

## SPERRY-SUN DRILLING SERVICES

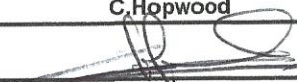
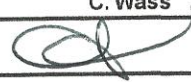
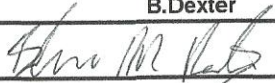
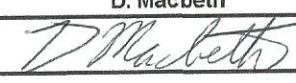
### CERTIFIED SURVEY WORK SHEET

<b>OPERATOR:</b>	Anadarko
<b>WELL:</b>	Sack 28N-30HZ
<b>FIELD:</b>	Wattenburg
<b>RIG:</b>	Xtreme 22
<b>LEGALS:</b>	Sec 31-T1N-R67W
<b>COUNTY:</b>	Weld
<b>STATE:</b>	CO
<b>CAL. METHOD:</b>	Min Curvature
<b>MAG. DECL. APPLIED:</b>	8.57
<b>VERTICAL SEC. DIR. :</b>	0.000

<b>SSDS Job Number :</b>	901557992
<b>Start Date of Job :</b>	9/20/2014
<b>End Date of Job :</b>	11/28/2014
<b>Lead Directional Driller:</b>	B. Seghetti
	C. Hopwood
<b>Other SSDS DD's :</b>	B. Dexter
	B. Cristian
<b>SSDS MWD Engineers :</b>	C. Wass
	D. Macbeth

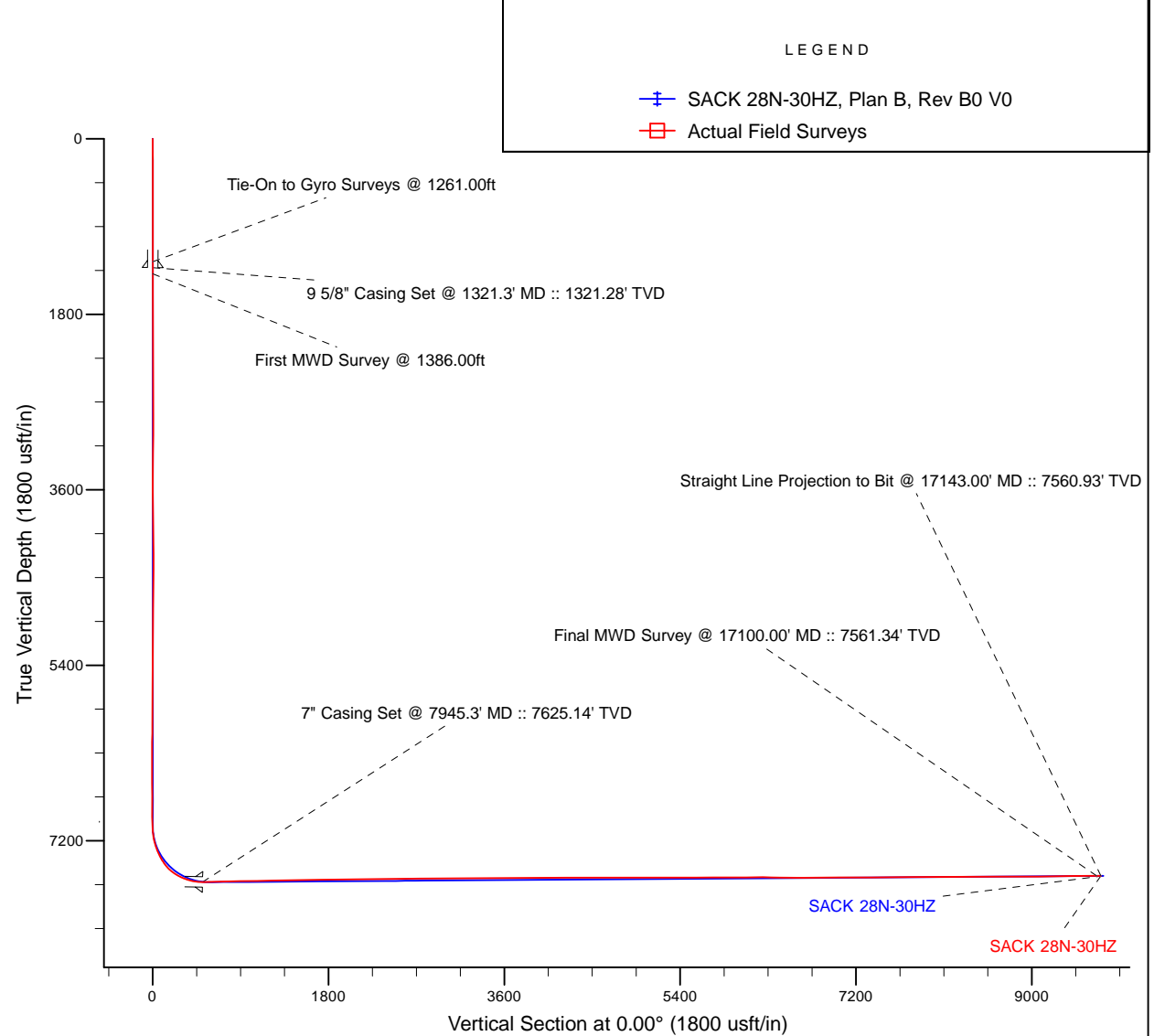
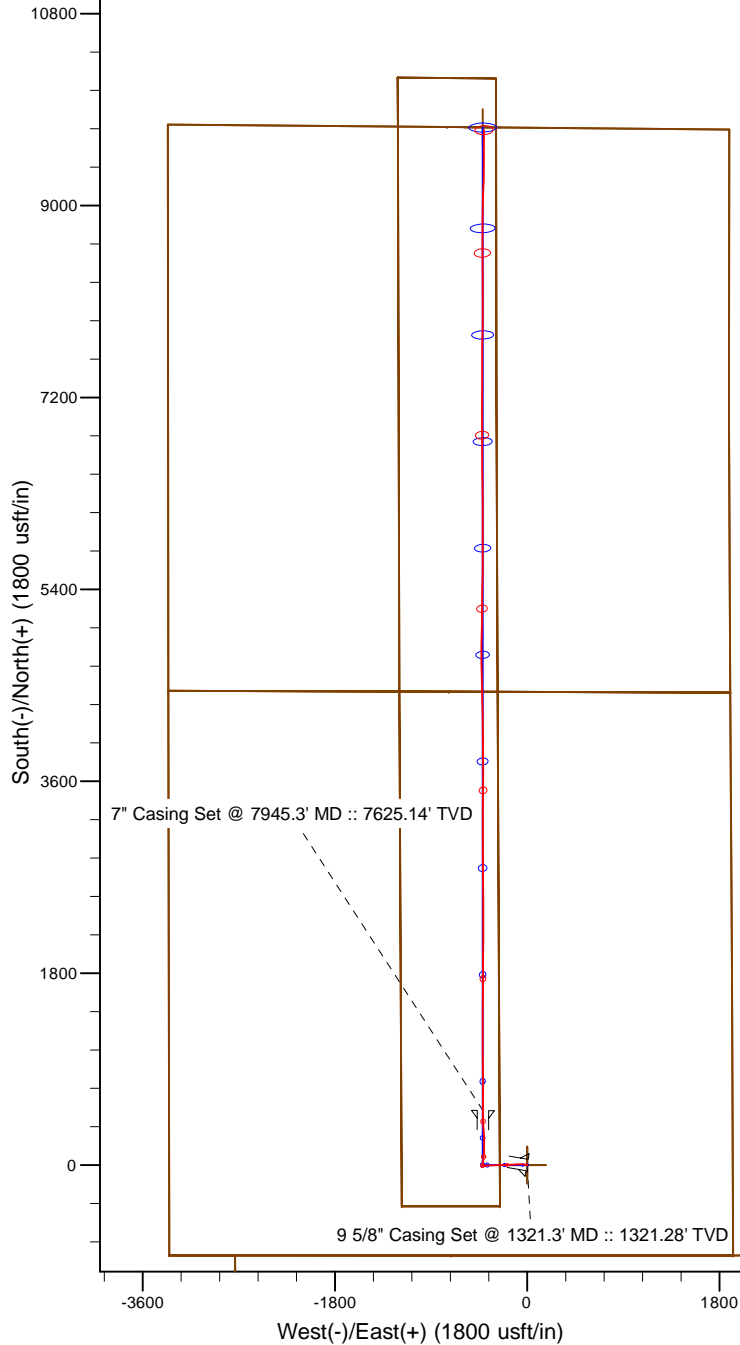
	Main Hole =====>		1st Side Track =====>		2nd Side Track =====>		3rd Side Track =====>		4th Side Track =====>	
First Survey Depth	1261.00	Tie On		Tie On		Tie On		Tie On		Tie On
Last Survey Depth	1386.00									
	17100.00									
KOP Depth/Sidetrack MD	7057.00	KOP		KOP-ST1		KOP-ST2		KOP-ST3		KOP-ST4
First Survey Depth	1386.00	MWD		MWD		MWD		MWD		MWD
Last Survey Depth	17100.00	MWD		MWD		MWD		MWD		MWD
Bit Extrapolation to TD	17143.00	T.D.		T.D.		T.D.		T.D.		T.D.

