

Schlumberger

FEB 20 2018

Cimarex

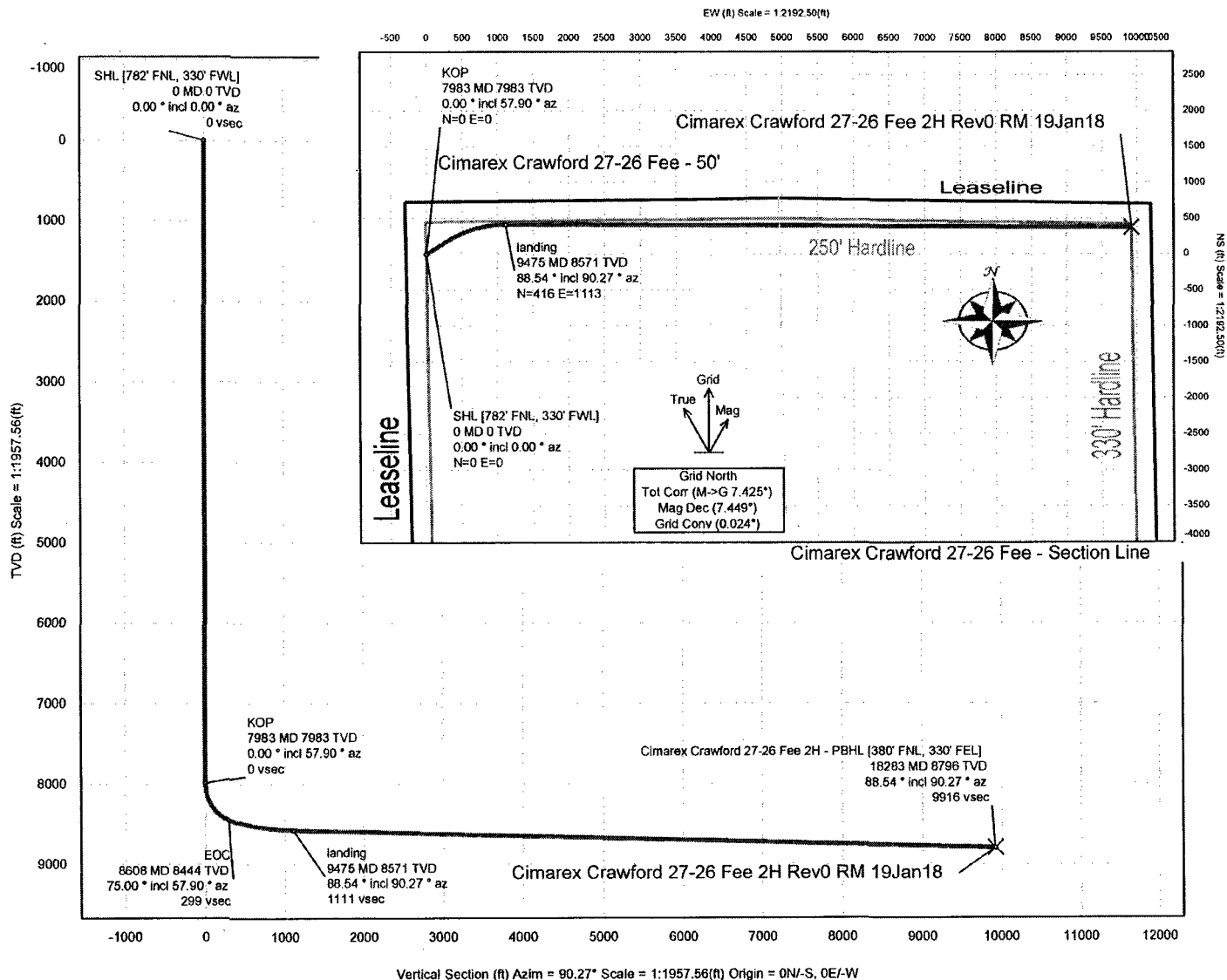
Rev 0

CIMAREX

30-015-44694

|                   |          |                         |                               |
|-------------------|----------|-------------------------|-------------------------------|
| Borehole:         | Well:    | Field:                  | Structure:                    |
| Original Borehole | RECEIVED | NM Eddy County (NAD 83) | Cimarex Crawford 27-26 Fee 2H |

|                               |                |                                        |                     |                        |                                                   |
|-------------------------------|----------------|----------------------------------------|---------------------|------------------------|---------------------------------------------------|
| Gravity & Magnetic Parameters |                | Surface                                |                     | Miscellaneous          |                                                   |
| Model: HDGM                   | Dip: 59.867°   | Date: 19-Jan-2018                      | Location            | US Feet                | Slot: Crawford 27- TVD Ref: RKB(3373ft above MSL) |
| 2017                          | FS: 47949.353n | Gravity FS: 998.445mgm (9.80665 Based) | Lat: N 32 11 36.58  | Northing: 434130.2ftUS | Grid Conv: 0.0239°                                |
| MagDec: 7.449°                |                |                                        | Lon: W 104 17 18.44 | Easting: 555219.5ftUS  | Scale Fact: 0.99990931                            |
|                               |                |                                        |                     |                        | Plan: Crawford 27-26 Fee 2H Rev0 RM 19Jan18       |



## Critical Points

| Critical Point                                            | MD       | INCL  | AZIM  | TVD     | VSEC    | N(+)/S(-) | E(+)/W(-) | DLS   |
|-----------------------------------------------------------|----------|-------|-------|---------|---------|-----------|-----------|-------|
| SHL [782' FNL, 330' FWL]                                  | 0.00     | 0.00  | 0.00  | 0.00    | 0.00    | 0.00      | 0.00      |       |
| Marker MudLine                                            | 24.00    | 0.00  | 57.90 | 24.00   | 0.00    | 0.00      | 0.00      | 0.00  |
| KOP                                                       | 7982.56  | 0.00  | 57.90 | 7982.56 | 0.00    | 0.00      | 0.00      | 0.00  |
| EOC                                                       | 8607.56  | 75.00 | 57.90 | 8443.76 | 298.80  | 188.06    | 299.79    | 12.00 |
| EOC (Curve-Hold)                                          | 9474.98  | 88.54 | 90.27 | 8571.00 | 1111.28 | 415.63    | 1113.25   | 4.00  |
| Cimarex Crawford 27-26 Fee 2H - PBHL [380' FNL, 330' FEL] | 18282.72 | 88.54 | 90.27 | 8796.00 | 9916.15 | 374.13    | 9918.02   | 0.00  |

