1095441

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1
June 2009
Form Must Be Typed
Form must be Signed
All blanks must be Filled

# CONFIDENTIAL

## WELL COMPLETION FORM
### WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 34574
Name: Shell Gulf of Mexico Inc.
Address 1: 150 N DAIRY-ASHFORD (77079)
Address 2: PO BOX 576 (77001-0576)
City: HOUSTON State: TX Zip: 77001 + 0576
Contact Person: Damonica Pierson
Phone: ( 832 ) 337-2172
CONTRACTOR: License # 34718
Name: Nabors Drilling USA, LP
Wellsite Geologist: Jack Grow
Purchaser:

Designate Type of Completion:

- [x] New Well
- [ ] Re-Entry
- [ ] Workover

- [x] Oil
- [ ] WSW
- [ ] SWD
- [ ] SIOW
- [ ] Gas
- [ ] D&A
- [ ] ENHR
- [ ] SIGW
- [ ] OG
- [ ] GSW
- [ ] Temp. Abd.
- [ ] CM *(Coal Bed Methane)*
- [ ] Cathodic
- [ ] Other *(Core, Expl., etc.)*:

If Workover/Re-entry: Old Well Info as follows:

Operator:
Well Name:
Original Comp. Date: Original Total Depth:

- [ ] Deepening
- [ ] Re-perf.
- [ ] Conv. to ENHR
- [ ] Conv. to SWD
- [ ] Conv. to GSW
- [ ] Plug Back: Plug Back Total Depth
- [ ] Commingled Permit #:
- [ ] Dual Completion Permit #:
- [ ] SWD Permit #:
- [ ] ENHR Permit #:
- [ ] GSW Permit #:

| 06/27/2012 | 08/06/2012 | 09/12/2012 |
|---|---|---|
| Spud Date or Recompletion Date | Date Reached TD | Completion Date or Recompletion Date |

API No. 15 - 15-007-23844-01-00
Spot Description:
W2 SW SW SE Sec. 18 Twp. 35 S. R. 10 [ ] East [x] West
330 Feet from [ ] North / [x] South Line of Section
2787 Feet from [ ] East / [x] West Line of Section
Footages Calculated from Nearest Outside Section Corner:
[ ] NE [ ] NW [ ] SE [x] SW
County: Barber
Lease Name: WATKINS & FARNEY 3510 Well #: 18-1H
Field Name:
Producing Formation: Mississippi
Elevation: Ground: 1303 Kelly Bushing: 1326
Total Depth: 9814 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 792 Feet
Multiple Stage Cementing Collar Used? [ ] Yes [x] No
If yes, show depth set: Feet
If Alternate II completion, cement circulated from:
feet depth to: w/ sx cmt.

**Drilling Fluid Management Plan**
*(Data must be collected from the Reserve Pit)*

Chloride content: 0 ppm Fluid volume: 0 bbls
Dewatering method used: Hauled to Disposal

Location of fluid disposal if hauled offsite:

Operator Name: Plumb Thicket Landfill
Lease Name: N/A License #: 99999
Quarter SW Sec. 4 Twp. 31 S. R. 6 [ ] East [x] West
County: Harper Permit #: KDHE Permit No. 0842

**AFFIDAVIT**

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

**KCC Office Use ONLY**

- [x] Letter of Confidentiality Received
  Date: 03/27/2012
- [ ] Confidential Release Date:
- [x] Wireline Log Received
- [ ] Geologist Report Received
- [ ] UIC Distribution

ALT [x] I [ ] II [ ] III Approved by: NAOMI JAMES Date: 10/10/2012

# Shell Exploration & Production Co. Inc.

**Barber Co. KS (NAD-27)**
**Sec 18-T35S-R10W**
**Watkins & Farney 3510 #18-1H / Job #9507142 / Nab 180**

**Wellbore #1**

**Design: Wellbore #1**

## Sperry Drilling Services

# Combo Report With Grid North & True North

**10 August, 2012**

Well Coordinates: 121,116.01 N, 2,015,172.36 E (36° 59' 57.41" N, 098° 26' 52.98" W)
Ground Level: 1,302.00 ft

| | |
|---|---|
| Local Coordinate Origin: | Centered on Well Watkins & Farney 3510 #18-1H / Job #9507142 / Nab 180 |
| Viewing Datum: | WELL @ 1325.80ft (Original Well Elev) |
| TVDs to System: | N |
| North Reference: | True |
| Unit System: | API-US-new |