The following Sperry Sun Drilling Services personnel listed below, do certify the above survey information to be accurate :

Print Name :	C. Hopwood	Print Name :	C. Wass	Print Name :	
Sign Name :		Sign Name :		Sign Name :	
Print Name :	B. Dexter	Print Name :	D. Macbeth	Print Name :	
Sign Name :		Sign Name :		Sign Name :	7

<b>Examples of Survey Types:</b>	Tie On	Tie On to Surface Casing (Assumed Vertical), Tie On to existing MWD Survey (prior drilled hole)
	MWD	Sperry Sun Drilling Services (SSDS) Measurement While Drilling (MWD) Survey's
	ESS	Sperry Sun Drilling Services (SSDS) Electronic Survey System (ESS) Survey's
	Gyro	Gyro Survey's ; Provided by third party vendor, or by Sperry Sun Drilling Services (SSDS)
	SS	Single Shot (SS) Survey's ; Provided by Sperry Sun Drilling Services (SSDS) or third party vendor.

Project: Weld County, CO (NAD 83)  
 Site: Sec. 31-T1N-R67W  
 Well: SACK 28N-30HZ  
 Wellbore: Plan B  
 Design: Actual Field Surveys



LEGEND

- SACK 28N-30HZ, Plan B, Rev B0 V0
- Actual Field Surveys

7" Casing: ~1358.13' FSL, ~2336.65' FEL  
 Lat/Long: 40.004069 N, -104.932051 E  
 State Planes - CO Northern: 1,244,838.52' N, 3,159,102.56' E  
 Location: Sec. 31-T1N-R67W

BHL: ~25.53 FNL, ~2297.43' FEL  
 Lat/Long: 40.029314 N, -104.932018 E  
 State Planes - CO Northern: 1,254,034.42' N, 3,159,052.87' E  
 Location: Sec. 30-T1N-R67W

WELL DETAILS: SACK 28N-30HZ	
Ground Level:	5040.00
RKB = 16' @ 5056.00usft (Xtreme 22)	
Design: Actual Field Surveys (SACK 28N-30HZ/Plan B)	
Created By: Katie Benner	Date: 1/14/2015
Reviewed: _____	Date: _____

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 31-T1N-R67W

SACK 28N-30HZ

API # 05-123-39422 JOB # 901557992

Plan B

Design: Actual Field Surveys

## Sperry Drilling Services

### Standard Report

14 January, 2015

Surface UWI : API # 05-123-39422 JOB # 901557992

Well Coordinates: 1,244,330.16 N, 3,159,519.97 E (40° 00' 09.60" N, 104° 55' 50.06" W)

Ground Level: 5,040.00 usft

Local Coordinate Origin:

Centered on Well SACK 28N-30HZ

Viewing Datum:

RKB = 16' @ 5056.00usft (Xtreme 22)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

