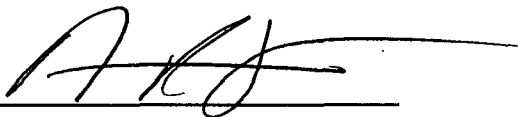


Apache Corporation  
303 Veterans Airpark Lane, #3000  
Midland, TX 79705

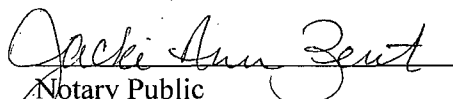
Crow Federal #17 H API #30-015-40991  
Eddy County, New Mexico 1775' FSL + 110' FWL ULL, 09-175-31E

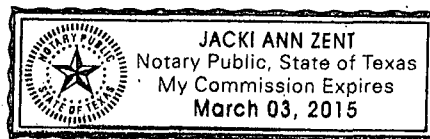
|     |      |      |      |      |      |
|-----|------|------|------|------|------|
| 236 | 2.36 | 0.25 | 0.44 | 1.03 | 1.03 |
| 487 | 4.87 | 0.50 | 0.88 | 4.26 | 4.26 |



Archie Brown - General Manager

The attached instrument was acknowledged before me on the 23<sup>rd</sup> day of September, 2013 by  
Archie Brown - General Manager, CapStar Drilling, Inc.

  
Notary Public





## Apache Corporation

Eddy County, NM (NAD27 NME)

Crow Federal

#17H API #30-015-40991

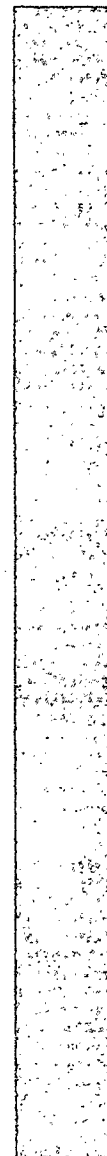
WB1/Job #1311090

Survey: Pheonix MWD Survey

## Apache Corporation

06 September, 2013

NM OIL CONSERVATION  
ARTESIA DISTRICT  
JUN 30 2014  
RECEIVED





## Apache Corporation

|           |                             |                              |                                |
|-----------|-----------------------------|------------------------------|--------------------------------|
| Company:  | Apache Corporation          | Local Co-ordinate Reference: | Well #17H                      |
| Project:  | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3848.00usft (Capstar 114) |
| Site:     | Crow Federal                | MD Reference:                | KB @ 3848.00usft (Capstar 114) |
| Well:     | #17H                        | North Reference:             | Grid                           |
| Wellbore: | WB1/Job #1311090            | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Surveys (Capstar 114)       | Database:                    | Compass 5000 GCR DB            |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project:    | Eddy County, NM (NAD27 NME)          |               |                |
| Map System: | US State Plane 1927 (Exact solution) | System Datum: | Mean Sea Level |
| Geo Datum:  | NAD 1927 (NADCON CONUS)              |               |                |
| Map Zone:   | New Mexico East 3001                 |               |                |

|                       |              |                   |                     |
|-----------------------|--------------|-------------------|---------------------|
| Site:                 | Crow Federal |                   |                     |
| Site Position:        |              | Northing:         | 671,130.90 usft     |
| From:                 | Map          | Easting:          | 643,906.80 usft     |
| Position Uncertainty: | 0.00 usft    | Slot Radius:      | 13-3/16 "           |
|                       |              | Latitude:         | 32° 50' 38.92796 N  |
|                       |              | Longitude:        | 103° 51' 53.16689 W |
|                       |              | Grid Convergence: | 0.25 °              |

|                      |           |           |                     |                 |               |                     |
|----------------------|-----------|-----------|---------------------|-----------------|---------------|---------------------|
| Well:                | #17H      |           |                     |                 |               |                     |
| Well Position        | +N/-S     | 0.00 usft | Northing:           | 671,987.60 usft | Latitude:     | 32° 50' 47.63874 N  |
|                      | +E/-W     | 0.00 usft | Easting:            | 638,480.60 usft | Longitude:    | 103° 52' 56.72661 W |
| Position Uncertainty | 0.00 usft |           | Wellhead Elevation: | usft            | Ground Level: | 3,837.00 usft       |

|            |                  |             |             |           |                |
|------------|------------------|-------------|-------------|-----------|----------------|
| Wellbore:  | WB1/Job #1311090 |             |             |           |                |
| Magnetics: | Model Name       | Sample Date | Declination | Dip Angle | Field Strength |
|            |                  |             | (°)         | (°)       | (nT)           |
|            | IGRF2010_14      | 08/21/13    | 7.51        | 60.65     | 48,735         |

