



CONFIDENTIAL

OIL & GAS CONSERVATION DIVISION

WELL COMPLETION FORM

WELL HISTORY - DESCRIPTION OF WELL & LEASE

Form Must Be Typed Form must be Signed All blanks must be Filled

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: Abby Woody

Purchaser:

Designate Type of Completion:

- Checkboxes for New Well, Re-Entry, Workover, Oil, Gas, OG, CM, Cathodic, WSW, D&A, ENHR, GSW, SWD, SIOW, SIGW, Temp. Abd., and Other.

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

Operator:

Well Name:

Original Comp. Date: Original Total Depth:

- Checkboxes for Deepening, Re-perf., Conv. to ENHR, Conv. to SWD, Conv. to GSW, Plug Back, Commingled, Dual Completion, SWD, ENHR, GSW, and Permit #.

02/03/2012 Spud Date or Recompletion Date, 3/20/2012 Date Reached TD, 04/25/2102 Completion Date or Recompletion Date

API No. 15 - 15-077-21772-01-00

Spot Description:

E2 SW SW SW Sec. 14 Twp. 33 S. R. 7 East West

330 Feet from North South Line of Section

378 Feet from East West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- Checkboxes for NE, NW, SE, SW

County: Harper

Lease Name: Lockwood Farms 3307 Well #: 14-1H

Field Name:

Producing Formation: Mississippi

Elevation: Ground: 1350 Kelly Bushing: 1382

Total Depth: 9450 Plug Back Total Depth:

Amount of Surface Pipe Set and Cemented at: 716 Feet

Multiple Stage Cementing Collar Used? Yes 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: Lockwood Farms License #: 842

Quarter NW Sec. 3 Twp. 31 S. R. 6 East West

County: Harper Permit #: KDHE 12-0119

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

- Checkboxes for Letter of Confidentiality Received, Confidential Release Date, Wireline Log Received, Geologist Report Received, UIC Distribution, and Approved by: NAOMI JAMES Date: 07/17/2012

SGOMI

T33S, R7W, 6th P.M.

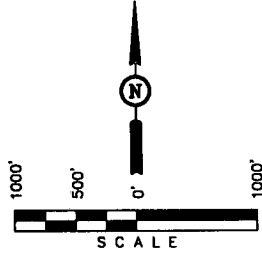
Well location, LOCKWOOD FARMS 3307 #14-1H, located as shown in the SW 1/4 SW 1/4 of Section 14, T33S, R7W, 6th P.M., Harper County, Kansas.

BASIS OF ELEVATION

SPOT ELEVATION LOCATED AT THE NORTHEAST CORNER OF SECTION 22, T33S, R7W, 6th P.M. TAKEN FROM THE ANTHONY, QUADRANGLE, KANSAS, HARPER COUNTY, 7.5 MINUTE QUAD (TOPOGRAPHIC MAP) PUBLISHED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY. SAID ELEVATION IS MARKED AS BEING 1348 FEET.

BASIS OF BEARINGS

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



LINE	BEARING	LENGTH
L1	S00°20'39"E	515.67'

NW Cor. Sec. 22  
3/4" Iron Pipe,  
0.6' Below Ground  
in Gravel Road  
Intersection  
NAD 27 Kansas South  
N: 182219.40  
E: 2123778.62

S89°17'38"W  
2663.66' (Meas.)

S89°18'32"W  
2664.21' (Meas.)

S89°22'18"W - 5279.57' (Meas.)

5/8" Rebar W/ Yellow Cap  
Marked Florit  
LS 1135  
NAD 27 Kansas South  
N: 182263.35  
E: 2126381.96

2" Private Alum.  
Cap. 1.0' Below  
Ground in Gravel  
Road Intersection  
NAD 27 Kansas South  
N: 182308.63  
E: 2129043.85

Section Line Crossing  
MD 4427.05  
VD 4344.20  
52.62' 181.20' AZ  
N: -340.87  
E: -17.11