**HALLIBURTON**

**Design Report for SACK 28N-30HZ - Actual Field Surveys**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Sack 28N-30HZ_SHL - Sack 28N-30HZ_SEC - Sack 28N-30HZ_LD</b>							
16.00	0.00	0.00	16.00	0.00	0.00	0.00	0.00
116.00	0.40	38.84	116.00	0.27	0.22	0.27	0.40
216.00	0.47	29.64	216.00	0.90	0.64	0.90	0.10
316.00	0.33	356.77	315.99	1.54	0.83	1.54	0.26
416.00	0.25	337.62	415.99	2.03	0.73	2.03	0.12
516.00	0.10	341.81	515.99	2.32	0.62	2.32	0.15
616.00	0.24	294.02	615.99	2.49	0.40	2.49	0.19
716.00	0.02	206.45	715.99	2.56	0.20	2.56	0.24
816.00	0.35	194.16	815.99	2.24	0.12	2.24	0.33
916.00	0.24	185.21	915.99	1.74	0.02	1.74	0.12
1,016.00	0.20	177.86	1,015.99	1.36	0.01	1.36	0.05
1,116.00	0.37	142.61	1,115.99	0.93	0.21	0.93	0.24
1,216.00	0.40	113.10	1,215.99	0.53	0.73	0.53	0.20
1,261.00	0.27	91.77	1,260.98	0.47	0.98	0.47	0.40
<b>Tie-On to Gyro Surveys @ 1261.00ft</b>							
1,321.30	0.10	99.63	1,321.28	0.45	1.18	0.45	0.29
<b>9 5/8" Casing Set @ 1321.3' MD :: 1321.28' TVD</b>							
1,386.00	0.09	253.51	1,385.98	0.43	1.18	0.43	0.29
<b>First MWD Survey @ 1386.00ft</b>							
1,575.00	0.14	263.42	1,574.98	0.36	0.81	0.36	0.03
1,758.00	0.32	318.49	1,757.98	0.72	0.25	0.72	0.15
1,941.00	0.44	317.92	1,940.98	1.62	-0.56	1.62	0.07
2,123.00	0.53	318.54	2,122.97	2.77	-1.59	2.77	0.05
2,305.00	0.47	309.68	2,304.97	3.88	-2.72	3.88	0.05
2,336.00	0.44	305.37	2,335.96	4.03	-2.91	4.03	0.15
2,376.00	0.62	309.69	2,375.96	4.26	-3.20	4.26	0.46
2,457.00	0.65	292.34	2,456.96	4.71	-3.97	4.71	0.24
2,518.00	0.39	283.82	2,517.95	4.89	-4.49	4.89	0.44
2,580.00	0.43	289.16	2,579.95	5.02	-4.91	5.02	0.09
2,672.00	0.32	266.00	2,671.95	5.11	-5.50	5.11	0.20
2,856.00	0.43	267.45	2,855.95	5.05	-6.70	5.05	0.06
3,039.00	0.47	167.84	3,038.94	4.28	-7.23	4.28	0.38
3,223.00	0.56	170.22	3,222.94	2.66	-6.91	2.66	0.05
3,400.00	0.40	224.90	3,399.93	1.37	-7.20	1.37	0.26
3,571.00	0.30	19.45	3,570.93	1.37	-7.48	1.37	0.40
3,742.00	0.31	295.10	3,741.93	1.99	-7.75	1.99	0.24
3,913.00	3.27	285.29	3,912.83	3.47	-12.87	3.47	1.73
4,084.00	6.03	277.13	4,083.25	5.87	-26.49	5.87	1.66
4,255.00	7.64	273.53	4,253.03	7.69	-46.75	7.69	0.97
4,425.00	9.67	268.44	4,421.09	7.99	-72.30	7.99	1.28
4,596.00	9.10	266.43	4,589.80	6.76	-100.16	6.76	0.38
4,767.00	8.45	265.50	4,758.79	4.93	-126.18	4.93	0.39
4,938.00	11.06	267.60	4,927.31	3.26	-155.10	3.26	1.54
5,107.00	10.65	266.43	5,093.28	1.61	-186.88	1.61	0.28
5,279.00	10.05	268.26	5,262.48	0.16	-217.74	0.16	0.40
5,450.00	10.60	269.86	5,430.72	-0.33	-248.38	-0.33	0.36
5,621.00	10.08	267.67	5,598.94	-0.97	-279.06	-0.97	0.38
5,792.00	10.69	267.89	5,767.14	-2.17	-309.86	-2.17	0.36

**Design Report for SACK 28N-30HZ - Actual Field Surveys**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
5,962.00	10.48	268.26	5,934.24	-3.22	-341.08	-3.22	0.13
6,132.00	8.89	266.86	6,101.82	-4.41	-369.65	-4.41	0.95
6,303.00	7.02	267.09	6,271.16	-5.66	-393.28	-5.66	1.09
6,474.00	4.40	272.15	6,441.30	-5.95	-410.27	-5.95	1.56
6,645.00	0.65	269.64	6,612.10	-5.70	-417.80	-5.70	2.19
6,816.00	0.32	354.43	6,783.10	-5.24	-418.82	-5.24	0.41
6,986.00	0.29	289.23	6,953.10	-4.62	-419.27	-4.62	0.19
7,029.00	0.34	258.58	6,996.10	-4.61	-419.50	-4.61	0.40
7,072.00	1.83	4.53	7,039.09	-3.95	-419.57	-3.95	4.54
7,115.00	4.43	14.52	7,082.02	-1.66	-419.10	-1.66	6.16
7,157.00	6.95	11.87	7,123.81	2.40	-418.17	2.40	6.03
7,200.00	10.21	9.18	7,166.32	8.71	-417.02	8.71	7.64
7,243.00	13.60	8.80	7,208.39	17.47	-415.64	17.47	7.89
7,286.00	17.44	7.80	7,249.82	28.85	-413.99	28.85	8.95
7,328.00	21.00	7.30	7,289.47	42.56	-412.18	42.56	8.49
7,414.00	28.14	6.38	7,367.63	78.04	-407.96	78.04	8.31
7,457.00	31.58	6.00	7,404.92	99.32	-405.66	99.32	8.01
7,500.00	36.24	2.67	7,440.60	123.23	-403.89	123.23	11.66
7,543.00	42.14	359.86	7,473.91	150.38	-403.33	150.38	14.33
7,586.00	48.20	359.53	7,504.22	180.86	-403.50	180.86	14.10
7,629.00	54.58	0.54	7,531.03	214.45	-403.47	214.45	14.95
7,672.00	59.60	358.68	7,554.39	250.53	-403.73	250.53	12.23
7,715.00	65.15	356.75	7,574.32	288.58	-405.26	288.58	13.50
7,757.00	69.38	354.89	7,590.55	327.20	-408.09	327.20	10.87
7,800.00	73.03	356.08	7,604.40	367.77	-411.29	367.77	8.88
7,843.00	78.62	357.77	7,614.93	409.39	-413.52	409.39	13.55
7,886.00	83.61	359.63	7,621.57	451.85	-414.48	451.85	12.37
7,907.00	87.10	0.44	7,623.27	472.77	-414.47	472.77	17.06
7,945.30	89.00	0.51	7,624.57	511.05	-414.15	511.05	4.97
<b>7" Casing Set @ 7945.3' MD :: 7625.14' TVD</b>							
7,989.00	91.17	0.60	7,624.51	554.74	-413.72	554.74	4.97
8,159.00	92.13	359.85	7,619.61	724.67	-413.06	724.67	0.72
8,331.00	91.14	358.94	7,614.71	896.58	-414.87	896.58	0.78
8,502.00	90.52	359.71	7,612.23	1,067.55	-416.89	1,067.55	0.58
8,674.00	91.42	359.81	7,609.32	1,239.52	-417.61	1,239.52	0.53
8,845.00	91.51	0.53	7,604.95	1,410.47	-417.10	1,410.47	0.42
9,014.00	90.65	0.54	7,601.76	1,579.43	-415.52	1,579.43	0.51
9,184.00	90.49	0.22	7,600.07	1,749.42	-414.39	1,749.42	0.21
9,355.00	90.22	0.23	7,599.01	1,920.41	-413.72	1,920.41	0.16
9,525.00	90.80	0.49	7,597.50	2,090.40	-412.65	2,090.40	0.37
9,696.00	91.17	0.43	7,594.56	2,261.37	-411.28	2,261.37	0.22
9,879.00	90.40	359.94	7,592.05	2,444.35	-410.69	2,444.35	0.50
10,061.00	90.34	359.33	7,590.87	2,626.34	-411.85	2,626.34	0.34
10,244.00	90.43	359.14	7,589.65	2,809.32	-414.29	2,809.32	0.11
10,426.00	90.71	359.31	7,587.83	2,991.29	-416.76	2,991.29	0.18
10,609.00	90.89	0.26	7,585.28	3,174.27	-417.44	3,174.27	0.53
10,779.00	90.52	1.25	7,583.19	3,344.24	-415.20	3,344.24	0.62
10,950.00	89.85	0.41	7,582.64	3,515.22	-412.73	3,515.22	0.63
11,121.00	89.72	359.96	7,583.28	3,686.22	-412.17	3,686.22	0.27
11,292.00	90.25	359.39	7,583.32	3,857.21	-413.14	3,857.21	0.46
11,463.00	90.52	359.23	7,582.17	4,028.20	-415.20	4,028.20	0.18