Version: 2003.21 Build: 43

HALLIBURTON

HALLIBURTON

## Design Report for Watkins & Farney 3510 #18-1H / Job #9507142 / Nab 180 - Wellbore #1

| Measured Depth (ft) | Inclination (°) | Grid Azimuth (°) | True Azimuth (°) | TVD below System (ft) | Vertical Depth (ft) | Local Coordinates Northing (ft) | Local Coordinates Easting (ft) | Map Coordinates Northing (ft) | Map Coordinates Easting (ft) | Dogleg Rate (°/100ft) | Vertical Section (ft) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 359.96 | 0.00 | 1,325.80 | 0.00 | 0.00 N | 0.00 E | 121,116.01 | 2,015,172.36 | 0.00 | 0.00 | |
| 144.00 | 0.15 | 174.61 | 174.65 | 1,181.80 | 144.00 | 0.19 S | 0.02 E | 121,115.82 | 2,015,172.38 | 0.10 | -0.19 | First MWD Survey |
| 206.00 | 0.99 | 42.20 | 42.24 | 1,119.80 | 206.00 | 0.13 N | 0.39 E | 121,116.14 | 2,015,172.75 | 1.77 | 0.13 | |
| 266.00 | 1.94 | 39.72 | 39.76 | 1,059.82 | 265.98 | 1.29 N | 1.38 E | 121,117.30 | 2,015,173.74 | 1.59 | 1.31 | |
| 329.00 | 3.64 | 34.77 | 34.81 | 996.90 | 328.90 | 3.75 N | 3.21 E | 121,119.77 | 2,015,175.57 | 2.72 | 3.80 | |
| 423.00 | 6.20 | 34.50 | 34.54 | 903.25 | 422.55 | 10.39 N | 7.79 E | 121,126.40 | 2,015,180.15 | 2.72 | 10.49 | |
| 516.00 | 5.67 | 37.50 | 37.54 | 810.75 | 515.05 | 18.17 N | 13.44 E | 121,134.18 | 2,015,185.79 | 0.66 | 18.35 | |
| 610.00 | 5.80 | 36.17 | 36.21 | 717.22 | 608.58 | 25.68 N | 19.07 E | 121,141.70 | 2,015,191.42 | 0.20 | 25.93 | |
| 704.00 | 4.90 | 41.34 | 41.38 | 623.63 | 702.17 | 32.53 N | 24.53 E | 121,148.55 | 2,015,196.87 | 1.09 | 32.85 | |
| 829.00 | 3.73 | 48.47 | 48.51 | 498.99 | 826.81 | 39.23 N | 31.11 E | 121,155.25 | 2,015,203.45 | 1.03 | 39.64 | |
| 951.00 | 1.65 | 58.68 | 58.72 | 377.13 | 948.67 | 42.77 N | 35.58 E | 121,158.80 | 2,015,207.92 | 1.74 | 43.24 | |
| 1,077.00 | 1.22 | 311.45 | 311.49 | 251.15 | 1,074.65 | 44.60 N | 36.13 E | 121,160.63 | 2,015,208.46 | 1.84 | 45.08 | |
| 1,171.00 | 1.65 | 270.46 | 270.50 | 157.18 | 1,168.62 | 45.27 N | 34.02 E | 121,161.30 | 2,015,206.36 | 1.15 | 45.73 | |
| 1,266.00 | 0.63 | 299.85 | 299.89 | 62.20 | 1,263.60 | 45.54 N | 32.20 E | 121,161.57 | 2,015,204.54 | 1.20 | 45.97 | |
| 1,361.00 | 0.79 | 39.67 | 39.71 | -32.80 | 1,358.60 | 46.31 N | 32.17 E | 121,162.34 | 2,015,204.50 | 1.15 | 46.74 | |
| 1,456.00 | 0.66 | 69.71 | 69.75 | -127.79 | 1,453.59 | 47.00 N | 33.10 E | 121,163.03 | 2,015,205.44 | 0.42 | 47.44 | |
| 1,551.00 | 0.85 | 95.86 | 95.90 | -222.78 | 1,548.58 | 47.12 N | 34.31 E | 121,163.15 | 2,015,206.65 | 0.41 | 47.58 | |
| 1,645.00 | 0.78 | 101.13 | 101.17 | -316.77 | 1,642.57 | 46.92 N | 35.64 E | 121,162.95 | 2,015,207.97 | 0.11 | 47.40 | |
| 1,740.00 | 0.62 | 103.64 | 103.68 | -411.76 | 1,737.56 | 46.68 N | 36.77 E | 121,162.71 | 2,015,209.10 | 0.17 | 47.17 | |
| 1,835.00 | 0.65 | 95.45 | 95.49 | -506.76 | 1,832.56 | 46.50 N | 37.80 E | 121,162.53 | 2,015,210.14 | 0.10 | 47.01 | |
| 1,930.00 | 0.51 | 87.18 | 87.22 | -601.75 | 1,927.55 | 46.47 N | 38.76 E | 121,162.50 | 2,015,211.10 | 0.17 | 46.99 | |
| 2,025.00 | 0.74 | 86.78 | 86.82 | -696.75 | 2,022.55 | 46.53 N | 39.80 E | 121,162.56 | 2,015,212.13 | 0.24 | 47.06 | |
| 2,215.00 | 0.74 | 138.94 | 138.98 | -886.73 | 2,212.53 | 45.67 N | 41.83 E | 121,161.70 | 2,015,214.17 | 0.34 | 46.23 | |
| 2,404.00 | 0.81 | 115.20 | 115.24 | -1,075.72 | 2,401.52 | 44.18 N | 43.84 E | 121,160.21 | 2,015,216.18 | 0.17 | 44.76 | |
| 2,594.00 | 0.70 | 116.39 | 116.43 | -1,265.70 | 2,591.50 | 43.09 N | 46.09 E | 121,159.12 | 2,015,218.43 | 0.06 | 43.70 | |
| 2,784.00 | 0.59 | 151.10 | 151.14 | -1,455.69 | 2,781.49 | 41.72 N | 47.60 E | 121,157.75 | 2,015,219.94 | 0.21 | 42.35 | |
| 2,974.00 | 0.75 | 150.89 | 150.93 | -1,645.68 | 2,971.48 | 39.77 N | 48.68 E | 121,155.81 | 2,015,221.02 | 0.08 | 40.42 | |
| 3,164.00 | 0.28 | 182.21 | 182.25 | -1,835.67 | 3,161.47 | 38.22 N | 49.27 E | 121,154.26 | 2,015,221.61 | 0.28 | 38.88 | |
| 3,353.00 | 0.44 | 177.06 | 177.10 | -2,024.66 | 3,350.46 | 37.04 N | 49.28 E | 121,153.07 | 2,015,221.63 | 0.09 | 37.69 | |
| 3,543.00 | 0.25 | 113.51 | 113.55 | -2,214.66 | 3,540.46 | 36.14 N | 49.70 E | 121,152.18 | 2,015,222.04 | 0.21 | 36.81 | |
| 3,733.00 | 0.07 | 295.95 | 295.99 | -2,404.66 | 3,730.46 | 36.03 N | 49.98 E | 121,152.06 | 2,015,222.32 | 0.17 | 36.69 | |
| 3,922.00 | 0.19 | 109.12 | 109.16 | -2,593.66 | 3,919.46 | 35.97 N | 50.17 E | 121,152.01 | 2,015,222.51 | 0.14 | 36.64 | |
| 4,112.00 | 0.22 | 123.09 | 123.13 | -2,783.66 | 4,109.46 | 35.67 N | 50.77 E | 121,151.71 | 2,015,223.11 | 0.03 | 36.35 | |
| 4,207.00 | 0.35 | 26.26 | 26.30 | -2,878.66 | 4,204.46 | 35.83 N | 51.05 E | 121,151.87 | 2,015,223.40 | 0.46 | 36.51 | |
| 4,270.00 | 4.01 | 351.74 | 351.78 | -2,941.60 | 4,267.40 | 38.19 N | 50.82 E | 121,154.22 | 2,015,223.16 | 5.92 | 38.86 | |
| 4,302.00 | 6.88 | 356.96 | 357.00 | -2,973.46 | 4,299.26 | 41.21 N | 50.56 E | 121,157.24 | 2,015,222.90 | 9.09 | 41.88 | |
| 4,334.00 | 9.71 | 0.29 | 0.33 | -3,005.12 | 4,330.92 | 45.82 N | 50.48 E | 121,161.86 | 2,015,222.82 | 8.97 | 46.49 | |

