 40.24"        |
|                                     | 2059.00    | 1.41        | 332.06           | 2058.79     | 10.20        | 10.12      | -3.53      | 0.84             | 364074.14          | 584369.54         | N 32° 0' 3.04"          | W 104° 11' 40.25"        |
|                                     | 2152.00    | 1.33        | 328.05           | 2151.77     | 12.15        | 12.05      | -4.63      | 0.13             | 364076.07          | 584368.43         | N 32° 0' 3.06"          | W 104° 11' 40.26"        |

| Comments | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northings<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S...) | Longitude<br>(E/W...) |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|---------------------|-------------------|----------------------|-----------------------|
|          | 2247.00    | 1.50        | 328.05           | 2246.74     | 14.17        | 14.04      | -5.87      | 0.18             | 3640778.06          | 584367.19         | N 32 0               | 3.08 W 104 11 40.28   |
|          | 2341.00    | 1.50        | 320.56           | 2340.70     | 16.19        | 16.03      | -7.31      | 0.21             | 364080.05           | 584365.75         | N 32 0               | 3.10 W 104 11 40.29   |
|          | 2435.00    | 1.50        | 323.73           | 2434.67     | 18.17        | 17.98      | -8.82      | 0.09             | 364081.99           | 584364.24         | N 32 0               | 3.12 W 104 11 40.31   |
|          | 2531.00    | 0.62        | 183.46           | 2530.66     | 18.68        | 18.47      | -9.59      | 2.10             | 364082.49           | 584363.47         | N 32 0               | 3.12 W 104 11 40.32   |
|          | 2625.00    | 0.88        | 181.74           | 2624.65     | 17.45        | 17.24      | -9.64      | 0.28             | 364081.26           | 584363.42         | N 32 0               | 3.11 W 104 11 40.32   |
|          | 2720.00    | 0.88        | 179.63           | 2719.64     | 16.00        | 15.78      | -9.66      | 0.03             | 364079.80           | 584363.40         | N 32 0               | 3.09 W 104 11 40.32   |
|          | 2814.00    | 0.88        | 184.56           | 2813.63     | 14.56        | 14.34      | -9.71      | 0.08             | 364078.36           | 584363.35         | N 32 0               | 3.08 W 104 11 40.32   |
|          | 2909.00    | 0.71        | 185.98           | 2908.62     | 13.25        | 13.03      | -9.83      | 0.18             | 364077.05           | 584363.23         | N 32 0               | 3.07 W 104 11 40.32   |
|          | 3004.00    | 1.02        | 197.92           | 3003.61     | 11.86        | 11.64      | -10.15     | 0.38             | 364075.66           | 584362.91         | N 32 0               | 3.05 W 104 11 40.33   |
|          | 3098.00    | 0.80        | 190.56           | 3097.60     | 10.43        | 10.20      | -10.91     | 0.26             | 364074.22           | 584362.53         | N 32 0               | 3.04 W 104 11 40.33   |
|          | 3193.00    | 0.80        | 202.50           | 3192.59     | 9.18         | 8.93       | -10.91     | 0.18             | 364072.95           | 584362.15         | N 32 0               | 3.03 W 104 11 40.34   |
|          | 3287.00    | 0.62        | 172.14           | 3286.58     | 8.07         | 7.82       | -11.09     | 0.44             | 364071.84           | 584361.97         | N 32 0               | 3.02 W 104 11 40.34   |
|          | 3380.00    | 0.88        | 195.98           | 3379.58     | 6.89         | 6.64       | -11.22     | 0.03             | 364070.66           | 584361.84         | N 32 0               | 3.00 W 104 11 40.34   |
|          | 3474.00    | 0.71        | 199.02           | 3473.57     | 5.65         | 5.39       | -11.61     | 0.19             | 364069.41           | 584361.46         | N 32 0               | 2.99 W 104 11 40.34   |
|          | 3568.00    | 2.30        | 196.68           | 3567.53     | 3.31         | 3.03       | -12.34     | 1.69             | 364067.05           | 584360.72         | N 32 0               | 2.97 W 104 11 40.35   |
|          | 3662.00    | 3.93        | 194.79           | 3661.39     | -1.58        | -1.89      | -13.70     | 1.74             | 364062.13           | 584359.36         | N 32 0               | 2.92 W 104 11 40.37   |
|          | 3755.00    | 5.74        | 198.40           | 3754.06     | -9.02        | -9.38      | -15.98     | 1.97             | 364054.64           | 584357.08         | N 32 0               | 2.85 W 104 11 40.39   |
