

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 28-T1N-R67W

Howard 2N-33HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

## Sperry Drilling Services Proposal Report

12 December, 2012

Well Coordinates: 1,253,835.51 N, 3,170,662.57 E (40° 01' 42.80" N, 104° 53' 26.03" W)

Ground Level: 4,984.00 ft

Local Coordinate Origin:

Centered on Well Howard 2N-33HZ

Viewing Datum:

RKB=17 @ 5001.00ft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
Site: Sec. 28-T1N-R67W  
Well: Howard 2N-33HZ  
Wellbore: Plan A Rev 0  
Design: Plan A Rev 0 Permit

# Anadarko Petroleum Corp.

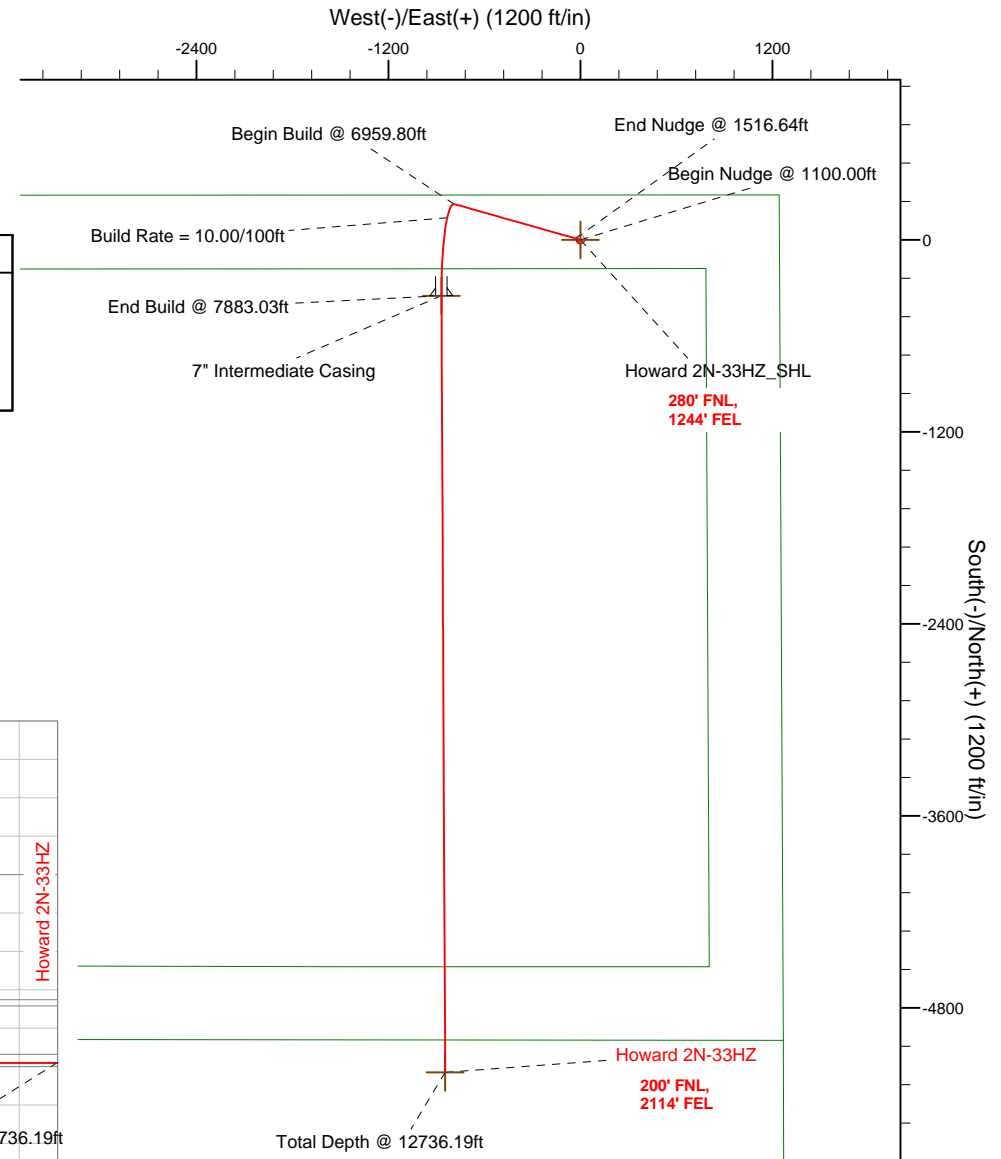
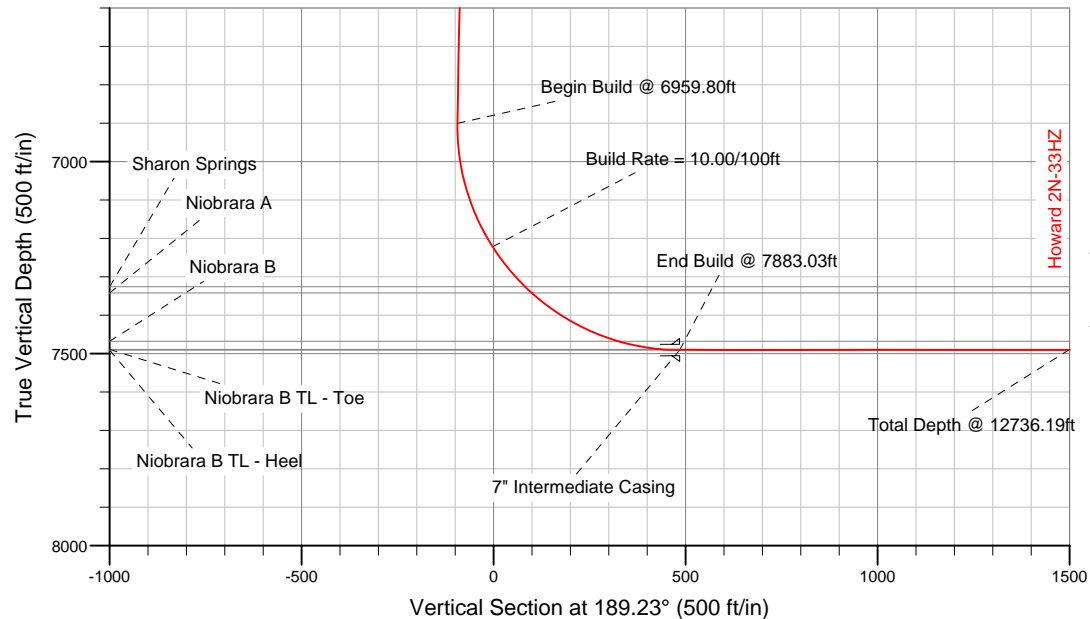
**HALLIBURTON**  
Sperry Drilling