## Design Report for Watkins & Farney 3510 #18-1H / Job #9507142 / Nab 180 - Wellbore #1

| Measured Depth (ft) | Inclination (°) | Grid Azimuth (°) | True Azimuth (°) | TVD below System (ft) | Vertical Depth (ft) | Local Coordinates Northing (ft) | Local Coordinates Easting (ft) | Map Coordinates Northing (ft) | Map Coordinates Easting (ft) | Dogleg Rate (°/100ft) | Vertical Section (ft) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4,366.00 | 13.64 | 1.87 | 1.91 | -3,036.45 | 4,362.25 | 52.29 N | 50.62 E | 121,168.33 | 2,015,222.95 | 12.32 | 52.97 | |
| 4,398.00 | 16.79 | 3.32 | 3.36 | -3,067.32 | 4,393.12 | 60.68 N | 51.02 E | 121,176.72 | 2,015,223.34 | 9.91 | 61.36 | |
| 4,430.00 | 19.63 | 3.81 | 3.85 | -3,097.72 | 4,423.52 | 70.66 N | 51.65 E | 121,186.70 | 2,015,223.97 | 8.89 | 71.35 | |
| 4,461.00 | 22.28 | 4.10 | 4.14 | -3,126.67 | 4,452.47 | 81.72 N | 52.42 E | 121,197.76 | 2,015,224.74 | 8.55 | 82.41 | |
| 4,493.00 | 24.37 | 4.13 | 4.17 | -3,156.05 | 4,481.85 | 94.35 N | 53.34 E | 121,210.39 | 2,015,225.65 | 6.53 | 95.06 | |
| 4,525.00 | 27.10 | 3.79 | 3.83 | -3,184.87 | 4,510.67 | 108.21 N | 54.31 E | 121,224.25 | 2,015,226.61 | 8.54 | 108.93 | |
| 4,556.00 | 29.85 | 3.44 | 3.48 | -3,212.12 | 4,537.92 | 122.96 N | 55.25 E | 121,239.00 | 2,015,227.54 | 8.89 | 123.69 | |
| 4,588.00 | 32.66 | 3.28 | 3.32 | -3,239.47 | 4,565.27 | 139.53 N | 56.23 E | 121,255.57 | 2,015,228.52 | 8.79 | 140.28 | |
| 4,620.00 | 34.99 | 2.86 | 2.90 | -3,266.05 | 4,591.85 | 157.32 N | 57.20 E | 121,273.36 | 2,015,229.47 | 7.32 | 158.07 | |
| 4,651.00 | 38.05 | 2.59 | 2.63 | -3,290.96 | 4,616.76 | 175.74 N | 58.08 E | 121,291.79 | 2,015,230.35 | 9.88 | 176.51 | |
| 4,683.00 | 41.01 | 2.01 | 2.05 | -3,315.64 | 4,641.44 | 196.09 N | 58.91 E | 121,312.13 | 2,015,231.17 | 9.32 | 196.87 | |
| 4,715.00 | 44.29 | 1.95 | 1.99 | -3,339.18 | 4,664.98 | 217.76 N | 59.68 E | 121,333.80 | 2,015,231.92 | 10.25 | 218.54 | |
| 4,746.00 | 47.51 | 1.60 | 1.64 | -3,360.75 | 4,686.55 | 240.00 N | 60.38 E | 121,356.05 | 2,015,232.61 | 10.42 | 240.79 | |
| 4,778.00 | 50.77 | 2.15 | 2.19 | -3,381.68 | 4,707.48 | 264.19 N | 61.19 E | 121,380.23 | 2,015,233.41 | 10.27 | 264.99 | |
| 4,810.00 | 53.60 | 1.91 | 1.95 | -3,401.30 | 4,727.10 | 289.45 N | 62.10 E | 121,405.49 | 2,015,234.30 | 8.86 | 290.26 | |
| 4,841.00 | 56.07 | 1.50 | 1.54 | -3,419.15 | 4,744.95 | 314.78 N | 62.87 E | 121,430.82 | 2,015,235.06 | 8.04 | 315.60 | |
| 4,873.00 | 58.44 | 1.24 | 1.28 | -3,436.46 | 4,762.26 | 341.68 N | 63.53 E | 121,457.73 | 2,015,235.71 | 7.44 | 342.51 | |
| 4,904.00 | 61.50 | 1.00 | 1.04 | -3,451.97 | 4,777.77 | 368.51 N | 64.08 E | 121,484.56 | 2,015,236.23 | 9.89 | 369.34 | |
| 4,936.00 | 64.72 | 1.16 | 1.20 | -3,466.44 | 4,792.24 | 397.04 N | 64.64 E | 121,513.09 | 2,015,236.78 | 10.07 | 397.88 | |
| 4,966.00 | 67.36 | 0.79 | 0.83 | -3,478.62 | 4,804.42 | 424.45 N | 65.12 E | 121,540.50 | 2,015,237.25 | 8.87 | 425.29 | |
| 4,998.00 | 69.79 | 1.12 | 1.16 | -3,490.31 | 4,816.11 | 454.23 N | 65.64 E | 121,570.28 | 2,015,237.75 | 7.65 | 455.08 | |
| 5,030.00 | 73.80 | 1.80 | 1.84 | -3,500.31 | 4,826.11 | 484.62 N | 66.44 E | 121,600.66 | 2,015,238.53 | 12.69 | 485.46 | |
| 5,061.00 | 78.19 | 3.24 | 3.28 | -3,507.81 | 4,833.61 | 514.66 N | 67.78 E | 121,630.70 | 2,015,239.86 | 14.86 | 515.52 | |
| 5,093.00 | 82.13 | 3.59 | 3.63 | -3,513.27 | 4,839.07 | 546.12 N | 69.68 E | 121,662.17 | 2,015,241.74 | 12.36 | 547.01 | |
| 5,125.00 | 84.62 | 3.44 | 3.48 | -3,516.97 | 4,842.77 | 577.84 N | 71.65 E | 121,693.89 | 2,015,243.69 | 7.80 | 578.75 | |
| 5,156.00 | 85.71 | 4.22 | 4.26 | -3,519.58 | 4,845.38 | 608.66 N | 73.74 E | 121,724.71 | 2,015,245.76 | 4.32 | 609.60 | |
| 5,180.00 | 86.96 | 4.04 | 4.08 | -3,521.11 | 4,846.91 | 632.55 N | 75.48 E | 121,748.60 | 2,015,247.49 | 5.26 | 633.51 | |
| 5,297.00 | 90.95 | 2.68 | 2.72 | -3,523.25 | 4,849.05 | 749.30 N | 82.42 E | 121,865.35 | 2,015,254.36 | 3.60 | 750.34 | |
| 5,329.00 | 90.56 | 1.81 | 1.85 | -3,522.82 | 4,848.62 | 781.27 N | 83.69 E | 121,897.32 | 2,015,255.62 | 2.98 | 782.32 | |
| 5,361.00 | 89.85 | 0.68 | 0.72 | -3,522.71 | 4,848.51 | 813.26 N | 84.41 E | 121,929.31 | 2,015,256.32 | 4.17 | 814.32 | |
| 5,392.00 | 89.82 | 359.98 | 0.02 | -3,522.80 | 4,848.60 | 844.26 N | 84.61 E | 121,960.31 | 2,015,256.50 | 2.26 | 845.32 | |
| 5,424.00 | 90.12 | 0.09 | 0.13 | -3,522.82 | 4,848.62 | 876.26 N | 84.65 E | 121,992.31 | 2,015,256.52 | 1.00 | 877.32 | |
| 5,455.00 | 90.06 | 359.50 | 359.54 | -3,522.77 | 4,848.57 | 907.26 N | 84.56 E | 122,023.31 | 2,015,256.42 | 1.91 | 908.31 | |
| 5,487.00 | 89.72 | 357.88 | 357.92 | -3,522.83 | 4,848.63 | 939.25 N | 83.85 E | 122,055.30 | 2,015,255.69 | 5.17 | 940.29 | |
| 5,519.00 | 90.25 | 357.83 | 357.87 | -3,522.84 | 4,848.64 | 971.23 N | 82.68 E | 122,087.28 | 2,015,254.50 | 1.66 | 972.25 | |
| 5,550.00 | 90.49 | 357.63 | 357.67 | -3,522.64 | 4,848.44 | 1,002.20 N | 81.47 E | 122,118.26 | 2,015,253.27 | 1.01 | 1,003.21 | |
| 5,582.00 | 90.25 | 357.90 | 357.94 | -3,522.43 | 4,848.23 | 1,034.18 N | 80.24 E | 122,150.23 | 2,015,252.03 | 1.13 | 1,035.16 | |