|          | 3849.00    | 7.42        | 204.00           | 3847.43     | -18.93       | -19.39     | -19.93     | 1.91             | 364044.63           | 584353.13         | N 32 0               | 2.75 W 104 11 40.44   |
|          | 3944.00    | 7.42        | 205.63           | 3941.64     | -29.95       | -30.52     | -25.08     | 0.22             | 364033.50           | 584347.98         | N 32 0               | 2.64 W 104 11 40.50   |
|          | 4037.00    | 7.16        | 205.94           | 4033.89     | -40.46       | -41.15     | -30.22     | 0.28             | 364022.88           | 584342.85         | N 32 0               | 2.53 W 104 11 40.56   |
|          | 4132.00    | 6.94        | 205.72           | 4128.17     | -50.84       | -51.64     | -35.30     | 0.23             | 364012.38           | 584337.77         | N 32 0               | 2.43 W 104 11 40.62   |
|          | 4226.00    | 7.95        | 205.72           | 4221.37     | -61.89       | -62.62     | -40.58     | 1.07             | 364001.41           | 584332.48         | N 32 0               | 2.32 W 104 11 40.62   |
|          | 4321.00    | 7.25        | 207.52           | 4315.54     | -72.79       | -73.85     | -46.20     | 0.89             | 363990.18           | 584326.86         | N 32 0               | 2.21 W 104 11 40.75   |
|          | 4414.00    | 6.94        | 208.54           | 4407.83     | -82.81       | -83.99     | -51.60     | 0.36             | 363980.04           | 584321.47         | N 32 0               | 2.11 W 104 11 40.81   |
|          | 4508.00    | 7.73        | 206.42           | 4501.06     | -93.33       | -94.64     | -57.13     | 0.89             | 363969.39           | 584315.94         | N 32 0               | 2.00 W 104 11 40.87   |
|          | 4602.00    | 7.25        | 204.22           | 4594.26     | -104.28      | -105.71    | -62.37     | 0.59             | 363958.32           | 584310.69         | N 32 0               | 1.89 W 104 11 40.93   |
|          | 4699.00    | 6.72        | 206.42           | 4690.54     | -114.83      | -116.38    | -67.41     | 0.61             | 363947.65           | 584305.66         | N 32 0               | 1.79 W 104 11 40.99   |
|          | 4794.00    | 7.56        | 207.04           | 4784.80     | -125.25      | -126.92    | -72.72     | 0.89             | 363937.11           | 584300.34         | N 32 0               | 1.68 W 104 11 41.06   |
|          | 4888.00    | 7.34        | 206.03           | 4878.00     | -136.03      | -137.83    | -78.17     | 0.27             | 363926.21           | 584294.90         | N 32 0               | 1.57 W 104 11 41.12   |
|          | 4983.00    | 6.72        | 203.91           | 4972.29     | -146.45      | -148.36    | -83.08     | 0.71             | 363915.67           | 584289.98         | N 32 0               | 1.47 W 104 11 41.18   |
|          | 5077.00    | 6.72        | 203.82           | 5066.64     | -156.41      | -158.42    | -87.53     | 0.01             | 363905.62           | 584285.53         | N 32 0               | 1.37 W 104 11 41.23   |
|          | 5170.00    | 5.04        | 202.90           | 5156.15     | -165.06      | -167.16    | -91.32     | 1.81             | 363896.88           | 584281.75         | N 32 0               | 1.28 W 104 11 41.27   |
|          | 5263.00    | 2.70        | 203.21           | 5250.93     | -170.78      | -172.94    | -93.78     | 2.52             | 363891.10           | 584279.29         | N 32 0               | 1.23 W 104 11 41.30   |
|          | 5357.00    | 1.19        | 210.43           | 5344.88     | -173.63      | -175.81    | -95.14     | 1.62             | 363888.22           | 584277.93         | N 32 0               | 1.20 W 104 11 41.32   |
|          | 5451.00    | 1.19        | 222.37           | 5438.86     | -175.16      | -177.38    | -96.29     | 0.26             | 363886.66           | 584276.77         | N 32 0               | 1.17 W 104 11 41.33   |
|          | 5545.00    | 1.19        | 236.92           | 5532.84     | -176.38      | -178.63    | -97.77     | 0.32             | 363885.41           | 584275.30         | N 32 0               | 1.17 W 104 11 41.35   |
|          | 5640.00    | 1.50        | 245.64           | 5627.81     | -177.39      | -179.68    | -99.73     | 0.39             | 363884.35           | 584273.34         | N 32 0               | 1.16 W 104 11 41.37   |
|          | 5734.00    | 1.50        | 282.35           | 5721.78     | -177.58      | -179.93    | -102.05    | 1.00             | 363884.11           | 584271.02         | N 32 0               | 1.16 W 104 11 41.41   |
