

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 13-T3N-R66W

Maverick 27N-13HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

## Sperry Drilling Services

# Proposal Report

24 September, 2012

Well Coordinates: 1,323,546.36 N, 3,217,386.06 E (40° 13' 08.09" N, 104° 43' 17.54" W)

Ground Level: 5,047.00 ft

Local Coordinate Origin: Centered on Well Maverick 27N-13HZ

Viewing Datum: RKB=17 @ 5064.00ft (Drilling Rig)

TVDs to System: N

North Reference: True

Unit System: API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
 Site: Sec. 13-T3N-R66W  
 Well: Maverick 27N-13HZ  
 Wellbore: Plan A Rev 0  
 Design: Plan A Rev 0 Permit

# Anadarko Petroleum Corp.



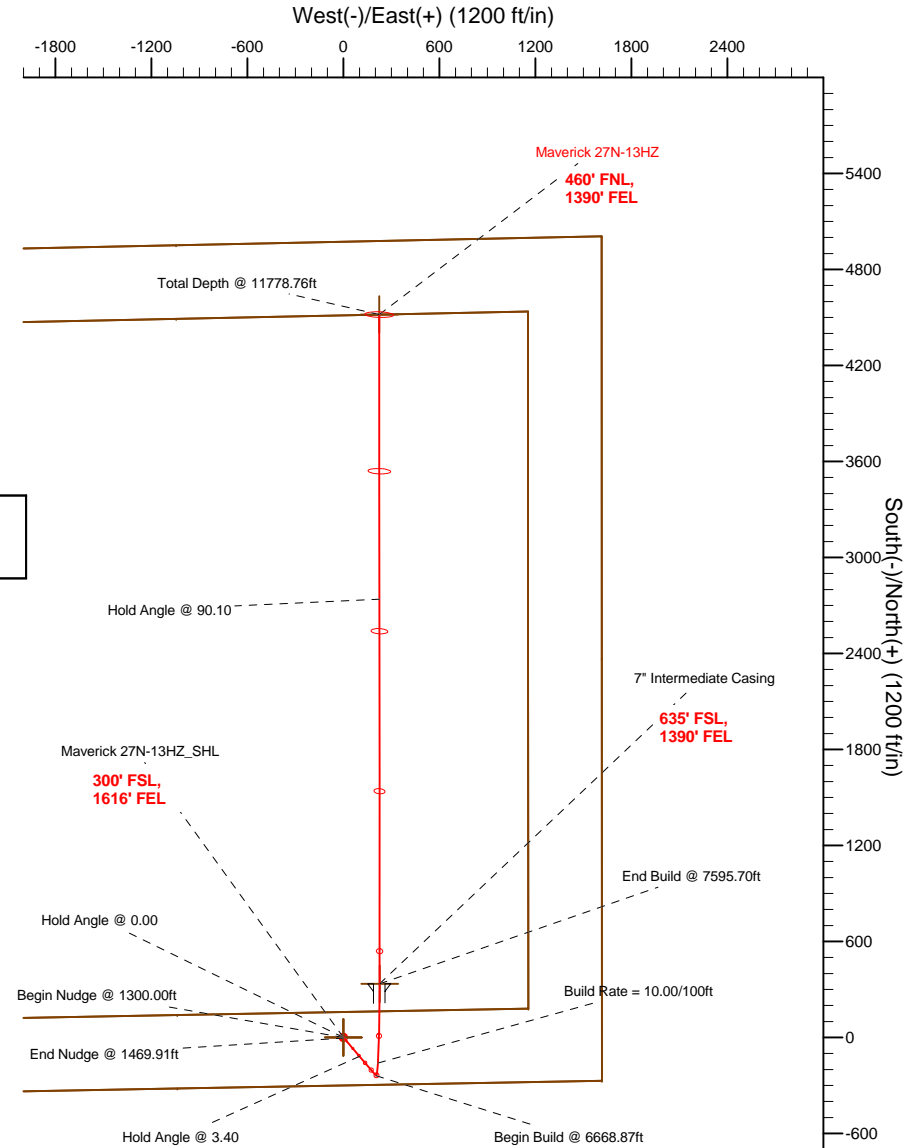
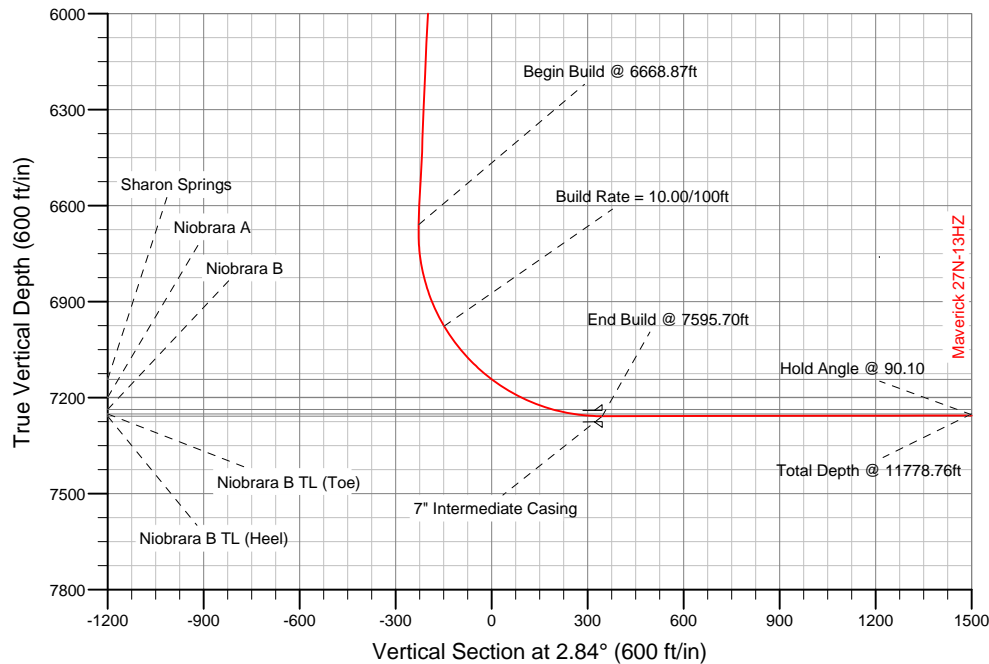
### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	
3	1469.91	3.40	139.55	1469.81	-3.83	3.27	2.00	139.55	-3.67	
4	6668.87	3.40	139.55	6659.63	-238.34	203.21	0.00	0.00	-227.99	
5	7595.70	90.10	359.97	7258.00	335.00	226.00	10.00	-139.52	345.78	Maverick 27N-13HZ_Casing Point
6	11778.76	90.10	359.97	7251.00	4518.06	223.93	0.00	0.00	4523.60	Maverick 27N-13HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Maverick 27N-13HZ_Section Lines	0.00	0.00	0.00	40.218913	-104.721538	Polygon
Maverick 27N-13HZ_Setback Lines	0.00	0.00	0.00	40.218913	-104.721538	Polygon
Maverick 27N-13HZ_SHL	0.00	0.00	0.00	40.218913	-104.721538	Point
Maverick 27N-13HZ_BHL	7251.00	4518.06	223.93	40.231315	-104.720736	Point
Maverick 27N-13HZ_Casing Point	7258.00	335.00	226.00	40.219833	-104.720729	Point