## Design Report for Watkins & Farney 3510 #18-1H / Job #9507142 / Nab 180 - Wellbore #1

| Measured Depth (ft) | Inclination (°) | Grid Azimuth (°) | True Azimuth (°) | TVD below System (ft) | Vertical Depth (ft) | Local Coordinates Northing (ft) | Local Coordinates Easting (ft) | Map Coordinates Northing (ft) | Map Coordinates Easting (ft) | Dogleg Rate (°/100ft) | Vertical Section (ft) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5,614.00 | 90.71 | 357.92 | 357.96 | -3,522.16 | 4,847.96 | 1,066.16 N | 79.10 E | 122,182.21 | 2,015,250.87 | 1.44 | 1,067.12 | |
| 5,645.00 | 90.31 | 357.05 | 357.09 | -3,521.89 | 4,847.69 | 1,097.13 N | 77.76 E | 122,213.18 | 2,015,249.51 | 3.09 | 1,098.07 | |
| 5,676.00 | 89.07 | 356.18 | 356.22 | -3,522.05 | 4,847.85 | 1,128.07 N | 75.95 E | 122,244.12 | 2,015,247.69 | 4.89 | 1,128.99 | |
| 5,708.00 | 88.36 | 355.37 | 355.41 | -3,522.77 | 4,848.57 | 1,159.98 N | 73.62 E | 122,276.03 | 2,015,245.33 | 3.37 | 1,160.86 | |
| 5,739.00 | 88.98 | 354.78 | 354.82 | -3,523.49 | 4,849.29 | 1,190.86 N | 70.98 E | 122,306.90 | 2,015,242.68 | 2.76 | 1,191.70 | |
| 5,770.00 | 89.01 | 355.45 | 355.49 | -3,524.03 | 4,849.83 | 1,221.74 N | 68.36 E | 122,337.79 | 2,015,240.04 | 2.16 | 1,222.55 | |
| 5,802.00 | 89.47 | 356.03 | 356.07 | -3,524.46 | 4,850.26 | 1,253.65 N | 66.01 E | 122,369.70 | 2,015,237.67 | 2.31 | 1,254.43 | |
| 5,833.00 | 90.46 | 355.70 | 355.74 | -3,524.48 | 4,850.28 | 1,284.57 N | 63.79 E | 122,400.62 | 2,015,235.44 | 3.37 | 1,285.31 | |
| 5,864.00 | 91.48 | 356.25 | 356.29 | -3,523.95 | 4,849.75 | 1,315.49 N | 61.64 E | 122,431.53 | 2,015,233.27 | 3.74 | 1,316.20 | |
| 5,895.00 | 92.13 | 356.08 | 356.12 | -3,522.98 | 4,848.78 | 1,346.41 N | 59.59 E | 122,462.45 | 2,015,231.20 | 2.17 | 1,347.09 | |
| 5,927.00 | 91.76 | 357.41 | 357.45 | -3,521.89 | 4,847.69 | 1,378.34 N | 57.79 E | 122,494.38 | 2,015,229.39 | 4.31 | 1,378.99 | |
| 5,958.00 | 91.97 | 357.00 | 357.04 | -3,520.88 | 4,846.68 | 1,409.29 N | 56.31 E | 122,525.33 | 2,015,227.88 | 1.49 | 1,409.92 | |
| 5,989.00 | 90.52 | 357.08 | 357.12 | -3,520.21 | 4,846.01 | 1,440.24 N | 54.73 E | 122,556.28 | 2,015,226.29 | 4.68 | 1,440.85 | |
| 6,021.00 | 89.81 | 357.81 | 357.85 | -3,520.12 | 4,845.92 | 1,472.21 N | 53.32 E | 122,588.24 | 2,015,224.86 | 3.18 | 1,472.79 | |
| 6,052.00 | 89.88 | 357.76 | 357.80 | -3,520.20 | 4,846.00 | 1,503.19 N | 52.15 E | 122,619.22 | 2,015,223.67 | 0.28 | 1,503.75 | |
| 6,083.00 | 90.80 | 357.83 | 357.87 | -3,520.02 | 4,845.82 | 1,534.16 N | 50.98 E | 122,650.20 | 2,015,222.48 | 2.98 | 1,534.71 | |
| 6,114.00 | 90.74 | 358.14 | 358.18 | -3,519.60 | 4,845.40 | 1,565.14 N | 49.91 E | 122,681.18 | 2,015,221.40 | 1.02 | 1,565.67 | |
| 6,146.00 | 89.66 | 358.37 | 358.41 | -3,519.49 | 4,845.29 | 1,597.13 N | 48.95 E | 122,713.16 | 2,015,220.43 | 3.45 | 1,597.64 | |
| 6,177.00 | 88.55 | 358.08 | 358.12 | -3,519.97 | 4,845.77 | 1,628.11 N | 48.02 E | 122,744.14 | 2,015,219.47 | 3.70 | 1,628.61 | |
| 6,208.00 | 89.51 | 358.10 | 358.14 | -3,520.50 | 4,846.30 | 1,659.09 N | 47.00 E | 122,775.12 | 2,015,218.44 | 3.10 | 1,659.57 | |
| 6,239.00 | 89.97 | 358.15 | 358.19 | -3,520.64 | 4,846.44 | 1,690.07 N | 46.01 E | 122,806.10 | 2,015,217.43 | 1.49 | 1,690.54 | |
| 6,271.00 | 90.09 | 357.89 | 357.93 | -3,520.62 | 4,846.42 | 1,722.05 N | 44.93 E | 122,838.08 | 2,015,216.33 | 0.89 | 1,722.50 | |
| 6,302.00 | 90.12 | 357.99 | 358.03 | -3,520.56 | 4,846.36 | 1,753.03 N | 43.84 E | 122,869.06 | 2,015,215.22 | 0.34 | 1,753.46 | |
| 6,333.00 | 89.17 | 358.11 | 358.15 | -3,520.76 | 4,846.56 | 1,784.01 N | 42.80 E | 122,900.04 | 2,015,214.17 | 3.09 | 1,784.43 | |
| 6,364.00 | 88.95 | 358.57 | 358.61 | -3,521.26 | 4,847.06 | 1,815.00 N | 41.93 E | 122,931.03 | 2,015,213.28 | 1.64 | 1,815.40 | |
| 6,396.00 | 89.14 | 358.85 | 358.89 | -3,521.80 | 4,847.60 | 1,846.99 N | 41.23 E | 122,963.01 | 2,015,212.56 | 1.06 | 1,847.37 | |
| 6,427.00 | 89.35 | 359.19 | 359.23 | -3,522.21 | 4,848.01 | 1,877.98 N | 40.72 E | 122,994.01 | 2,015,212.04 | 1.29 | 1,878.36 | |
| 6,458.00 | 89.57 | 359.52 | 359.56 | -3,522.50 | 4,848.30 | 1,908.98 N | 40.39 E | 123,025.00 | 2,015,211.69 | 1.28 | 1,909.35 | |
| 6,490.00 | 90.06 | 0.85 | 0.89 | -3,522.60 | 4,848.40 | 1,940.97 N | 40.52 E | 123,057.00 | 2,015,211.80 | 4.43 | 1,941.34 | |
| 6,521.00 | 90.28 | 1.18 | 1.22 | -3,522.51 | 4,848.31 | 1,971.97 N | 41.09 E | 123,088.00 | 2,015,212.35 | 1.28 | 1,972.34 | |
| 6,552.00 | 90.52 | 1.57 | 1.61 | -3,522.29 | 4,848.09 | 2,002.96 N | 41.85 E | 123,118.99 | 2,015,213.10 | 1.48 | 2,003.34 | |
| 6,584.00 | 90.12 | 1.65 | 1.69 | -3,522.11 | 4,847.91 | 2,034.95 N | 42.78 E | 123,150.97 | 2,015,214.00 | 1.27 | 2,035.34 | |
| 6,615.00 | 89.97 | 1.80 | 1.84 | -3,522.09 | 4,847.89 | 2,065.93 N | 43.73 E | 123,181.96 | 2,015,214.94 | 0.68 | 2,066.33 | |
| 6,646.00 | 90.03 | 1.86 | 1.90 | -3,522.09 | 4,847.89 | 2,096.91 N | 44.74 E | 123,212.94 | 2,015,215.94 | 0.27 | 2,097.33 | |
| 6,678.00 | 90.37 | 1.66 | 1.70 | -3,521.98 | 4,847.78 | 2,128.90 N | 45.75 E | 123,244.93 | 2,015,216.92 | 1.23 | 2,129.32 | |
| 6,709.00 | 90.37 | 1.27 | 1.31 | -3,521.78 | 4,847.58 | 2,159.89 N | 46.56 E | 123,275.92 | 2,015,217.72 | 1.26 | 2,160.32 | |
| 6,740.00 | 90.68 | 1.12 | 1.16 | -3,521.49 | 4,847.29 | 2,190.88 N | 47.23 E | 123,306.91 | 2,015,218.37 | 1.11 | 2,191.31 | |