|          | 5829.00    | 0.88        | 291.74           | 5816.76     | -177.01      | -179.39    | -103.94    | 0.68             | 363884.65           | 584269.13         | N 32 0               | 1.16 W 104 11 41.42   |
|          | 5921.00    | 1.33        | 275.12           | 5908.74     | -176.61      | -179.03    | -105.66    | 0.60             | 363885.00           | 584267.41         | N 32 0               | 1.17 W 104 11 41.44   |
|          | 6017.00    | 1.33        | 279.93           | 6004.72     | -176.27      | -178.74    | -107.87    | 0.12             | 363885.29           | 584265.20         | N 32 0               | 1.17 W 104 11 41.46   |
|          | 6113.00    | 1.72        | 282.75           | 6100.68     | -175.70      | -178.23    | -110.37    | 0.41             | 363885.80           | 584262.70         | N 32 0               | 1.18 W 104 11 41.48   |
|          | 6206.00    | 0.71        | 229.69           | 6193.66     | -175.73      | -178.30    | -112.17    | 1.52             | 363885.74           | 584260.90         | N 32 0               | 1.17 W 104 11 41.51   |
|          | 6301.00    | 0.61        | 328.36           | 6288.66     | -174.75      | -178.25    | -112.89    | 1.06             | 363885.79           | 584260.18         | N 32 0               | 1.18 W 104 11 41.52   |
|          | 6395.00    | 0.80        | 319.54           | 6382.65     | -174.72      | -177.32    | -113.58    | 0.23             | 363886.71           | 584258.49         | N 32 0               | 1.18 W 104 11 41.53   |
|          | 6490.00    | 1.02        | 319.33           | 6477.64     | -173.61      | -176.24    | -114.62    | 0.25             | 363887.80           | 584256.45         | N 32 0               | 1.20 W 104 11 41.54   |
|          | 6585.00    | 1.02        | 304.21           | 6572.62     | -172.53      | -175.18    | -115.94    | 0.17             | 363888.86           | 584255.73         | N 32 0               | 1.21 W 104 11 41.56   |
|          | 6679.00    | 1.19        | 293.15           | 6666.61     | -171.64      | -174.33    | -117.53    | 0.29             | 363888.71           | 584255.54         | N 32 0               | 1.21 W 104 11 41.58   |
|          | 6773.00    | 1.10        | 292.66           | 6760.59     | -170.87      | -173.60    | -119.26    | 0.10             | 363889.44           | 584253.81         | N 32 0               | 1.22 W 104 11 41.60   |
|          | 6813.00    | 1.19        | 298.17           | 6800.58     | -170.51      | -173.25    | -119.98    | 0.36             | 363890.78           | 584253.09         | N 32 0               | 1.22 W 104 11 41.60   |
|          | 6860.00    | 1.49        | 339.93           | 6847.57     | -169.69      | -172.45    | -120.62    | 2.12             | 363891.59           | 584252.47         | N 32 0               | 1.23 W 104 11 41.61   |
|          | 6892.00    | 5.45        | 13.61            | 6879.51     | -167.83      | -170.58    | -120.40    | 13.41            | 363893.46           | 584252.65         | N 32 0               | 1.25 W 104 11 41.61   |
|          | 6923.00    | 9.59        | 17.13            | 6910.23     | -163.95      | -166.68    | -119.29    | 13.43            | 363897.36           | 584253.78         | N 32 0               | 1.29 W 104 11 41.80   |
|          | 6955.00    | 14.51       | 15.67            | 6941.52     | -157.58      | -160.27    | -117.43    | 15.40            | 363903.77           | 584255.65         | N 32 0               | 1.35 W 104 11 41.57   |
|          | 6986.00    | 18.45       | 12.51            | 6971.24     | -149.10      | -151.74    | -115.31    | 13.03            | 363912.30           | 584257.76         | N 32 0               | 1.44 W 104 11 41.55   |
|          | 7017.00    | 22.97       | 9.92             | 7000.23     | -138.40      | -140.98    | -113.21    | 14.87            | 363923.05           | 584259.86         | N 32 0               | 1.54 W 104 11 41.53   |
|          | 7049.00    | 27.07       | 5.76             | 7029.22     | -125.04      | -127.58    | -111.40    | 13.94            | 363936.45           | 584261.67         | N 32 0               | 1.68 W 104 11 41.50   |
|          | 7080.00    | 30.46       | 359.39           | 7056.40     | -110.18      | -112.70    | -110.78    | 14.73            | 363951.33           | 584262.29         | N 32 0               | 1.82 W 104 11 41.50   |

| Comments                  | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(1/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' '') | Longitude<br>(E/W ° ' '') |