## Cimarex Crawford 27-26 Fee 2H Rev0 RM 19Jan18 Anti-Collision Summary Report

Analysis Date-24hr Time: January 23, 2018 - 09:41

Client: Cimarex

Field: NM Eddy County (NAD 83)

Structure: Cimarex Crawford 27-26 Fee 2H

Slot: Cimarex Crawford 27-26 Fee 2H

Well: Cimarex Crawford 27-26 Fee 2H

Borehole: Original Borehole

Scan MD Range: 0.00ft ~ 18282.72ft

## Analysis Method:

3D Least Distance

Reference Trajectory:

Cimarex Crawford 27-26 Fee 2H Rev0 RM 19Jan18 (Non-Def Plan)

Depth Interval: Every 10.00 Measured Depth (ft)

Rule Set: NAL Procedure: D&amp;M AntiCollision Standard S002

Min Pts: All local minima indicated.

Version / Patch: 2.10.696.0

Database \ Project: us1153app452.dir.slb.com\drilling-NM Eddy County 2.10

ISW5A0 3-D 95.000% Confidence 2.7955 sigma, for subject well. For offset wells, error model version is specified with each well respectively.

## Offset Trajectories Summary

Restricted within 59293.22 ft

Offset Selection Criteria - Definitive Plans - Definitive surveys exclude definitive plans

Wellhead distance scan.

Selection filters:

- All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

| Offset Trajectory                                     |          | Separation |           | Allow   |                | Sep.<br>Fact. | Controlling<br>Rule | Reference Trajectory |          | Risk Level |  | Alert       | Status     |
|-------------------------------------------------------|----------|------------|-----------|---------|----------------|---------------|---------------------|----------------------|----------|------------|--|-------------|------------|
| Cl-Cl (ft)                                            | MAS (ft) | EOU (ft)   | Dev. (ft) | MD (ft) | TVD (ft)       |               |                     | Alert                | Minor    | Major      |  |             |            |
| Results highlighted: Sep-Factor separation <= 1.50 ft |          |            |           |         |                |               |                     |                      |          |            |  |             |            |
| Chinrex Crawford 27.26 Fee                            |          |            |           |         |                |               |                     |                      |          |            |  |             |            |
| 1H Rev'd RM 19Jan18 (Non-                             |          |            |           |         |                |               |                     |                      |          |            |  |             |            |
| Der Plan)                                             |          |            |           |         |                |               |                     |                      |          |            |  |             |            |
| 20.01                                                 | 16.50    | 17.51      | 3.50      | N/A     | MAS = 5.03 (m) | 0.00          | 0.00                | CICR=15m<15.00       |          |            |  | Enter Alert | Fall Major |
| 20.01                                                 | 16.50    | 17.51      | 3.50      | N/A     | MAS = 5.03 (m) | 24.00         | 24.00               |                      | OSF<1.50 |            |  | WRP         |            |
| 20.01                                                 | 20.01    | 5.93       | -0.01     | 1.50    | OSF1.50        | 1920.00       | 1920.00             |                      |          |            |  | Enter Minor |            |
| 20.01                                                 | 20.01    | 5.93       | -0.76     | 1.44    | OSF1.50        | 2030.00       | 2030.00             |                      |          |            |  | MinPt-CIC   |            |
| 20.01                                                 | 20.01    | 5.93       | -0.98     | 1.13    | OSF1.50        | 2030.00       | 2030.00             |                      |          |            |  | MINPT-O-EOU |            |
| 20.01                                                 | 20.01    | 5.93       | -0.90     | 1.43    | OSF1.50        | 2030.00       | 2030.00             |                      |          |            |  | MinPts      |            |
| 20.01                                                 | 20.01    | 5.93       | -0.19     | 1.48    | OSF1.50        | 2100.00       | 2100.00             |                      | OSF>5.00 | OSF>1.50   |  | Exit Minor  |            |
| 20.01                                                 | 20.01    | 5.93       | -0.19     | 1.48    | OSF1.50        | 2720.00       | 2720.00             |                      |          |            |  | Exit Alert  |            |
| 20.01                                                 | 20.01    | 5.93       | -0.14     | 1.50    | OSF1.50        | 8039.86       | 8039.86             |                      |          |            |  | MINPT-O-EOU |            |
| 20.01                                                 | 20.01    | 5.93       | -0.14     | 1.50    | OSF1.50        | 8059.66       | 8059.66             |                      |          |            |  | MinPt-O-ADP |            |
| 20.01                                                 | 20.01    | 5.93       | -0.14     | 1.50    | OSF1.50        | 8098.82       | 8098.82             |                      |          |            |  | MinPt-O-SF  |            |
| 20.01                                                 | 20.01    | 5.93       | -0.14     | 1.50    | OSF1.50        | 8478.23       | 8478.23             |                      | OSF<5.00 |            |  | Enter Alert |            |
| 20.01                                                 | 20.01    | 5.93       | -0.14     | 1.50    | OSF1.50        | 10660.00      | 10660.00            |                      |          |            |  | Enter Minor |            |
| 20.01                                                 | 20.01    | 5.93       | -0.14     | 1.50    | OSF1.50        | 12660.00      | 12660.00            |                      |          |            |  | Enter Major |            |
| 20.01                                                 | 20.01    | 5.93       | -0.14     | 1.50    | OSF1.50        | 13282.72      | 13282.72            |                      |          |            |  | MinPts      |            |
| 20.01                                                 | 20.01    | 5.93       | -0.14     | 1.50    | OSF1.50        | 13282.72      | 13282.72            |                      |          |            |  | OSF<1.00    |            |

# Cimarex Crawford 27-26 Fee 2H Rev0 RM 19Jan18 Proposal Geodetic Report

(Non-Def Plan)

