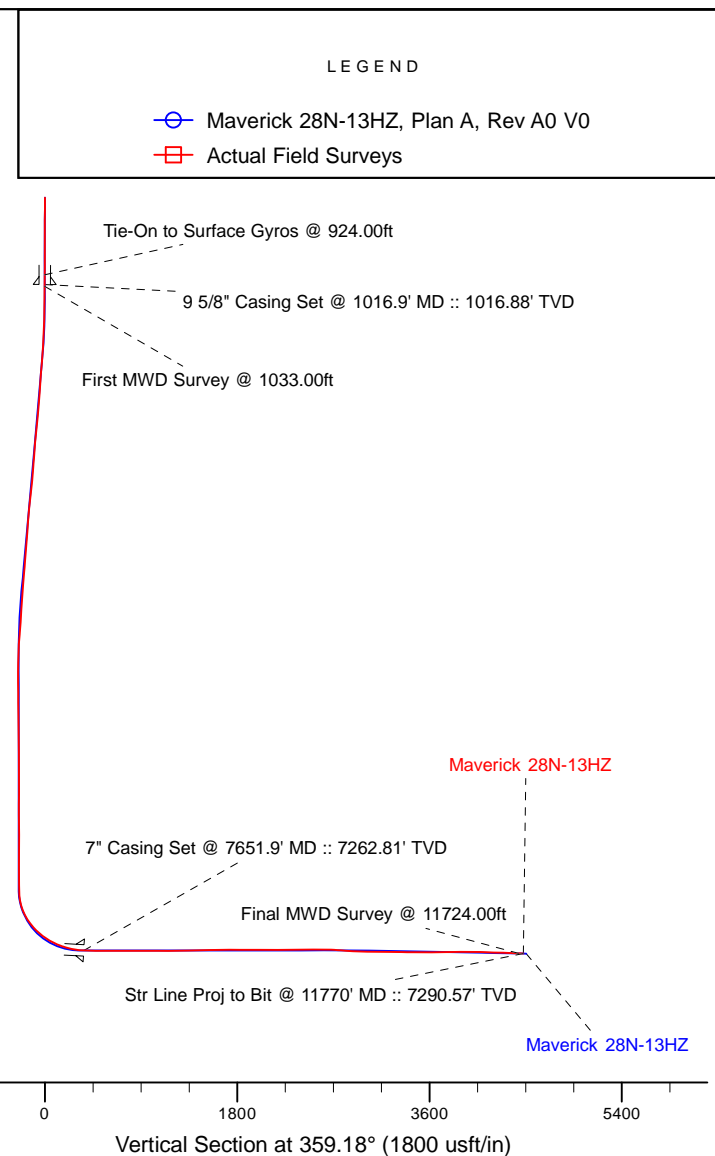
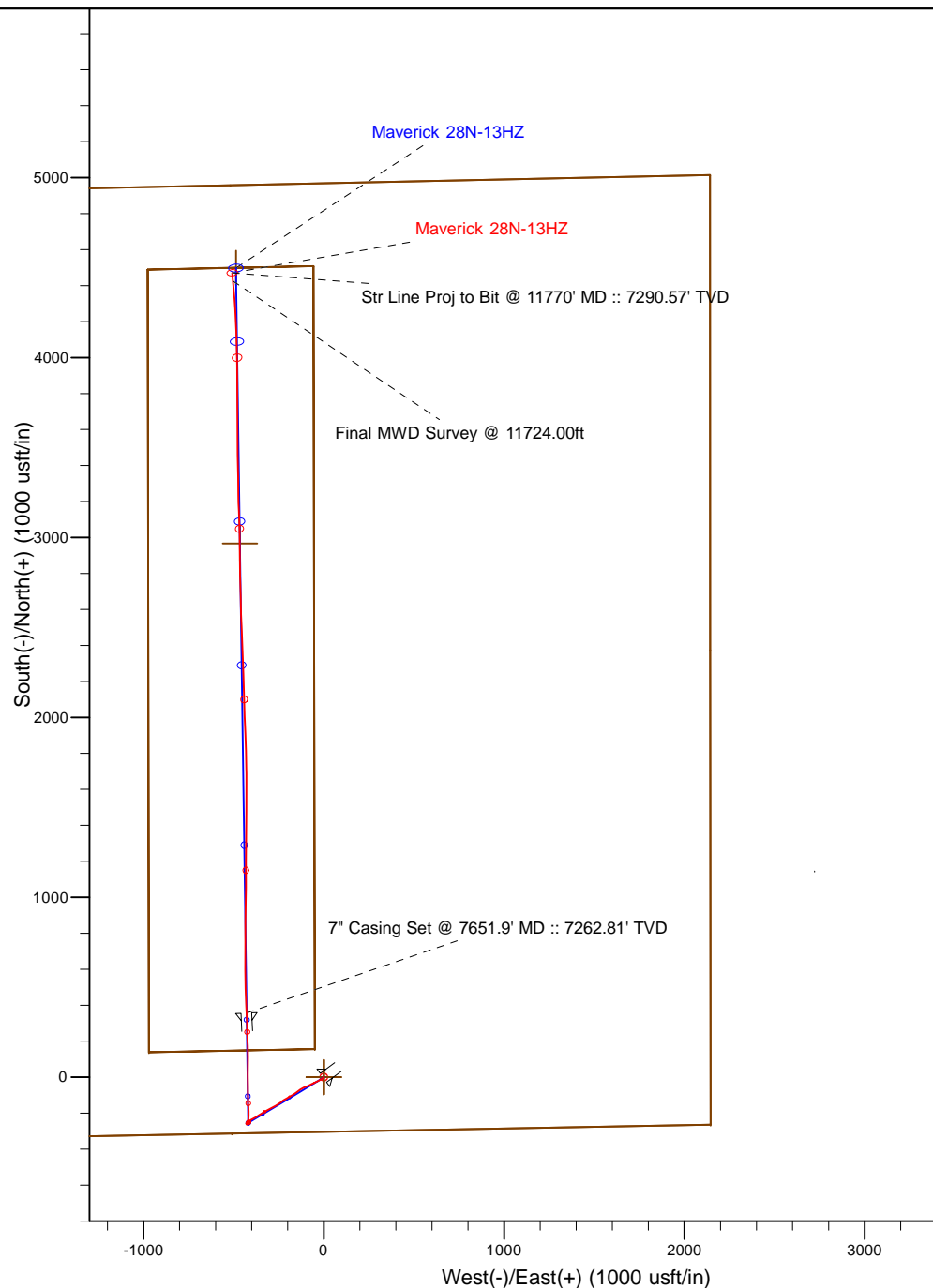