**Target Line:**  
**7258.90' TVDkb @ 0° VS Drilling 90.10°**



WELL DETAILS: Maverick 27N-13HZ	
Ground Level: 5047.00	RKB=17 @ 5064.00ft (Drilling Rig)
Plan: Plan A Rev 0 Permit (Maverick 27N-13HZ/Plan A Rev 0)	
Created By: Fred Hartmann	Date: 09/21/2012
Reviewed: _____	Date: _____

**Plan Report for Maverick 27N-13HZ - Plan A Rev 0 Permit**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Maverick 27N-13HZ_SHL - Maverick 27N-13HZ_Section Lines - Maverick 27N-13HZ_Setback Lines</b>										
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Hold Angle @ 0.00</b>										
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
775.00	0.00	0.00	775.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills</b>										
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 1300.00ft</b>										
1,400.00	2.00	139.55	1,399.98	-1.33	1.13	-1.27	2.00	2.00	0.00	139.55
1,469.91	3.40	139.55	1,469.81	-3.83	3.27	-3.67	2.00	2.00	0.00	0.00
<b>End Nudge @ 1469.91ft</b>										
1,500.00	3.40	139.55	1,499.85	-5.19	4.43	-4.97	0.00	0.00	0.00	0.00
1,600.00	3.40	139.55	1,599.67	-9.70	8.27	-9.28	0.00	0.00	0.00	0.00
1,700.00	3.40	139.55	1,699.50	-14.21	12.12	-13.59	0.00	0.00	0.00	0.00
1,800.00	3.40	139.55	1,799.32	-18.72	15.96	-17.91	0.00	0.00	0.00	0.00
1,900.00	3.40	139.55	1,899.14	-23.23	19.81	-22.22	0.00	0.00	0.00	0.00
2,000.00	3.40	139.55	1,998.97	-27.74	23.65	-26.54	0.00	0.00	0.00	0.00
2,100.00	3.40	139.55	2,098.79	-32.25	27.50	-30.85	0.00	0.00	0.00	0.00
2,200.00	3.40	139.55	2,198.62	-36.77	31.35	-35.17	0.00	0.00	0.00	0.00
2,300.00	3.40	139.55	2,298.44	-41.28	35.19	-39.48	0.00	0.00	0.00	0.00
2,400.00	3.40	139.55	2,398.26	-45.79	39.04	-43.80	0.00	0.00	0.00	0.00
2,500.00	3.40	139.55	2,498.09	-50.30	42.88	-48.11	0.00	0.00	0.00	0.00
2,600.00	3.40	139.55	2,597.91	-54.81	46.73	-52.43	0.00	0.00	0.00	0.00
2,700.00	3.40	139.55	2,697.74	-59.32	50.57	-56.74	0.00	0.00	0.00	0.00
2,800.00	3.40	139.55	2,797.56	-63.83	54.42	-61.06	0.00	0.00	0.00	0.00
2,900.00	3.40	139.55	2,897.39	-68.34	58.27	-65.37	0.00	0.00	0.00	0.00
3,000.00	3.40	139.55	2,997.21	-72.85	62.11	-69.69	0.00	0.00	0.00	0.00
3,100.00	3.40	139.55	3,097.03	-77.36	65.96	-74.00	0.00	0.00	0.00	0.00
3,200.00	3.40	139.55	3,196.86	-81.87	69.80	-78.32	0.00	0.00	0.00	0.00
3,300.00	3.40	139.55	3,296.68	-86.38	73.65	-82.63	0.00	0.00	0.00	0.00
3,400.00	3.40	139.55	3,396.51	-90.89	77.49	-86.95	0.00	0.00	0.00	0.00
3,500.00	3.40	139.55	3,496.33	-95.40	81.34	-91.26	0.00	0.00	0.00	0.00
3,600.00	3.40	139.55	3,596.15	-99.92	85.19	-95.58	0.00	0.00	0.00	0.00
3,700.00	3.40	139.55	3,695.98	-104.43	89.03	-99.89	0.00	0.00	0.00	0.00
3,800.00	3.40	139.55	3,795.80	-108.94	92.88	-104.21	0.00	0.00	0.00	0.00
3,900.00	3.40	139.55	3,895.63	-113.45	96.72	-108.52	0.00	0.00	0.00	0.00
4,000.00	3.40	139.55	3,995.45	-117.96	100.57	-112.84	0.00	0.00	0.00	0.00
<b>Hold Angle @ 3.40</b>										
4,071.67	3.40	139.55	4,067.00	-121.19	103.32	-115.93	0.00	0.00	0.00	0.00
<b>Parkman</b>										
4,100.00	3.40	139.55	4,095.28	-122.47	104.41	-117.15	0.00	0.00	0.00	0.00
4,200.00	3.40	139.55	4,195.10	-126.98	108.26	-121.46	0.00	0.00	0.00	0.00
4,300.00	3.40	139.55	4,294.92	-131.49	112.11	-125.78	0.00	0.00	0.00	0.00
4,400.00	3.40	139.55	4,394.75	-136.00	115.95	-130.09	0.00	0.00	0.00	0.00
4,500.00	3.40	139.55	4,494.57	-140.51	119.80	-134.41	0.00	0.00	0.00	0.00
4,583.57	3.40	139.55	4,578.00	-144.28	123.01	-138.02	0.00	0.00	0.00	0.00
<b>Sussex</b>										