|                   |                       |        |        |                    |
|-------------------|-----------------------|--------|--------|--------------------|
| Design:           | Surveys (Capstar 114) |        |        |                    |
| Audit Notes:      |                       |        |        |                    |
| Version:          | 1.0                   | Phase: | ACTUAL | Tie On Depth: 0.00 |
| Vertical Section: | Depth From (TVD)      | +N/-S  | +E/-W  | Direction          |
|                   | (usft)                | (usft) | (usft) | (°)                |
|                   | 0.00                  | 0.00   | 0.00   | 89.63              |



|           |                             |                              |                                |
|-----------|-----------------------------|------------------------------|--------------------------------|
| Company:  | Apache Corporation          | Local Co-ordinate Reference: | Well #17H                      |
| Project:  | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3848.00usft (Capstar 114) |
| Site:     | Crow Federal                | MD Reference:                | KB @ 3848.00usft (Capstar 114) |
| Well:     | #17H                        | North Reference:             | Grid                           |
| Wellbore: | WB1/Job #1311090            | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Surveys (Capstar 114)       | Database:                    | Compass 5000 GCR DB            |

| Survey Program |           | Date 09/06/13                        |            |                             |
|----------------|-----------|--------------------------------------|------------|-----------------------------|
| From (usft)    | To (usft) | Survey (Wellbore)                    | Tool Name  | Description                 |
| 100.00         | 400.00    | Gyrodatta Survey (WB1/Job #1311090)  | CB-GYRO-MS | Camera based gyro multishot |
| 455.00         | 10,303.00 | Phoenix MWD Survey (WB1/Job #131109) | MWD        | MWD - Standard              |

| MD (usft)                | Inc (°) | Azi (azimuth) (°) | TVDSS (usft) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | Northing (usft) | Easting (usft) |
|--------------------------|---------|-------------------|--------------|------------|------------|------------|---------------|------------------|-----------------|----------------|
| 400.00                   | 0.29    | 25.41             | -3,448.00    | 400.00     | 0.62       | -0.98      | -0.97         | 0.00             | 671,988.22      | 638,479.62     |
| 455.00                   | 0.27    | 41.22             | -3,393.00    | 455.00     | 0.84       | -0.83      | -0.83         | 0.14             | 671,988.44      | 638,479.77     |
| First Phoenix MWD Survey |         |                   |              |            |            |            |               |                  |                 |                |
| 534.00                   | 0.20    | 58.40             | -3,314.00    | 534.00     | 1.06       | -0.59      | -0.58         | 0.12             | 671,988.66      | 638,480.01     |
| 577.00                   | 0.30    | 66.00             | -3,271.00    | 577.00     | 1.14       | -0.42      | -0.42         | 0.24             | 671,988.74      | 638,480.18     |
| 653.00                   | 0.80    | 273.20            | -3,195.01    | 652.99     | 1.25       | -0.77      | -0.76         | 1.42             | 671,988.85      | 638,479.83     |
| 738.00                   | 1.90    | 272.00            | -3,110.03    | 737.97     | 1.33       | -2.77      | -2.76         | 1.29             | 671,988.93      | 638,477.83     |
| 824.00                   | 2.40    | 276.80            | -3,024.09    | 823.91     | 1.60       | -5.99      | -5.97         | 0.62             | 671,989.20      | 638,474.61     |
| 909.00                   | 3.30    | 279.10            | -2,939.20    | 908.80     | 2.20       | -10.17     | -10.15        | 1.07             | 671,989.80      | 638,470.43     |
| 995.00                   | 3.60    | 280.30            | -2,853.35    | 994.65     | 3.07       | -15.27     | -15.25        | 0.36             | 671,990.67      | 638,465.33     |
| 1,084.00                 | 3.20    | 279.90            | -2,764.51    | 1,083.49   | 4.00       | -20.47     | -20.44        | 0.45             | 671,991.60      | 638,460.13     |
| 1,169.00                 | 3.90    | 282.90            | -2,679.67    | 1,168.33   | 5.05       | -25.62     | -25.59        | 0.85             | 671,992.65      | 638,454.98     |
| 1,255.00                 | 2.70    | 272.90            | -2,593.82    | 1,254.18   | 5.80       | -30.49     | -30.46        | 1.54             | 671,993.40      | 638,450.11     |
| 1,341.00                 | 2.60    | 270.70            | -2,507.91    | 1,340.09   | 5.93       | -34.47     | -34.43        | 0.17             | 671,993.53      | 638,446.13     |
| 1,426.00                 | 2.80    | 271.80            | -2,423.00    | 1,425.00   | 6.02       | -38.47     | -38.43        | 0.24             | 671,993.62      | 638,442.13     |
| 1,512.00                 | 1.50    | 245.60            | -2,337.07    | 1,510.93   | 5.62       | -41.60     | -41.56        | 1.86             | 671,993.22      | 638,439.00     |
| 1,598.00                 | 0.90    | 218.10            | -2,251.08    | 1,596.92   | 4.62       | -43.04     | -43.01        | 0.95             | 671,992.22      | 638,437.56     |
| 1,682.00                 | 0.90    | 220.00            | -2,167.09    | 1,680.91   | 3.60       | -43.87     | -43.84        | 0.04             | 671,991.20      | 638,436.73     |
| 1,766.00                 | 0.90    | 209.40            | -2,083.10    | 1,764.90   | 2.52       | -44.62     | -44.60        | 0.20             | 671,990.12      | 638,435.98     |
| 1,857.00                 | 0.90    | 217.80            | -1,992.12    | 1,855.88   | 1.33       | -45.40     | -45.40        | 0.14             | 671,988.93      | 638,435.20     |
| 1,943.00                 | 0.90    | 220.70            | -1,906.13    | 1,941.87   | 0.29       | -46.26     | -46.26        | 0.05             | 671,987.89      | 638,434.34     |