5/8" Rebar W/ Cap  
NAD 27 Kansas South  
N: 185014.39  
E: 2134324.88

22

23

330' SETBACK  
BOUNDARY

UNIT  
BOUNDARY

Flagged Nail  
in Asphalt  
NAD 27 Kansas South  
N: 176964.17  
E: 2126412.82

5/8" Rebar, 0.7'  
Below Ground  
NAD 27 Kansas South  
N: 179072.33  
E: 2129070.82

As-Drilled  
Bottom Hole  
MD 9450.00  
VD 4725.55  
87.94' 179.15' AZ  
N: -5269.05  
E: 45.70

5/8" Rebar 0.3'  
Below Ground in  
Monument Box  
NAD 27 Kansas South  
N: 177091.01  
E: 2134376.76

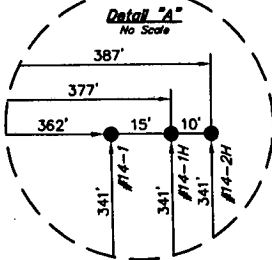
S88°37'27"W  
2687.29' (Meas.)

S88°36'21"W - 2683.59' (Meas.)

S89°41'37"W - 5281.75' (Meas.)

SW Cor. Sec. 22  
5/8" Rebar 0.1'  
Below Ground in  
Asphalt Highway  
NAD 27 Kansas South  
N: 176828.43  
E: 2123726.35

2" KDOT Alum. Cap  
0.4' Below Ground  
in Asphalt Highway  
NAD 27 Kansas South  
N: 177040.68  
E: 2129095.16



LEGEND:

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

NAD 83 (#14-1 AS-DRILLED BOTTOM HOLE) LATITUDE = 37°09'10.61" (37.153003) LONGITUDE = 98°03'21.84" (98.056067)	NAD 83 (#14-1H SURFACE LOCATION) LATITUDE = 37°09'02.90" (37.167472) LONGITUDE = 98°03'22.36" (98.056211)
NAD 27 (#14-1 AS-DRILLED BOTTOM HOLE) LATITUDE = 37°09'10.73" (37.152881) LONGITUDE = 98°03'20.81" (98.055725) STATE PLANE NAD 27 (KANSAS SOUTH) N: 177385.09 E: 2129097.93	NAD 27 (#14-1H SURFACE LOCATION) LATITUDE = 37°09'02.82" (37.167450) LONGITUDE = 98°03'21.14" (98.055872) STATE PLANE NAD 27 (KANSAS SOUTH) N: 182653.01 E: 2129201.23

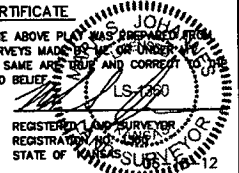
REVISED: 06-12-12  
REVISED: 06-07-12

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

SCALE 1" = 1000'	DATE SURVEYED: 10-05-11	DATE DRAWN: 05-21-12
PARTY L.S. K.H. C.C.	REFERENCES G.L.O. PLAT	FILE SGOMI
WEATHER COOL		

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.



# Shell Exploration & Production Co. Inc.

Harper Co. (NAD-27)

Sec 14-T33S-R07W

Lockwood Farms 3307 14-1H/ Job# 9199477/ Nabors 102

Wellbore #1

Design: Wellbore #1

## Sperry Drilling Services Combo Report With Grid North & True North

03 April, 2012

Well Coordinates: 182,652.63 N, 2,129,423.39 E (37° 10' 02.82" N, 098° 03' 21.10" W)

Ground Level: 1,350.40 ft

Local Coordinate Origin:	Centered on Well Lockwood Farms 3307 14-1H/ Job# 9199477/ Nabors 102
Viewing Datum:	WELL @ 1382.10ft (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 Lockwood Farms 3307 14-1H/ Job# 9199477/ Nabors 102 - Wellbore #1**