|---------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|--------------------------|---------------------------|
| First Legal Take<br>Point | 7112.00    | 33.97       | 355.02           | 7083.47     | -93.14       | -95.67     | -111.64    | 13.16            | 363968.36          | 584261.43         | N 32 0 1.99              | W 104 11 41.51            |
|                           | 7143.00    | 36.14       | 355.35           | 7108.85     | -77.93       | -77.93     | -113.13    | 7.03             | 363986.10          | 584259.94         | N 32 0 2.17              | W 104 11 41.52            |
|                           | 7175.00    | 37.98       | 357.72           | 7134.38     | -56.10       | -58.69     | -114.29    | 7.28             | 364005.34          | 584258.78         | N 32 0 2.36              | W 104 11 41.54            |
|                           | 7206.00    | 40.94       | 1.16             | 7156.32     | -36.41       | -38.99     | -114.46    | 11.87            | 364025.03          | 584258.61         | N 32 0 2.55              | W 104 11 41.54            |
|                           | 7237.00    | 43.88       | 2.55             | 7181.20     | -15.53       | -18.10     | -113.78    | 9.95             | 364045.92          | 584259.29         | N 32 0 2.76              | W 104 11 41.53            |
|                           | 7268.00    | 47.05       | 4.37             | 7202.94     | 6.48         | 3.95       | -112.44    | 11.05            | 364067.97          | 584260.63         | N 32 0 2.98              | W 104 11 41.51            |
|                           | 7300.00    | 50.74       | 5.74             | 7223.98     | 30.44        | 27.96      | -110.30    | 11.97            | 364091.98          | 584262.77         | N 32 0 3.22              | W 104 11 41.49            |
|                           | 7315.30    | 53.05       | 5.61             | 7233.42     | 42.39        | 39.94      | -109.11    | 15.11            | 364103.96          | 584263.96         | N 32 0 3.33              | W 104 11 41.48            |
|                           | 7331.00    | 55.42       | 5.48             | 7242.60     | 55.04        | 52.62      | -107.88    | 15.11            | 364116.64          | 584265.19         | N 32 0 3.46              | W 104 11 41.46            |
|                           | 7383.00    | 59.61       | 5.66             | 7258.78     | 81.83        | 79.48      | -105.26    | 13.10            | 364143.50          | 584267.81         | N 32 0 3.73              | W 104 11 41.43            |
|                           | 7395.00    | 63.28       | 5.04             | 7275.07     | 109.75       | 107.46     | -102.67    | 11.59            | 364171.47          | 584270.42         | N 32 0 4.00              | W 104 11 41.40            |
|                           | 7426.00    | 67.09       | 3.45             | 7288.08     | 137.75       | 135.52     | -100.57    | 13.14            | 364199.52          | 584272.50         | N 32 0 4.28              | W 104 11 41.37            |
|                           | 7458.00    | 71.24       | 1.42             | 7299.46     | 167.58       | 165.39     | -99.31     | 14.26            | 364229.39          | 584273.76         | N 32 0 4.58              | W 104 11 41.36            |
|                           | 7490.00    | 75.34       | 0.38             | 7308.66     | 198.20       | 196.03     | -98.83     | 13.18            | 364260.03          | 584274.24         | N 32 0 4.88              | W 104 11 41.35            |
|                           | 7521.00    | 78.16       | 1.02             | 7315.76     | 228.36       | 226.20     | -98.46     | 10.20            | 364290.20          | 584274.61         | N 32 0 5.18              | W 104 11 41.35            |
|                           | 7552.00    | 81.30       | 1.40             | 7321.29     | 258.83       | 256.69     | -97.81     | 9.32             | 364320.69          | 584275.26         | N 32 0 5.48              | W 104 11 41.34            |
|                           | 7584.00    | 84.87       | 1.34             | 7325.14     | 290.55       | 288.44     | -97.05     | 11.16            | 364352.44          | 584276.02         | N 32 0 5.79              | W 104 11 41.33            |
|                           | 7615.00    | 87.01       | 1.98             | 7327.34     | 321.43       | 319.35     | -96.16     | 7.20             | 364383.34          | 584278.91         | N 32 0 6.10              | W 104 11 41.32            |