**Report Date:** January 23, 2018 - 09:38 AM  
**Client:** Cimarex  
**Field:** NM Eddy County (NAD 83)  
**Structure / Slot:** Cimarex Crawford 27-26 Fee 2H / Cimarex Crawford 27-26 Fee 2H  
**Well:** Cimarex Crawford 27-26 Fee 2H  
**Borehole:** Original Borehole  
**UWI / AP#:** Unknown / Unknown  
**Survey Name:** Cimarex Crawford 27-26 Fee 2H Rev0 RM 19Jan18  
**Survey Date:** January 19, 2018  
**Tort / AHD / DDI / ERD Ratio:** 109.697 ° / 10014.730 ft / 6.359 / 1.139  
**Coordinate Reference System:** NAD83 New Mexico State Plane, Eastern Zone, US Feet  
**Location Lat / Long:** N 32° 11' 36.57600", W 104° 17' 18.44328"  
**Location Grid N/E Y/X:** N 434130.200 ftUS, E 555219.500 ftUS  
**CRS Grid Convergence Angle:** 0.0239 °  
**Grid Scale Factor:** 0.99990931  
**Version / Patch:** 2.10.696.0  
**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 90.270 ° (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** RKB  
**TVD Reference Elevation:** 3373.000 ft above MSL  
**Seabed / Ground Elevation:** 3349.000 ft above MSL  
**Magnetic Declination:** 7.449 °  
**Total Gravity Field Strength:** 998.4453mgn (9.80665 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 47949.353 nT  
**Magnetic Dip Angle:** 59.887 °  
**Declination Date:** January 19, 2018  
**Magnetic Declination Model:** HDGM 2017  
**North Reference:** Grid North  
**Grid Convergence Used:** 0.0239 °  
**Total Corr Mag North->Grid North:** 7.4250 °  
**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 [782' FNL,<br>330' FWL]                                           | 0.00       | 0.00        | 0.00             | 0.00        | 0.00         | 0.00       | 0.00       | N/A              | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
| KOP                                                                   | 7982.56    | 0.00        | 57.90            | 7982.56     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
| EOC                                                                   | 8607.56    | 75.00       | 57.90            | 8443.76     | 298.90       | 188.06     | 299.79     | 12.00            | 434318.24          | 555519.26         | N 32 11 38.44           | W 104 17 14.95           |
| EOC (Curve-<br>Hold)                                                  | 9474.98    | 88.54       | 90.27            | 8571.00     | 1111.28      | 415.63     | 1113.25    | 4.00             | 434545.79          | 556332.65         | N 32 11 40.68           | W 104 17 5.49            |
| Cimarex<br>Crawford 27-26<br>Fee 2H - PBHL<br>[380' FNL, 330'<br>FEL] | 18282.72   | 86.54       | 90.27            | 8796.00     | 9916.15      | 374.13     | 9918.02    | 0.00             | 434504.30          | 565136.60         | N 32 11 40.22           | W 104 15 23.03           |

**Survey Type:** Non-Def Plan

| 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 ° ' ") |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|

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

Survey Program:

| Description | Part | MD From<br>(ft) | MD To<br>(ft) | EOU Freq<br>(ft) | Hole Size Casing Diameter<br>(in) | Expected Max<br>Inclination<br>(deg) | Survey Tool Type        | Borehole / Survey                                                       |
|-------------|------|-----------------|---------------|------------------|-----------------------------------|--------------------------------------|-------------------------|-------------------------------------------------------------------------|
|             | 1    | 0.000           | 24.000        | 1/100.000        | 30.000                            |                                      | NAL_MWD_IFR1-Depth Only | Original Borehole / Cimarex<br>Crawford 27-26 Fee 2H Rev0 RM<br>19Jan18 |
|             | 1    | 24.000          | 18282.723     | 1/100.000        | 30.000                            |                                      | NAL_MWD_IFR1            | Original Borehole / Cimarex<br>Crawford 27-26 Fee 2H Rev0 RM            |

# Cimarex Crawford 27-26 Fee 2H Rev0 RM 19Jan18 Proposal Geodetic Report (Non-Def Plan)

**Report Date:** January 23, 2018 - 09:41 AM  
**Client:** Cimarex  
**Field:** NM Eddy County (NAD 83)  
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**Borehole:** Original Borehole  
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**Magnetic Declination Model:** HDGM 2017  
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**Grid Convergence Used:** 0.0239 °  
**Total Corr Mag North->Grid North:** 7.4250 °  
**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 [782' FNL,<br>330' FWL] | 0.00       | 0.00        | 0.00             | 0.00        | 0.00         | 0.00       | 0.00       | N/A              | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 100.00     | 0.00        | 57.90            | 100.00      | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 200.00     | 0.00        | 57.90            | 200.00      | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 300.00     | 0.00        | 57.90            | 300.00      | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 400.00     | 0.00        | 57.90            | 400.00      | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 500.00     | 0.00        | 57.90            | 500.00      | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 600.00     | 0.00        | 57.90            | 600.00      | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 700.00     | 0.00        | 57.90            | 700.00      | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 800.00     | 0.00        | 57.90            | 800.00      | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 900.00     | 0.00        | 57.90            | 900.00      | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
| Salado                      | 1000.00    | 0.00        | 57.90            | 928.00      | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 1100.00    | 0.00        | 57.90            | 1000.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             | 1200.00    | 0.00        | 57.90            | 1100.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |
|                             |            | 0.00        | 57.90            | 1200.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50         | N 32 11 36.58           | W 104 17 18.44           |