Project: Weld County, CO (NAD 83)  
 Site: Sec. 13-T3N-R66W  
 Well: Maverick 28N-13HZ  
 Wellbore: Plan A  
 Design: Actual Field Surveys



7" Casing: ~667.31' FSL, ~2572.75' FEL  
 Lat/Long: 40.219872 N, -104.724966 E  
 State Planes - CO Northern: 1,323,887.46' N, 3,216,425.70' E  
 Location: Sec. 13-T3N-R66W

BHL: ~486.94' FNL, ~2650.16' FEL  
 Lat/Long: 40.231169 N, -104.725250 E  
 State Planes - CO Northern: 1,328,001.58' N, 3,216,310.65' E  
 Location: Sec. 13-T3N-R66W

WELL DETAILS: Maverick 28N-13HZ	
Ground Level:	5059.00
RKB=13' @ 5072.00usft	
Design: Actual Field Surveys (Maverick 28N-13HZ/Plan A)	
Created By: Clint Eshelman	Date: 5/19/2014
Reviewed: _____	Date: _____

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 13-T3N-R66W

Maverick 28N-13HZ

API # 05-123-36556

Plan A

Design: Actual Field Surveys

## Sperry Drilling Services

### Standard Report

19 May, 2014

Surface UWI : API # 05-123-36556

Well Coordinates: 1,323,534.40 N, 3,216,856.96 E (40° 13' 08.01" N, 104° 43' 24.36" W)

Ground Level: 5,059.00 usft

Local Coordinate Origin:

Centered on Well Maverick 28N-13HZ

Viewing Datum:

RKB=13' @ 5072.00usft

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 Maverick 28N-13HZ - 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
13.00	0.00	0.00	13.00	0.00	0.00	0.00	0.00
113.00	0.16	56.63	113.00	0.08	0.12	0.08	0.16
213.00	0.57	166.54	213.00	-0.33	0.35	-0.34	0.64
313.00	0.40	199.14	312.99	-1.14	0.35	-1.15	0.32
413.00	0.37	252.84	412.99	-1.57	-0.07	-1.57	0.35
513.00	0.50	190.54	512.99	-2.09	-0.46	-2.09	0.46
613.00	0.24	10.84	612.99	-2.32	-0.50	-2.31	0.74
713.00	0.42	241.82	712.99	-2.28	-0.79	-2.27	0.60
813.00	0.49	224.96	812.99	-2.76	-1.41	-2.74	0.15
913.00	0.38	260.06	912.98	-3.12	-2.04	-3.09	0.28
924.00	0.35	61.76	923.98	-3.11	-2.05	-3.08	6.55
<b>Tie-On to Surface Gyros @ 924.00ft</b>							
1,016.90	0.08	233.13	1,016.88	-3.01	-1.85	-2.99	0.46
<b>9 5/8" Casing Set @ 1016.9' MD :: 1016.88' TVD</b>							
1,033.00	0.15	236.61	1,032.98	-3.03	-1.87	-3.00	0.46
<b>First MWD Survey @ 1033.00ft</b>							
1,096.00	0.28	221.63	1,095.98	-3.19	-2.04	-3.16	0.22
1,190.00	0.62	223.03	1,189.98	-3.73	-2.54	-3.70	0.36
1,284.00	2.54	240.46	1,283.94	-5.13	-4.70	-5.07	2.08
1,379.00	4.45	236.09	1,378.76	-8.23	-9.59	-8.09	2.03
1,473.00	6.20	236.37	1,472.35	-13.07	-16.85	-12.83	1.86
1,567.00	7.69	243.39	1,565.66	-18.70	-26.70	-18.32	1.82
1,661.00	9.50	244.41	1,658.60	-24.87	-39.32	-24.31	1.93
1,755.00	9.85	244.72	1,751.26	-31.65	-53.58	-30.88	0.38
1,849.00	9.76	244.58	1,843.89	-38.51	-68.05	-37.53	0.10
1,943.00	9.86	245.81	1,936.51	-45.23	-82.59	-44.04	0.25
2,038.00	10.32	245.47	2,030.04	-52.09	-97.75	-50.69	0.49
2,132.00	9.90	247.87	2,122.59	-58.63	-112.89	-57.01	0.63
2,226.00	10.42	237.12	2,215.12	-66.29	-127.52	-64.46	2.09
2,320.00	10.11	232.23	2,307.62	-75.96	-141.18	-73.93	0.98
2,415.00	9.58	230.64	2,401.22	-86.08	-153.88	-83.87	0.63
2,509.00	8.26	241.70	2,494.09	-94.24	-165.88	-91.86	2.30
2,603.00	9.22	238.02	2,586.99	-101.43	-178.21	-98.87	1.18
2,697.00	7.73	239.00	2,679.96	-108.68	-190.02	-105.95	1.59
2,792.00	9.43	239.65	2,773.90	-115.90	-202.21	-112.99	1.79
2,888.00	11.74	239.71	2,868.26	-124.80	-217.43	-121.68	2.41
2,983.00	10.77	232.34	2,961.43	-135.10	-232.81	-131.75	1.82
3,078.00	9.60	232.56	3,054.94	-145.34	-246.12	-141.80	1.23
3,173.00	10.14	240.73	3,148.53	-154.24	-259.71	-150.51	1.58
3,268.00	9.53	240.80	3,242.14	-162.17	-273.87	-158.23	0.64
3,363.00	9.34	241.97	3,335.85	-169.63	-287.54	-165.50	0.28
3,458.00	9.55	242.62	3,429.56	-176.88	-301.34	-172.55	0.25
3,553.00	9.39	239.84	3,523.27	-184.39	-315.04	-179.87	0.51
3,648.00	8.41	240.37	3,617.13	-191.72	-327.78	-187.01	1.04
3,743.00	10.14	237.44	3,710.88	-199.66	-340.87	-194.76	1.89
3,870.00	9.11	238.11	3,836.09	-210.99	-358.83	-205.83	0.82
3,934.00	8.22	240.16	3,899.36	-215.94	-367.10	-210.66	1.47
4,029.00	6.86	240.27	3,993.54	-222.13	-377.92	-216.70	1.43
4,124.00	8.11	240.26	4,087.72	-228.27	-388.66	-222.69	1.32