|                           | 7647.00    | 87.87       | 1.77             | 7328.77     | 353.35       | 351.30     | -95.11     | 2.77             | 364415.29          | 584277.96         | N 32 0 6.42              | W 104 11 41.31            |
|                           | 7680.00    | 88.62       | 1.95             | 7329.78     | 386.29       | 384.27     | -94.04     | 2.34             | 364448.25          | 584279.03         | N 32 0 6.74              | W 104 11 41.30            |
|                           | 7774.00    | 88.76       | 357.69           | 7331.93     | 480.22       | 478.22     | -94.34     | 4.53             | 364542.20          | 584278.73         | N 32 0 7.67              | W 104 11 41.30            |
|                           | 7867.00    | 88.42       | 353.44           | 7334.22     | 573.03       | 570.89     | -101.52    | 4.58             | 364634.86          | 584271.55         | N 32 0 8.59              | W 104 11 41.38            |
|                           | 7962.00    | 87.45       | 356.28           | 7337.64     | 667.75       | 665.44     | -110.03    | 3.16             | 364729.40          | 584263.04         | N 32 0 9.52              | W 104 11 41.48            |
|                           | 8056.00    | 87.56       | 2.00             | 7341.74     | 761.62       | 759.30     | -111.44    | 6.08             | 364823.25          | 584261.84         | N 32 0 10.45             | W 104 11 41.49            |
|                           | 8151.00    | 88.11       | 3.08             | 7345.33     | 866.33       | 854.14     | -107.23    | 1.28             | 364918.08          | 584265.84         | N 32 0 11.39             | W 104 11 41.44            |
|                           | 8246.00    | 88.49       | 2.46             | 7348.14     | 951.05       | 948.98     | -102.64    | 0.77             | 365012.92          | 584270.43         | N 32 0 12.33             | W 104 11 41.39            |
|                           | 8340.00    | 88.76       | 359.71           | 7350.40     | 1044.94      | 1042.93    | -100.86    | 2.94             | 365106.86          | 584272.21         | N 32 0 13.26             | W 104 11 41.36            |
|                           | 8435.00    | 88.93       | 357.95           | 7352.31     | 1137.89      | 1137.89    | -102.86    | 1.86             | 365201.80          | 584270.27         | N 32 0 14.20             | W 104 11 41.36            |
|                           | 8530.00    | 88.52       | 358.28           | 7354.43     | 1234.88      | 1232.81    | -105.93    | 0.55             | 365296.72          | 584267.14         | N 32 0 15.14             | W 104 11 41.42            |
|                           | 8624.00    | 88.80       | 359.03           | 7356.63     | 1328.86      | 1326.76    | -107.89    | 1.16             | 365390.66          | 584265.18         | N 32 0 16.07             | W 104 11 41.44            |
|                           | 8718.00    | 88.73       | 359.09           | 7358.65     | 1422.83      | 1420.72    | -109.18    | 0.27             | 365484.62          | 584263.89         | N 32 0 17.00             | W 104 11 41.46            |
|                           | 8812.00    | 88.76       | 358.44           | 7360.71     | 1516.81      | 1514.69    | -111.21    | 0.69             | 365578.57          | 584261.86         | N 32 0 17.93             | W 104 11 41.48            |
|                           | 8907.00    | 88.59       | 359.07           | 7362.91     | 1611.78      | 1609.64    | -113.27    | 0.69             | 365673.51          | 584259.80         | N 32 0 18.87             | W 104 11 41.50            |
|                           | 9001.00    | 88.62       | 358.95           | 7365.20     | 1705.75      | 1703.60    | -114.89    | 0.13             | 365767.46          | 584258.18         | N 32 0 19.80             | W 104 11 41.52            |
|                           | 9095.00    | 88.66       | 359.21           | 7367.43     | 1799.72      | 1797.56    | -116.40    | 0.28             | 365861.42          | 584256.67         | N 32 0 20.73             | W 104 11 41.53            |
|                           | 9190.00    | 89.04       | 359.22           | 7369.33     | 1894.70      | 1892.53    | -117.70    | 0.40             | 365956.38          | 584255.37         | N 32 0 21.67             | W 104 11 41.55            |
|                           | 9284.00    | 88.80       | 358.89           | 7371.11     | 1988.68      | 1986.50    | -119.25    | 0.43             | 366050.34          | 584253.82         | N 32 0 22.60             | W 104 11 41.56            |