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
						Northing (ft)	Easting (ft)	Northing (ft)	Easting (ft)			
0.00	0.00	359.71	0.00	-1,382.10	0.00	0.00 N	0.00 E	182,652.63	2,129,423.39	0.00	0.00	
200.00	0.73	244.18	244.47	-1,182.11	199.99	0.55 S	1.15 W	182,652.08	2,129,422.24	0.37	1.26	First MWD Survey
265.00	0.26	257.96	258.25	-1,117.11	264.99	0.76 S	1.67 W	182,651.87	2,129,421.72	0.74	1.81	
355.00	0.54	257.39	257.68	-1,027.11	354.99	0.89 S	2.28 W	182,651.73	2,129,421.11	0.31	2.44	
416.00	0.33	244.22	244.51	-966.11	415.99	1.03 S	2.72 W	182,651.59	2,129,420.67	0.38	2.90	
508.00	0.03	62.75	63.04	-874.11	507.99	1.13 S	2.94 W	182,651.49	2,129,420.45	0.39	3.14	
601.00	0.30	304.47	304.76	-781.11	600.99	0.98 S	3.12 W	182,651.64	2,129,420.28	0.34	3.27	
654.00	0.09	206.75	207.04	-728.11	653.99	0.94 S	3.25 W	182,651.68	2,129,420.14	0.61	3.38	
761.00	0.20	300.87	301.16	-621.11	760.99	0.92 S	3.45 W	182,651.70	2,129,419.94	0.21	3.57	
915.00	0.23	85.09	85.38	-467.11	914.99	0.75 S	3.37 W	182,651.86	2,129,420.02	0.27	3.45	
1,098.00	0.40	42.67	42.96	-284.12	1,097.98	0.25 S	2.57 W	182,652.36	2,129,420.82	0.15	2.54	
1,289.00	0.19	261.74	262.03	-93.12	1,288.98	0.19 N	2.43 W	182,652.81	2,129,420.96	0.29	2.28	
1,481.00	0.09	63.68	63.97	98.88	1,480.98	0.21 N	2.61 W	182,652.83	2,129,420.78	0.14	2.45	
1,673.00	0.44	83.26	83.55	290.88	1,672.98	0.36 N	1.74 W	182,652.98	2,129,421.65	0.19	1.57	
1,865.00	0.57	142.46	142.75	482.87	1,864.97	0.32 S	0.43 W	182,652.31	2,129,422.96	0.27	0.50	
2,057.00	0.53	157.77	158.06	674.86	2,056.96	1.90 S	0.48 E	182,650.73	2,129,423.88	0.08	0.07	
2,248.00	0.18	130.94	131.23	865.86	2,247.96	2.92 S	1.04 E	182,649.72	2,129,424.44	0.20	-0.19	
2,439.00	0.30	90.29	90.58	1,056.86	2,438.96	3.12 S	1.76 E	182,649.52	2,129,425.16	0.11	-0.83	
2,630.00	0.69	131.46	131.75	1,247.85	2,629.95	3.89 S	3.12 E	182,648.75	2,129,426.53	0.26	-1.92	
2,821.00	0.63	186.54	186.83	1,438.84	2,820.94	5.70 S	3.85 E	182,646.95	2,129,427.27	0.32	-2.12	
3,013.00	0.51	187.49	187.78	1,630.83	3,012.93	7.60 S	3.61 E	182,645.05	2,129,427.04	0.06	-1.36	
3,205.00	0.37	162.31	162.60	1,822.83	3,204.93	9.03 S	3.68 E	182,643.62	2,129,427.11	0.12	-1.03	
3,396.00	0.07	73.97	74.26	2,013.82	3,395.92	9.59 S	3.98 E	182,643.06	2,129,427.41	0.20	-1.16	
3,588.00	0.03	258.84	259.13	2,205.82	3,587.92	9.57 S	4.04 E	182,643.08	2,129,427.48	0.05	-1.23	
3,652.00	0.39	247.69	247.98	2,269.82	3,651.92	9.65 S	3.82 E	182,643.00	2,129,427.26	0.56	-1.00	
3,684.00	0.19	304.23	304.52	2,301.82	3,683.92	9.66 S	3.68 E	182,642.99	2,129,427.11	1.02	-0.86	
3,716.00	1.25	202.02	202.31	2,333.82	3,715.92	9.96 S	3.50 E	182,642.69	2,129,426.94	4.07	-0.61	
3,748.00	2.98	182.50	182.79	2,365.80	3,747.90	11.11 S	3.33 E	182,641.54	2,129,426.77	5.78	-0.12	
3,780.00	4.33	185.29	185.58	2,397.73	3,779.83	13.14 S	3.17 E	182,639.50	2,129,426.62	4.25	0.60	
3,812.00	6.00	185.73	186.02	2,429.60	3,811.70	16.01 S	2.88 E	182,636.64	2,129,426.34	5.22	1.67	
3,845.00	8.24	187.62	187.91	2,462.35	3,844.45	20.07 S	2.37 E	182,632.58	2,129,425.86	6.82	3.28	
3,877.00	10.90	186.07	186.36	2,493.90	3,876.00	25.35 S	1.72 E	182,627.29	2,129,425.23	8.35	5.37	
3,909.00	13.06	185.71	186.00	2,525.20	3,907.30	31.95 S	1.01 E	182,620.69	2,129,424.55	6.75	7.89	
3,941.00	15.55	186.06	186.35	2,556.20	3,938.30	39.81 S	0.16 E	182,612.82	2,129,423.73	7.79	10.89	
3,973.00	18.62	187.07	187.36	2,586.79	3,968.89	49.14 S	0.97 W	182,603.49	2,129,422.65	9.64	14.56	
4,005.00	21.79	186.49	186.78	2,616.81	3,998.91	60.11 S	2.33 W	182,592.51	2,129,421.35	9.93	18.90	
4,037.00	25.12	185.68	185.97	2,646.17	4,028.27	72.77 S	3.74 W	182,579.85	2,129,420.00	10.45	23.76	