**Design Report for Maverick 28N-13HZ - Actual Field Surveys**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,219.00	8.71	239.40	4,181.70	-235.26	-400.67	-229.50	0.65
4,314.00	8.46	236.69	4,275.64	-242.76	-412.70	-236.82	0.50
4,409.00	5.05	219.45	4,369.97	-249.83	-421.20	-243.77	4.14
4,504.00	1.81	188.62	4,464.80	-254.54	-424.09	-248.44	3.81
4,599.00	1.06	128.68	4,559.77	-256.57	-423.62	-250.48	1.66
4,694.00	1.08	125.45	4,654.76	-257.64	-422.21	-251.57	0.07
4,789.00	1.19	79.49	4,749.74	-257.98	-420.51	-251.93	0.94
4,885.00	0.61	8.98	4,845.73	-257.29	-419.45	-251.26	1.19
4,980.00	0.60	345.56	4,940.72	-256.31	-419.49	-250.28	0.26
5,075.00	0.93	14.66	5,035.72	-255.08	-419.42	-249.06	0.53
5,170.00	1.48	57.23	5,130.70	-253.67	-418.20	-247.66	1.07
5,265.00	0.15	242.54	5,225.69	-253.07	-417.28	-247.07	1.72
5,360.00	0.29	234.27	5,320.69	-253.26	-417.58	-247.26	0.15
5,455.00	0.53	342.78	5,415.68	-252.99	-417.91	-246.98	0.72
5,550.00	0.88	358.05	5,510.68	-251.84	-418.06	-245.83	0.41
5,644.00	1.51	350.93	5,604.66	-249.89	-418.28	-243.88	0.69
5,740.00	0.88	147.00	5,700.65	-249.26	-418.08	-243.25	2.44
5,835.00	0.39	142.82	5,795.64	-250.13	-417.49	-244.13	0.52
5,930.00	0.26	108.35	5,890.64	-250.46	-417.09	-244.46	0.24
6,025.00	0.13	35.45	5,985.64	-250.44	-416.82	-244.45	0.27
6,120.00	0.30	16.02	6,080.64	-250.11	-416.69	-244.12	0.19
6,215.00	0.32	89.23	6,175.64	-249.87	-416.35	-243.88	0.39
6,310.00	0.16	80.37	6,270.64	-249.84	-415.96	-243.86	0.17
6,405.00	0.06	42.53	6,365.64	-249.78	-415.79	-243.81	0.12
6,500.00	0.33	297.71	6,460.64	-249.62	-416.00	-243.64	0.37
6,595.00	0.39	289.86	6,555.63	-249.38	-416.55	-243.39	0.08
6,690.00	0.37	297.59	6,650.63	-249.13	-417.12	-243.13	0.06
6,738.00	1.49	343.48	6,698.62	-248.46	-417.44	-242.46	2.63
6,785.00	5.00	357.12	6,745.54	-245.83	-417.72	-239.82	7.59
6,833.00	10.29	359.77	6,793.10	-239.45	-417.84	-233.44	11.04
6,880.00	14.62	2.86	6,838.98	-229.32	-417.56	-223.32	9.32
6,928.00	21.15	1.72	6,884.64	-214.60	-417.00	-208.61	13.62
6,976.00	27.35	359.80	6,928.38	-194.90	-416.77	-188.91	13.02
7,024.00	32.21	357.26	6,970.03	-171.08	-417.42	-165.09	10.46
7,071.00	36.30	357.28	7,008.87	-144.66	-418.68	-138.65	8.70
7,119.00	40.65	358.91	7,046.44	-114.82	-419.66	-108.80	9.30
7,166.00	45.98	358.72	7,080.63	-82.59	-420.33	-76.57	11.34
7,214.00	50.98	359.32	7,112.44	-46.67	-420.93	-40.64	10.46
7,261.00	54.94	359.61	7,140.74	-9.17	-421.28	-3.14	8.44
7,309.00	59.69	1.17	7,166.66	31.22	-420.99	37.24	10.27
7,356.00	63.33	0.78	7,189.07	72.51	-420.29	78.52	7.78
7,404.00	67.54	359.67	7,209.02	116.16	-420.13	122.16	9.02
7,451.00	71.80	358.68	7,225.35	160.22	-420.77	166.22	9.28
7,499.00	75.31	357.70	7,238.93	206.22	-422.22	212.24	7.57
7,546.00	78.27	357.90	7,249.67	251.94	-423.98	257.98	6.31
7,619.00	84.81	357.68	7,260.41	324.05	-426.76	330.13	8.96
7,651.90	86.83	357.40	7,262.81	356.83	-428.17	362.92	6.19
<b>7" Casing Set @ 7651.9' MD :: 7262.81' TVD</b>							
7,685.00	88.86	357.12	7,264.05	389.87	-429.75	395.98	6.19
7,780.00	89.82	358.23	7,265.15	484.78	-433.61	490.94	1.54
7,875.00	89.60	0.50	7,265.63	579.77	-434.66	585.93	2.40