**Design Report for SACK 28N-30HZ - Actual Field Surveys**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
11,633.00	90.37	358.90	7,580.85	4,198.17	-417.98	4,198.17	0.21
11,804.00	90.28	359.37	7,579.88	4,369.15	-420.56	4,369.15	0.28
11,975.00	89.78	358.51	7,579.79	4,540.12	-423.72	4,540.12	0.58
12,146.00	90.43	358.77	7,579.48	4,711.07	-427.78	4,711.07	0.41
12,317.00	89.48	1.26	7,579.61	4,882.05	-427.73	4,882.05	1.56
12,485.00	89.94	0.54	7,580.46	5,050.03	-425.10	5,050.03	0.51
12,654.00	90.80	0.95	7,579.37	5,219.01	-422.90	5,219.01	0.56
12,825.00	89.57	1.09	7,578.82	5,389.98	-419.85	5,389.98	0.72
12,997.00	90.28	0.19	7,579.05	5,561.96	-417.93	5,561.96	0.67
13,168.00	90.89	359.85	7,577.30	5,732.95	-417.87	5,732.95	0.41
13,339.00	89.51	0.31	7,576.70	5,903.95	-417.64	5,903.95	0.85
13,510.00	90.55	359.97	7,576.61	6,074.94	-417.22	6,074.94	0.64
13,682.00	89.85	359.57	7,576.01	6,246.94	-417.91	6,246.94	0.47
13,854.00	88.64	359.15	7,578.28	6,418.91	-419.83	6,418.91	0.74
14,025.00	89.48	0.21	7,581.09	6,589.88	-420.78	6,589.88	0.79
14,111.00	90.31	359.42	7,581.24	6,675.88	-421.06	6,675.88	1.33
14,281.00	91.85	359.56	7,578.04	6,845.84	-422.57	6,845.84	0.91
14,452.00	89.23	359.46	7,576.43	7,016.81	-424.04	7,016.81	1.53
14,623.00	90.12	1.03	7,577.40	7,187.80	-423.30	7,187.80	1.06
14,794.00	90.65	0.38	7,576.25	7,358.78	-421.20	7,358.78	0.49
14,965.00	90.03	0.29	7,575.23	7,529.77	-420.20	7,529.77	0.37
15,136.00	90.31	359.77	7,574.73	7,700.77	-420.11	7,700.77	0.35
15,307.00	90.86	0.84	7,572.98	7,871.75	-419.20	7,871.75	0.70
15,478.00	89.94	0.86	7,571.79	8,042.73	-416.66	8,042.73	0.54
15,648.00	89.97	0.34	7,571.92	8,212.72	-414.88	8,212.72	0.31
15,819.00	90.95	358.74	7,570.55	8,383.70	-416.26	8,383.70	1.10
15,990.00	90.18	358.73	7,568.86	8,554.65	-420.03	8,554.65	0.45
16,162.00	89.84	1.30	7,568.83	8,726.64	-419.99	8,726.64	1.51
16,333.00	89.69	0.83	7,569.53	8,897.60	-416.81	8,897.60	0.29
16,504.00	90.83	1.78	7,568.76	9,068.55	-412.91	9,068.55	0.87
16,674.00	91.39	1.56	7,565.46	9,238.45	-407.96	9,238.45	0.35
16,846.00	90.59	359.72	7,562.49	9,410.40	-406.04	9,410.40	1.17
17,017.00	89.94	0.35	7,561.70	9,581.40	-405.94	9,581.40	0.53
17,100.00	90.55	0.61	7,561.34	9,664.39	-405.24	9,664.39	0.80
<b>Final MWD Survey @ 17100.00' MD :: 7561.34' TVD</b>							
17,143.00	90.55	0.61	7,560.93	9,707.39	-404.78	9,707.39	0.00
<b>Straight Line Projection to Bit @ 17143.00' MD :: 7560.93' TVD - Current MWD Survey @ 7586' MD :: 7504.22' TVD - Sack</b>							

**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,261.00	1,260.98	0.47	0.98	Tie-On to Gyro Surveys @ 1261.00ft
1,386.00	1,385.98	0.43	1.18	First MWD Survey @ 1386.00ft
17,100.00	7,561.34	9,664.39	-405.24	Final MWD Survey @ 17100.00' MD :: 7561.34' TVD
17,143.00	7,560.93	9,707.39	-404.78	Straight Line Projection to Bit @ 17143.00' MD :: 7560.93' TVD
17,143.00	7,560.93	9,707.39	-404.78	Current MWD Survey @ 7586' MD :: 7504.22' TVD

## Design Report for SACK 28N-30HZ - Actual Field Surveys

### Vertical Section Information

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

### Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
16.00	1,261.00	MS Energy Gyro Surveys	NS-GYRO-MS
1,386.00	7,886.00	MWD Vertical/Build Surveys	MWD+IFR1
7,907.00	17,143.00	MWD Lateral Surveys	MWD+IFR1+SC

### Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,321.30	1,321.28	9 5/8" Casing Set @ 1321.3' MD :: 1321.28' TVD	9-5/8	13-1/2
7,945.30	7,624.57	7" Casing Set @ 7945.3' MD :: 7625.14' TVD	7	8-3/4