**HALLIBURTON****Design Report for Lockwood Farms 3307 14-1H/ Job# 9199477/ Nabors 102 - Wellbore #1**

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft) Easting (ft)		Map Coordinates Northing (ft) Easting (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
4,069.00	28.03	185.47	185.76	2,674.78	4,056.88	87.00 S	5.20 W	182,565.60	2,129,418.60	9.10	29.11	
4,100.00	28.56	186.84	187.13	2,702.08	4,084.18	101.61 S	6.85 W	182,550.99	2,129,417.02	2.70	34.75	
4,133.00	29.18	186.58	186.87	2,730.98	4,113.08	117.42 S	8.79 W	182,535.17	2,129,415.16	1.92	41.00	
4,164.00	30.16	185.52	185.81	2,757.91	4,140.01	132.67 S	10.48 W	182,519.91	2,129,413.54	3.59	46.85	
4,196.00	31.73	184.75	185.04	2,785.36	4,167.46	149.05 S	12.04 W	182,503.52	2,129,412.06	5.06	52.88	
4,228.00	34.10	183.96	184.25	2,812.22	4,194.32	166.38 S	13.44 W	182,486.19	2,129,410.74	7.53	59.04	
4,260.00	36.14	181.90	182.19	2,838.39	4,220.49	184.76 S	14.47 W	182,467.81	2,129,409.80	7.37	65.12	
4,292.00	38.13	180.02	180.31	2,863.90	4,246.00	204.07 S	14.88 W	182,448.49	2,129,409.48	7.16	70.87	
4,326.00	40.37	179.54	179.83	2,890.23	4,272.33	225.58 S	14.90 W	182,426.98	2,129,409.56	6.65	76.86	
4,358.00	43.44	180.32	180.61	2,914.04	4,296.14	246.95 S	14.99 W	182,405.61	2,129,409.57	9.73	82.86	
4,390.00	46.70	181.62	181.91	2,936.64	4,318.74	269.59 S	15.50 W	182,382.97	2,129,409.18	10.59	89.63	
4,422.00	50.38	180.81	181.10	2,957.83	4,339.93	293.56 S	16.12 W	182,358.99	2,129,408.67	11.66	96.87	
4,454.00	53.62	180.97	181.26	2,977.52	4,359.62	318.77 S	16.64 W	182,333.78	2,129,408.27	10.13	104.36	
4,486.00	56.63	180.91	181.20	2,995.82	4,377.92	345.01 S	17.20 W	182,307.54	2,129,407.83	9.41	112.18	
4,518.00	59.15	180.45	180.74	3,012.83	4,394.93	372.11 S	17.66 W	182,280.44	2,129,407.50	7.97	120.13	
4,582.00	64.60	178.10	178.39	3,042.99	4,425.09	428.53 S	17.20 W	182,224.03	2,129,408.23	9.11	135.33	
4,646.00	66.27	178.45	178.74	3,069.59	4,451.69	486.71 S	15.75 W	182,165.85	2,129,409.96	2.66	150.06	
4,678.00	66.46	178.51	178.80	3,082.42	4,464.52	516.02 S	15.12 W	182,136.54	2,129,410.73	0.62	157.58	
4,710.00	66.56	178.27	178.56	3,095.18	4,477.28	545.36 S	14.44 W	182,107.21	2,129,411.54	0.76	165.06	
4,742.00	67.27	178.91	179.20	3,107.73	4,489.83	574.80 S	13.87 W	182,077.78	2,129,412.26	2.88	172.67	
4,774.00	69.10	178.94	179.23	3,119.62	4,501.72	604.50 S	13.46 W	182,048.07	2,129,412.81	5.72	180.51	
4,806.00	71.52	179.00	179.29	3,130.40	4,512.50	634.62 S	13.07 W	182,017.95	2,129,413.34	7.56	188.49	
4,838.00	73.99	179.18	179.47	3,139.88	4,521.98	665.18 S	12.74 W	181,987.40	2,129,413.82	7.74	196.65	
4,869.00	76.57	179.82	180.11	3,147.76	4,529.86	695.16 S	12.63 W	181,957.42	2,129,414.07	8.56	204.85	
4,901.00	78.36	179.57	179.86	3,154.70	4,536.80	726.40 S	12.62 W	181,926.18	2,129,414.22	5.65	213.50	
4,933.00	80.24	178.99	179.28	3,160.65	4,542.75	757.84 S	12.39 W	181,894.74	2,129,414.61	6.14	221.99	
4,965.00	82.25	178.68	178.97	3,165.52	4,547.62	789.46 S	11.90 W	181,863.12	2,129,415.24	6.35	230.29	
4,997.00	84.14	178.91	179.20	3,169.31	4,551.41	821.23 S	11.40 W	181,831.36	2,129,415.90	5.95	238.61	
5,093.00	88.89	178.55	178.84	3,175.14	4,557.24	917.01 S	9.76 W	181,735.59	2,129,418.00	4.96	263.59	
5,193.00	90.49	178.25	178.54	3,175.68	4,557.78	1,016.98 S	7.47 W	181,635.63	2,129,420.76	1.63	289.11	
5,287.00	90.55	177.52	177.81	3,174.83	4,556.93	1,110.93 S	4.48 W	181,541.70	2,129,424.20	0.78	312.28	
5,379.00	88.74	178.30	178.59	3,175.40	4,557.50	1,202.88 S	1.59 W	181,449.76	2,129,427.53	2.14	334.99	
5,502.00	90.52	178.83	179.12	3,176.19	4,558.29	1,325.84 S	0.87 E	181,326.81	2,129,430.57	1.51	366.72	
5,594.00	89.08	178.35	178.64	3,176.51	4,558.61	1,417.82 S	2.67 E	181,234.84	2,129,432.81	1.65	390.49	
5,686.00	88.31	179.08	179.37	3,178.61	4,560.71	1,509.78 S	4.27 E	181,142.89	2,129,434.84	1.15	414.45	
5,779.00	86.88	178.47	178.76	3,182.51	4,564.61	1,602.69 S	5.78 E	181,049.99	2,129,436.80	1.67	438.75	
5,871.00	87.91	178.34	178.63	3,186.69	4,568.79	1,694.57 S	7.87 E	180,958.13	2,129,439.33	1.13	462.21	