**Design Report for Maverick 28N-13HZ - Actual Field Surveys**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
7,970.00	90.00	359.88	7,265.96	674.77	-434.34	680.91	0.78
8,065.00	89.91	359.20	7,266.03	769.76	-435.11	775.91	0.72
8,160.00	90.40	1.89	7,265.78	864.75	-434.20	870.87	2.88
8,255.00	89.51	0.09	7,265.85	959.73	-432.56	965.82	2.11
8,350.00	90.80	0.85	7,265.59	1,054.72	-431.78	1,060.80	1.58
8,446.00	89.35	359.00	7,265.47	1,150.72	-431.91	1,156.78	2.45
8,541.00	90.99	0.92	7,265.19	1,245.71	-431.97	1,251.76	2.66
8,636.00	91.67	0.84	7,262.98	1,340.67	-430.52	1,346.70	0.72
8,731.00	91.85	0.37	7,260.06	1,435.62	-429.51	1,441.62	0.53
8,826.00	90.83	0.54	7,257.84	1,530.59	-428.76	1,536.57	1.09
8,921.00	91.11	0.20	7,256.23	1,625.58	-428.15	1,631.54	0.46
9,016.00	89.23	358.61	7,255.95	1,720.56	-429.13	1,726.53	2.59
9,111.00	89.45	358.48	7,257.05	1,815.53	-431.54	1,821.52	0.27
9,207.00	89.91	357.56	7,257.58	1,911.47	-434.86	1,917.49	1.07
9,301.00	90.09	357.82	7,257.58	2,005.39	-438.65	2,011.46	0.34
9,396.00	90.18	358.73	7,257.36	2,100.34	-441.51	2,106.45	0.96
9,491.00	90.40	357.88	7,256.88	2,195.30	-444.32	2,201.43	0.92
9,586.00	90.37	358.49	7,256.24	2,290.25	-447.33	2,296.42	0.64
9,681.00	90.62	357.40	7,255.42	2,385.18	-450.73	2,391.39	1.18
9,776.00	90.37	357.57	7,254.60	2,480.09	-454.90	2,486.35	0.32
9,871.00	90.37	358.46	7,253.98	2,575.03	-458.19	2,581.32	0.94
9,966.00	87.78	358.25	7,255.52	2,669.97	-460.92	2,676.29	2.74
10,061.00	85.21	358.73	7,261.32	2,764.75	-463.42	2,771.10	2.75
10,156.00	86.39	359.56	7,268.28	2,859.48	-464.83	2,865.84	1.52
10,251.00	88.18	359.47	7,272.78	2,954.37	-465.64	2,960.73	1.89
10,346.00	89.82	358.56	7,274.44	3,049.34	-467.27	3,055.71	1.97
10,442.00	89.29	357.55	7,275.19	3,145.28	-470.53	3,151.69	1.19
10,537.00	89.44	359.23	7,276.24	3,240.23	-473.20	3,246.67	1.78
10,632.00	88.92	358.96	7,277.60	3,335.21	-474.70	3,341.66	0.62
10,727.00	90.12	359.56	7,278.39	3,430.19	-475.92	3,436.65	1.41
10,822.00	90.18	359.10	7,278.14	3,525.19	-477.03	3,531.65	0.49
10,917.00	89.57	358.70	7,278.35	3,620.17	-478.86	3,626.65	0.77
11,012.00	90.22	359.64	7,278.53	3,715.16	-480.23	3,721.65	1.20
11,107.00	91.17	0.61	7,277.37	3,810.15	-480.03	3,816.63	1.43
11,202.00	91.63	0.02	7,275.05	3,905.12	-479.50	3,911.58	0.79
11,297.00	88.09	358.71	7,275.28	4,000.09	-480.56	4,006.56	3.97
11,392.00	87.50	358.18	7,278.94	4,094.99	-483.13	4,101.48	0.83
11,488.00	89.11	356.85	7,281.78	4,190.85	-487.29	4,197.39	2.17
11,583.00	88.52	356.61	7,283.74	4,285.67	-492.71	4,292.29	0.67
11,678.00	87.87	355.41	7,286.74	4,380.39	-499.32	4,387.09	1.44
11,724.00	87.53	354.98	7,288.58	4,426.20	-503.17	4,432.94	1.19
<b>Final MWD Survey @ 11724.00ft</b>							
11,770.00	87.53	354.98	7,290.57	4,471.98	-507.19	4,478.78	0.00
<b>Str Line Proj to Bit @ 11770' MD :: 7290.57' TVD</b>							

## Design Report for Maverick 28N-13HZ - Actual Field Surveys

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
924.00	923.98	-3.11	-2.05	Tie-On to Surface Gyros @ 924.00ft
1,033.00	1,032.98	-3.03	-1.87	First MWD Survey @ 1033.00ft
11,724.00	7,288.58	4,426.20	-503.17	Final MWD Survey @ 11724.00ft
11,770.00	7,290.57	4,471.98	-507.19	Str Line Proj to Bit @ 11770' MD :: 7290.57' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	359.18	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
13.00	924.00	MS Energy Gyros	NS-GYRO-MS
1,033.00	7,685.00	MWD Vertical/Build Surveys	MWD+IFR1+SC
7,780.00	11,724.00	MWD Lateral Surveys	MWD+IFR1+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,016.90	1,016.88	9 5/8" Casing Set @ 1016.9' MD :: 1016.88' TVD	9-5/8	13-1/2
7,651.90	7,262.81	7" Casing Set @ 7651.9' MD :: 7262.81' TVD	7	8-3/4

## Design Report for Maverick 28N-13HZ - 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
Maverick 28N-13HZ_S	0.00	0.00	0.00	0.00	0.00	1,323,534.40	3,216,856.96	40.218893	-104.723433
- actual wellpath hits target center									
- Polygon									
Point 1				0.00	4,902.80	-3,178.16	1,328,408.97	3,213,636.12	
Point 2				0.00	4,958.83	-517.63	1,328,488.30	3,216,295.95	
Point 3				0.00	5,014.87	2,142.92	1,328,567.63	3,218,955.79	
Point 4				0.00	2,375.71	2,143.71	1,325,928.69	3,218,979.69	
Point 5				0.00	-263.83	2,145.00	1,323,289.38	3,219,004.09	
Point 6				0.00	-312.08	-508.59	1,323,217.90	3,216,351.14	
Point 7				0.00	-360.33	-3,162.17	1,323,146.41	3,213,698.20	
Point 8				0.00	2,264.38	-3,173.34	1,325,770.81	3,213,664.05	
Maverick 28N-13HZ_S	0.00	0.00	0.00	0.00	0.00	1,323,534.40	3,216,856.96	40.218893	-104.723433
- actual wellpath hits target center									
- Point									
Maverick 28N-13HZ_L	0.00	0.00	0.00	0.00	0.00	1,323,534.40	3,216,856.96	40.218893	-104.723433
- actual wellpath hits target center									
- Polygon									
Point 1				0.00	4,489.03	-976.84	1,328,014.52	3,215,840.89	
Point 2				0.00	4,508.41	-56.83	1,328,041.95	3,216,760.65	
Point 3				0.00	156.37	-49.37	1,323,690.33	3,216,806.22	
Point 4				0.00	139.64	-969.39	1,323,665.54	3,215,886.43	
Maverick 28N-13HZ_T	0.00	0.00	7,262.00	2,967.20	-464.94	1,326,497.29	3,216,366.07	40.227038	-104.725098
- actual wellpath misses target center by 11.19usft at 10263.63usft MD (7273.16 TVD, 2966.99 N, -465.77 E)									
- Point									
Maverick 28N-13HZ BI	0.00	0.00	7,292.00	4,498.00	-486.97	1,328,027.77	3,216,330.64	40.231240	-104.725177
- actual wellpath misses target center by 32.99usft at 11770.00usft MD (7290.57 TVD, 4471.98 N, -507.19 E)									
- Point									