**Design Report for SACK 28N-30HZ - Actual Field Surveys****Wellbore Targets**

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Sack 28N-30HZ_LD - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,244,330.16	3,159,519.97	40.002666	-104.930572
Point 1				0.00	10,200.15	-1,213.09	1,254,521.96	3,158,241.44	
Point 2				0.00	10,192.00	-293.03	1,254,519.72	3,159,161.51	
Point 3				0.00	7,101.49	-286.69	1,251,429.42	3,159,187.69	
Point 4				0.00	4,438.61	-276.16	1,248,766.75	3,159,215.32	
Point 5				0.00	-387.12	-255.34	1,243,941.42	3,159,267.13	
Point 6				0.00	-387.03	-1,175.39	1,243,935.60	3,158,347.13	
Point 7				0.00	4,441.57	-1,196.20	1,248,763.81	3,158,295.31	
Point 8				0.00	9,740.10	-1,211.49	1,254,061.95	3,158,246.00	
Sack 28N-30HZ_SHL - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,244,330.16	3,159,519.97	40.002666	-104.930572
Sack 28N-30HZ_SEC - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,244,330.16	3,159,519.97	40.002666	-104.930572
Point 1				0.00	9,759.20	-3,364.51	1,254,067.22	3,156,092.97	
Point 2				0.00	9,736.00	-751.46	1,254,060.80	3,158,706.03	
Point 3				0.00	9,712.57	1,892.73	1,254,054.35	3,161,350.23	
Point 4				0.00	7,066.19	1,889.24	1,251,408.10	3,161,363.73	
Point 5				0.00	4,431.61	1,900.98	1,248,773.73	3,161,392.39	
Point 6				0.00	4,440.09	-736.18	1,248,765.28	3,158,755.32	
Point 7				0.00	4,448.56	-3,359.33	1,248,756.91	3,156,132.25	
Point 8				0.00	4,440.09	-736.18	1,248,765.28	3,158,755.32	
Point 9				0.00	4,431.61	1,900.98	1,248,773.73	3,161,392.39	
Point 10				0.00	1,791.87	1,917.92	1,246,134.25	3,161,426.28	
Point 11				0.00	-847.30	1,927.56	1,243,495.28	3,161,452.86	
Point 12				0.00	-847.10	-712.44	1,243,478.53	3,158,813.01	
Point 13				0.00	-846.82	-3,351.81	1,243,461.86	3,156,173.78	
Point 14				0.00	-847.10	-712.44	1,243,478.53	3,158,813.01	
Point 15				0.00	-847.30	1,927.56	1,243,495.28	3,161,452.86	
Point 16				0.00	-848.09	2,365.87	1,243,497.31	3,161,891.15	
Point 17				0.00	-3,306.44	2,373.28	1,241,039.14	3,161,914.35	
Point 18				0.00	-5,947.79	2,388.51	1,238,398.03	3,161,946.54	
Point 19				0.00	-5,943.50	-243.98	1,238,385.42	3,159,314.16	
Point 20				0.00	-5,939.56	-2,705.43	1,238,373.55	3,156,852.82	
Point 21				0.00	-3,333.76	-2,727.85	1,240,979.06	3,156,813.67	
Point 22				0.00	-846.45	-2,736.01	1,243,466.19	3,156,789.54	
Point 23				0.00	-846.82	-3,351.81	1,243,461.86	3,156,173.78	
Point 24				0.00	4,448.56	-3,359.33	1,248,756.91	3,156,132.25	
Sack 28N-30HZ_BHL - actual wellpath misses target center by 27.53usft at 17143.00usft MD (7560.93 TVD, 9707.39 N, -404.78 E) - Point	0.00	0.00	7,561.00	9,731.93	-417.26	1,254,058.88	3,159,040.24	40.029381	-104.932062

**Directional Difficulty Index**

Average Dogleg over Survey:	1.06 °/100usft	Maximum Dogleg over Survey:	17.06 °/100usft at 7,907.00 usft
Net Tortosity applicable to Plans:	0.40 °/100usft	Directional Difficulty Index:	6.619

**Audit Info**

**North Reference Sheet for Sec. 31-T1N-R67W - SACK 28N-30HZ - Plan B**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB = 16' @ 5056.00usft (Xtreme 22). Northing and Easting are relative to SACK 28N-30HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996617

Grid Coordinates of Well: 1,244,330.16 usft N, 3,159,519.97 usft E

Geographical Coordinates of Well: 40° 00' 09.60" N, 104° 55' 50.06" W

Grid Convergence at Surface is: 0.37°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,143.00usft the Bottom Hole Displacement is 9,715.83usft in the Direction of 357.61° ( True).

Magnetic Convergence at surface is: -8.21° (18 September 2014, , BGGM2014)

Magnetic Model: BGGM2014  
 Date: 18-Sep-14  
 Declination: 8.57°  
 Inclination/Dip: 66.59°  
 Field Strength: 52454

Grid North is 0.37° East of True North (Grid Convergence)  
 Magnetic North is 8.57° East of True North (Magnetic Declination)  
 Magnetic North is 8.21° East of Grid North (Magnetic Convergence)

To convert a True Direction to a Grid Direction, Subtract 0.37°  
 To convert a Magnetic Direction to a True Direction, Add 8.57° East  
 To convert a Magnetic Direction to a Grid Direction, Add 8.21°

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 31-T1N-R67W

SACK 28N-30HZ

API # 05-123-39422 JOB # 901557992

Plan B

Design: Actual Field Surveys

## Sperry Drilling Services

### Geodetic Report

14 January, 2015

Well Coordinates: 1,244,330.16 N, 3,159,519.97 E (40° 00' 09.60" N, 104° 55' 50.06" W)

Ground Level: 5,040.00 usft

Local Coordinate Origin:

Centered on Well SACK 28N-30HZ

Viewing Datum:

RKB = 16' @ 5056.00usft (Xtreme 22)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