|                           | 9378.00    | 87.90       | 359.47           | 7373.81     | 2082.64      | 2080.45    | -120.60    | 1.14             | 366144.28          | 584252.47         | N 32 0 23.53             | W 104 11 41.58            |
|                           | 9472.00    | 88.73       | 0.16             | 7376.58     | 2176.58      | 2174.41    | -120.90    | 1.15             | 366238.23          | 584252.17         | N 32 0 24.46             | W 104 11 41.58            |
|                           | 9566.00    | 88.38       | 359.32           | 7378.95     | 2270.53      | 2268.38    | -121.33    | 0.97             | 366332.19          | 584251.74         | N 32 0 25.39             | W 104 11 41.58            |
|                           | 9660.00    | 88.11       | 359.44           | 7381.83     | 2364.48      | 2362.33    | -122.35    | 0.31             | 366426.13          | 584250.73         | N 32 0 26.32             | W 104 11 41.59            |
|                           | 9755.00    | 87.66       | 359.66           | 7385.33     | 2459.41      | 2457.26    | -123.09    | 0.53             | 366521.06          | 584249.98         | N 32 0 27.26             | W 104 11 41.60            |
|                           | 9850.00    | 88.38       | 359.17           | 7388.61     | 2554.34      | 2552.20    | -124.06    | 0.92             | 366615.99          | 584248.01         | N 32 0 28.19             | W 104 11 41.61            |
|                           | 9944.00    | 87.94       | 359.33           | 7391.63     | 2648.29      | 2646.14    | -125.29    | 0.50             | 366709.92          | 584247.78         | N 32 0 29.12             | W 104 11 41.63            |
|                           | 10038.00   | 87.94       | 0.59             | 7395.01     | 2742.21      | 2740.08    | -125.36    | 1.34             | 366803.85          | 584247.72         | N 32 0 30.05             | W 104 11 41.62            |
|                           | 10132.00   | 88.31       | 0.05             | 7398.09     | 2836.12      | 2834.93    | -124.83    | 0.70             | 366897.79          | 584248.24         | N 32 0 30.98             | W 104 11 41.62            |
|                           | 10227.00   | 88.11       | 359.87           | 7401.05     | 2931.05      | 2928.98    | -124.90    | 0.28             | 366992.73          | 584248.17         | N 32 0 31.92             | W 104 11 41.62            |
|                           | 10322.00   | 88.38       | 359.04           | 7403.96     | 3025.99      | 3023.93    | -125.80    | 0.92             | 367087.67          | 584247.27         | N 32 0 32.86             | W 104 11 41.62            |
|                           | 10417.00   | 88.21       | 359.67           | 7406.79     | 3120.95      | 3118.88    | -126.87    | 0.69             | 367182.62          | 584246.20         | N 32 0 33.80             | W 104 11 41.64            |
|                           | 10511.00   | 88.69       | 0.71             | 7409.33     | 3214.88      | 3212.84    | -126.56    | 1.22             | 367276.57          | 584246.51         | N 32 0 34.73             | W 104 11 41.63            |
|                           | 10606.00   | 88.28       | 359.68           | 7411.85     | 3309.81      | 3307.81    | -126.23    | 1.17             | 367371.53          | 584246.84         | N 32 0 35.67             | W 104 11 41.63            |
|                           | 10699.00   | 88.42       | 0.25             | 7414.52     | 3402.75      | 3400.77    | -126.29    | 0.63             | 367464.48          | 584246.78         | N 32 0 36.59             | W 104 11 41.62            |
|                           | 10794.00   | 88.87       | 359.59           | 7416.77     | 3497.70      | 3495.74    | -126.42    | 0.84             | 367559.45          | 584246.65         | N 32 0 37.53             | W 104 11 41.62            |
|                           | 10888.00   | 88.45       | 359.24           | 7418.97     | 3591.67      | 3589.71    | -127.38    | 0.58             | 367653.41          | 584246.69         | N 32 0 38.46             | W 104 11 41.63            |
|                           | 10982.00   | 88.69       | 359.81           | 7421.31     | 3685.63      | 3683.68    | -128.16    | 0.66             | 367747.36          | 584244.91         | N 32 0 39.39             | W 104 11 41.64            |