**Directional Difficulty Index**

Average Dogleg over Survey:	1.79 °/100usft	Maximum Dogleg over Survey:	13.62 °/100usft at 6,928.00 usft
Net Tortousity applicable to Plans:	0.44 °/100usft	Directional Difficulty Index:	6.251

**Audit Info**

North Reference Sheet for Sec. 13-T3N-R66W - Maverick 28N-13HZ - Plan A

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

Vertical Depths are relative to RKB=13' @ 5072.00usft. Northing and Easting are relative to Maverick 28N-13HZ

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: 0.99995700

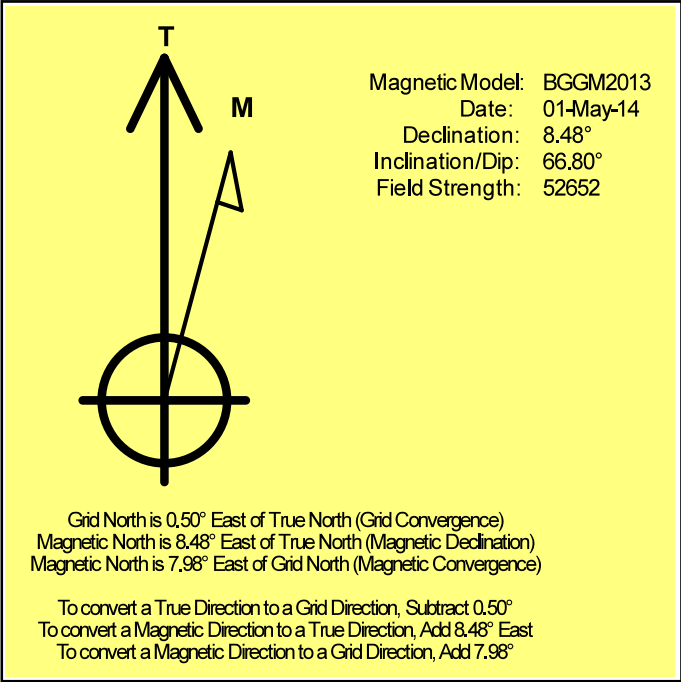
Grid Coordinates of Well: 1,323,534.40 usft N, 3,216,856.96 usft E

Geographical Coordinates of Well: 40° 13' 08.01" N, 104° 43' 24.36" W

Grid Convergence at Surface is: 0.50°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,770.00usft the Bottom Hole Displacement is 4,500.65usft in the Direction of 353.53° ( True).

Magnetic Convergence at surface is: -7.98° ( 1 May 2014, , BGGM2013)





# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 13-T3N-R66W

Maverick 28N-13HZ

API # 05-123-36556

Plan A

Design: Actual Field Surveys

## Sperry Drilling Services

### Geodetic Report

19 May, 2014

Well Coordinates: 1,323,534.40 N, 3,216,856.96 E (40° 13' 08.01" N, 104° 43' 24.36" W)

Ground Level: 5,059.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well Maverick 28N-13HZ