| 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 ° ' '') |
|-----------------|------------|-------------|------------------|-------------|--------------|------------|------------|-----------------|--------------------|-------------------|--------------------------|---------------------------|
| Castile         | 1300.00    | 0.00        | 57.90            | 1300.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 1400.00    | 0.00        | 57.90            | 1400.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 1500.00    | 0.00        | 57.90            | 1500.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 1546.00    | 0.00        | 57.90            | 1546.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 1600.00    | 0.00        | 57.90            | 1600.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
| Bell Canyon     | 1700.00    | 0.00        | 57.90            | 1700.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 1800.00    | 0.00        | 57.90            | 1800.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 1872.00    | 0.00        | 57.90            | 1872.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 1900.00    | 0.00        | 57.90            | 1900.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 2000.00    | 0.00        | 57.90            | 2000.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
| Cherry Canyon   | 2100.00    | 0.00        | 57.90            | 2100.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 2200.00    | 0.00        | 57.90            | 2200.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 2300.00    | 0.00        | 57.90            | 2300.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 2400.00    | 0.00        | 57.90            | 2400.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 2500.00    | 0.00        | 57.90            | 2500.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
| Brushy Canyon   | 2600.00    | 0.00        | 57.90            | 2600.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 2700.00    | 0.00        | 57.90            | 2700.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 2776.00    | 0.00        | 57.90            | 2776.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 2800.00    | 0.00        | 57.90            | 2800.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 2900.00    | 0.00        | 57.90            | 2900.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
| Brushy Canyon   | 3000.00    | 0.00        | 57.90            | 3000.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 3100.00    | 0.00        | 57.90            | 3100.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 3200.00    | 0.00        | 57.90            | 3200.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 3300.00    | 0.00        | 57.90            | 3300.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 3400.00    | 0.00        | 57.90            | 3400.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
| Brushy Canyon   | 3500.00    | 0.00        | 57.90            | 3500.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 3600.00    | 0.00        | 57.90            | 3600.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 3700.00    | 0.00        | 57.90            | 3700.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 3707.00    | 0.00        | 57.90            | 3707.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 3800.00    | 0.00        | 57.90            | 3800.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
| Brushy Canyon   | 3900.00    | 0.00        | 57.90            | 3900.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 4000.00    | 0.00        | 57.90            | 4000.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 4100.00    | 0.00        | 57.90            | 4100.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 4200.00    | 0.00        | 57.90            | 4200.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 4300.00    | 0.00        | 57.90            | 4300.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
| Bone Spring "A" | 4400.00    | 0.00        | 57.90            | 4400.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 4500.00    | 0.00        | 57.90            | 4500.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 4600.00    | 0.00        | 57.90            | 4600.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 4700.00    | 0.00        | 57.90            | 4700.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 4800.00    | 0.00        | 57.90            | 4800.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
| Bone Spring "A" | 4900.00    | 0.00        | 57.90            | 4900.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 4959.00    | 0.00        | 57.90            | 4959.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5000.00    | 0.00        | 57.90            | 5000.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5100.00    | 0.00        | 57.90            | 5100.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5200.00    | 0.00        | 57.90            | 5200.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
| Bone Spring "C" | 5288.00    | 0.00        | 57.90            | 5288.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5300.00    | 0.00        | 57.90            | 5300.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5400.00    | 0.00        | 57.90            | 5400.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5416.00    | 0.00        | 57.90            | 5416.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5500.00    | 0.00        | 57.90            | 5500.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
| Bone Spring "C" | 5600.00    | 0.00        | 57.90            | 5600.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5700.00    | 0.00        | 57.90            | 5700.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5710.00    | 0.00        | 57.90            | 5710.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5800.00    | 0.00        | 57.90            | 5800.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |
|                 | 5900.00    | 0.00        | 57.90            | 5900.00     | 0.00         | 0.00       | 0.00       | 0.00            | 434130.20          | 555219.50         | N 32 11 36.58            | W 104 17 18.44            |

| 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) | Eastng<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|--------------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|------------------|-------------------------|--------------------------|
| 1st Bone Spring<br>Ss          | 6000.00    | 0.00        | 57.90            | 6000.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 6100.00    | 0.00        | 57.90            | 6100.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 6200.00    | 0.00        | 57.90            | 6200.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 6226.00    | 0.00        | 57.90            | 6226.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
| 2nd Bone<br>Spring Ss          | 6300.00    | 0.00        | 57.90            | 6300.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 6400.00    | 0.00        | 57.90            | 6400.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 6500.00    | 0.00        | 57.90            | 6500.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 6549.00    | 0.00        | 57.90            | 6549.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