**Plan Report for Maverick 27N-13HZ - Plan A Rev 0 Permit**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
4,600.00	3.40	139.55	4,594.40	-145.02	123.64	-138.72	0.00	0.00	0.00	0.00
4,700.00	3.40	139.55	4,694.22	-149.53	127.49	-143.04	0.00	0.00	0.00	0.00
4,800.00	3.40	139.55	4,794.04	-154.04	131.33	-147.35	0.00	0.00	0.00	0.00
4,900.00	3.40	139.55	4,893.87	-158.55	135.18	-151.67	0.00	0.00	0.00	0.00
5,000.00	3.40	139.55	4,993.69	-163.07	139.03	-155.98	0.00	0.00	0.00	0.00
5,100.00	3.40	139.55	5,093.52	-167.58	142.87	-160.30	0.00	0.00	0.00	0.00
5,200.00	3.40	139.55	5,193.34	-172.09	146.72	-164.61	0.00	0.00	0.00	0.00
5,300.00	3.40	139.55	5,293.17	-176.60	150.56	-168.93	0.00	0.00	0.00	0.00
5,400.00	3.40	139.55	5,392.99	-181.11	154.41	-173.24	0.00	0.00	0.00	0.00
5,500.00	3.40	139.55	5,492.81	-185.62	158.25	-177.56	0.00	0.00	0.00	0.00
5,600.00	3.40	139.55	5,592.64	-190.13	162.10	-181.87	0.00	0.00	0.00	0.00
5,700.00	3.40	139.55	5,692.46	-194.64	165.95	-186.19	0.00	0.00	0.00	0.00
5,800.00	3.40	139.55	5,792.29	-199.15	169.79	-190.50	0.00	0.00	0.00	0.00
5,900.00	3.40	139.55	5,892.11	-203.66	173.64	-194.82	0.00	0.00	0.00	0.00
6,000.00	3.40	139.55	5,991.93	-208.17	177.48	-199.13	0.00	0.00	0.00	0.00
6,100.00	3.40	139.55	6,091.76	-212.68	181.33	-203.45	0.00	0.00	0.00	0.00
6,200.00	3.40	139.55	6,191.58	-217.19	185.17	-207.76	0.00	0.00	0.00	0.00
6,300.00	3.40	139.55	6,291.41	-221.70	189.02	-212.08	0.00	0.00	0.00	0.00
6,400.00	3.40	139.55	6,391.23	-226.22	192.87	-216.39	0.00	0.00	0.00	0.00
6,500.00	3.40	139.55	6,491.06	-230.73	196.71	-220.71	0.00	0.00	0.00	0.00
6,600.00	3.40	139.55	6,590.88	-235.24	200.56	-225.02	0.00	0.00	0.00	0.00
6,668.87	3.40	139.55	6,659.63	-238.34	203.21	-227.99	0.00	0.00	0.00	0.00
<b>Begin Build @ 6668.87ft</b>										
6,700.00	2.27	76.55	6,690.73	-238.90	204.40	-228.49	10.00	-3.63	-202.39	-139.52
6,800.00	10.75	11.67	6,790.06	-229.28	208.22	-218.69	10.00	8.49	-64.87	-76.58
6,900.00	20.64	5.84	6,886.22	-202.55	211.92	-191.81	10.00	9.89	-5.83	-11.90
7,000.00	30.60	3.71	6,976.28	-159.51	215.36	-148.65	10.00	9.96	-2.13	-6.27
<b>Build Rate = 10.00/100ft</b>										
7,100.00	40.58	2.55	7,057.50	-101.47	218.47	-90.53	10.00	9.98	-1.16	-4.34
7,200.00	50.56	1.79	7,127.42	-30.20	221.13	-19.22	10.00	9.99	-0.76	-3.39
7,225.21	53.08	1.63	7,143.00	-10.39	221.72	0.59	10.00	9.99	-0.62	-2.86
<b>Sharon Springs</b>										
7,300.00	60.55	1.22	7,183.90	52.13	223.27	63.12	10.00	9.99	-0.55	-2.76
7,332.33	63.78	1.06	7,199.00	80.71	223.84	91.70	10.00	9.99	-0.49	-2.53
<b>Niobrara A</b>										
7,400.00	70.54	0.75	7,225.25	143.03	224.82	153.99	10.00	9.99	-0.45	-2.46
7,439.07	74.45	0.59	7,237.00	180.28	225.26	191.21	10.00	9.99	-0.42	-2.34
<b>Niobrara B</b>										
7,500.00	80.53	0.34	7,250.19	239.73	225.74	250.62	10.00	9.99	-0.40	-2.29
7,595.70	90.10	359.97	7,258.00	335.00	226.00	345.78	10.00	9.99	-0.39	-2.24
<b>End Build @ 7595.70ft - Niobrara B TL (Heel) - 7" Intermediate Casing - Maverick 27N-13HZ_Casing Point</b>										
7,600.00	90.10	359.97	7,257.99	339.30	226.00	350.08	0.01	0.01	0.00	-2.21
7,700.00	90.10	359.97	7,257.83	439.30	225.95	449.95	0.00	0.00	0.00	0.00
7,800.00	90.10	359.97	7,257.66	539.30	225.90	549.83	0.00	0.00	0.00	0.00
7,900.00	90.10	359.97	7,257.49	639.30	225.85	649.70	0.00	0.00	0.00	0.00
8,000.00	90.10	359.97	7,257.32	739.30	225.80	749.57	0.00	0.00	0.00	0.00
8,100.00	90.10	359.97	7,257.16	839.30	225.75	849.45	0.00	0.00	0.00	0.00
8,200.00	90.10	359.97	7,256.99	939.30	225.70	949.32	0.00	0.00	0.00	0.00
8,300.00	90.10	359.97	7,256.82	1,039.30	225.65	1,049.20	0.00	0.00	0.00	0.00
8,400.00	90.10	359.97	7,256.65	1,139.30	225.60	1,149.07	0.00	0.00	0.00	0.00
8,500.00	90.10	359.97	7,256.49	1,239.30	225.55	1,248.95	0.00	0.00	0.00	0.00
8,600.00	90.10	359.97	7,256.32	1,339.30	225.50	1,348.82	0.00	0.00	0.00	0.00
8,700.00	90.10	359.97	7,256.15	1,439.30	225.45	1,448.70	0.00	0.00	0.00	0.00
8,800.00	90.10	359.97	7,255.98	1,539.30	225.40	1,548.57	0.00	0.00	0.00	0.00
8,900.00	90.10	359.97	7,255.82	1,639.30	225.35	1,648.45	0.00	0.00	0.00	0.00
9,000.00	90.10	359.97	7,255.65	1,739.30	225.31	1,748.32	0.00	0.00	0.00	0.00
9,100.00	90.10	359.97	7,255.48	1,839.30	225.26	1,848.20	0.00	0.00	0.00	0.00
9,200.00	90.10	359.97	7,255.32	1,939.30	225.21	1,948.07	0.00	0.00	0.00	0.00
9,300.00	90.10	359.97	7,255.15	2,039.30	225.16	2,047.95	0.00	0.00	0.00	0.00