RKB=13' @ 5072.00usft

N

True

Dec-Deg - API - US Survey Feet - Custom

**HALLIBURTON**

## Design Report for Maverick 28N-13HZ - 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	40.218893	-104.723433	1,323,534.40	3,216,856.96
13.00	0.00	0.00	13.00	0.00	0.00	40.218893	-104.723433	1,323,534.40	3,216,856.96
113.00	0.16	56.63	113.00	0.08	0.12	40.218893	-104.723433	1,323,534.48	3,216,857.07
213.00	0.57	166.54	213.00	-0.33	0.35	40.218892	-104.723432	1,323,534.08	3,216,857.31
313.00	0.40	199.14	312.99	-1.14	0.35	40.218890	-104.723432	1,323,533.26	3,216,857.32
413.00	0.37	252.84	412.99	-1.57	-0.07	40.218889	-104.723434	1,323,532.84	3,216,856.90
513.00	0.50	190.54	512.99	-2.09	-0.46	40.218887	-104.723435	1,323,532.31	3,216,856.52
613.00	0.24	10.84	612.99	-2.32	-0.50	40.218887	-104.723435	1,323,532.08	3,216,856.48
713.00	0.42	241.82	712.99	-2.28	-0.79	40.218887	-104.723436	1,323,532.11	3,216,856.19
813.00	0.49	224.96	812.99	-2.76	-1.41	40.218885	-104.723438	1,323,531.63	3,216,855.57
913.00	0.38	260.06	912.98	-3.12	-2.04	40.218884	-104.723441	1,323,531.27	3,216,854.95
924.00	0.35	61.76	923.98	-3.11	-2.05	40.218884	-104.723441	1,323,531.28	3,216,854.94
1,016.90	0.08	233.13	1,016.88	-3.01	-1.85	40.218885	-104.723440	1,323,531.38	3,216,855.14
1,033.00	0.15	236.61	1,032.98	-3.03	-1.87	40.218885	-104.723440	1,323,531.36	3,216,855.11
1,096.00	0.28	221.63	1,095.98	-3.19	-2.04	40.218884	-104.723441	1,323,531.20	3,216,854.94
1,190.00	0.62	223.03	1,189.98	-3.73	-2.54	40.218883	-104.723442	1,323,530.65	3,216,854.45
1,284.00	2.54	240.46	1,283.94	-5.13	-4.70	40.218879	-104.723450	1,323,529.23	3,216,852.30
1,379.00	4.45	236.09	1,378.76	-8.23	-9.59	40.218870	-104.723468	1,323,526.09	3,216,847.44
1,473.00	6.20	236.37	1,472.35	-13.07	-16.85	40.218857	-104.723494	1,323,521.18	3,216,840.23
1,567.00	7.69	243.39	1,565.66	-18.70	-26.70	40.218842	-104.723529	1,323,515.47	3,216,830.43
1,661.00	9.50	244.41	1,658.60	-24.87	-39.32	40.218825	-104.723574	1,323,509.19	3,216,817.86
1,755.00	9.85	244.72	1,751.26	-31.65	-53.58	40.218806	-104.723625	1,323,502.28	3,216,803.66
1,849.00	9.76	244.58	1,843.89	-38.51	-68.05	40.218787	-104.723677	1,323,495.30	3,216,789.25
1,943.00	9.86	245.81	1,936.51	-45.23	-82.59	40.218769	-104.723729	1,323,488.46	3,216,774.78
2,038.00	10.32	245.47	2,030.04	-52.09	-97.75	40.218750	-104.723783	1,323,481.46	3,216,759.68
2,132.00	9.90	247.87	2,122.59	-58.63	-112.89	40.218732	-104.723838	1,323,474.79	3,216,744.59
2,226.00	10.42	237.12	2,215.12	-66.29	-127.52	40.218711	-104.723890	1,323,467.00	3,216,730.03
2,320.00	10.11	232.23	2,307.62	-75.96	-141.18	40.218684	-104.723939	1,323,457.22	3,216,716.46
2,415.00	9.58	230.64	2,401.22	-86.08	-153.88	40.218657	-104.723984	1,323,446.98	3,216,703.84
2,509.00	8.26	241.70	2,494.09	-94.24	-165.88	40.218634	-104.724027	1,323,438.72	3,216,691.92
2,603.00	9.22	238.02	2,586.99	-101.43	-178.21	40.218615	-104.724071	1,323,431.42	3,216,679.65
2,697.00	7.73	239.00	2,679.96	-108.68	-190.02	40.218595	-104.724114	1,323,424.07	3,216,667.91
2,792.00	9.43	239.65	2,773.90	-115.90	-202.21	40.218575	-104.724157	1,323,416.74	3,216,655.78
2,888.00	11.74	239.71	2,868.26	-124.80	-217.43	40.218550	-104.724212	1,323,407.71	3,216,640.64
2,983.00	10.77	232.34	2,961.43	-135.10	-232.81	40.218522	-104.724267	1,323,397.28	3,216,625.35
3,078.00	9.60	232.56	3,054.94	-145.34	-246.12	40.218494	-104.724315	1,323,386.92	3,216,612.13
3,173.00	10.14	240.73	3,148.53	-154.24	-259.71	40.218470	-104.724363	1,323,377.90	3,216,598.62
3,268.00	9.53	240.80	3,242.14	-162.17	-273.87	40.218448	-104.724414	1,323,369.85	3,216,584.53
3,363.00	9.34	241.97	3,335.85	-169.63	-287.54	40.218427	-104.724463	1,323,362.27	3,216,570.93
3,458.00	9.55	242.62	3,429.56	-176.88	-301.34	40.218407	-104.724512	1,323,354.90	3,216,557.19
3,553.00	9.39	239.84	3,523.27	-184.39	-315.04	40.218387	-104.724561	1,323,347.27	3,216,543.56
3,648.00	8.41	240.37	3,617.13	-191.72	-327.78	40.218367	-104.724607	1,323,339.83	3,216,530.89

## Design Report for Maverick 28N-13HZ - 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)
3,743.00	10.14	237.44	3,710.88	-199.66	-340.87	40.218345	-104.724654	1,323,331.78	3,216,517.87
3,870.00	9.11	238.11	3,836.09	-210.99	-358.83	40.218314	-104.724718	1,323,320.29	3,216,500.01
3,934.00	8.22	240.16	3,899.36	-215.94	-367.10	40.218300	-104.724748	1,323,315.27	3,216,491.78
4,029.00	6.86	240.27	3,993.54	-222.13	-377.92	40.218283	-104.724786	1,323,308.98	3,216,481.02
4,124.00	8.11	240.26	4,087.72	-228.27	-388.66	40.218266	-104.724825	1,323,302.75	3,216,470.33
4,219.00	8.71	239.40	4,181.70	-235.26	-400.67	40.218247	-104.724868	1,323,295.66	3,216,458.38
4,314.00	8.46	236.69	4,275.64	-242.76	-412.70	40.218227	-104.724911	1,323,288.05	3,216,446.42
4,409.00	5.05	219.45	4,369.97	-249.83	-421.20	40.218207	-104.724941	1,323,280.91	3,216,437.98
4,504.00	1.81	188.62	4,464.80	-254.54	-424.09	40.218194	-104.724952	1,323,276.17	3,216,435.14
4,599.00	1.06	128.68	4,559.77	-256.57	-423.62	40.218189	-104.724950	1,323,274.14	3,216,435.62
4,694.00	1.08	125.45	4,654.76	-257.64	-422.21	40.218186	-104.724945	1,323,273.09	3,216,437.04
4,789.00	1.19	79.49	4,749.74	-257.98	-420.51	40.218185	-104.724939	1,323,272.76	3,216,438.74
4,885.00	0.61	8.98	4,845.73	-257.29	-419.45	40.218187	-104.724935	1,323,273.46	3,216,439.80
4,980.00	0.60	345.56	4,940.72	-256.31	-419.49	40.218189	-104.724935	1,323,274.44	3,216,439.74
5,075.00	0.93	14.66	5,035.72	-255.08	-419.42	40.218193	-104.724935	1,323,275.67	3,216,439.80
5,170.00	1.48	57.23	5,130.70	-253.67	-418.20	40.218197	-104.724931	1,323,277.09	3,216,441.02
5,265.00	0.15	242.54	5,225.69	-253.07	-417.28	40.218198	-104.724927	1,323,277.70	3,216,441.93
5,360.00	0.29	234.27	5,320.69	-253.26	-417.58	40.218198	-104.724929	1,323,277.50	3,216,441.63
5,455.00	0.53	342.78	5,415.68	-252.99	-417.91	40.218199	-104.724930	1,323,277.78	3,216,441.30
5,550.00	0.88	358.05	5,510.68	-251.84	-418.06	40.218202	-104.724930	1,323,278.93	3,216,441.14
5,644.00	1.51	350.93	5,604.66	-249.89	-418.28	40.218207	-104.724931	1,323,280.87	3,216,440.90
5,740.00	0.88	147.00	5,700.65	-249.26	-418.08	40.218209	-104.724930	1,323,281.50	3,216,441.10
5,835.00	0.39	142.82	5,795.64	-250.13	-417.49	40.218206	-104.724928	1,323,280.64	3,216,441.70
5,930.00	0.26	108.35	5,890.64	-250.46	-417.09	40.218205	-104.724927	1,323,280.32	3,216,442.10
6,025.00	0.13	35.45	5,985.64	-250.44	-416.82	40.218206	-104.724926	1,323,280.34	3,216,442.37
6,120.00	0.30	16.02	6,080.64	-250.11	-416.69	40.218206	-104.724925	1,323,280.67	3,216,442.50
6,215.00	0.32	89.23	6,175.64	-249.87	-416.35	40.218207	-104.724924	1,323,280.91	3,216,442.83
6,310.00	0.16	80.37	6,270.64	-249.84	-415.96	40.218207	-104.724923	1,323,280.94	3,216,443.22
6,405.00	0.06	42.53	6,365.64	-249.78	-415.79	40.218207	-104.724922	1,323,281.00	3,216,443.39
6,500.00	0.33	297.71	6,460.64	-249.62	-416.00	40.218208	-104.724923	1,323,281.16	3,216,443.18
6,595.00	0.39	289.86	6,555.63	-249.38	-416.55	40.218208	-104.724925	1,323,281.40	3,216,442.63
6,690.00	0.37	297.59	6,650.63	-249.13	-417.12	40.218209	-104.724927	1,323,281.64	3,216,442.05
6,738.00	1.49	343.48	6,698.62	-248.46	-417.44	40.218211	-104.724928	1,323,282.31	3,216,441.73
6,785.00	5.00	357.12	6,745.54	-245.83	-417.72	40.218218	-104.724929	1,323,284.94	3,216,441.43
6,833.00	10.29	359.77	6,793.10	-239.45	-417.84	40.218236	-104.724929	1,323,291.32	3,216,441.25
6,880.00	14.62	2.86	6,838.98	-229.32	-417.56	40.218264	-104.724928	1,323,301.45	3,216,441.44
6,928.00	21.15	1.72	6,884.64	-214.60	-417.00	40.218304	-104.724926	1,323,316.17	3,216,441.88
6,976.00	27.35	359.80	6,928.38	-194.90	-416.77	40.218358	-104.724926	1,323,335.87	3,216,441.93
7,024.00	32.21	357.26	6,970.03	-171.08	-417.42	40.218423	-104.724928	1,323,359.69	3,216,441.07
7,071.00	36.30	357.28	7,008.87	-144.66	-418.68	40.218496	-104.724932	1,323,386.09	3,216,439.58
7,119.00	40.65	358.91	7,046.44	-114.82	-419.66	40.218578	-104.724936	1,323,415.92	3,216,438.34
7,166.00	45.98	358.72	7,080.63	-82.59	-420.33	40.218666	-104.724938	1,323,448.14	3,216,437.39