Apache Corporation

|           |                             |                              |                                |
|-----------|-----------------------------|------------------------------|--------------------------------|
| Company:  | Apache Corporation          | Local Co-ordinate Reference: | Well #17H                      |
| Project:  | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3848.00usft (Capstar 114) |
| Site:     | Crow Federal                | MD Reference:                | KB @ 3848.00usft (Capstar 114) |
| Well:     | #17H                        | North Reference:             | Grid                           |
| Wellbore: | WB1/Job #1311090            | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Surveys (Capstar 114)       | Database:                    | Compass 5000 GCR DB            |

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V-Sec<br>(usft) | D Leg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------|------------|----------------------|-----------------|---------------|---------------|---------------|-----------------|----------------------|--------------------|-------------------|
| 2,028.00     | 0.90       | 225.40               | -1,821.14       | 2,026.86      | -0.69         | -47.17        | -47.17          | 0.09                 | 671,986.91         | 638,433.43        |
| 2,114.00     | 0.90       | 230.10               | -1,735.15       | 2,112.85      | -1.60         | -48.17        | -48.18          | 0.09                 | 671,986.00         | 638,432.43        |
| 2,199.00     | 0.90       | 237.10               | -1,650.16       | 2,197.84      | -2.39         | -49.24        | -49.26          | 0.13                 | 671,985.21         | 638,431.36        |
| 2,284.00     | 0.90       | 242.70               | -1,565.17       | 2,282.83      | -3.06         | -50.40        | -50.41          | 0.10                 | 671,984.54         | 638,430.20        |
| 2,370.00     | 0.90       | 251.40               | -1,479.18       | 2,368.82      | -3.58         | -51.64        | -51.66          | 0.16                 | 671,984.02         | 638,428.96        |
| 2,456.00     | 1.00       | 256.00               | -1,393.19       | 2,454.81      | -3.98         | -53.00        | -53.03          | 0.15                 | 671,983.62         | 638,427.60        |
| 2,541.00     | 1.00       | 257.30               | -1,308.20       | 2,539.80      | -4.32         | -54.45        | -54.47          | 0.03                 | 671,983.28         | 638,426.15        |
| 2,627.00     | 1.60       | 201.30               | -1,222.22       | 2,625.78      | -5.60         | -55.62        | -55.65          | 1.55                 | 671,982.00         | 638,424.98        |
| 2,713.00     | 0.90       | 193.60               | -1,136.24       | 2,711.76      | -7.38         | -56.21        | -56.26          | 0.84                 | 671,980.22         | 638,424.39        |
| 2,801.00     | 0.70       | 21.80                | -1,048.25       | 2,799.75      | -7.55         | -56.17        | -56.22          | 1.81                 | 671,980.05         | 638,424.43        |
| 2,887.00     | 1.00       | 18.80                | -962.26         | 2,885.74      | -6.35         | -55.74        | -55.78          | 0.35                 | 671,981.25         | 638,424.86        |
| 2,972.00     | 1.10       | 19.40                | -877.27         | 2,970.73      | -4.88         | -55.23        | -55.26          | 0.12                 | 671,982.72         | 638,425.37        |
| 3,058.00     | 1.20       | 21.80                | -791.29         | 3,056.71      | -3.27         | -54.62        | -54.64          | 0.13                 | 671,984.33         | 638,425.98        |
| 3,143.00     | 1.20       | 20.40                | -706.31         | 3,141.69      | -1.61         | -53.98        | -53.99          | 0.03                 | 671,985.99         | 638,426.62        |
| 3,229.00     | 1.20       | 23.00                | -620.33         | 3,227.67      | 0.07          | -53.31        | -53.31          | 0.06                 | 671,987.67         | 638,427.29        |
| 3,315.00     | 1.40       | 25.90                | -534.35         | 3,313.65      | 1.84          | -52.50        | -52.49          | 0.24                 | 671,989.44         | 638,428.10        |
| 3,400.00     | 1.40       | 24.00                | -449.37         | 3,398.63      | 3.72          | -51.62        | -51.60          | 0.05                 | 671,991.32         | 638,428.98        |
| 3,450.00     | 1.50       | 19.70                | -399.39         | 3,448.61      | 4.90          | -51.16        | -51.12          | 0.30                 | 671,992.50         | 638,429.44        |
| 3,529.00     | 1.40       | 22.90                | -320.41         | 3,527.59      | 6.76          | -50.43        | -50.39          | 0.16                 | 671,994.36         | 638,430.17        |
| 3,615.00     | 1.60       | 322.70               | -234.44         | 3,613.56      | 8.68          | -50.75        | -50.69          | 1.76                 | 671,996.28         | 638,429.85        |
| 3,701.00     | 1.50       | 207.80               | -148.46         | 3,699.54      | 8.64          | -52.00        | -51.95          | 3.04                 | 671,996.24         | 638,428.60        |
| 3,786.00     | 1.30       | 181.90               | -63.48          | 3,784.52      | 6.69          | -52.55        | -52.51          | 0.77                 | 671,994.29         | 638,428.05        |
| 3,872.00     | 1.20       | 184.40               | 22.50           | 3,870.50      | 4.82          | -52.66        | -52.62          | 0.13                 | 671,992.42         | 638,427.94        |
| 3,957.00     | 1.60       | 169.70               | 107.47          | 3,955.47      | 2.77          | -52.51        | -52.49          | 0.63                 | 671,990.37         | 638,428.09        |
| 4,043.00     | 2.20       | 186.20               | 193.43          | 4,041.43      | -0.06         | -52.47        | -52.47          | 0.94                 | 671,987.54         | 638,428.13        |
| 4,128.00     | 0.60       | 190.50               | 278.40          | 4,126.40      | -2.12         | -52.73        | -52.74          | 1.89                 | 671,985.48         | 638,427.87        |
| 4,213.00     | 1.20       | 86.90                | 363.39          | 4,211.39      | -2.50         | -51.92        | -51.94          | 1.72                 | 671,985.10         | 638,428.68        |



