

## Results of Directional Survey

|             |              |           |                         |   |     |
|-------------|--------------|-----------|-------------------------|---|-----|
| API number: | 30-025-41598 | DD        |                         |   |     |
| OGRID:      |              | Operator: | APACHE CORP             |   |     |
|             |              | Property: | NORTHEAST DRINKARD UNIT | # | 558 |

|         |        |          |           |                |                 |
|---------|--------|----------|-----------|----------------|-----------------|
| surface | ULSTR: | <b>C</b> | <b>15</b> | <b>T 21S</b>   | <b>R 37E</b>    |
|         |        |          |           | <b>150 FNL</b> | <b>2295 FWL</b> |

|             |           |               |            |                |                 |
|-------------|-----------|---------------|------------|----------------|-----------------|
| BH Loc      | ULSTR:    | <b>C</b>      | <b>15</b>  | <b>T 21S</b>   | <b>R 37E</b>    |
| <b>6950</b> | <b>MD</b> | <b>6944.8</b> | <b>TVD</b> | <b>155 FNL</b> | <b>2098 FWL</b> |

|             |           |               |            |                |                 |
|-------------|-----------|---------------|------------|----------------|-----------------|
| Top Perf/OH | ULSTR:    | <b>C</b>      | <b>15</b>  | <b>T 21S</b>   | <b>R 37E</b>    |
| <b>5598</b> | <b>MD</b> | <b>5593.5</b> | <b>TVD</b> | <b>152 FNL</b> | <b>2140 FWL</b> |

|             |           |               |            |                |                 |
|-------------|-----------|---------------|------------|----------------|-----------------|
| Bot Perf/OH | ULSTR:    | <b>C</b>      | <b>15</b>  | <b>T 21S</b>   | <b>R 37E</b>    |
| <b>6708</b> | <b>MD</b> | <b>6702.9</b> | <b>TVD</b> | <b>150 FNL</b> | <b>2104 FWL</b> |

|              |             |       |         |         |
|--------------|-------------|-------|---------|---------|
|              | MD          | N/S   | E/W     | VD      |
|              | 5491        | -1.50 | -150.98 | 5486.61 |
| TOP PERFS/OH | <b>5598</b> | -2.11 | -155.41 | 5593.52 |
|              | 5703        | -2.70 | -159.76 | 5698.43 |
|              | 6556        | 1.99  | -186.39 | 6550.96 |
| BOT PERFS/OH | <b>6708</b> | -0.23 | -190.59 | 6702.88 |
|              | 6769        | -1.12 | -192.27 | 6763.85 |

|              |             |       |         |         |
|--------------|-------------|-------|---------|---------|
| NEXT TO LAST | 6905        | -3.64 | -196.01 | 6899.78 |
| LAST READING | 6950        | -4.51 | -197.32 | 6944.75 |
| TD           | <b>6950</b> | -4.51 | -197.32 | 6944.75 |

|                  |     |    |      |    |
|------------------|-----|----|------|----|
| Surface Location | 150 | FN | 2295 | FW |
| Projected BHL    | 155 | FN | 2098 | FW |
| Location of      |     |    |      |    |
| Top Perfs/OH     | 152 | FN | 2140 | FW |
| Bottom Perfs/OH  | 150 | FN | 2104 | FW |

### SUMMARY of Subsurface Locations

|                  |              |     |    |      |    |             |
|------------------|--------------|-----|----|------|----|-------------|
| Surface Location | C-15-21S-37E | 150 | FN | 2295 | FW | Vert. Depth |
| Top Perfs/OH     | C-15-21S-37E | 152 | FN | 2140 | FW | 5593.52     |
| Bottom Perfs/OH  | C-15-21S-37E | 150 | FN | 2104 | FW | 6702.88     |
| Projected TD     | C-15-21S-37E | 155 | FN | 2098 | FW | 6944.75     |

MAY 12 2014

Apache Corporation (873)  
303 Veterans Airpark Lane, #3000  
Midland, TX 79705

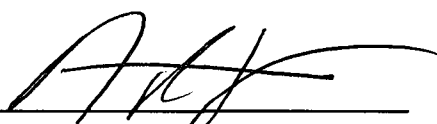
Northeast Drinkard Unit #558 30-025-41598 ULC 15-215-37E 150' FWL + 2295' FWL  
Lea County, New Mexico

|      |      |      |      |      |      |
|------|------|------|------|------|------|
| 488  | 4.88 | 0.20 | 0.35 | 1.71 | 1.71 |
| 749  | 2.61 | 0.40 | 0.70 | 1.83 | 3.54 |
| 990  | 2.41 | 0.50 | 0.88 | 2.11 | 5.64 |
| 1275 | 2.85 | 0.30 | 0.53 | 1.50 | 7.14 |