**HALLIBURTON**

**Design Report for SACK 28N-30HZ - Actual Field Surveys**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	40.002666	-104.930572	1,244,330.16	3,159,519.97
16.00	0.00	0.00	16.00	0.00	0.00	40.002666	-104.930572	1,244,330.16	3,159,519.97
116.00	0.40	38.84	116.00	0.27	0.22	40.002667	-104.930571	1,244,330.43	3,159,520.18
216.00	0.47	29.64	216.00	0.90	0.64	40.002669	-104.930570	1,244,331.06	3,159,520.60
316.00	0.33	356.77	315.99	1.54	0.83	40.002670	-104.930569	1,244,331.71	3,159,520.78
416.00	0.25	337.62	415.99	2.03	0.73	40.002672	-104.930570	1,244,332.20	3,159,520.68
516.00	0.10	341.81	515.99	2.32	0.62	40.002672	-104.930570	1,244,332.48	3,159,520.57
616.00	0.24	294.02	615.99	2.49	0.40	40.002673	-104.930571	1,244,332.65	3,159,520.35
716.00	0.02	206.45	715.99	2.56	0.20	40.002673	-104.930572	1,244,332.72	3,159,520.15
816.00	0.35	194.16	815.99	2.24	0.12	40.002672	-104.930572	1,244,332.40	3,159,520.07
916.00	0.24	185.21	915.99	1.74	0.02	40.002671	-104.930572	1,244,331.90	3,159,519.98
1,016.00	0.20	177.86	1,015.99	1.36	0.01	40.002670	-104.930572	1,244,331.52	3,159,519.97
1,116.00	0.37	142.61	1,115.99	0.93	0.21	40.002669	-104.930572	1,244,331.09	3,159,520.17
1,216.00	0.40	113.10	1,215.99	0.53	0.73	40.002668	-104.930570	1,244,330.70	3,159,520.69
1,261.00	0.27	91.77	1,260.98	0.47	0.98	40.002667	-104.930569	1,244,330.63	3,159,520.95
1,321.30	0.10	99.63	1,321.28	0.45	1.18	40.002667	-104.930568	1,244,330.62	3,159,521.14
1,386.00	0.09	253.51	1,385.98	0.43	1.18	40.002667	-104.930568	1,244,330.60	3,159,521.15
1,575.00	0.14	263.42	1,574.98	0.36	0.81	40.002667	-104.930569	1,244,330.53	3,159,520.77
1,758.00	0.32	318.49	1,757.98	0.72	0.25	40.002668	-104.930571	1,244,330.88	3,159,520.21
1,941.00	0.44	317.92	1,940.98	1.62	-0.56	40.002671	-104.930574	1,244,331.78	3,159,519.40
2,123.00	0.53	318.54	2,122.97	2.77	-1.59	40.002674	-104.930578	1,244,332.92	3,159,518.36
2,305.00	0.47	309.68	2,304.97	3.88	-2.72	40.002677	-104.930582	1,244,334.02	3,159,517.22
2,336.00	0.44	305.37	2,335.96	4.03	-2.91	40.002677	-104.930583	1,244,334.17	3,159,517.03
2,376.00	0.62	309.69	2,375.96	4.26	-3.20	40.002678	-104.930584	1,244,334.40	3,159,516.74
2,457.00	0.65	292.34	2,456.96	4.71	-3.97	40.002679	-104.930586	1,244,334.85	3,159,515.97
2,518.00	0.39	283.82	2,517.95	4.89	-4.49	40.002679	-104.930588	1,244,335.02	3,159,515.45
2,580.00	0.43	289.16	2,579.95	5.02	-4.91	40.002680	-104.930590	1,244,335.15	3,159,515.02
2,672.00	0.32	266.00	2,671.95	5.11	-5.50	40.002680	-104.930592	1,244,335.24	3,159,514.44
2,856.00	0.43	267.45	2,855.95	5.05	-6.70	40.002680	-104.930596	1,244,335.16	3,159,513.24
3,039.00	0.47	167.84	3,038.94	4.28	-7.23	40.002678	-104.930598	1,244,334.40	3,159,512.71
3,223.00	0.56	170.22	3,222.94	2.66	-6.91	40.002673	-104.930597	1,244,332.78	3,159,513.04
3,400.00	0.40	224.90	3,399.93	1.37	-7.20	40.002670	-104.930598	1,244,331.48	3,159,512.76
3,571.00	0.30	19.45	3,570.93	1.37	-7.48	40.002670	-104.930599	1,244,331.48	3,159,512.48
3,742.00	0.31	295.10	3,741.93	1.99	-7.75	40.002672	-104.930600	1,244,332.10	3,159,512.21
3,913.00	3.27	285.29	3,912.83	3.47	-12.87	40.002676	-104.930618	1,244,333.55	3,159,507.08
4,084.00	6.03	277.13	4,083.25	5.87	-26.49	40.002682	-104.930667	1,244,335.86	3,159,493.44
4,255.00	7.64	273.53	4,253.03	7.69	-46.75	40.002687	-104.930739	1,244,337.55	3,159,473.17
4,425.00	9.67	268.44	4,421.09	7.99	-72.30	40.002688	-104.930830	1,244,337.69	3,159,447.62
4,596.00	9.10	266.43	4,589.80	6.76	-100.16	40.002685	-104.930930	1,244,336.28	3,159,419.77
4,767.00	8.45	265.50	4,758.79	4.93	-126.18	40.002680	-104.931023	1,244,334.28	3,159,393.76
4,938.00	11.06	267.60	4,927.31	3.26	-155.10	40.002675	-104.931126	1,244,332.42	3,159,364.86
5,107.00	10.65	266.43	5,093.28	1.61	-186.88	40.002670	-104.931239	1,244,330.57	3,159,333.09