| KOP                            | 6600.00    | 0.00        | 57.90            | 6600.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 6700.00    | 0.00        | 57.90            | 6700.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 6800.00    | 0.00        | 57.90            | 6800.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 6900.00    | 0.00        | 57.90            | 6900.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
| 3rd Bone Spring<br>Ss          | 7000.00    | 0.00        | 57.90            | 7000.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 7100.00    | 0.00        | 57.90            | 7100.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 7200.00    | 0.00        | 57.90            | 7200.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 7300.00    | 0.00        | 57.90            | 7300.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
| 3rd Bone Spring<br>Ss "C" Zone | 7400.00    | 0.00        | 57.90            | 7400.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 7500.00    | 0.00        | 57.90            | 7500.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 7600.00    | 0.00        | 57.90            | 7600.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 7611.00    | 0.00        | 57.90            | 7611.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
| Wolfcamp A                     | 7700.00    | 0.00        | 57.90            | 7700.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 7800.00    | 0.00        | 57.90            | 7800.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 7900.00    | 0.00        | 57.90            | 7900.00     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 7982.56    | 0.00        | 57.90            | 7982.56     | 0.00         | 0.00       | 0.00       | 0.00             | 434130.20          | 555219.50        | N 32 11 36.58           | W 104 17 18.44           |
| Wolfcamp X Ss                  | 8000.00    | 2.09        | 57.90            | 8000.00     | 0.27         | 0.17       | 0.27       | 12.00            | 434130.37          | 555219.77        | N 32 11 36.58           | W 104 17 18.44           |
|                                | 8064.40    | 9.82        | 57.90            | 8064.40     | 5.91         | 3.72       | 5.93       | 12.00            | 434133.92          | 555225.43        | N 32 11 36.61           | W 104 17 18.37           |
|                                | 8100.00    | 14.09       | 57.90            | 8098.82     | 12.14        | 7.64       | 12.17      | 12.00            | 434137.84          | 555231.67        | N 32 11 36.65           | W 104 17 18.30           |
|                                | 8200.00    | 26.09       | 57.90            | 8192.56     | 41.10        | 25.86      | 41.22      | 12.00            | 434156.06          | 555260.72        | N 32 11 36.83           | W 104 17 17.96           |
| Wolfcamp Y Ss                  | 8300.00    | 38.09       | 57.90            | 8277.13     | 85.88        | 54.04      | 86.15      | 12.00            | 434184.24          | 555305.64        | N 32 11 37.11           | W 104 17 17.44           |
|                                | 8387.98    | 47.93       | 57.90            | 8337.00     | 133.07       | 83.72      | 133.46     | 12.00            | 434213.91          | 555352.95        | N 32 11 37.40           | W 104 17 16.89           |
|                                | 8400.00    | 50.09       | 57.90            | 8348.82     | 144.55       | 90.95      | 144.98     | 12.00            | 434221.14          | 555364.47        | N 32 11 37.48           | W 104 17 16.76           |
|                                | 8500.00    | 62.09       | 57.90            | 8404.50     | 214.52       | 134.97     | 215.16     | 12.00            | 434265.16          | 555434.64        | N 32 11 37.91           | W 104 17 15.94           |
| EOC                            | 8505.40    | 62.74       | 57.90            | 8407.00     | 218.57       | 137.51     | 219.22     | 12.00            | 434267.70          | 555438.70        | N 32 11 37.94           | W 104 17 15.89           |
|                                | 8543.29    | 67.29       | 57.90            | 8423.00     | 247.57       | 155.76     | 248.30     | 12.00            | 434285.95          | 555487.78        | N 32 11 38.12           | W 104 17 15.55           |
|                                | 8600.00    | 74.09       | 57.90            | 8441.74     | 292.74       | 184.18     | 293.61     | 12.00            | 434314.37          | 555513.09        | N 32 11 38.40           | W 104 17 15.03           |
|                                | 8607.56    | 75.00       | 57.90            | 8443.76     | 298.90       | 188.06     | 299.79     | 12.00            | 434318.24          | 555519.26        | N 32 11 38.44           | W 104 17 14.95           |
| Wolfcamp Z Ss                  | 8700.00    | 76.29       | 61.48            | 8466.68     | 375.98       | 233.24     | 377.09     | 4.00             | 434363.41          | 555556.55        | N 32 11 38.88           | W 104 17 14.05           |
|                                | 8709.82    | 76.43       | 61.86            | 8469.00     | 384.36       | 237.77     | 385.49     | 4.00             | 434367.94          | 555604.95        | N 32 11 38.93           | W 104 17 13.96           |
|                                | 8800.00    | 77.74       | 65.30            | 8489.17     | 462.88       | 276.86     | 464.19     | 4.00             | 434407.03          | 555683.65        | N 32 11 39.31           | W 104 17 13.04           |
|                                | 8900.00    | 79.24       | 69.09            | 8509.13     | 553.01       | 314.82     | 554.50     | 4.00             | 434444.99          | 555773.95        | N 32 11 39.69           | W 104 17 11.99           |
| EOC (Curve-<br>Hold)           | 9000.00    | 80.78       | 72.83            | 8526.49     | 645.94       | 346.93     | 647.58     | 4.00             | 434477.10          | 555867.02        | N 32 11 40.01           | W 104 17 10.91           |
|                                | 9028.88    | 81.24       | 73.91            | 8531.00     | 673.24       | 355.09     | 674.92     | 4.00             | 434485.26          | 555894.35        | N 32 11 40.09           | W 104 17 10.59           |
|                                | 9100.00    | 82.37       | 76.55            | 8541.14     | 741.21       | 373.04     | 742.97     | 4.00             | 434503.20          | 555962.41        | N 32 11 40.26           | W 104 17 9.80            |
|                                | 9200.00    | 83.99       | 80.23            | 8553.03     | 838.35       | 393.01     | 840.22     | 4.00             | 434523.17          | 556059.64        | N 32 11 40.46           | W 104 17 8.66            |
|                                | 9300.00    | 85.63       | 83.90            | 8562.08     | 936.90       | 406.75     | 938.83     | 4.00             | 434536.92          | 556158.24        | N 32 11 40.60           | W 104 17 7.52            |
|                                | 9400.00    | 87.28       | 87.54            | 8568.27     | 1036.38      | 414.20     | 1038.34    | 4.00             | 434544.36          | 556257.74        | N 32 11 40.67           | W 104 17 6.36            |
|                                | 9474.98    | 88.54       | 90.27            | 8571.00     | 1111.28      | 415.63     | 1113.25    | 4.00             | 434545.79          | 556332.65        | N 32 11 40.68           | W 104 17 5.49            |