**HALLIBURTON****Design Report for Lockwood Farms 3307 14-1H/ Job# 9199477/ Nabors 102 - Wellbore #1**

Measured Depth (ft)	Inclination (°)	Grid Azimuth (°)	True Azimuth (°)	TVD below System (ft)	Vertical Depth (ft)	Local Coordinates Northing (ft) Easting (ft)		Map Coordinates Northing (ft) Easting (ft)		Dogleg Rate (°/100ft)	Vertical Section (ft)	Comments
5,963.00	89.35	178.35	178.64	3,188.89	4,570.99	1,786.51 S	10.07 E	180,866.19	2,129,441.96	1.57	485.59	
6,055.00	88.31	178.76	179.05	3,190.77	4,572.87	1,878.47 S	11.92 E	180,774.24	2,129,444.26	1.22	509.31	
6,147.00	89.54	179.10	179.39	3,192.50	4,574.60	1,970.44 S	13.17 E	180,682.28	2,129,445.95	1.39	533.60	
6,240.00	90.68	179.01	179.30	3,192.32	4,574.42	2,063.44 S	14.23 E	180,589.29	2,129,447.45	1.23	558.36	
6,336.00	88.40	178.03	178.32	3,193.09	4,575.19	2,159.41 S	16.23 E	180,493.33	2,129,449.90	2.59	583.05	
6,432.00	86.79	178.45	178.74	3,197.12	4,579.22	2,255.29 S	18.69 E	180,397.46	2,129,452.82	1.73	607.26	
6,528.00	88.27	177.63	177.92	3,201.26	4,583.36	2,351.15 S	21.48 E	180,301.61	2,129,456.07	1.76	631.16	
6,623.00	87.07	178.54	178.83	3,205.12	4,587.22	2,446.03 S	24.18 E	180,206.75	2,129,459.22	1.58	654.87	
6,719.00	88.43	178.43	178.72	3,208.89	4,590.99	2,541.94 S	26.23 E	180,110.85	2,129,461.72	1.42	679.49	
6,815.00	91.11	180.86	181.15	3,209.27	4,591.37	2,637.92 S	26.34 E	180,014.87	2,129,462.29	3.77	705.99	
6,911.00	88.28	180.36	180.65	3,209.78	4,591.88	2,733.90 S	24.83 E	179,918.89	2,129,461.24	2.99	734.05	
7,007.00	86.86	180.21	180.50	3,213.85	4,595.95	2,829.80 S	23.87 E	179,822.98	2,129,460.73	1.49	761.56	
7,103.00	86.55	179.81	180.10	3,219.37	4,601.47	2,925.64 S	23.36 E	179,727.14	2,129,460.69	0.53	788.61	
7,199.00	86.23	179.16	179.45	3,225.42	4,607.52	3,021.45 S	23.74 E	179,631.34	2,129,461.52	0.75	814.81	
7,295.00	86.34	178.29	178.58	3,231.64	4,613.74	3,117.23 S	25.39 E	179,535.56	2,129,463.62	0.91	839.78	
7,392.00	86.02	180.16	180.45	3,238.10	4,620.20	3,214.01 S	26.21 E	179,438.79	2,129,464.90	1.95	865.82	
7,488.00	87.22	180.20	180.49	3,243.76	4,625.86	3,309.84 S	25.42 E	179,342.96	2,129,464.57	1.25	893.15	