## Design Report for Watkins & Farney 3510 #18-1H / Job #9507142 / Nab 180 - Wellbore #1

| Measured Depth (ft) | Inclination (°) | Grid Azimuth (°) | True Azimuth (°) | TVD below System (ft) | Vertical Depth (ft) | Local Coordinates Northing (ft) | Local Coordinates Easting (ft) | Map Coordinates Northing (ft) | Map Coordinates Easting (ft) | Dogleg Rate (°/100ft) | Vertical Section (ft) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6,772.00 | 90.90 | 0.89 | 0.93 | -3,521.05 | 4,846.85 | 2,222.87 N | 47.81 E | 123,338.90 | 2,015,218.94 | 0.99 | 2,223.31 | |
| 6,804.00 | 90.68 | 1.11 | 1.15 | -3,520.61 | 4,846.41 | 2,254.86 N | 48.39 E | 123,370.89 | 2,015,219.50 | 0.97 | 2,255.31 | |
| 6,835.00 | 90.52 | 0.65 | 0.69 | -3,520.29 | 4,846.09 | 2,285.86 N | 48.89 E | 123,401.89 | 2,015,219.98 | 1.57 | 2,286.31 | |
| 6,867.00 | 89.69 | 0.72 | 0.76 | -3,520.23 | 4,846.03 | 2,317.85 N | 49.30 E | 123,433.88 | 2,015,220.37 | 2.60 | 2,318.31 | |
| 6,899.00 | 89.45 | 0.27 | 0.31 | -3,520.47 | 4,846.27 | 2,349.85 N | 49.60 E | 123,465.88 | 2,015,220.65 | 1.59 | 2,350.30 | |
| 6,930.00 | 90.22 | 0.37 | 0.41 | -3,520.56 | 4,846.36 | 2,380.85 N | 49.79 E | 123,496.88 | 2,015,220.83 | 2.50 | 2,381.30 | |
| 6,962.00 | 90.31 | 0.25 | 0.29 | -3,520.41 | 4,846.21 | 2,412.85 N | 49.99 E | 123,528.88 | 2,015,221.00 | 0.47 | 2,413.30 | |
| 6,993.00 | 90.09 | 359.92 | 359.96 | -3,520.30 | 4,846.10 | 2,443.85 N | 50.05 E | 123,559.88 | 2,015,221.05 | 1.28 | 2,444.30 | |
| 7,025.00 | 90.31 | 0.02 | 0.06 | -3,520.19 | 4,845.99 | 2,475.85 N | 50.06 E | 123,591.88 | 2,015,221.04 | 0.76 | 2,476.30 | |
| 7,057.00 | 90.65 | 0.10 | 0.14 | -3,519.92 | 4,845.72 | 2,507.85 N | 50.12 E | 123,623.88 | 2,015,221.08 | 1.09 | 2,508.29 | |
| 7,088.00 | 90.52 | 0.12 | 0.16 | -3,519.61 | 4,845.41 | 2,538.84 N | 50.20 E | 123,654.88 | 2,015,221.14 | 0.42 | 2,539.29 | |
| 7,151.00 | 91.14 | 0.20 | 0.24 | -3,518.69 | 4,844.49 | 2,601.84 N | 50.42 E | 123,717.87 | 2,015,221.33 | 0.99 | 2,602.28 | |
| 7,185.17 | 91.18 | 0.26 | 0.30 | -3,518.00 | 4,843.80 | 2,636.00 N | 50.58 E | 123,752.03 | 2,015,221.47 | 0.22 | 2,636.44 | Cross Sec Line @7,185.17' MD, 4,843.80' TVD (2,808.75' FWL) |
| 7,246.00 | 91.26 | 0.37 | 0.41 | -3,516.70 | 4,842.50 | 2,696.81 N | 50.95 E | 123,812.85 | 2,015,221.81 | 0.22 | 2,697.26 | |
| 7,340.00 | 90.52 | 0.43 | 0.47 | -3,515.24 | 4,841.04 | 2,790.80 N | 51.68 E | 123,906.83 | 2,015,222.48 | 0.79 | 2,791.24 | |
| 7,435.00 | 89.51 | 0.65 | 0.69 | -3,515.22 | 4,841.02 | 2,885.79 N | 52.64 E | 124,001.83 | 2,015,223.39 | 1.09 | 2,886.24 | |
| 7,530.00 | 91.54 | 1.74 | 1.78 | -3,514.35 | 4,840.15 | 2,980.76 N | 54.69 E | 124,096.79 | 2,015,225.39 | 2.43 | 2,981.23 | |