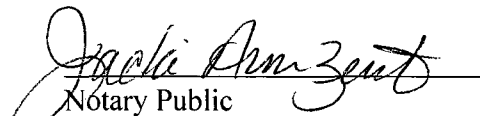
HOBBS OCD

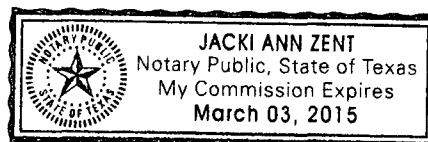
APR 23 2014

RECEIVED

  
Archie Brown - General Manager

The attached instrument was acknowledged before me on the 24<sup>th</sup> day of March, 2014 by  
Archie Brown - General Manager, CapStar Drilling, Inc.

  
Notary Public



MAY 12 2014



HOBBS OCD

MAY 05 2014

RECEIVED

## Apache Corporation (873)

Lea County, NM (NAD27 NME)

Northeast Drinkard Unit 30-025-41598

#558

WB1/Job #1410086

ULC Sec 15 T21S R37E  
150' FWL + 2295' FWL

Design: Surveys (Capstar 132)

## Phoenix Final Survey Report

28 February, 2014





# Phoenix Technology Services

## Phoenix Final Survey Report



|           |                            |                              |                                |
|-----------|----------------------------|------------------------------|--------------------------------|
| Company:  | Apache Corporation         | Local Co-ordinate Reference: | Well #558                      |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB @ 3470.00usft (Capstar 132) |
| Site:     | Northeast Drinkard Unit    | MD Reference:                | KB @ 3470.00usft (Capstar 132) |
| Well:     | #558                       | North Reference:             | Grid                           |
| Wellbore: | WB1/Job #1410086           | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Surveys (Capstar 132)      | Database:                    | GCR DB                         |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project:    | Lea 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:                 | Northeast Drinkard Unit |                   |                    |
| Site Position:        |                         | Northing:         | 536,097.47 usft    |
| From:                 | Map                     | Easting:          | 866,927.15 usft    |
| Position Uncertainty: | 0.00 usft               | Slot Radius:      | 13-3/16"           |
|                       |                         | Latitude:         | 32° 28' 5.59737 N  |
|                       |                         | Longitude:        | 103° 8' 37.08135 W |
|                       |                         | Grid Convergence: | 0.64 °             |

|                      |           |                     |                   |
|----------------------|-----------|---------------------|-------------------|
| Well:                | #558      |                     |                   |
| Well Position        | +N/-S     | 0.00 usft           | Northing:         |
|                      | +E/-W     | 0.00 usft           | Easting:          |
| Position Uncertainty | 0.00 usft | Wellhead Elevation: | usft              |
|                      |           | Latitude:           | 32° 29' 8.33042 N |
|                      |           | Longitude:          | 103° 9' 5.51732 W |
|                      |           | Ground Level:       | 3,457.00 usft     |

|           |                  |             |                |
|-----------|------------------|-------------|----------------|
| Wellbore: | WB1/Job #1410086 |             |                |
| Magnetics | Model Name       | Sample Date | Declination    |
|           | BGGM2013         | 01/09/14    | (°)            |
|           |                  |             | 7.19           |
|           |                  |             | Dip Angle      |
|           |                  |             | (°)            |
|           |                  |             | 60.43          |
|           |                  |             | Field Strength |
|           |                  |             | (nT)           |
|           |                  |             | 48,551         |

|                   |                       |               |           |
|-------------------|-----------------------|---------------|-----------|
| Design:           | Surveys (Capstar 132) |               |           |
| Audit Notes:      |                       |               |           |
| Version:          | 1.0                   | Phase:        | ACTUAL    |
|                   |                       | Tie On Depth: | 0.00      |
| Vertical Section: | Depth From (TVD)      | +N/-S         | +E/-W     |
|                   | (usft)                | (usft)        | (usft)    |
|                   | 0.00                  | 0.00          | 0.00      |
|                   |                       |               | Direction |
|                   |                       |               | (°)       |
|                   |                       |               | 279.07    |