|                           | 11076.00   | 88.86       | 1.25             | 7423.32     | 3779.56      | 3777.65    | -127.29    | 1.54             | 367841.33          | 584245.78         | N 32 0 40.32             | W 104 11 41.63            |
|                           | 11171.00   | 88.31       | 359.87           | 7425.67     | 3874.48      | 3872.61    | -126.37    | 1.56             | 367936.28          | 584246.71         | N 32 0 41.26             | W 104 11 41.62            |

| Comments                   | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(1/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S...) | Longitude<br>(E/W...) |
|----------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|----------------------|-----------------------|
|                            | 11266.00   | 88.76       | 0.26             | 7426.10     | 3969.42      | 3967.58    | -126.26    | 0.63             | 366031.24          | 584246.87         | N 32° 04'22.20"      | W 104° 11'41.62"      |
|                            | 11360.00   | 88.45       | 359.29           | 7430.39     | 4063.37      | 4061.55    | -126.63    | 1.08             | 366125.20          | 584246.45         | N 32° 04'43.13"      | W 104° 11'41.63"      |
|                            | 11455.00   | 88.38       | 359.69           | 7433.01     | 4158.33      | 4156.51    | -127.47    | 0.43             | 366320.16          | 584245.60         | N 32° 04'40.07"      | W 104° 11'41.62"      |
|                            | 11549.00   | 88.56       | 0.98             | 7435.52     | 4252.26      | 4250.48    | -126.92    | 1.39             | 366314.11          | 584246.15         | N 32° 04'50.07"      | W 104° 11'41.62"      |
|                            | 11643.00   | 88.73       | 0.65             | 7437.75     | 4346.17      | 4344.44    | -125.59    | 0.39             | 366408.07          | 584247.49         | N 32° 04'55.93"      | W 104° 11'41.60"      |
|                            | 11737.00   | 89.31       | 357.80           | 7439.36     | 4440.14      | 4438.41    | -126.86    | 3.09             | 366502.02          | 584246.21         | N 32° 04'56.88"      | W 104° 11'41.65"      |
|                            | 11830.00   | 88.56       | 358.10           | 7441.08     | 4533.11      | 4531.33    | -130.18    | 0.87             | 366594.94          | 584242.89         | N 32° 04'57.78"      | W 104° 11'41.65"      |
|                            | 11925.00   | 88.49       | 358.73           | 7443.53     | 4628.08      | 4626.26    | -132.81    | 0.67             | 366689.86          | 584240.26         | N 32° 04'58.72"      | W 104° 11'41.68"      |
|                            | 12019.00   | 88.93       | 357.96           | 7445.65     | 4722.05      | 4720.20    | -135.52    | 0.94             | 366783.79          | 584237.55         | N 32° 04'59.65"      | W 104° 11'41.71"      |
|                            | 12114.00   | 87.69       | 357.15           | 7448.45     | 4816.99      | 4815.07    | -139.57    | 1.56             | 366878.65          | 584233.50         | N 32° 05'00.59"      | W 104° 11'41.76"      |
|                            | 12208.00   | 86.80       | 357.18           | 7452.97     | 4910.85      | 4908.84    | -144.22    | 0.95             | 366972.42          | 584228.85         | N 32° 05'51.52"      | W 104° 11'41.81"      |
|                            | 12303.00   | 88.42       | 0.16             | 7456.93     | 5005.75      | 5003.72    | -146.42    | 3.57             | 366967.29          | 584226.65         | N 32° 05'52.45"      | W 104° 11'41.83"      |
|                            | 12398.00   | 88.69       | 1.34             | 7459.32     | 5100.66      | 5098.68    | -145.18    | 1.27             | 369162.24          | 584227.90         | N 32° 05'53.39"      | W 104° 11'41.82"      |
|                            | 12493.00   | 88.38       | 0.25             | 7461.75     | 5195.56      | 5193.64    | -143.86    | 1.19             | 369257.19          | 584229.21         | N 32° 05'54.33"      | W 104° 11'41.80"      |
|                            | 12587.00   | 87.42       | 359.30           | 7465.20     | 5289.48      | 5287.57    | -144.23    | 1.44             | 369351.11          | 584228.85         | N 32° 05'55.26"      | W 104° 11'41.82"      |
|                            | 12681.00   | 86.73       | 359.12           | 7469.99     | 5383.35      | 5381.44    | -145.52    | 0.76             | 369444.97          | 584227.55         | N 32° 05'56.19"      | W 104° 11'41.82"      |