| 7,625.00 | 90.03 | 359.76 | 359.80 | -3,513.05 | 4,838.85 | 3,075.74 N | 55.99 E | 124,191.77 | 2,015,226.64 | 2.62 | 3,076.21 | |
| 7,720.00 | 89.66 | 359.16 | 359.20 | -3,513.30 | 4,839.10 | 3,170.73 N | 55.17 E | 124,286.76 | 2,015,225.76 | 0.74 | 3,171.19 | |
| 7,814.00 | 91.29 | 0.70 | 0.74 | -3,512.52 | 4,838.32 | 3,264.72 N | 55.12 E | 124,380.75 | 2,015,225.66 | 2.39 | 3,265.17 | |
| 7,909.00 | 90.93 | 0.65 | 0.69 | -3,510.68 | 4,836.48 | 3,359.70 N | 56.30 E | 124,475.73 | 2,015,226.79 | 0.38 | 3,360.15 | |
| 8,004.00 | 90.37 | 0.95 | 0.99 | -3,509.61 | 4,835.41 | 3,454.68 N | 57.69 E | 124,570.71 | 2,015,228.13 | 0.67 | 3,455.14 | |
| 8,099.00 | 88.67 | 0.16 | 0.20 | -3,510.40 | 4,836.20 | 3,549.67 N | 58.68 E | 124,665.70 | 2,015,229.06 | 1.97 | 3,550.14 | |
| 8,194.00 | 89.11 | 1.29 | 1.33 | -3,512.24 | 4,838.04 | 3,644.64 N | 59.95 E | 124,760.67 | 2,015,230.28 | 1.28 | 3,645.12 | |
| 8,289.00 | 90.62 | 2.73 | 2.77 | -3,512.47 | 4,838.27 | 3,739.57 N | 63.35 E | 124,855.61 | 2,015,233.63 | 2.20 | 3,740.09 | |
| 8,384.00 | 90.89 | 3.24 | 3.28 | -3,511.21 | 4,837.01 | 3,834.43 N | 68.36 E | 124,950.47 | 2,015,238.59 | 0.61 | 3,835.00 | |
| 8,479.00 | 91.08 | 3.11 | 3.15 | -3,509.58 | 4,835.38 | 3,929.27 N | 73.69 E | 125,045.31 | 2,015,243.86 | 0.24 | 3,929.90 | |
| 8,574.00 | 90.99 | 3.48 | 3.52 | -3,507.87 | 4,833.67 | 4,024.09 N | 79.21 E | 125,140.14 | 2,015,249.33 | 0.40 | 4,024.79 | |
| 8,669.00 | 91.23 | 2.20 | 2.24 | -3,506.02 | 4,831.82 | 4,118.95 N | 83.98 E | 125,235.00 | 2,015,254.05 | 1.37 | 4,119.71 | |
| 8,764.00 | 91.54 | 1.84 | 1.88 | -3,503.73 | 4,829.53 | 4,213.86 N | 87.40 E | 125,329.91 | 2,015,257.41 | 0.50 | 4,214.66 | |
| 8,859.00 | 90.52 | 0.15 | 0.19 | -3,502.02 | 4,827.82 | 4,308.83 N | 89.11 E | 125,424.88 | 2,015,259.08 | 2.08 | 4,309.64 | |
| 8,954.00 | 91.08 | 0.39 | 0.43 | -3,500.69 | 4,826.49 | 4,403.82 N | 89.63 E | 125,519.87 | 2,015,259.54 | 0.64 | 4,404.62 | |
| 9,049.00 | 90.22 | 0.39 | 0.43 | -3,499.62 | 4,825.42 | 4,498.81 N | 90.34 E | 125,614.86 | 2,015,260.20 | 0.91 | 4,499.61 | |
| 9,144.00 | 90.03 | 359.94 | 359.98 | -3,499.41 | 4,825.21 | 4,593.81 N | 90.68 E | 125,709.85 | 2,015,260.48 | 0.51 | 4,594.61 | |
| 9,239.00 | 90.25 | 359.54 | 359.58 | -3,499.18 | 4,824.98 | 4,688.80 N | 90.32 E | 125,804.85 | 2,015,260.07 | 0.48 | 4,689.59 | |
| 9,334.00 | 90.40 | 0.25 | 0.29 | -3,498.64 | 4,824.44 | 4,783.80 N | 90.21 E | 125,899.85 | 2,015,259.90 | 0.76 | 4,784.58 | |
| 9,428.00 | 91.81 | 359.99 | 0.03 | -3,496.83 | 4,822.63 | 4,877.78 N | 90.47 E | 125,993.83 | 2,015,260.11 | 1.53 | 4,878.56 | |