7,584.00	86.30	178.36	178.65	3,249.19	4,631.29	3,405.68 S	26.14 E	179,247.13	2,129,465.75	2.14	919.02	
7,680.00	87.10	178.53	178.82	3,254.71	4,636.81	3,501.49 S	28.25 E	179,151.32	2,129,468.32	0.85	943.55	
7,776.00	86.94	178.99	179.28	3,259.70	4,641.80	3,597.35 S	29.84 E	179,055.47	2,129,470.37	0.51	968.60	
7,872.00	88.24	179.18	179.47	3,263.74	4,645.84	3,693.26 S	30.89 E	178,959.57	2,129,471.87	1.37	994.18	
7,968.00	87.52	179.61	179.90	3,267.29	4,649.39	3,789.19 S	31.42 E	178,863.64	2,129,472.85	0.87	1,020.27	
8,064.00	86.89	179.94	180.23	3,271.97	4,654.07	3,885.07 S	31.31 E	178,767.76	2,129,473.20	0.74	1,046.96	
8,160.00	87.60	179.57	179.86	3,276.59	4,658.69	3,980.96 S	31.23 E	178,671.87	2,129,473.58	0.83	1,073.61	
8,256.00	86.08	179.43	179.72	3,281.88	4,663.98	4,076.81 S	31.58 E	178,576.02	2,129,474.39	1.59	1,099.85	
8,352.00	87.38	178.44	178.73	3,287.35	4,669.45	4,172.64 S	32.88 E	178,480.20	2,129,476.15	1.70	1,125.17	
8,448.00	86.92	179.82	180.11	3,292.13	4,674.23	4,268.52 S	33.85 E	178,384.33	2,129,477.57	1.51	1,150.81	
8,543.00	86.76	180.05	180.34	3,297.36	4,679.46	4,363.37 S	33.48 E	178,289.48	2,129,477.65	0.29	1,177.47	
8,639.00	87.50	178.54	178.83	3,302.17	4,684.27	4,459.25 S	34.17 E	178,193.61	2,129,478.80	1.75	1,203.38	
8,735.00	86.86	178.52	178.81	3,306.89	4,688.99	4,555.11 S	36.15 E	178,097.76	2,129,481.23	0.67	1,228.06	
8,831.00	85.69	178.32	178.61	3,313.13	4,695.23	4,650.88 S	38.31 E	178,002.00	2,129,483.85	1.24	1,252.53	
8,927.00	87.44	178.50	178.79	3,318.88	4,700.98	4,746.68 S	40.48 E	177,906.21	2,129,486.48	1.83	1,277.00	
9,022.00	86.83	178.75	179.04	3,323.63	4,705.73	4,841.54 S	42.28 E	177,811.35	2,129,488.73	0.69	1,301.58	
9,118.00	87.35	179.19	179.48	3,328.50	4,710.60	4,937.41 S	43.51 E	177,715.49	2,129,490.42	0.71	1,326.96	
9,214.00	87.72	180.03	180.32	3,332.63	4,714.73	5,033.32 S	43.68 E	177,619.59	2,129,491.05	0.96	1,353.39	
9,310.00	86.52	179.19	179.48	3,337.46	4,719.56	5,129.20 S	43.85 E	177,523.71	2,129,491.67	1.53	1,379.81	
9,388.00	87.94	178.86	179.15	3,341.23	4,723.33	5,207.10 S	44.78 E	177,445.82	2,129,492.97	1.87	1,400.51	Last MWD Survey