|                            | 12776.00   | 86.32       | 1.12             | 7475.75     | 5478.15      | 5476.26    | -145.32    | 2.15             | 369539.78          | 584227.75         | N 32° 05'57.13"      | W 104° 11'41.81"      |
|                            | 12870.00   | 87.87       | 0.51             | 7480.52     | 5571.96      | 5570.13    | -143.99    | 1.77             | 369633.64          | 584229.08         | N 32° 05'58.06"      | W 104° 11'41.80"      |
|                            | 12964.00   | 89.11       | 0.76             | 7482.99     | 5665.87      | 5664.09    | -142.95    | 1.35             | 369727.59          | 584230.13         | N 32° 05'58.99"      | W 104° 11'41.78"      |
|                            | 13058.00   | 88.76       | 359.23           | 7484.74     | 5759.83      | 5758.07    | -142.96    | 1.67             | 369821.57          | 584230.12         | N 32° 05'59.92"      | W 104° 11'41.78"      |
|                            | 13153.00   | 88.11       | 358.61           | 7487.33     | 5854.79      | 5853.02    | -144.75    | 0.95             | 369916.50          | 584228.33         | N 32° 1° 0'56.92"    | W 104° 11'41.80"      |
|                            | 13248.00   | 88.38       | 359.17           | 7490.67     | 5949.74      | 5947.95    | -146.58    | 0.65             | 370011.43          | 584226.49         | N 32° 1° 0'57.18"    | W 104° 11'41.82"      |
|                            | 13343.00   | 89.04       | 1.24             | 7492.38     | 6044.68      | 6042.92    | -146.24    | 2.29             | 370106.39          | 584226.83         | N 32° 1° 0'58.29"    | W 104° 11'41.82"      |
|                            | 13437.00   | 90.72       | 1.55             | 7492.58     | 6138.58      | 6136.89    | -143.96    | 1.82             | 370200.35          | 584228.12         | N 32° 1° 0'59.36"    | W 104° 11'41.79"      |
|                            | 13531.00   | 89.76       | 1.10             | 7492.19     | 6232.48      | 6230.86    | -141.78    | 1.13             | 370294.32          | 584231.29         | N 32° 1° 0'59.92"    | W 104° 11'41.75"      |
|                            | 13626.00   | 90.86       | 359.81           | 7491.67     | 6327.43      | 6325.86    | -141.03    | 1.78             | 370389.30          | 584232.04         | N 32° 1° 0'59.92"    | W 104° 11'41.75"      |
|                            | 13719.00   | 90.34       | 358.35           | 7490.70     | 6420.42      | 6418.84    | -142.52    | 1.67             | 370482.27          | 584230.55         | N 32° 1° 0'59.92"    | W 104° 11'41.77"      |
|                            | 13813.00   | 89.69       | 359.59           | 7490.67     | 6514.41      | 6512.82    | -144.21    | 1.49             | 370576.25          | 584228.86         | N 32° 1° 0'59.92"    | W 104° 11'41.79"      |
|                            | 13908.00   | 90.17       | 358.92           | 7490.79     | 6607.82      | 6607.82    | -144.62    | 0.61             | 370671.24          | 584228.46         | N 32° 1° 0'59.92"    | W 104° 11'41.79"      |
|                            | 14003.00   | 90.52       | 359.42           | 7490.22     | 6704.38      | 6702.81    | -145.16    | 0.64             | 370766.22          | 584227.91         | N 32° 1° 0'59.92"    | W 104° 11'41.79"      |
|                            | 14026.00   | 90.34       | 359.56           | 7490.05     | 6727.38      | 6725.81    | -145.37    | 0.99             | 370789.22          | 584227.70         | N 32° 1° 0'59.92"    | W 104° 11'41.80"      |
| Final Survey<br>Proj to TD | 14097.00   | 90.34       | 359.56           | 7489.62     | 6798.37      | 6796.81    | -145.91    | 0.00             | 370860.21          | 584227.16         | N 32° 1° 10'20.00"   | W 104° 11'41.80"      |

Survey Type:

Def Survey

Survey Error Model:  
Survey Program:

ISCWSA Rev 0 \*\*\* 3-D 95.000% Confidence 2.7955 sigma

| 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           | 24.000        | 1/98.425         | 30.000                            | NAL_MWD_PLUS_0.5_DEG-<br>Depth Only | Original Borehole / Cimarex Klein<br>33 Federal Com #7H MWD Off to<br>14097ft |
|             | 1    | 24.000          | 24.000        | Act Sins         | 30.000                            | NAL_MWD_PLUS_0.5_DEG-<br>Depth Only | Original Borehole / Cimarex Klein<br>33 Federal Com #7H MWD Off to<br>14097ft |
|             | 1    | 24.000          | 14097.000     | Act Sins         | 30.000                            | NAL_MWD_PLUS_0.5_DEG                | Original Borehole / Cimarex Klein<br>33 Federal Com #7H MWD Off to            |