|                |               |                                       |                |
|----------------|---------------|---------------------------------------|----------------|
| Survey Program | Date 02/28/14 |                                       |                |
| From           | To            | Survey (Wellbore)                     | Tool Name      |
| (usft)         | (usft)        |                                       |                |
| 100.00         | 1,200.00      | Gyrodata Gyro Survey (WB1/Job #141008 | MWD            |
| 1,200.00       | 6,950.00      | Phoenix MWD Surveys (WB1/Job #14100   | MWD            |
|                |               |                                       | Description    |
|                |               |                                       | MWD - Standard |
|                |               |                                       | MWD - Standard |

|        |          |       |               |        |        |        |        |             |
|--------|----------|-------|---------------|--------|--------|--------|--------|-------------|
| Survey | MD       | Inc   | Azi (azimuth) | TVD    | N/S    | E/W    | V. Sec | DLeg        |
|        | (usft)   | (°)   | (°)           | (usft) | (usft) | (usft) | (usft) | (°/100usft) |
|        | 0.00     | 0.00  | 0.00          | 0.00   | 0.00   | 0.00   | 0.00   | 0.00        |
|        | 100.00   | 0.21  | 152.74        | 100.00 | -0.16  | 0.08   | -0.11  | 0.21        |
|        | 200.00   | 0.13  | 202.90        | 200.00 | -0.43  | 0.12   | -0.19  | 0.16        |
|        | 300.00   | 0.14  | 227.34        | 300.00 | -0.62  | -0.01  | -0.09  | 0.06        |
|        | 400.00   | 0.10  | 220.30        | 400.00 | -0.77  | -0.16  | 0.03   | 0.04        |
|        | 500.00   | 0.15  | 248.30        | 500.00 | -0.88  | -0.33  | 0.19   | 0.08        |
|        | 600.00   | 0.08  | 335.23        | 600.00 | -0.87  | -0.49  | 0.34   | 0.17        |
|        | 700.00   | -0.24 | 321.89        | 700.00 | -0.64  | -0.64  | 0.54   | 0.16        |
|        | 800.00   | 0.31  | 329.28        | 800.00 | -0.24  | -0.91  | 0.86   | 0.08        |
|        | 900.00   | 0.36  | 318.64        | 900.00 | 0.23   | -1.26  | 1.28   | 0.08        |
|        | 1,000.00 | 0.24  | 344.36        | 999.99 | 0.66   | -1.52  | 1.61   | 0.18        |



# Phoenix Technology Services

## Phoenix Final Survey Report



|           |                            |                              |                                |
|-----------|----------------------------|------------------------------|--------------------------------|
| Company:  | Apache Corporation         | Local Co-ordinate Reference: | Well #558                      |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB @ 3470.00usft (Capstar 132) |
| Site:     | Northeast Drinkard Unit    | MD Reference:                | KB @ 3470.00usft (Capstar 132) |
| Well:     | #558                       | North Reference:             | Grid                           |
| Wellbore: | WB1/Job #1410086           | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Surveys (Capstar 132)      | Database:                    | GCR DB                         |