HALLIBURTON

## Design Report for Watkins & Farney 3510 #18-1H / Job #9507142 / Nab 180 - Wellbore #1

| Measured Depth (ft) | Inclination (°) | Grid Azimuth (°) | True Azimuth (°) | TVD below System (ft) | Vertical Depth (ft) | Local Coordinates Northing (ft) | Local Coordinates Easting (ft) | Map Coordinates Northing (ft) | Map Coordinates Easting (ft) | Dogleg Rate (°/100ft) | Vertical Section (ft) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9,523.00 | 90.40 | 358.81 | 358.85 | -3,494.99 | 4,820.79 | 4,972.76 N | 89.54 E | 126,088.80 | 2,015,259.13 | 1.94 | 4,973.51 | |
| 9,617.00 | 89.88 | 359.16 | 359.20 | -3,494.76 | 4,820.56 | 5,066.74 N | 87.94 E | 126,182.79 | 2,015,257.48 | 0.67 | 5,067.47 | |
| 9,713.00 | 90.31 | 357.92 | 357.96 | -3,494.60 | 4,820.40 | 5,162.71 N | 85.56 E | 126,278.75 | 2,015,255.05 | 1.37 | 5,163.39 | |
| 9,762.00 | 90.37 | 358.15 | 358.19 | -3,494.31 | 4,820.11 | 5,211.68 N | 83.92 E | 126,327.73 | 2,015,253.38 | 0.49 | 5,212.34 | Last MWD Survey |
| 9,814.00 | 90.37 | 358.15 | 358.19 | -3,493.98 | 4,819.78 | 5,263.65 N | 82.28 E | 126,379.70 | 2,015,251.70 | 0.00 | 5,264.28 | Projected to TD |

### Design Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 144.00 | 144.00 | -0.19 | 0.02 | First MWD Survey |
| 7,185.17 | 4,843.80 | 2,636.00 | 50.58 | Cross Sec Line @7,185.17' MD, 4,843.80' TVD (2,808.75' FWL) |
| 9,762.00 | 4,820.11 | 5,211.68 | 83.92 | Last MWD Survey |
| 9,814.00 | 4,819.78 | 5,263.65 | 82.28 | Projected to TD |

### Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin +N/_S (ft) | Origin +E/-W (ft) | Start TVD (ft) |
|---|---|---|---|---|---|---|
| User | No Target (Freehand) | 0.77 | Slot | 0.00 | 0.00 | 0.00 |

### Survey tool program

| From (ft) | To (ft) | Survey/Plan | Survey Tool |
|---|---|---|---|
| 144.00 | 9,814.00 | MWD Survey's | MWD+SC |

### Design Targets

| Target Name - hit/miss target - Shape | Dip Angle () | Dip Dir. () | TVD () | +N/-S () | +E/-W () | Northing () | Easting () | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|

## Design Report for Watkins & Farney 3510 #18-1H / Job #9507142 / Nab 180 - Wellbore #1

### Directional Difficulty Index

| | | | |
|---|---|---|---|
| Average Dogleg over Survey: | 1.85 °/100ft | Maximum Dogleg over Survey: | 14.86 °/100ft at 5,061.00 ft |
| Net Tortousity applicable to Plans: | 0.79 °/100ft | Directional Difficulty Index: | 6.291 |

### Audit Info

HALLIBURTON

# North Reference Sheet for Sec 18-T35S-R10W - Watkins & Farney 3510 #18-1H / Job #9507142 / Nab 180 - Wellbore #1

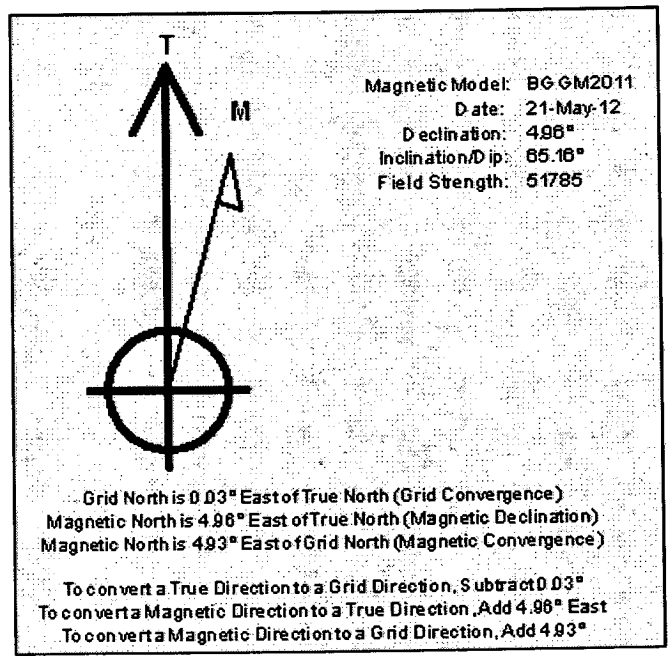
All data is in Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.
Vertical Depths are relative to WELL @ 1325.80ft (Original Well Elev). Northing and Easting are relative to Watkins & Farney 3510 #18-1H / Job #9507142 / Nab 180

Coordinate System is US State Plane 1927 (Exact solution), Kansas South 1502 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866
Projection method is Lambert Conformal Conic (2 parallel)
Central Meridian is 98° 30' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:37° 16' 0.000 N°
False Easting: 2,000,000.00ft, False Northing: 0.00ft, Scale Reduction: 1.00006330

Grid Coordinates of Well: 121,116.01 ft N, 2,015,172.36 ft E
Geographical Coordinates of Well: 36° 59' 57.41" N, 098° 26' 52.98" W
Grid Convergence at Surface is: 0.03°

Based upon Minimum Curvature type calculations, at a Measured Depth of 9,814.00ft
the Bottom Hole Displacement is 5,264.30ft in the Direction of 0.90° (True).