# Apache Corporation

|           |                             |                              |                                |
|-----------|-----------------------------|------------------------------|--------------------------------|
| Company:  | Apache Corporation          | Local Co-ordinate Reference: | Well #17H                      |
| Project:  | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3848.00usft (Capstar 114) |
| Site:     | Crow Federal                | MD Reference:                | KB @ 3848.00usft (Capstar 114) |
| Well:     | #17H                        | North Reference:             | Grid                           |
| Wellbore: | WB1/Job #1311090            | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Surveys (Capstar 114)       | Database:                    | Compass 5000 GCR DB            |

| MD<br>(usft) | Inc.<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | D Leg.<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
|--------------|-------------|----------------------|-----------------|---------------|---------------|---------------|------------------|-----------------------|--------------------|-------------------|
| 4,300.00     | 1.10        | 79.80                | 450.37          | 4,298.37      | -2.31         | -50.19        | -50.21           | 0.20                  | 671,985.29         | 638,430.41        |
| 4,385.00     | 1.10        | 87.50                | 535.36          | 4,383.36      | -2.13         | -48.57        | -48.59           | 0.17                  | 671,985.47         | 638,432.03        |
| 4,476.00     | 1.10        | 88.70                | 626.34          | 4,474.34      | -2.07         | -46.83        | -46.84           | 0.03                  | 671,985.53         | 638,433.77        |
| 4,563.00     | 1.10        | 89.00                | 713.33          | 4,561.33      | -2.04         | -45.16        | -45.17           | 0.01                  | 671,985.56         | 638,435.44        |
| 4,648.00     | 1.10        | 88.90                | 798.31          | 4,646.31      | -2.01         | -43.53        | -43.54           | 0.00                  | 671,985.59         | 638,437.07        |
| 4,736.00     | 1.00        | 76.30                | 886.30          | 4,734.30      | -1.81         | -41.94        | -41.95           | 0.29                  | 671,985.79         | 638,438.66        |
| 4,823.00     | 1.00        | 71.40                | 973.28          | 4,821.28      | -1.39         | -40.48        | -40.49           | 0.10                  | 671,986.21         | 638,440.12        |
| 4,908.00     | 1.00        | 63.00                | 1,058.27        | 4,906.27      | -0.81         | -39.12        | -39.12           | 0.17                  | 671,986.79         | 638,441.48        |
| 4,994.00     | 0.90        | 55.60                | 1,144.26        | 4,992.26      | -0.09         | -37.89        | -37.89           | 0.18                  | 671,987.51         | 638,442.71        |
| 5,079.00     | 0.90        | 50.10                | 1,229.25        | 5,077.25      | 0.71          | -36.83        | -36.82           | 0.10                  | 671,988.31         | 638,443.77        |
| 5,119.00     | 0.90        | 43.10                | 1,269.24        | 5,117.24      | 1.15          | -36.37        | -36.36           | 0.27                  | 671,988.75         | 638,444.23        |