| Survey                   |            |                      |               |               |               |                  |                     |  |
|--------------------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|--|
| MD<br>(usft)             | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>("/100usft) |  |
| 1,100.00                 | 0.32       | 350.72               | 1,099.99      | 1.14          | -1.62         | 1.78             | 0.09                |  |
| 1,200.00                 | 0.30       | 352.93               | 1,199.99      | 1.68          | -1.70         | 1.94             | 0.02                |  |
| Tie-on to Gyro Survey    |            |                      |               |               |               |                  |                     |  |
| 1,413.00                 | 0.30       | 16.60                | 1,412.99      | 2.76          | -1.61         | 2.02             | 0.06                |  |
| First Phoenix MWD Survey |            |                      |               |               |               |                  |                     |  |
| 1,584.00                 | 0.80       | 83.60                | 1,583.98      | 3.33          | -0.30         | 0.82             | 0.43                |  |
| 1,754.00                 | 1.10       | 76.10                | 1,753.96      | 3.85          | 2.47          | -1.83            | 0.19                |  |
| 1,925.00                 | 1.80       | 29.70                | 1,924.91      | 6.58          | 5.39          | -4.29            | 0.77                |  |
| 2,051.00                 | 1.30       | 343.20               | 2,050.87      | 9.67          | 5.98          | -4.36            | 1.04                |  |
| 2,178.00                 | 1.80       | 350.50               | 2,177.82      | 13.01         | 5.21          | -3.10            | 0.42                |  |
| 2,306.00                 | 2.30       | 293.70               | 2,305.75      | 16.03         | 2.53          | 0.03             | 1.56                |  |
| 2,434.00                 | 1.80       | 311.30               | 2,433.67      | 18.39         | -1.33         | 4.21             | 0.62                |  |
| 2,561.00                 | 2.20       | 273.00               | 2,560.60      | 19.83         | -5.26         | 8.32             | 1.08                |  |
| 2,774.00                 | 2.40       | 261.90               | 2,773.42      | 19.42         | -13.76        | 16.65            | 0.23                |  |
| 3,029.00                 | 1.90       | 262.60               | 3,028.24      | 18.12         | -23.24        | 25.81            | 0.20                |  |
| 3,188.00                 | 2.50       | 263.50               | 3,197.12      | 17.34         | -29.68        | 32.04            | 0.36                |  |
| 3,411.00                 | 3.60       | 257.00               | 3,409.81      | 15.31         | -40.81        | 42.72            | 0.54                |  |
| 3,581.00                 | 2.90       | 251.70               | 3,579.54      | 12.76         | -50.10        | 51.48            | 0.45                |  |
| 3,792.00                 | 4.20       | 247.50               | 3,790.13      | 8.13          | -62.30        | 62.81            | 0.63                |  |
| 4,005.00                 | 3.90       | 262.20               | 4,002.61      | 4.16          | -76.69        | 76.38            | 0.51                |  |
| 4,217.00                 | 3.10       | 280.30               | 4,214.21      | 4.21          | -89.47        | 89.01            | 0.64                |  |
| 4,430.00                 | 2.30       | 287.50               | 4,426.98      | 6.52          | -99.21        | 99.00            | 0.41                |  |
| 4,642.00                 | 2.80       | 245.60               | 4,638.78      | 5.66          | -107.99       | 107.53           | 0.89                |  |
| 4,854.00                 | 2.60       | 241.70               | 4,850.55      | 1.24          | -116.94       | 115.67           | 0.13                |  |
| 5,066.00                 | 3.40       | 270.00               | 5,062.27      | -1.04         | -127.46       | 125.70           | 0.78                |  |
| 5,279.00                 | 3.20       | 270.00               | 5,274.91      | -1.04         | -139.72       | 137.81           | 0.09                |  |
| 5,491.00                 | 2.90       | 265.00               | 5,486.61      | -1.50         | -150.98       | 148.85           | 0.19                |  |
| 5,703.00                 | 1.90       | 258.00               | 5,698.43      | -2.70         | -159.76       | 157.34           | 0.49                |  |
| 5,919.00                 | 2.10       | 306.50               | 5,914.31      | -1.09         | -166.44       | 164.19           | 0.77                |  |
| 6,132.00                 | 2.20       | 286.80               | 6,127.16      | 2.41          | -173.49       | 171.70           | 0.35                |  |
| 6,344.00                 | 1.60       | 266.40               | 6,339.05      | 3.40          | -180.34       | 178.62           | 0.42                |  |
| 6,556.00                 | 1.80       | 248.50               | 6,550.96      | 1.99          | -186.39       | 184.38           | 0.27                |  |
| 6,769.00                 | 1.80       | 235.70               | 6,763.85      | -1.12         | -192.27       | 189.69           | 0.19                |  |
| 6,905.00                 | 2.00       | 236.30               | 6,899.78      | -3.64         | -196.01       | 192.99           | 0.15                |  |
| Last Phoenix MWD Survey  |            |                      |               |               |               |                  |                     |  |
| 6,950.00                 | 2.00       | 236.30               | 6,944.75      | -4.51         | -197.32       | 194.14           | 0.00                |  |
| Projection to TD         |            |                      |               |               |               |                  |                     |  |



# Phoenix Technology Services

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| Site:     | Northeast Drinkard Unit    | MD Reference:                | KB @ 3470.00usft (Capstar 132) |
| Well:     | #558                       | North Reference:             | Grid                           |
| Wellbore: | WB1/Job #1410086           | Survey Calculation Method:   | Minimum Curvature              |
| Design:   | Surveys (Capstar 132)      | Database:                    | GCR DB                         |

### Design Annotations

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                  |
|-----------------------------|-----------------------------|-------------------|-----------------|--------------------------|
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                          |
| 1,200.00                    | 1,199.99                    | 1.68              | -1.70           | Tie-on to Gyro Survey    |
| 1,413.00                    | 1,412.99                    | 2.76              | -1.61           | First Phoenix MWD Survey |
| 6,905.00                    | 6,899.78                    | -3.64             | -196.01         | Last Phoenix MWD Survey  |
| 6,950.00                    | 6,944.75                    | -4.51             | -197.32         | Projection to TD         |

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