Magnetic Convergence at surface is: -4.93° (21 May 2012, , BGGM2011)



# T35S, R10W, 6th P.M.

## SGOMI

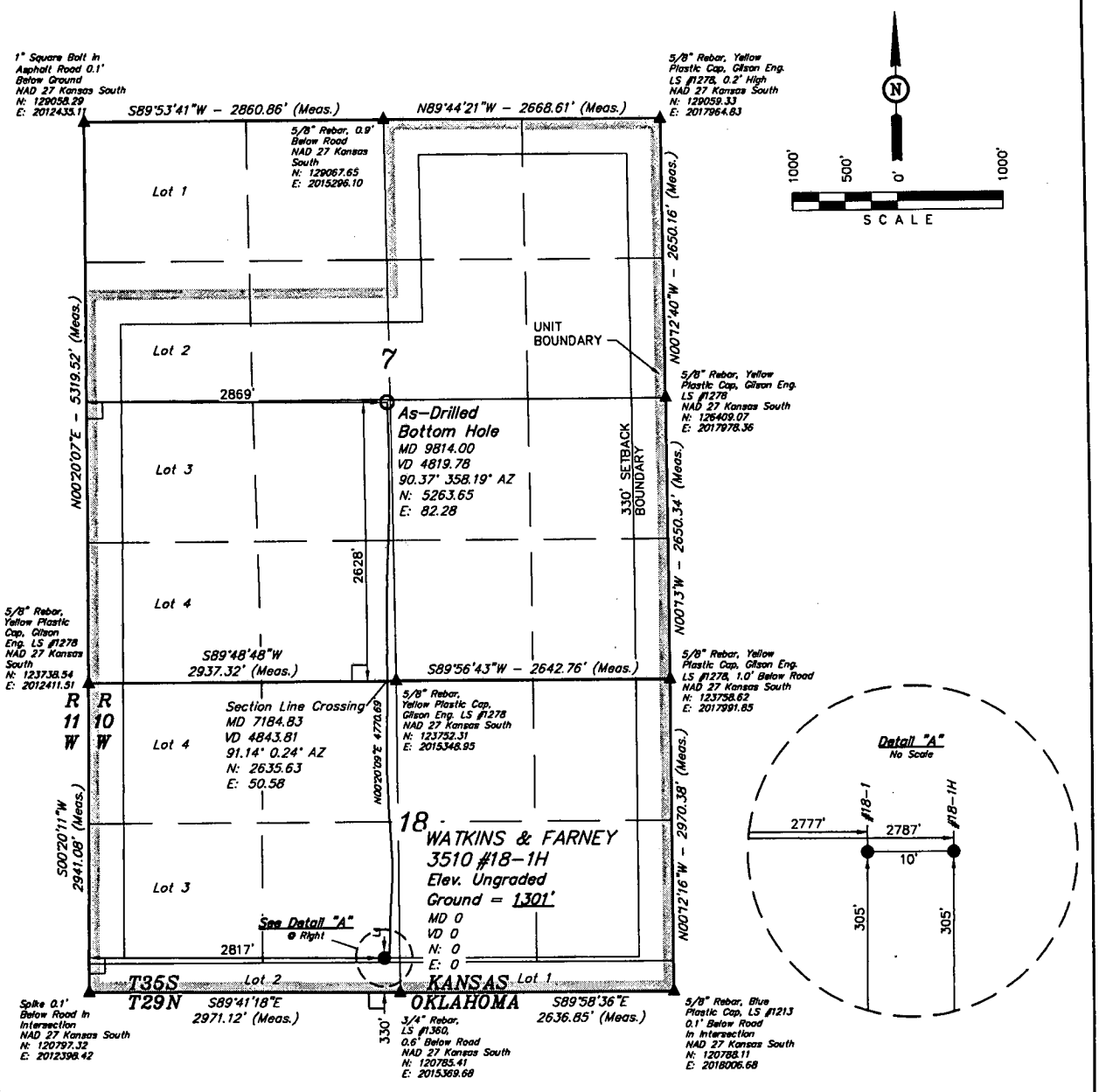
Well location, WATKINS & FARNEY 3510 #18-1H, located as shown in the SE 1/4 NW 1/4 of Section 18, T35S, R10W, 6th P.M., Barber County, Kansas.

### BASIS OF ELEVATION

SPOT ELEVATION LOCATED AT THE SOUTHWEST CORNER OF SECTION 12, T35S, R10W, 6th P.M. TAKEN FROM THE CORWIN, QUADRANGLE, KANSAS, 7.5 MINUTE QUAD (TOPOGRAPHIC MAP) PUBLISHED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY. SAID ELEVATION IS MARKED AS BEING 1274 FEET.

### BASIS OF BEARINGS

BASIS OF BEARINGS IS A G.P.S. OBSERVATION.




### CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED LAND SURVEYOR
REGISTRATION NO. 14391
STATE OF KANSAS
09-26-12

LEGEND:

- └ = 90° SYMBOL
- ● = PROPOSED WELL HEAD.
- ▲ = SECTION CORNERS LOCATED.

| NAD 83 (AS-DRILLED BOTTOM HOLE) | NAD 83 (#18-1H SURFACE LOCATION) |
|---|---|
| LATITUDE = 37°00'49.55" (37.013764) | LATITUDE = 36°59'57.26" (36.999239) |
| LONGITUDE = 98°26'52.74" (98.447983) | LONGITUDE = 98°26'54.07" (98.448353) |
| NAD 27 (AS-DRILLED BOTTOM HOLE) | NAD 27 (#18-1H SURFACE LOCATION) |
| LATITUDE = 37°00'49.45" (37.013736) | LATITUDE = 36°59'57.16" (36.999211) |
| LONGITUDE = 98°26'51.47" (98.447631) | LONGITUDE = 98°26'52.80" (98.448000) |
| STATE PLANE NAD 27 | STATE PLANE NAD 27 |
| N: 126380.12 E: 2015292.18 | N: 121091.02 E: 2015187.41 |


UINTAH ENGINEERING & LAND SURVEYING
85 SOUTH 200 EAST - VERNAL, UTAH 84078
(435) 789-1017


| SCALE | DATE SURVEYED: | DATE DRAWN: |
|---|---|---|
| 1" = 1000' | 08-10-12 | 09-20-12 |
| PARTY: L.S. K.H. C.A.G. | REFERENCES: G.L.O. PLAT | |
| WEATHER: WARM | FILE: SGOMI | |