# HALLIBURTON

## Design Report for Lockwood Farms 3307 14-1H/ Job# 9199477/ Nabors 102 - 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
9,450.00	87.94	178.86	179.15	3,343.45	4,725.55	5,269.05 S	45.70 E	177,383.87	2,129,494.19	0.00	1,416.80	Projection to TD

### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
200.00	199.99	-0.55	-1.15	First MWD Survey
9,388.00	4,723.33	-5,207.10	44.78	Last MWD Survey
9,450.00	4,725.55	-5,269.05	45.70	Projection 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)	253.91	Slot	0.00	0.00	0.00

### Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
200.00	9,450.00	MWD	MWD+SC

### Design Targets

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

### Directional Difficulty Index

Average Dogleg over Survey:	1.70 °/100ft	Maximum Dogleg over Survey:	11.66 °/100ft at 4,422.00 ft
Net Tortousity applicable to Plans:	0.60 °/100ft	Directional Difficulty Index:	6.230

# HALLIBURTON

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Design Report for Lockwood Farms 3307 14-1H/ Job# 9199477/ Nabors 102 - Wellbore #1

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Audit Info



**HALLIBURTON****North Reference Sheet for Sec 14-T33S-R07W - Lockwood Farms 3307 14-1H/ Job# 9199477/ Nabors 102 - 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 @ 1382.10ft (Original Well Elev). Northing and Easting are relative to Lockwood Farms 3307 14-1H/ Job# 9199477/ Nabors 102

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: 1.00002098

Grid Coordinates of Well: 182,652.63 ft N, 2,129,423.39 ft E

Geographical Coordinates of Well: 37° 10' 02.82" N, 098° 03' 21.10" W

Grid Convergence at Surface is: 0.27°

Based upon Minimum Curvature type calculations, at a Measured Depth of 9,450.00ft the Bottom Hole Displacement is 5,269.25ft in the Direction of 179.50° (True).

Magnetic Convergence at surface is: -4.48° ( 9 January 2012, , BGGM2011)