**Plan Report for Maverick 27N-13HZ - Plan A Rev 0 Permit**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toothface Azimuth (°)
9,400.00	90.10	359.97	7,254.98	2,139.30	225.11	2,147.82	0.00	0.00	0.00	0.00
9,500.00	90.10	359.97	7,254.81	2,239.30	225.06	2,247.70	0.00	0.00	0.00	0.00
9,600.00	90.10	359.97	7,254.65	2,339.30	225.01	2,347.57	0.00	0.00	0.00	0.00
9,700.00	90.10	359.97	7,254.48	2,439.30	224.96	2,447.45	0.00	0.00	0.00	0.00
9,800.00	90.10	359.97	7,254.31	2,539.30	224.91	2,547.32	0.00	0.00	0.00	0.00
9,900.00	90.10	359.97	7,254.14	2,639.30	224.86	2,647.20	0.00	0.00	0.00	0.00
10,000.00	90.10	359.97	7,253.98	2,739.30	224.81	2,747.07	0.00	0.00	0.00	0.00
<b>Hold Angle @ 90.10</b>										
10,100.00	90.10	359.97	7,253.81	2,839.30	224.76	2,846.95	0.00	0.00	0.00	0.00
10,200.00	90.10	359.97	7,253.64	2,939.30	224.71	2,946.82	0.00	0.00	0.00	0.00
10,300.00	90.10	359.97	7,253.47	3,039.30	224.66	3,046.70	0.00	0.00	0.00	0.00
10,400.00	90.10	359.97	7,253.31	3,139.30	224.61	3,146.57	0.00	0.00	0.00	0.00
10,500.00	90.10	359.97	7,253.14	3,239.30	224.56	3,246.44	0.00	0.00	0.00	0.00
10,600.00	90.10	359.97	7,252.97	3,339.30	224.51	3,346.32	0.00	0.00	0.00	0.00
10,700.00	90.10	359.97	7,252.81	3,439.30	224.46	3,446.19	0.00	0.00	0.00	0.00
10,800.00	90.10	359.97	7,252.64	3,539.30	224.41	3,546.07	0.00	0.00	0.00	0.00
10,900.00	90.10	359.97	7,252.47	3,639.30	224.37	3,645.94	0.00	0.00	0.00	0.00
11,000.00	90.10	359.97	7,252.30	3,739.30	224.32	3,745.82	0.00	0.00	0.00	0.00
11,100.00	90.10	359.97	7,252.14	3,839.30	224.27	3,845.69	0.00	0.00	0.00	0.00
11,200.00	90.10	359.97	7,251.97	3,939.30	224.22	3,945.57	0.00	0.00	0.00	0.00
11,300.00	90.10	359.97	7,251.80	4,039.30	224.17	4,045.44	0.00	0.00	0.00	0.00
11,400.00	90.10	359.97	7,251.63	4,139.30	224.12	4,145.32	0.00	0.00	0.00	0.00
11,500.00	90.10	359.97	7,251.47	4,239.30	224.07	4,245.19	0.00	0.00	0.00	0.00
11,600.00	90.10	359.97	7,251.30	4,339.30	224.02	4,345.07	0.00	0.00	0.00	0.00
11,700.00	90.10	359.97	7,251.13	4,439.30	223.97	4,444.94	0.00	0.00	0.00	0.00
11,778.75	90.10	359.97	7,251.00	4,518.05	223.93	4,523.59	0.00	0.00	0.00	0.00
<b>Niobrara B TL (Toe)</b>										
11,778.76	90.10	359.97	7,251.00	4,518.06	223.93	4,523.60	0.00	0.00	0.00	0.00
<b>Maverick 27N-13HZ_BHL</b>										