**Design Report for SACK 28N-30HZ - Actual Field Surveys**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
5,279.00	10.05	268.26	5,262.48	0.16	-217.74	40.002667	-104.931349	1,244,328.92	3,159,302.24
5,450.00	10.60	269.86	5,430.72	-0.33	-248.38	40.002665	-104.931459	1,244,328.24	3,159,271.60
5,621.00	10.08	267.67	5,598.94	-0.97	-279.06	40.002663	-104.931568	1,244,327.39	3,159,240.92
5,792.00	10.69	267.89	5,767.14	-2.17	-309.86	40.002660	-104.931678	1,244,326.00	3,159,210.13
5,962.00	10.48	268.26	5,934.24	-3.22	-341.08	40.002657	-104.931790	1,244,324.75	3,159,178.93
6,132.00	8.89	266.86	6,101.82	-4.41	-369.65	40.002654	-104.931892	1,244,323.38	3,159,150.37
6,303.00	7.02	267.09	6,271.16	-5.66	-393.28	40.002651	-104.931976	1,244,321.97	3,159,126.75
6,474.00	4.40	272.15	6,441.30	-5.95	-410.27	40.002650	-104.932037	1,244,321.58	3,159,109.76
6,645.00	0.65	269.64	6,612.10	-5.70	-417.80	40.002650	-104.932064	1,244,321.77	3,159,102.23
6,816.00	0.32	354.43	6,783.10	-5.24	-418.82	40.002652	-104.932067	1,244,322.23	3,159,101.21
6,986.00	0.29	289.23	6,953.10	-4.62	-419.27	40.002653	-104.932069	1,244,322.85	3,159,100.75
7,029.00	0.34	258.58	6,996.10	-4.61	-419.50	40.002653	-104.932070	1,244,322.86	3,159,100.52
7,072.00	1.83	4.53	7,039.09	-3.95	-419.57	40.002655	-104.932070	1,244,323.51	3,159,100.45
7,115.00	4.43	14.52	7,082.02	-1.66	-419.10	40.002662	-104.932068	1,244,325.81	3,159,100.90
7,157.00	6.95	11.87	7,123.81	2.40	-418.17	40.002673	-104.932065	1,244,329.87	3,159,101.81
7,200.00	10.21	9.18	7,166.32	8.71	-417.02	40.002690	-104.932061	1,244,336.19	3,159,102.91
7,243.00	13.60	8.80	7,208.39	17.47	-415.64	40.002714	-104.932056	1,244,344.96	3,159,104.24
7,286.00	17.44	7.80	7,249.82	28.85	-413.99	40.002745	-104.932050	1,244,356.35	3,159,105.81
7,328.00	21.00	7.30	7,289.47	42.56	-412.18	40.002783	-104.932044	1,244,370.07	3,159,107.53
7,414.00	28.14	6.38	7,367.63	78.04	-407.96	40.002880	-104.932028	1,244,405.58	3,159,111.52
7,457.00	31.58	6.00	7,404.92	99.32	-405.66	40.002939	-104.932020	1,244,426.87	3,159,113.69
7,500.00	36.24	2.67	7,440.60	123.23	-403.89	40.003004	-104.932014	1,244,450.79	3,159,115.31
7,543.00	42.14	359.86	7,473.91	150.38	-403.33	40.003079	-104.932012	1,244,477.94	3,159,115.69
7,586.00	48.20	359.53	7,504.22	180.86	-403.50	40.003163	-104.932013	1,244,508.42	3,159,115.33
7,629.00	54.58	0.54	7,531.03	214.45	-403.47	40.003255	-104.932012	1,244,542.00	3,159,115.15
7,672.00	59.60	358.68	7,554.39	250.53	-403.73	40.003354	-104.932013	1,244,578.08	3,159,114.65
7,715.00	65.15	356.75	7,574.32	288.58	-405.26	40.003458	-104.932019	1,244,616.12	3,159,112.87
7,757.00	69.38	354.89	7,590.55	327.20	-408.09	40.003564	-104.932029	1,244,654.72	3,159,109.79
7,800.00	73.03	356.08	7,604.40	367.77	-411.29	40.003676	-104.932040	1,244,695.27	3,159,106.33
7,843.00	78.62	357.77	7,614.93	409.39	-413.52	40.003790	-104.932048	1,244,736.87	3,159,103.84
7,886.00	83.61	359.63	7,621.57	451.85	-414.48	40.003906	-104.932052	1,244,779.32	3,159,102.61
7,907.00	87.10	0.44	7,623.27	472.77	-414.47	40.003964	-104.932052	1,244,800.25	3,159,102.49
7,945.30	89.00	0.51	7,624.57	511.05	-414.15	40.004069	-104.932051	1,244,838.52	3,159,102.56
7,989.00	91.17	0.60	7,624.51	554.74	-413.72	40.004189	-104.932049	1,244,882.22	3,159,102.70
8,159.00	92.13	359.85	7,619.61	724.67	-413.06	40.004655	-104.932047	1,245,052.14	3,159,102.28
8,331.00	91.14	358.94	7,614.71	896.58	-414.87	40.005127	-104.932053	1,245,224.03	3,159,099.36
8,502.00	90.52	359.71	7,612.23	1,067.55	-416.89	40.005597	-104.932060	1,245,394.98	3,159,096.25
8,674.00	91.42	359.81	7,609.32	1,239.52	-417.61	40.006069	-104.932063	1,245,566.94	3,159,094.42
8,845.00	91.51	0.53	7,604.95	1,410.47	-417.10	40.006538	-104.932061	1,245,737.87	3,159,093.83
9,014.00	90.65	0.54	7,601.76	1,579.43	-415.52	40.007002	-104.932056	1,245,906.83	3,159,094.33
9,184.00	90.49	0.22	7,600.07	1,749.42	-414.39	40.007468	-104.932052	1,246,076.82	3,159,094.36
9,355.00	90.22	0.23	7,599.01	1,920.41	-413.72	40.007938	-104.932049	1,246,247.81	3,159,093.94