| 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 ° ' ") |
|-----------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
| Wolfcamp Z Ss<br>Base | 9500.00    | 88.54       | 90.27            | 8571.64     | 1136.29      | 415.51     | 1138.26    | 0.00             | 434545.67          | 556357.65         | N 32 11 40.68           | W 104 17 5.20            |
|                       | 9600.00    | 88.54       | 90.27            | 8574.19     | 1236.26      | 415.04     | 1238.23    | 0.00             | 434545.20          | 556457.61         | N 32 11 40.68           | W 104 17 4.03            |
|                       | 9700.00    | 88.54       | 90.27            | 8576.75     | 1336.22      | 414.57     | 1338.19    | 0.00             | 434544.73          | 556557.57         | N 32 11 40.67           | W 104 17 2.87            |
|                       | 9800.00    | 88.54       | 90.27            | 8579.30     | 1436.19      | 414.10     | 1438.16    | 0.00             | 434544.26          | 556657.53         | N 32 11 40.67           | W 104 17 1.71            |
|                       | 9900.00    | 88.54       | 90.27            | 8581.86     | 1536.16      | 413.63     | 1538.13    | 0.00             | 434543.79          | 556757.48         | N 32 11 40.66           | W 104 17 0.54            |
|                       | 10000.00   | 88.54       | 90.27            | 8584.41     | 1636.13      | 413.16     | 1638.09    | 0.00             | 434543.32          | 556857.44         | N 32 11 40.66           | W 104 16 59.38           |
|                       | 10100.00   | 88.54       | 90.27            | 8586.97     | 1736.09      | 412.69     | 1738.06    | 0.00             | 434542.85          | 556957.40         | N 32 11 40.65           | W 104 16 58.22           |
|                       | 10200.00   | 88.54       | 90.27            | 8589.52     | 1836.06      | 412.21     | 1838.02    | 0.00             | 434542.38          | 557057.35         | N 32 11 40.64           | W 104 16 57.05           |
|                       | 10300.00   | 88.54       | 90.27            | 8592.08     | 1936.03      | 411.74     | 1937.99    | 0.00             | 434541.91          | 557157.31         | N 32 11 40.64           | W 104 16 55.89           |
|                       | 10400.00   | 88.54       | 90.27            | 8594.63     | 2036.00      | 411.27     | 2037.96    | 0.00             | 434541.43          | 557257.27         | N 32 11 40.64           | W 104 16 54.73           |
|                       | 10500.00   | 88.54       | 90.27            | 8597.19     | 2135.96      | 410.80     | 2137.92    | 0.00             | 434540.96          | 557357.22         | N 32 11 40.63           | W 104 16 53.56           |
|                       | 10600.00   | 88.54       | 90.27            | 8599.74     | 2235.93      | 410.33     | 2237.89    | 0.00             | 434540.49          | 557457.18         | N 32 11 40.63           | W 104 16 52.40           |
|                       | 10700.00   | 88.54       | 90.27            | 8602.29     | 2335.90      | 409.86     | 2337.86    | 0.00             | 434540.02          | 557557.14         | N 32 11 40.62           | W 104 16 51.24           |
|                       | 10800.00   | 88.54       | 90.27            | 8604.85     | 2435.87      | 409.39     | 2437.82    | 0.00             | 434539.55          | 557657.10         | N 32 11 40.62           | W 104 16 50.07           |
|                       | 10805.91   | 88.54       | 90.27            | 8605.00     | 2441.77      | 409.36     | 2443.73    | 0.00             | 434539.52          | 557663.00         | N 32 11 40.62           | W 104 16 50.00           |
|                       | 10900.00   | 88.54       | 90.27            | 8607.40     | 2535.83      | 408.92     | 2537.79    | 0.00             | 434539.08          | 557757.05         | N 32 11 40.61           | W 104 16 48.91           |
|                       | 11000.00   | 88.54       | 90.27            | 8609.96     | 2635.80      | 408.45     | 2637.75    | 0.00             | 434538.61          | 557857.01         | N 32 11 40.61           | W 104 16 47.75           |
|                       | 11100.00   | 88.54       | 90.27            | 8612.51     | 2735.77      | 407.97     | 2737.72    | 0.00             | 434538.14          | 557956.97         | N 32 11 40.60           | W 104 16 46.58           |
|                       | 11200.00   | 88.54       | 90.27            | 8615.07     | 2835.73      | 407.50     | 2837.69    | 0.00             | 434537.67          | 558056.92         | N 32 11 40.60           | W 104 16 45.42           |
|                       | 11300.00   | 88.54       | 90.27            | 8617.62     | 2935.70      | 407.03     | 2937.65    | 0.00             | 434537.19          | 558156.88         | N 32 11 40.59           | W 104 16 44.26           |
|                       | 11400.00   | 88.54       | 90.27            | 8620.18     | 3035.67      | 406.56     | 3037.62    | 0.00             | 434536.72          | 558256.84         | N 32 11 40.59           | W 104 16 43.09           |
|                       | 11500.00   | 88.54       | 90.27            | 8622.73     | 3135.64      | 406.09     | 3137.59    | 0.00             | 434536.25          | 558356.79         | N 32 11 40.58           | W 104 16 41.93           |
|                       | 11600.00   | 88.54       | 90.27            | 8625.29     | 3235.60      | 405.62     | 3237.55    | 0.00             | 434535.78          | 558456.75         | N 32 11 40.57           | W 104 16 40.77           |
|                       | 11700.00   | 88.54       | 90.27            | 8627.84     | 3335.57      | 405.15     | 3337.52    | 0.00             | 434535.31          | 558556.71         | N 32 11 40.57           | W 104 16 39.60           |
|                       | 11800.00   | 88.54       | 90.27            | 8630.39     | 3435.54      | 404.68     | 3437.48    | 0.00             | 434534.84          | 558656.67         | N 32 11 40.56           | W 104 16 38.44           |
|                       | 11900.00   | 88.54       | 90.27            | 8632.95     | 3535.51      | 404.21     | 3537.45    | 0.00             | 434534.37          | 558756.62         | N 32 11 40.56           | W 104 16 37.28           |
|                       | 12000.00   | 88.54       | 90.27            | 8635.50     | 3635.47      | 403.73     | 3637.42    | 0.00             | 434533.90          | 558856.58         | N 32 11 40.55           | W 104 16 36.11           |
|                       | 12100.00   | 88.54       | 90.27            | 8638.06     | 3735.44      | 403.26     | 3737.38    | 0.00             | 434533.43          | 558956.54         | N 32 11 40.55           | W 104 16 34.95           |