## Design Report for Maverick 28N-13HZ - 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)
7,214.00	50.98	359.32	7,112.44	-46.67	-420.93	40.218765	-104.724941	1,323,484.05	3,216,436.47
7,261.00	54.94	359.61	7,140.74	-9.17	-421.28	40.218868	-104.724942	1,323,521.55	3,216,435.79
7,309.00	59.69	1.17	7,166.66	31.22	-420.99	40.218979	-104.724941	1,323,561.93	3,216,435.73
7,356.00	63.33	0.78	7,189.07	72.51	-420.29	40.219092	-104.724938	1,323,603.23	3,216,436.07
7,404.00	67.54	359.67	7,209.02	116.16	-420.13	40.219212	-104.724938	1,323,646.87	3,216,435.85
7,451.00	71.80	358.68	7,225.35	160.22	-420.77	40.219333	-104.724940	1,323,690.92	3,216,434.82
7,499.00	75.31	357.70	7,238.93	206.22	-422.22	40.219459	-104.724945	1,323,736.91	3,216,432.96
7,546.00	78.27	357.90	7,249.67	251.94	-423.98	40.219585	-104.724951	1,323,782.61	3,216,430.81
7,619.00	84.81	357.68	7,260.41	324.05	-426.76	40.219783	-104.724961	1,323,854.69	3,216,427.39
7,651.90	86.83	357.40	7,262.81	356.83	-428.17	40.219872	-104.724966	1,323,887.46	3,216,425.70
7,685.00	88.86	357.12	7,264.05	389.87	-429.75	40.219963	-104.724972	1,323,920.48	3,216,423.83
7,780.00	89.82	358.23	7,265.15	484.78	-433.61	40.220224	-104.724986	1,324,015.35	3,216,419.14
7,875.00	89.60	0.50	7,265.63	579.77	-434.66	40.220484	-104.724990	1,324,110.32	3,216,417.26
7,970.00	90.00	359.88	7,265.96	674.77	-434.34	40.220745	-104.724989	1,324,205.31	3,216,416.74
8,065.00	89.91	359.20	7,266.03	769.76	-435.11	40.221006	-104.724991	1,324,300.29	3,216,415.15
8,160.00	90.40	1.89	7,265.78	864.75	-434.20	40.221267	-104.724988	1,324,395.28	3,216,415.22
8,255.00	89.51	0.09	7,265.85	959.73	-432.56	40.221527	-104.724982	1,324,490.27	3,216,416.03
8,350.00	90.80	0.85	7,265.59	1,054.72	-431.78	40.221788	-104.724979	1,324,585.26	3,216,415.98
8,446.00	89.35	359.00	7,265.47	1,150.72	-431.91	40.222052	-104.724980	1,324,681.25	3,216,415.01
8,541.00	90.99	0.92	7,265.19	1,245.71	-431.97	40.222312	-104.724980	1,324,776.23	3,216,414.11
8,636.00	91.67	0.84	7,262.98	1,340.67	-430.52	40.222573	-104.724975	1,324,871.20	3,216,414.74
8,731.00	91.85	0.37	7,260.06	1,435.62	-429.51	40.222834	-104.724971	1,324,966.15	3,216,414.91
8,826.00	90.83	0.54	7,257.84	1,530.59	-428.76	40.223094	-104.724969	1,325,061.12	3,216,414.83
8,921.00	91.11	0.20	7,256.23	1,625.58	-428.15	40.223355	-104.724966	1,325,156.10	3,216,414.61
9,016.00	89.23	358.61	7,255.95	1,720.56	-429.13	40.223616	-104.724970	1,325,251.07	3,216,412.79
9,111.00	89.45	358.48	7,257.05	1,815.53	-431.54	40.223877	-104.724979	1,325,346.00	3,216,409.55
9,207.00	89.91	357.56	7,257.58	1,911.47	-434.86	40.224140	-104.724991	1,325,441.91	3,216,405.39
9,301.00	90.09	357.82	7,257.58	2,005.39	-438.65	40.224398	-104.725004	1,325,535.79	3,216,400.78
9,396.00	90.18	358.73	7,257.36	2,100.34	-441.51	40.224658	-104.725014	1,325,630.71	3,216,397.09
9,491.00	90.40	357.88	7,256.88	2,195.30	-444.32	40.224919	-104.725024	1,325,725.64	3,216,393.45
9,586.00	90.37	358.49	7,256.24	2,290.25	-447.33	40.225180	-104.725035	1,325,820.55	3,216,389.61
9,681.00	90.62	357.40	7,255.42	2,385.18	-450.73	40.225440	-104.725047	1,325,915.45	3,216,385.37
9,776.00	90.37	357.57	7,254.60	2,480.09	-454.90	40.225701	-104.725062	1,326,010.31	3,216,380.37
9,871.00	90.37	358.46	7,253.98	2,575.03	-458.19	40.225961	-104.725074	1,326,105.21	3,216,376.25
9,966.00	87.78	358.25	7,255.52	2,669.97	-460.92	40.226222	-104.725084	1,326,200.12	3,216,372.70
10,061.00	85.21	358.73	7,261.32	2,764.75	-463.42	40.226482	-104.725093	1,326,294.87	3,216,369.37
10,156.00	86.39	359.56	7,268.28	2,859.48	-464.83	40.226742	-104.725098	1,326,389.58	3,216,367.12
10,251.00	88.18	359.47	7,272.78	2,954.37	-465.64	40.227003	-104.725101	1,326,484.46	3,216,365.49
10,346.00	89.82	358.56	7,274.44	3,049.34	-467.27	40.227263	-104.725107	1,326,579.40	3,216,363.03
10,442.00	89.29	357.55	7,275.19	3,145.28	-470.53	40.227527	-104.725118	1,326,675.30	3,216,358.93
10,537.00	89.44	359.23	7,276.24	3,240.23	-473.20	40.227787	-104.725128	1,326,770.23	3,216,355.43
10,632.00	88.92	358.96	7,277.60	3,335.21	-474.70	40.228048	-104.725133	1,326,865.18	3,216,353.10