| 5,162.00     | 1.50        | 86.20                | 1,312.23        | 5,160.23      | 1.43          | -35.58        | -35.57           | 2.43                  | 671,989.03         | 638,445.02        |
| 5,205.00     | 7.30        | 96.40                | 1,355.09        | 5,203.09      | 1.16          | -32.30        | -32.29           | 13.56                 | 671,988.76         | 638,448.30        |
| 5,247.00     | 13.30       | 89.40                | 1,396.39        | 5,244.39      | 0.92          | -24.81        | -24.80           | 14.57                 | 671,988.52         | 638,455.79        |
| 5,290.00     | 18.60       | 85.30                | 1,437.73        | 5,285.73      | 1.53          | -13.02        | -13.01           | 12.59                 | 671,989.13         | 638,467.58        |
| 5,333.00     | 23.30       | 86.40                | 1,477.87        | 5,325.87      | 2.63          | 2.31          | -2.33            | 10.97                 | 671,990.23         | 638,482.91        |
| 5,376.00     | 27.40       | 87.50                | 1,516.72        | 5,364.72      | 3.59          | 20.69         | 20.71            | 9.60                  | 671,991.19         | 638,501.29        |
| 5,418.00     | 31.90       | 88.90                | 1,553.22        | 5,401.22      | 4.23          | 41.45         | 41.48            | 10.84                 | 671,991.83         | 638,522.05        |
| 5,461.00     | 36.80       | 89.80                | 1,588.71        | 5,436.71      | 4.49          | 65.70         | 65.73            | 11.46                 | 671,992.09         | 638,546.30        |
| 5,504.00     | 41.20       | 90.40                | 1,622.11        | 5,470.11      | 4.44          | 92.76         | 92.78            | 10.27                 | 671,992.04         | 638,573.36        |
| 5,548.00     | 45.80       | 90.50                | 1,654.02        | 5,502.02      | 4.20          | 123.04        | 123.06           | 10.46                 | 671,991.80         | 638,603.64        |
| 5,594.00     | 52.00       | 90.30                | 1,684.25        | 5,532.25      | 3.96          | 157.68        | 157.70           | 13.48                 | 671,991.56         | 638,638.28        |
| 5,637.00     | 56.80       | 90.20                | 1,709.27        | 5,557.27      | 3.81          | 192.64        | 192.66           | 11.16                 | 671,991.41         | 638,673.24        |
| 5,680.00     | 61.50       | 90.80                | 1,731.32        | 5,579.32      | 3.48          | 229.54        | 229.56           | 11.00                 | 671,991.08         | 638,710.14        |
| 5,723.00     | 66.50       | 91.30                | 1,750.16        | 5,598.16      | 2.77          | 268.17        | 268.18           | 11.67                 | 671,990.37         | 638,748.77        |
| 5,765.00     | 71.80       | 90.80                | 1,765.10        | 5,613.10      | 2.05          | 307.40        | 307.40           | 12.67                 | 671,989.65         | 638,788.00        |
| 5,808.00     | 77.90       | 89.30                | 1,776.34        | 5,624.34      | 2.02          | 348.88        | 348.89           | 14.58                 | 671,989.62         | 638,829.48        |



Apache Corporation

Company: Apache Corporation  
Project: Eddy County, NM (NAD27 NME)  
Site: Crow Federal  
Well: #17H  
Wellbore: WB1/Job #1311090  
Design: Surveys (Capstar 114)