## 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	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
3	1516.64	8.33	285.81	1515.17	8.24	-29.10	2.00	285.81	-3.46	
4	6959.80	8.33	285.81	6900.87	223.12	-788.11	0.00	0.00	-93.80	
5	7883.03	90.02	179.73	7491.00	-350.00	-868.50	10.00	-105.91	484.79	Howard 2N-33HZ_CP
6	12736.19	90.02	179.73	7489.00	-5203.11	-845.64	0.00	0.00	5271.38	Howard 2N-33HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Howard 2N-33HZ_SHL	0.00	0.00	0.00	40.028556	-104.890565	Point
Howard 2N-33HZ_BHL	7489.00	-5203.11	-845.64	40.014273	-104.893584	Point
Howard 2N-33HZ_CP	7491.00	-350.00	-868.50	40.027595	-104.893666	Point



## WELL DETAILS: Howard 2N-33HZ

Ground Level: 4984.00 RKB=17 @ 5001.00ft (Drilling Rig)

Plan: Plan A Rev 0 Permit (Howard 2N-33HZ/Plan A Rev 0)

Created By: Fred Hartmann Date: 12/03/2012  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

**Plan Report for Howard 2N-33HZ - 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
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
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
<b>Begin Nudge @ 1100.00ft</b>										
1,200.00	2.00	285.81	1,199.98	0.48	-1.68	-0.20	2.00	2.00	0.00	285.81
1,300.00	4.00	285.81	1,299.84	1.90	-6.71	-0.80	2.00	2.00	0.00	0.00
1,400.00	6.00	285.81	1,399.45	4.27	-15.10	-1.80	2.00	2.00	0.00	0.00
1,500.00	8.00	285.81	1,498.70	7.59	-26.83	-3.19	2.00	2.00	0.00	0.00
1,516.64	8.33	285.81	1,515.17	8.24	-29.10	-3.46	2.00	2.00	0.00	0.00
<b>End Nudge @ 1516.64ft</b>										
1,600.00	8.33	285.81	1,597.65	11.53	-40.72	-4.85	0.00	0.00	0.00	0.00
1,700.00	8.33	285.81	1,696.60	15.48	-54.67	-6.51	0.00	0.00	0.00	0.00
1,800.00	8.33	285.81	1,795.54	19.42	-68.61	-8.17	0.00	0.00	0.00	0.00
1,900.00	8.33	285.81	1,894.49	23.37	-82.56	-9.83	0.00	0.00	0.00	0.00
2,000.00	8.33	285.81	1,993.43	27.32	-96.50	-11.49	0.00	0.00	0.00	0.00
2,100.00	8.33	285.81	2,092.37	31.27	-110.45	-13.14	0.00	0.00	0.00	0.00
2,200.00	8.33	285.81	2,191.32	35.21	-124.39	-14.80	0.00	0.00	0.00	0.00
2,300.00	8.33	285.81	2,290.26	39.16	-138.33	-16.46	0.00	0.00	0.00	0.00
2,400.00	8.33	285.81	2,389.21	43.11	-152.28	-18.12	0.00	0.00	0.00	0.00
2,500.00	8.33	285.81	2,488.15	47.06	-166.22	-19.78	0.00	0.00	0.00	0.00
2,600.00	8.33	285.81	2,587.10	51.01	-180.17	-21.44	0.00	0.00	0.00	0.00
2,700.00	8.33	285.81	2,686.04	54.95	-194.11	-23.10	0.00	0.00	0.00	0.00
2,800.00	8.33	285.81	2,784.98	58.90	-208.06	-24.76	0.00	0.00	0.00	0.00
2,900.00	8.33	285.81	2,883.93	62.85	-222.00	-26.42	0.00	0.00	0.00	0.00
3,000.00	8.33	285.81	2,982.87	66.80	-235.94	-28.08	0.00	0.00	0.00	0.00
3,100.00	8.33	285.81	3,081.82	70.74	-249.89	-29.74	0.00	0.00	0.00	0.00
3,200.00	8.33	285.81	3,180.76	74.69	-263.83	-31.40	0.00	0.00	0.00	0.00
3,300.00	8.33	285.81	3,279.71	78.64	-277.78	-33.06	0.00	0.00	0.00	0.00
3,400.00	8.33	285.81	3,378.65	82.59	-291.72	-34.72	0.00	0.00	0.00	0.00
3,500.00	8.33	285.81	3,477.59	86.53	-305.67	-36.38	0.00	0.00	0.00	0.00
3,600.00	8.33	285.81	3,576.54	90.48	-319.61	-38.04	0.00	0.00	0.00	0.00
3,700.00	8.33	285.81	3,675.48	94.43	-333.55	-39.70	0.00	0.00	0.00	0.00
3,800.00	8.33	285.81	3,774.43	98.38	-347.50	-41.36	0.00	0.00	0.00	0.00
3,900.00	8.33	285.81	3,873.37	102.32	-361.44	-43.02	0.00	0.00	0.00	0.00
4,000.00	8.33	285.81	3,972.32	106.27	-375.39	-44.68	0.00	0.00	0.00	0.00
4,100.00	8.33	285.81	4,071.26	110.22	-389.33	-46.34	0.00	0.00	0.00	0.00
4,200.00	8.33	285.81	4,170.20	114.17	-403.27	-48.00	0.00	0.00	0.00	0.00
4,300.00	8.33	285.81	4,269.15	118.12	-417.22	-49.66	0.00	0.00	0.00	0.00
4,400.00	8.33	285.81	4,368.09	122.06	-431.16	-51.31	0.00	0.00	0.00	0.00
4,500.00	8.33	285.81	4,467.04	126.01	-445.11	-52.97	0.00	0.00	0.00	0.00
4,600.00	8.33	285.81	4,565.98	129.96	-459.05	-54.63	0.00	0.00	0.00	0.00
4,700.00	8.33	285.81	4,664.93	133.91	-473.00	-56.29	0.00	0.00	0.00	0.00
4,800.00	8.33	285.81	4,763.87	137.85	-486.94	-57.95	0.00	0.00	0.00	0.00
4,817.31	8.33	285.81	4,781.00	138.54	-489.35	-58.24	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,900.00	8.33	285.81	4,862.81	141.80	-500.88	-59.61	0.00	0.00	0.00	0.00
5,000.00	8.33	285.81	4,961.76	145.75	-514.83	-61.27	0.00	0.00	0.00	0.00
5,100.00	8.33	285.81	5,060.70	149.70	-528.77	-62.93	0.00	0.00	0.00	0.00
5,200.00	8.33	285.81	5,159.65	153.64	-542.72	-64.59	0.00	0.00	0.00	0.00