## Design Report for Maverick 28N-13HZ - 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)
10,727.00	90.12	359.56	7,278.39	3,430.19	-475.92	40.228309	-104.725138	1,326,960.15	3,216,351.04
10,822.00	90.18	359.10	7,278.14	3,525.19	-477.03	40.228570	-104.725142	1,327,055.13	3,216,349.09
10,917.00	89.57	358.70	7,278.35	3,620.17	-478.86	40.228830	-104.725148	1,327,150.09	3,216,346.44
11,012.00	90.22	359.64	7,278.53	3,715.16	-480.23	40.229091	-104.725153	1,327,245.05	3,216,344.23
11,107.00	91.17	0.61	7,277.37	3,810.15	-480.03	40.229352	-104.725152	1,327,340.04	3,216,343.61
11,202.00	91.63	0.02	7,275.05	3,905.12	-479.50	40.229612	-104.725151	1,327,435.00	3,216,343.30
11,297.00	88.09	358.71	7,275.28	4,000.09	-480.56	40.229873	-104.725154	1,327,529.96	3,216,341.41
11,392.00	87.50	358.18	7,278.94	4,094.99	-483.13	40.230134	-104.725164	1,327,624.83	3,216,338.01
11,488.00	89.11	356.85	7,281.78	4,190.85	-487.29	40.230397	-104.725178	1,327,720.65	3,216,333.01
11,583.00	88.52	356.61	7,283.74	4,285.67	-492.71	40.230657	-104.725198	1,327,815.42	3,216,326.76
11,678.00	87.87	355.41	7,286.74	4,380.39	-499.32	40.230917	-104.725222	1,327,910.07	3,216,319.32
11,724.00	87.53	354.98	7,288.58	4,426.20	-503.17	40.231043	-104.725235	1,327,955.83	3,216,315.07
11,770.00	87.53	354.98	7,290.57	4,471.98	-507.19	40.231169	-104.725250	1,328,001.58	3,216,310.65

### Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
924.00	923.98	-3.11	-2.05	Tie-On to Surface Gyros @ 924.00ft
1,033.00	1,032.98	-3.03	-1.87	First MWD Survey @ 1033.00ft
11,724.00	7,288.58	4,426.20	-503.17	Final MWD Survey @ 11724.00ft
11,770.00	7,290.57	4,471.98	-507.19	Str Line Proj to Bit @ 11770' MD :: 7290.57' TVD

### Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	359.18	Slot	0.00	0.00	0.00

### Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
13.00	924.00	MS Energy Gyros	NS-GYRO-MS
1,033.00	7,685.00	MWD Vertical/Build Surveys	MWD+IFR1+SC
7,780.00	11,724.00	MWD Lateral Surveys	MWD+IFR1+SC

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Design Report for Maverick 28N-13HZ - Actual Field Surveys

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**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,016.90	1,016.88	9 5/8" Casing Set @ 1016.9' MD :: 1016.88' TVD	9-5/8	13-1/2
7,651.90	7,262.81	7" Casing Set @ 7651.9' MD :: 7262.81' 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:	1.79 °/100usft	Maximum Dogleg over Survey:	13.62 °/100usft at 6,928.00 usft
Net Tortousity applicable to Plans:	0.44 °/100usft	Directional Difficulty Index:	6.251

**Audit Info**

**North Reference Sheet for Sec. 13-T3N-R66W - Maverick 28N-13HZ - Plan A**

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

Vertical Depths are relative to RKB=13' @ 5072.00usft. Northing and Easting are relative to Maverick 28N-13HZ

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: 0.99995700

Grid Coordinates of Well: 1,323,534.40 usft N, 3,216,856.96 usft E

Geographical Coordinates of Well: 40° 13' 08.01" N, 104° 43' 24.36" W

Grid Convergence at Surface is: 0.50°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,770.00usft

the Bottom Hole Displacement is 4,500.65usft in the Direction of 353.53° ( True).

Magnetic Convergence at surface is: -7.98° ( 1 May 2014, , BGGM2013)