Local/Co-ordinate Reference:  
TVD Reference:  
MD Reference:  
North Reference:  
Survey Calculation Method:  
Database:  
Well #17H  
KB @ 3848.00usft (Capstar 114)  
KB @ 3848.00usft (Capstar 114)  
Grid  
Minimum Curvature  
Compass 5000 GCR DB

| Survey       |            |                      |                 |               |               |               |                  |                     |                    |                   |  |
|--------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|--|
| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 5,850.00     | 83.50      | 88.50                | 1,783.12        | 5,631.12      | 2.82          | 390.31        | 390.32           | 13.47               | 671,990.42         | 638,870.91        |  |
| 5,936.00     | 86.00      | 88.60                | 1,790.99        | 5,638.99      | 4.99          | 475.91        | 475.93           | 2.91                | 671,992.59         | 638,956.51        |  |
| 6,021.00     | 87.10      | 89.90                | 1,796.10        | 5,644.10      | 6.10          | 560.75        | 560.77           | 2.00                | 671,993.70         | 639,041.35        |  |
| 6,107.00     | 88.30      | 90.40                | 1,799.56        | 5,647.56      | 5.87          | 646.67        | 646.70           | 1.51                | 671,993.47         | 639,127.27        |  |
| 6,193.00     | 88.80      | 90.70                | 1,801.73        | 5,649.73      | 5.05          | 732.64        | 732.66           | 0.68                | 671,992.65         | 639,213.24        |  |
| 6,278.00     | 88.90      | 91.20                | 1,803.44        | 5,651.44      | 3.64          | 817.61        | 817.62           | 0.60                | 671,991.24         | 639,298.21        |  |
| 6,368.00     | 88.90      | 91.00                | 1,805.17        | 5,653.17      | 1.91          | 907.58        | 907.57           | 0.22                | 671,989.51         | 639,388.18        |  |
| 6,453.00     | 89.20      | 91.20                | 1,806.58        | 5,654.58      | 0.28          | 992.55        | 992.53           | 0.42                | 671,987.88         | 639,473.15        |  |
| 6,537.00     | 88.40      | 89.90                | 1,808.33        | 5,656.33      | -0.53         | 1,076.53      | 1,076.50         | 1.82                | 671,987.07         | 639,557.13        |  |
| 6,623.00     | 88.50      | 90.10                | 1,810.66        | 5,658.66      | -0.53         | 1,162.50      | 1,162.47         | 0.26                | 671,987.07         | 639,643.10        |  |
| 6,708.00     | 87.60      | 89.00                | 1,813.55        | 5,661.55      | 0.14          | 1,247.44      | 1,247.42         | 1.67                | 671,987.74         | 639,728.04        |  |
| 6,794.00     | 87.60      | 88.10                | 1,817.15        | 5,665.15      | 2.31          | 1,333.34      | 1,333.33         | 1.05                | 671,989.91         | 639,813.94        |  |
| 6,879.00     | 87.60      | 88.50                | 1,820.71        | 5,668.71      | 4.83          | 1,418.23      | 1,418.23         | 0.47                | 671,992.43         | 639,898.83        |  |
| 6,965.00     | 87.70      | 88.60                | 1,824.24        | 5,672.24      | 7.01          | 1,504.13      | 1,504.14         | 0.16                | 671,994.61         | 639,984.73        |  |
| 7,050.00     | 87.90      | 88.40                | 1,827.50        | 5,675.50      | 9.23          | 1,589.04      | 1,589.06         | 0.33                | 671,996.83         | 640,069.64        |  |
| 7,135.00     | 88.00      | 88.60                | 1,830.54        | 5,678.54      | 11.46         | 1,673.95      | 1,673.99         | 0.26                | 671,999.06         | 640,154.55        |  |
| 7,220.00     | 88.10      | 88.60                | 1,833.44        | 5,681.44      | 13.53         | 1,758.88      | 1,758.93         | 0.12                | 672,001.13         | 640,239.48        |  |
| 7,306.00     | 87.90      | 88.60                | 1,836.44        | 5,684.44      | 15.63         | 1,844.80      | 1,844.86         | 0.23                | 672,003.23         | 640,325.40        |  |
| 7,391.00     | 87.20      | 89.20                | 1,840.07        | 5,688.07      | 17.26         | 1,929.70      | 1,929.78         | 1.08                | 672,004.86         | 640,410.30        |  |
| 7,476.00     | 87.30      | 89.30                | 1,844.15        | 5,692.15      | 18.37         | 2,014.60      | 2,014.68         | 0.17                | 672,005.97         | 640,495.20        |  |
| 7,561.00     | 87.30      | 89.00                | 1,848.15        | 5,696.15      | 19.63         | 2,099.50      | 2,099.58         | 0.35                | 672,007.23         | 640,580.10        |  |
| 7,648.00     | 87.20      | 89.10                | 1,852.33        | 5,700.33      | 21.07         | 2,186.38      | 2,186.47         | 0.16                | 672,008.67         | 640,666.98        |  |
| 7,733.00     | 87.20      | 88.90                | 1,856.48        | 5,704.48      | 22.55         | 2,271.27      | 2,271.37         | 0.24                | 672,010.15         | 640,751.87        |  |
| 7,818.00     | 87.40      | 88.70                | 1,860.48        | 5,708.48      | 24.33         | 2,356.16      | 2,356.26         | 0.33                | 672,011.93         | 640,836.76        |  |
| 7,903.00     | 87.10      | 88.20                | 1,864.56        | 5,712.56      | 26.63         | 2,441.03      | 2,441.15         | 0.69                | 672,014.23         | 640,921.63        |  |
| 7,988.00     | 88.70      | 90.10                | 1,867.68        | 5,715.68      | 27.89         | 2,525.95      | 2,526.08         | 2.92                | 672,015.49         | 641,006.55        |  |
| 8,072.00     | 88.90      | 90.00                | 1,869.44        | 5,717.44      | 27.82         | 2,609.93      | 2,610.06         | 0.27                | 672,015.42         | 641,090.53        |  |