|                       | 12200.00   | 88.54       | 90.27            | 8640.61     | 3835.41      | 402.79     | 3837.35    | 0.00             | 434532.95          | 559056.49         | N 32 11 40.54           | W 104 16 33.79           |
|                       | 12300.00   | 88.54       | 90.27            | 8643.17     | 3935.38      | 402.32     | 3937.32    | 0.00             | 434532.48          | 559156.45         | N 32 11 40.54           | W 104 16 32.62           |
|                       | 12400.00   | 88.54       | 90.27            | 8645.72     | 4035.34      | 401.85     | 4037.28    | 0.00             | 434532.01          | 559256.41         | N 32 11 40.53           | W 104 16 31.46           |
|                       | 12500.00   | 88.54       | 90.27            | 8648.28     | 4135.31      | 401.38     | 4137.25    | 0.00             | 434531.54          | 559356.36         | N 32 11 40.53           | W 104 16 30.30           |
|                       | 12600.00   | 88.54       | 90.27            | 8650.83     | 4235.28      | 400.91     | 4237.21    | 0.00             | 434531.07          | 559456.32         | N 32 11 40.52           | W 104 16 29.13           |
|                       | 12700.00   | 88.54       | 90.27            | 8653.39     | 4335.25      | 400.44     | 4337.18    | 0.00             | 434530.60          | 559556.28         | N 32 11 40.52           | W 104 16 27.97           |
|                       | 12800.00   | 88.54       | 90.27            | 8655.94     | 4435.21      | 399.97     | 4437.15    | 0.00             | 434530.13          | 559656.24         | N 32 11 40.51           | W 104 16 26.81           |
|                       | 12900.00   | 88.54       | 90.27            | 8658.49     | 4535.18      | 399.49     | 4537.11    | 0.00             | 434529.66          | 559756.19         | N 32 11 40.51           | W 104 16 25.64           |
|                       | 13000.00   | 88.54       | 90.27            | 8661.05     | 4635.15      | 399.02     | 4637.08    | 0.00             | 434529.19          | 559856.15         | N 32 11 40.50           | W 104 16 24.48           |
|                       | 13100.00   | 88.54       | 90.27            | 8663.60     | 4735.11      | 398.55     | 4737.05    | 0.00             | 434528.72          | 559956.11         | N 32 11 40.50           | W 104 16 23.32           |
|                       | 13200.00   | 88.54       | 90.27            | 8666.16     | 4835.08      | 398.08     | 4837.01    | 0.00             | 434528.24          | 560056.06         | N 32 11 40.49           | W 104 16 22.15           |
|                       | 13300.00   | 88.54       | 90.27            | 8668.71     | 4935.05      | 397.61     | 4936.98    | 0.00             | 434527.77          | 560156.02         | N 32 11 40.49           | W 104 16 20.99           |
|                       | 13400.00   | 88.54       | 90.27            | 8671.27     | 5035.02      | 397.14     | 5036.94    | 0.00             | 434527.30          | 560255.98         | N 32 11 40.48           | W 104 16 19.83           |
|                       | 13500.00   | 88.54       | 90.27            | 8673.82     | 5134.98      | 396.67     | 5136.91    | 0.00             | 434526.83          | 560355.93         | N 32 11 40.48           | W 104 16 18.66           |
|                       | 13600.00   | 88.54       | 90.27            | 8676.38     | 5234.95      | 396.20     | 5236.88    | 0.00             | 434526.36          | 560455.89         | N 32 11 40.47           | W 104 16 17.50           |
|                       | 13700.00   | 88.54       | 90.27            | 8678.93     | 5334.92      | 395.73     | 5336.84    | 0.00             | 434525.89          | 560555.85         | N 32 11 40.47           | W 104 16 16.34           |
|                       | 13800.00   | 88.54       | 90.27            | 8681.49     | 5434.89      | 395.25     | 5436.81    | 0.00             | 434525.42          | 560655.81         | N 32 11 40.46           | W 104 16 15.17           |
|                       | 13900.00   | 88.54       | 90.27            | 8684.04     | 5534.85      | 394.78     | 5536.78    | 0.00             | 434524.95          | 560755.76         | N 32 11 40.46           | W 104 16 14.01           |
|                       | 14000.00   | 88.54       | 90.27            | 8686.60     | 5634.82      | 394.31     | 5636.74    | 0.00             | 434524.48          | 560855.72         | N 32 11 40.45           | W 104 16 12.85           |
|                       | 14100.00   | 88.54       | 90.27            | 8689.15     | 5734.79      | 393.84     | 5736.71    | 0.00             | 434524.00          | 560955.68         | N 32 11 40.44           | W 104 16 11.68           |
|                       | 14200.00   | 88.54       | 90.27            | 8691.70     | 5834.76      | 393.37     | 5836.67    | 0.00             | 434523.53          | 561055.63         | N 32 11 40.44           | W 104 16 10.52           |
|                       | 14300.00   | 88.54       | 90.27            | 8694.26     | 5934.72      | 392.90     | 5936.64    | 0.00             | 434523.06          | 561155.59         | N 32 11 40.43           | W 104 16 9.36            |
|                       | 14400.00   | 88.54       | 90.27            | 8696.81     | 6034.69      | 392.43     | 6036.61    | 0.00             | 434522.59          | 561255.55         | N 32 11 40.43           | W 104 16 8.19            |
|                       | 14500.00   | 88.54       | 90.27            | 8699.37     | 6134.65      | 391.96     | 6136.54    | 0.00             | 434522.12          | 561355.50         | N 32 11 40.42           | W 104 16 7.03            |
|                       | 14600.00   | 88.54       | 90.27            | 8701.92     | 6234.63      | 391.49     | 6236.54    | 0.00             | 434521.65          | 561455.46         | N 32 11 40.42           | W 104 16 5.87            |
|                       | 14700.00   | 88.54       | 90.27            | 8704.48     | 6334.59      | 391.01     | 6336.51    | 0.00             | 434521.18          | 561555.42         | N 32 11 40.41           | W 104 16 4.70            |
|                       | 14800.00   | 88.54       | 90.27            | 8707.03     | 6434.56      | 390.54     | 6436.44    | 0.00             | 434520.71          | 561655.38         | N 32 11 40.41           | W 104 16 3.54            |
|                       | 14900.00   | 88.54       | 90.27            | 8709.59     | 6534.53      | 390.07     | 6536.44    | 0.00             | 434520.24          | 561755.33         | N 32 11 40.40           | W 104 16 2.38            |
|                       | 15000.00   | 88.54       | 90.27            | 8712.14     | 6634.49      | 389.60     | 6636.40    | 0.00             | 434519.76          | 561855.29         | N 32 11 40.40           | W 104 16 1.21            |