**Design Report for SACK 28N-30HZ - Actual Field Surveys**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
9,525.00	90.80	0.49	7,597.50	2,090.40	-412.65	40.008404	-104.932045	1,246,417.80	3,159,093.91
9,696.00	91.17	0.43	7,594.56	2,261.37	-411.28	40.008874	-104.932040	1,246,588.76	3,159,094.19
9,879.00	90.40	359.94	7,592.05	2,444.35	-410.69	40.009376	-104.932038	1,246,771.74	3,159,093.60
10,061.00	90.34	359.33	7,590.87	2,626.34	-411.85	40.009876	-104.932043	1,246,953.71	3,159,091.27
10,244.00	90.43	359.14	7,589.65	2,809.32	-414.29	40.010378	-104.932051	1,247,136.67	3,159,087.66
10,426.00	90.71	359.31	7,587.83	2,991.29	-416.76	40.010877	-104.932060	1,247,318.61	3,159,084.03
10,609.00	90.89	0.26	7,585.28	3,174.27	-417.44	40.011380	-104.932063	1,247,501.58	3,159,082.16
10,779.00	90.52	1.25	7,583.19	3,344.24	-415.20	40.011846	-104.932055	1,247,671.55	3,159,083.31
10,950.00	89.85	0.41	7,582.64	3,515.22	-412.73	40.012316	-104.932046	1,247,842.54	3,159,084.69
11,121.00	89.72	359.96	7,583.28	3,686.22	-412.17	40.012785	-104.932044	1,248,013.53	3,159,084.15
11,292.00	90.25	359.39	7,583.32	3,857.21	-413.14	40.013254	-104.932047	1,248,184.51	3,159,082.08
11,463.00	90.52	359.23	7,582.17	4,028.20	-415.20	40.013724	-104.932055	1,248,355.47	3,159,078.92
11,633.00	90.37	358.90	7,580.85	4,198.17	-417.98	40.014190	-104.932064	1,248,525.42	3,159,075.06
11,804.00	90.28	359.37	7,579.88	4,369.15	-420.56	40.014660	-104.932074	1,248,696.37	3,159,071.38
11,975.00	89.78	358.51	7,579.79	4,540.12	-423.72	40.015129	-104.932085	1,248,867.31	3,159,067.12
12,146.00	90.43	358.77	7,579.48	4,711.07	-427.78	40.015598	-104.932100	1,249,038.22	3,159,061.96
12,317.00	89.48	1.26	7,579.61	4,882.05	-427.73	40.016068	-104.932099	1,249,209.20	3,159,060.91
12,485.00	89.94	0.54	7,580.46	5,050.03	-425.10	40.016529	-104.932090	1,249,377.18	3,159,062.47
12,654.00	90.80	0.95	7,579.37	5,219.01	-422.90	40.016993	-104.932082	1,249,546.17	3,159,063.58
12,825.00	89.57	1.09	7,578.82	5,389.98	-419.85	40.017462	-104.932071	1,249,717.15	3,159,065.52
12,997.00	90.28	0.19	7,579.05	5,561.96	-417.93	40.017934	-104.932064	1,249,889.13	3,159,066.34
13,168.00	90.89	359.85	7,577.30	5,732.95	-417.87	40.018404	-104.932064	1,250,060.12	3,159,065.30
13,339.00	89.51	0.31	7,576.70	5,903.95	-417.64	40.018873	-104.932063	1,250,231.10	3,159,064.44
13,510.00	90.55	359.97	7,576.61	6,074.94	-417.22	40.019342	-104.932062	1,250,402.09	3,159,063.76
13,682.00	89.85	359.57	7,576.01	6,246.94	-417.91	40.019814	-104.932064	1,250,574.07	3,159,061.97
13,854.00	88.64	359.15	7,578.28	6,418.91	-419.83	40.020287	-104.932071	1,250,746.02	3,159,058.94
14,025.00	89.48	0.21	7,581.09	6,589.88	-420.78	40.020756	-104.932075	1,250,916.98	3,159,056.89
14,111.00	90.31	359.42	7,581.24	6,675.88	-421.06	40.020992	-104.932076	1,251,002.97	3,159,056.06
14,281.00	91.85	359.56	7,578.04	6,845.84	-422.57	40.021458	-104.932081	1,251,172.91	3,159,053.46
14,452.00	89.23	359.46	7,576.43	7,016.81	-424.04	40.021928	-104.932086	1,251,343.86	3,159,050.90
14,623.00	90.12	1.03	7,577.40	7,187.80	-423.30	40.022397	-104.932084	1,251,514.85	3,159,050.53
14,794.00	90.65	0.38	7,576.25	7,358.78	-421.20	40.022867	-104.932076	1,251,685.83	3,159,051.54
14,965.00	90.03	0.29	7,575.23	7,529.77	-420.20	40.023336	-104.932073	1,251,856.82	3,159,051.44
15,136.00	90.31	359.77	7,574.73	7,700.77	-420.11	40.023805	-104.932072	1,252,027.81	3,159,050.43
15,307.00	90.86	0.84	7,572.98	7,871.75	-419.20	40.024275	-104.932069	1,252,198.79	3,159,050.24
15,478.00	89.94	0.86	7,571.79	8,042.73	-416.66	40.024744	-104.932060	1,252,369.78	3,159,051.68
15,648.00	89.97	0.34	7,571.92	8,212.72	-414.88	40.025211	-104.932054	1,252,539.77	3,159,052.37
15,819.00	90.95	358.74	7,570.55	8,383.70	-416.26	40.025680	-104.932059	1,252,710.73	3,159,049.90
15,990.00	90.18	358.73	7,568.86	8,554.65	-420.03	40.026149	-104.932072	1,252,881.65	3,159,045.03
16,162.00	89.84	1.30	7,568.83	8,726.64	-419.99	40.026621	-104.932072	1,253,053.62	3,159,043.97
16,333.00	89.69	0.83	7,569.53	8,897.60	-416.81	40.027091	-104.932061	1,253,224.60	3,159,046.05
16,504.00	90.83	1.78	7,568.76	9,068.55	-412.91	40.027560	-104.932047	1,253,395.57	3,159,048.84

**Design Report for SACK 28N-30HZ - Actual Field Surveys**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
16,674.00	91.39	1.56	7,565.46	9,238.45	-407.96	40.028026	-104.932029	1,253,565.48	3,159,052.71
16,846.00	90.59	359.72	7,562.49	9,410.40	-406.04	40.028498	-104.932022	1,253,737.44	3,159,053.52
17,017.00	89.94	0.35	7,561.70	9,581.40	-405.94	40.028968	-104.932022	1,253,908.43	3,159,052.53
17,100.00	90.55	0.61	7,561.34	9,664.39	-405.24	40.029196	-104.932019	1,253,991.43	3,159,052.69
17,143.00	90.55	0.61	7,560.93	9,707.39	-404.78	40.029314	-104.932018	1,254,034.42	3,159,052.87

**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,261.00	1,260.98	0.47	0.98	Tie-On to Gyro Surveys @ 1261.00ft
1,386.00	1,385.98	0.43	1.18	First MWD Survey @ 1386.00ft
17,100.00	7,561.34	9,664.39	-405.24	Final MWD Survey @ 17100.00' MD :: 7561.34' TVD
17,143.00	7,560.93	9,707.39	-404.78	Straight Line Projection to Bit @ 17143.00' MD :: 7560.93' TVD
17,143.00	7,560.93	9,707.39	-404.78	Current MWD Survey @ 7586' MD :: 7504.22' TVD

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	0.00	Slot	0.00	0.00	0.00

**Survey tool program**

From (usft)	To (usft)	Survey/Plan	Survey Tool
16.00	1,261.00	MS Energy Gyro Surveys	NS-GYRO-MS
1,386.00	7,886.00	MWD Vertical/Build Surveys	MWD+IFR1
7,907.00	17,143.00	MWD Lateral Surveys	MWD+IFR1+SC

**Design Report for SACK 28N-30HZ - Actual Field Surveys**

**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,321.30	1,321.28	9 5/8" Casing Set @ 1321.3' MD :: 1321.28' TVD	9-5/8	13-1/2
7,945.30	7,624.57	7" Casing Set @ 7945.3' MD :: 7625.14' TVD	7	8-3/4

**Design Targets**

Shape	Target Name	TVD (')	Northing (')	Easting (')	+N/-S	+E/-W	Created	Updated
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**Directional Difficulty Index**

Average Dogleg over Survey:	1.06 °/100usft	Maximum Dogleg over Survey:	17.06 °/100usft at 7,907.00 usft
Net Tortosity applicable to Plans:	0.40 °/100usft	Directional Difficulty Index:	6.619

**Audit Info**

**North Reference Sheet for Sec. 31-T1N-R67W - SACK 28N-30HZ - Plan B**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference .  
 Vertical Depths are relative to RKB = 16' @ 5056.00usft (Xtreme 22). Northing and Easting are relative to SACK 28N-30HZ  
 Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980  
 Projection method is Lambert Conformal Conic (2 parallel)  
 Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°  
 False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996617

Grid Coordinates of Well: 1,244,330.16 usft N, 3,159,519.97 usft E  
 Geographical Coordinates of Well: 40° 00' 09.60" N, 104° 55' 50.06" W  
 Grid Convergence at Surface is: 0.37°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,143.00usft  
 the Bottom Hole Displacement is 9,715.83usft in the Direction of 357.61° ( True).  
 Magnetic Convergence at surface is: -8.21° (18 September 2014, , BGGM2014)