Apache Corporation

|           |                             |                              |                                |
|-----------|-----------------------------|------------------------------|--------------------------------|
| Company:  | Apache Corporation          | Local Co-ordinate Reference: | Well #17H                      |
| Project:  | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3848.00usft (Capstar 114) |
| Site:     | Crow Federal                | MD Reference:                | KB @ 3848.00usft (Capstar 114) |
| Well:     | #17H                        | North Reference:             | Grid                           |
| Wellbore: | WB1/Job #1311090            | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Surveys (Capstar 114)       | Database:                    | Compass 5000 GCR DB            |

| Survey                  |            |                      |                 |               |               |               |                  |                      |                    |                   |  |
|-------------------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|----------------------|--------------------|-------------------|--|
| MD<br>(usft)            | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | D Leg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |  |
| 8,159.00                | 88.80      | 89.70                | 1,871.18        | 5,719.18      | 28.04         | 2,696.92      | 2,697.04         | 0.36                 | 672,015.64         | 641,177.52        |  |
| 8,244.00                | 89.10      | 90.10                | 1,872.74        | 5,720.74      | 28.19         | 2,781.90      | 2,782.03         | 0.59                 | 672,015.79         | 641,262.50        |  |
| 8,328.00                | 89.30      | 89.20                | 1,873.91        | 5,721.91      | 28.70         | 2,865.89      | 2,866.02         | 1.10                 | 672,016.30         | 641,346.49        |  |
| 8,413.00                | 88.70      | 91.40                | 1,875.40        | 5,723.40      | 28.26         | 2,950.87      | 2,950.99         | 2.68                 | 672,015.86         | 641,431.47        |  |
| 8,498.00                | 88.40      | 90.50                | 1,877.55        | 5,725.55      | 26.85         | 3,035.83      | 3,035.94         | 1.12                 | 672,014.45         | 641,516.43        |  |
| 8,583.00                | 88.70      | 90.90                | 1,879.70        | 5,727.70      | 25.81         | 3,120.80      | 3,120.90         | 0.59                 | 672,013.41         | 641,601.40        |  |
| 8,671.00                | 88.70      | 90.10                | 1,881.69        | 5,729.69      | 25.04         | 3,208.77      | 3,208.87         | 0.91                 | 672,012.64         | 641,689.37        |  |
| 8,756.00                | 89.10      | 90.00                | 1,883.33        | 5,731.33      | 24.97         | 3,293.76      | 3,293.85         | 0.49                 | 672,012.57         | 641,774.36        |  |
| 8,840.00                | 89.00      | 89.70                | 1,884.72        | 5,732.72      | 25.19         | 3,377.74      | 3,377.84         | 0.38                 | 672,012.79         | 641,858.34        |  |
| 8,925.00                | 89.20      | 90.10                | 1,886.05        | 5,734.05      | 25.34         | 3,462.73      | 3,462.82         | 0.53                 | 672,012.94         | 641,943.33        |  |
| 9,010.00                | 89.30      | 89.80                | 1,887.17        | 5,735.17      | 25.41         | 3,547.73      | 3,547.82         | 0.37                 | 672,013.01         | 642,028.33        |  |
| 9,094.00                | 88.20      | 89.40                | 1,889.00        | 5,737.00      | 26.00         | 3,631.70      | 3,631.79         | 1.39                 | 672,013.60         | 642,112.30        |  |
| 9,179.00                | 88.20      | 89.50                | 1,891.67        | 5,739.67      | 26.81         | 3,716.66      | 3,716.75         | 0.12                 | 672,014.41         | 642,197.26        |  |
| 9,263.00                | 88.40      | 89.90                | 1,894.16        | 5,742.16      | 27.25         | 3,800.62      | 3,800.71         | 0.53                 | 672,014.85         | 642,281.22        |  |
| 9,347.00                | 88.30      | 89.80                | 1,896.58        | 5,744.58      | 27.47         | 3,884.58      | 3,884.68         | 0.17                 | 672,015.07         | 642,365.18        |  |
| 9,431.00                | 88.60      | 88.00                | 1,898.85        | 5,746.85      | 29.09         | 3,968.53      | 3,968.64         | 2.17                 | 672,016.69         | 642,449.13        |  |
| 9,519.00                | 89.30      | 88.30                | 1,900.46        | 5,748.46      | 31.93         | 4,056.47      | 4,056.59         | 0.87                 | 672,019.53         | 642,537.07        |  |
| 9,611.00                | 88.20      | 90.10                | 1,902.47        | 5,750.47      | 33.21         | 4,148.44      | 4,148.56         | 2.29                 | 672,020.81         | 642,629.04        |  |
| 9,700.00                | 88.50      | 90.10                | 1,905.03        | 5,753.03      | 33.06         | 4,237.40      | 4,237.52         | 0.34                 | 672,020.66         | 642,718.00        |  |
| 9,788.00                | 88.70      | 90.30                | 1,907.18        | 5,755.18      | 32.75         | 4,325.37      | 4,325.49         | 0.32                 | 672,020.35         | 642,805.97        |  |
| 9,880.00                | 88.60      | 89.90                | 1,909.35        | 5,757.35      | 32.59         | 4,417.35      | 4,417.46         | 0.45                 | 672,020.19         | 642,897.95        |  |
| 9,971.00                | 88.30      | 89.30                | 1,911.81        | 5,759.81      | 33.22         | 4,508.31      | 4,508.43         | 0.74                 | 672,020.82         | 642,988.91        |  |
| 10,062.00               | 88.70      | 89.30                | 1,914.20        | 5,762.20      | 34.33         | 4,599.27      | 4,599.40         | 0.44                 | 672,021.93         | 643,079.87        |  |
| 10,150.00               | 89.10      | 89.30                | 1,915.88        | 5,763.88      | 35.41         | 4,687.25      | 4,687.38         | 0.45                 | 672,023.01         | 643,167.85        |  |
| 10,242.00               | 90.20      | 89.30                | 1,916.45        | 5,764.45      | 36.53         | 4,779.24      | 4,779.37         | 1.20                 | 672,024.13         | 643,259.84        |  |
| Last Phoenix MWD Survey |            |                      |                 |               |               |               |                  |                      |                    |                   |  |