**Plan Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
600.00	600.00	0.00	0.00	Hold Angle @ 0.00
1,300.00	1,300.00	0.00	0.00	Begin Nudge @ 1300.00ft
1,469.91	1,469.81	-3.83	3.27	End Nudge @ 1469.91ft
4,000.00	3,995.45	-117.96	100.57	Hold Angle @ 3.40
6,668.87	6,659.63	-238.34	203.21	Begin Build @ 6668.87ft
7,000.00	6,976.28	-159.51	215.36	Build Rate = 10.00/100ft
7,595.70	7,258.00	335.00	226.00	End Build @ 7595.70ft
10,000.00	7,253.98	2,739.30	224.81	Hold Angle @ 90.10
11,778.76	7,251.00	4,518.06	223.93	Total Depth @ 11778.76ft

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	+N/-S (ft)	+E/-W (ft)	Start TVD (ft)
Target	Maverick 27N-13HZ_BHL	2.84	Slot	0.00	0.00	0.00

**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	11,778.76	Plan A Rev 0 Permit	MWD

**Plan Report for Maverick 27N-13HZ - Plan A Rev 0 Permit****Casing Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,595.70	7,258.00	7" Intermediate Casing	7	8-3/4

**Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
775.00	775.00	Fox Hills		0.00	
4,071.67	4,067.00	Parkman		0.00	
4,583.57	4,578.00	Sussex		0.00	
7,225.21	7,143.00	Sharon Springs		0.00	
7,332.33	7,199.00	Niobrara A		0.00	
7,439.07	7,237.00	Niobrara B		0.00	
7,595.70	7,258.00	Niobrara B TL (Heel)		0.00	
11,778.75	7,251.00	Niobrara B TL (Toe)		0.00	

**Targets associated with this wellbore**

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Maverick 27N-13HZ_Setback Lines	0.00	0.00	0.00	Point
Maverick 27N-13HZ_Section Lines	0.00	0.00	0.00	Point
Maverick 27N-13HZ_Casing Point	7,258.00	335.00	226.00	Point
Maverick 27N-13HZ_BHL	7,251.00	4,518.06	223.93	Point
Maverick 27N-13HZ_SHL	0.00	0.00	0.00	Point

**North Reference Sheet for Sec. 13-T3N-R66W - Maverick 27N-13HZ - Plan A Rev 0**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.  
 Vertical Depths are relative to RKB=17 @ 5064.00ft (Drilling Rig). Northing and Easting are relative to Maverick 27N-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 -105.50°, Longitude Origin:0.000000°, Latitude Origin:40.783333°  
 False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995700

Grid Coordinates of Well: 1,323,546.36 ft N, 3,217,386.06 ft E  
 Geographical Coordinates of Well: 40° 13' 08.09" N, 104° 43' 17.54" W  
 Grid Convergence at Surface is: 0.50°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,778.76ft  
 the Bottom Hole Displacement is 4,523.60ft in the Direction of 2.84° (True).

Magnetic Convergence at surface is: -8.20° (21 September 2012, , BGGM2012)