| 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 °.′.″) |
|----------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|          | 15100.00   | 88.54       | 90.27            | 8714.70     | 6734.46      | 389.13     | 6736.37    | 0.00             | 434519.29          | 561956.25         | N 32 11 40.39           | W 104 16 0.05            |
|          | 15200.00   | 88.54       | 90.27            | 8717.25     | 6834.43      | 388.66     | 6836.34    | 0.00             | 434518.82          | 562055.20         | N 32 11 40.39           | W 104 15 58.89           |
|          | 15300.00   | 88.54       | 90.27            | 8719.80     | 6934.40      | 388.19     | 6936.30    | 0.00             | 434518.35          | 562155.16         | N 32 11 40.38           | W 104 15 57.72           |
|          | 15400.00   | 88.54       | 90.27            | 8722.36     | 7034.36      | 387.72     | 7036.27    | 0.00             | 434517.88          | 562255.12         | N 32 11 40.38           | W 104 15 56.56           |
|          | 15500.00   | 88.54       | 90.27            | 8724.91     | 7134.33      | 387.24     | 7136.24    | 0.00             | 434517.41          | 562355.07         | N 32 11 40.37           | W 104 15 55.40           |
|          | 15600.00   | 88.54       | 90.27            | 8727.47     | 7234.30      | 386.77     | 7236.20    | 0.00             | 434516.94          | 562455.03         | N 32 11 40.37           | W 104 15 54.23           |
|          | 15700.00   | 88.54       | 90.27            | 8730.02     | 7334.27      | 386.30     | 7336.17    | 0.00             | 434516.47          | 562554.99         | N 32 11 40.36           | W 104 15 53.07           |
|          | 15800.00   | 88.54       | 90.27            | 8732.58     | 7434.23      | 385.83     | 7436.13    | 0.00             | 434516.00          | 562654.95         | N 32 11 40.35           | W 104 15 51.91           |
|          | 15900.00   | 88.54       | 90.27            | 8735.13     | 7534.20      | 385.36     | 7536.10    | 0.00             | 434515.52          | 562754.90         | N 32 11 40.35           | W 104 15 50.74           |
|          | 16000.00   | 88.54       | 90.27            | 8737.69     | 7634.17      | 384.89     | 7636.07    | 0.00             | 434515.05          | 562854.86         | N 32 11 40.34           | W 104 15 49.58           |
|          | 16100.00   | 88.54       | 90.27            | 8740.24     | 7734.14      | 384.42     | 7736.03    | 0.00             | 434514.58          | 562954.82         | N 32 11 40.34           | W 104 15 48.42           |
|          | 16200.00   | 88.54       | 90.27            | 8742.80     | 7834.10      | 383.95     | 7836.00    | 0.00             | 434514.11          | 563054.77         | N 32 11 40.33           | W 104 15 47.25           |
|          | 16300.00   | 88.54       | 90.27            | 8745.35     | 7934.07      | 383.48     | 7935.97    | 0.00             | 434513.64          | 563154.73         | N 32 11 40.33           | W 104 15 46.09           |
|          | 16400.00   | 88.54       | 90.27            | 8747.90     | 8034.04      | 383.00     | 8035.93    | 0.00             | 434513.17          | 563254.69         | N 32 11 40.32           | W 104 15 44.93           |
|          | 16500.00   | 88.54       | 90.27            | 8750.46     | 8134.01      | 382.53     | 8135.90    | 0.00             | 434512.70          | 563354.64         | N 32 11 40.32           | W 104 15 43.76           |
|          | 16600.00   | 88.54       | 90.27            | 8753.01     | 8233.97      | 382.06     | 8235.86    | 0.00             | 434512.23          | 563454.60         | N 32 11 40.31           | W 104 15 42.60           |
|          | 16700.00   | 88.54       | 90.27            | 8755.57     | 8333.94      | 381.59     | 8335.83    | 0.00             | 434511.76          | 563554.56         | N 32 11 40.31           | W 104 15 41.44           |
|          | 16800.00   | 88.54       | 90.27            | 8758.12     | 8433.91      | 381.12     | 8435.80    | 0.00             | 434511.28          | 563654.51         | N 32 11 40.30           | W 104 15 40.27           |
|          | 16900.00   | 88.54       | 90.27            | 8760.68     | 8533.87      | 380.65     | 8535.76    | 0.00             | 434510.81          | 563754.47         | N 32 11 40.30           | W 104 15 39.11           |
|          | 17000.00   | 88.54       | 90.27            | 8763.23     | 8633.84      | 380.18     | 8635.73    | 0.00             | 434510.34          | 563854.43         | N 32 11 40.29           | W 104 15 37.95           |
|          | 17100.00   | 88.54       | 90.27            | 8765.79     | 8733.81      | 379.71     | 8735.70    | 0.00             | 434509.87          | 563954.39         | N 32 11 40.28           | W 104 15 36.78           |
|          | 17200.00   | 88.54       | 90.27            | 8768.34     | 8833.78      | 379.24     | 8835.66    | 0.00             | 434509.40          | 564054.34         | N 32 11 40.28           | W 104 15 35.62           |
|          | 17300.00   | 88.54       | 90.27            | 8770.90     | 8933.74      | 378.76     | 8935.63    | 0.00             | 434508.93          | 564154.30         | N 32 11 40.28           | W 104 15 34.46           |
|          | 17400.00   | 88.54       | 90.27            | 8773.45     | 9033.71      | 378.29     | 9035.59    | 0.00             | 434508.46          | 564254.26         | N 32 11 40.27           | W 104 15 33.30           |
|          | 17500.00   | 88.54       | 90.27            | 8776.00     | 9133.68      | 377.82     | 9135.56    | 0.00             | 434507.99          | 564354.21         | N 32 11 40.26           | W 104 15 32.13           |
|          | 17600.00   | 88.54       | 90.27            | 8778.56     | 9233.65      | 377.35     | 9235.53    | 0.00             | 434507.52          | 564454.17         | N 32 11 40.26           | W 104 15 30.97           |
|          | 17700.00   | 88.54       | 90.27            | 8781.11     | 9333.61      | 376.88     | 9335.49    | 0.00             | 434507.05          | 564554.13         | N 32 11 40.25           | W 104 15 29.81           |
|          | 17800.00   | 88.54       | 90.27            | 8783.67     | 9433.58      | 376.41     | 9435.46    | 0.00             | 434506.57          | 564654.08         | N 32 11 40.25           | W 104 15 28.64           |
|          | 17900.00   | 88.54       | 90.27            | 8786.22     | 9533.55      | 375.94     | 9535.43    | 0.00             | 434506.10          | 564754.04         | N 32 11 40.24           | W 104 15 27.48           |
|          | 18000.00   | 88.54       | 90.27            | 8788.78     | 9633.52      | 375.47     | 9635.39    | 0.00             | 434505.63          | 564854.00         | N 32 11 40.24           | W 104 15 26.32           |
|          | 18100.00   | 88.54       | 90.27            | 8791.33     | 9733.48      | 375.00     | 9735.36    | 0.00             | 434505.16          | 564953.96         | N 32 11 40.23           | W 104 15 25.15           |
|          | 18200.00   | 88.54       | 90.27            | 8793.89     | 9833.45      | 374.52     | 9835.32    | 0.00             | 434504.69          | 565053.91         | N 32 11 40.23           | W 104 15 23.99           |

Cimarex  
Crawford 27-26  
Fee 2H - PBHL  
[380' FNL, 330'  
FEL]

Survey Type: Non-Def Plan

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

Survey Program:

| Description | Part | MD From<br>(ft) | MD To<br>(ft) | EOU Freq<br>(ft) | Hole Size Casing Diameter<br>(in) | Expected Max<br>Inclination<br>(deg) | Survey Tool Type        | Borehole / Survey                                                       |
|-------------|------|-----------------|---------------|------------------|-----------------------------------|--------------------------------------|-------------------------|-------------------------------------------------------------------------|
|             | 1    | 0.000           | 24.000        | 1/100.000        | 30.000                            |                                      | NAL_MWD_IFR1-Depth Only | Original Borehole / Cimarex<br>Crawford 27-26 Fee 2H Rev0 RM<br>19Jan18 |
|             | 1    | 24.000          | 18282.723     | 1/100.000        | 30.000                            |                                      | NAL_MWD_IFR1            | Original Borehole / Cimarex<br>Crawford 27-26 Fee 2H Rev0 RM            |