Apache Corporation

|           |                             |                             |                                |
|-----------|-----------------------------|-----------------------------|--------------------------------|
| Company:  | Apache Corporation          | Local Coordinate Reference: | Well #17H                      |
| Project:  | Eddy County, NM (NAD27 NME) | TVD Reference:              | KB @ 3848.00usft (Capstar 114) |
| Site:     | Crow Federal                | MD Reference:               | KB @ 3848.00usft (Capstar 114) |
| Well:     | #17H                        | North Reference:            | Grid                           |
| Wellbore: | WB1/Job #1311090            | Survey Calculation Method:  | Minimum Curvature              |
| Design:   | Surveys (Capstar 114)       | Database:                   | Compass 5000 GCR DB            |

| Survey           |            |                      |                 |               |               |               |                  |                     |                    |                   |
|------------------|------------|----------------------|-----------------|---------------|---------------|---------------|------------------|---------------------|--------------------|-------------------|
| MD<br>(usft)     | Inc<br>(°) | Azi (azimuth)<br>(°) | TVDSS<br>(usft) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) | Northing<br>(usft) | Easting<br>(usft) |
| 10,303.00        | 90.20      | 89.30                | 1,916.23        | 5,764.23      | 37.28         | 4,840.23      | 4,840.37         | 0.00                | 672,024.88         | 643,320.83        |
| Projection to TD |            |                      |                 |               |               |               |                  |                     |                    |                   |

| Survey Annotations          |                             |                   |               |                          |
|-----------------------------|-----------------------------|-------------------|---------------|--------------------------|
| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |               | Comment                  |
|                             |                             | N/S<br>(usft)     | E/W<br>(usft) |                          |
| 455.00                      | 455.00                      | 0.84              | -0.83         | First Phoenix MWD Survey |
| 10,242.00                   | 5,764.45                    | 36.53             | 4,779.24      | Last Phoenix MWD Survey  |
| 10,303.00                   | 5,764.23                    | 37.28             | 4,840.23      | Projection to TD         |

|                   |                    |             |
|-------------------|--------------------|-------------|
| Checked By: _____ | Approved By: _____ | Date: _____ |
|-------------------|--------------------|-------------|