**Plan Report for Howard 2N-33HZ - 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 (°)
5,300.00	8.33	285.81	5,258.59	157.59	-556.66	-66.25	0.00	0.00	0.00	0.00
5,400.00	8.33	285.81	5,357.54	161.54	-570.61	-67.91	0.00	0.00	0.00	0.00
5,500.00	8.33	285.81	5,456.48	165.49	-584.55	-69.57	0.00	0.00	0.00	0.00
5,600.00	8.33	285.81	5,555.42	169.43	-598.49	-71.23	0.00	0.00	0.00	0.00
5,700.00	8.33	285.81	5,654.37	173.38	-612.44	-72.89	0.00	0.00	0.00	0.00
5,800.00	8.33	285.81	5,753.31	177.33	-626.38	-74.55	0.00	0.00	0.00	0.00
5,900.00	8.33	285.81	5,852.26	181.28	-640.33	-76.21	0.00	0.00	0.00	0.00
6,000.00	8.33	285.81	5,951.20	185.23	-654.27	-77.87	0.00	0.00	0.00	0.00
6,100.00	8.33	285.81	6,050.15	189.17	-668.22	-79.53	0.00	0.00	0.00	0.00
6,200.00	8.33	285.81	6,149.09	193.12	-682.16	-81.19	0.00	0.00	0.00	0.00
6,300.00	8.33	285.81	6,248.03	197.07	-696.10	-82.85	0.00	0.00	0.00	0.00
6,400.00	8.33	285.81	6,346.98	201.02	-710.05	-84.51	0.00	0.00	0.00	0.00
6,500.00	8.33	285.81	6,445.92	204.96	-723.99	-86.17	0.00	0.00	0.00	0.00
6,600.00	8.33	285.81	6,544.87	208.91	-737.94	-87.83	0.00	0.00	0.00	0.00
6,700.00	8.33	285.81	6,643.81	212.86	-751.88	-89.49	0.00	0.00	0.00	0.00
6,800.00	8.33	285.81	6,742.76	216.81	-765.83	-91.14	0.00	0.00	0.00	0.00
6,900.00	8.33	285.81	6,841.70	220.75	-779.77	-92.80	0.00	0.00	0.00	0.00
6,959.80	8.33	285.81	6,900.87	223.12	-788.11	-93.80	0.00	0.00	0.00	0.00
<b>Begin Build @ 6959.80ft</b>										
7,000.00	8.19	257.57	6,940.67	223.29	-793.71	-93.07	10.00	-0.35	-70.24	-105.91
7,100.00	14.17	213.63	7,038.89	211.54	-807.48	-79.26	10.00	5.97	-43.95	-77.96
7,200.00	23.08	199.02	7,133.60	182.74	-820.68	-48.72	10.00	8.92	-14.61	-34.72
7,300.00	32.61	192.44	7,221.94	137.78	-832.90	-2.38	10.00	9.53	-6.58	-20.82
<b>Build Rate = 10.00/100ft</b>										
7,400.00	42.34	188.62	7,301.21	78.01	-843.78	58.36	10.00	9.73	-3.82	-14.99
7,434.48	45.72	187.62	7,326.00	54.29	-847.16	82.31	10.00	9.80	-2.89	-11.94
<b>Sharon Springs</b>										
7,457.89	48.02	187.01	7,342.00	37.35	-849.33	99.38	10.00	9.82	-2.62	-11.22
<b>Niobrara A</b>										
7,500.00	52.16	186.01	7,369.01	5.26	-852.98	131.64	10.00	9.83	-2.37	-10.81
7,600.00	62.02	184.02	7,423.28	-78.27	-860.23	215.25	10.00	9.86	-1.99	-10.16
7,700.00	71.91	182.37	7,462.37	-170.03	-865.31	306.65	10.00	9.88	-1.65	-9.08
7,719.10	73.79	182.08	7,468.00	-188.27	-866.02	324.75	10.00	9.89	-1.53	-8.43
<b>Niobrara B</b>										
7,800.00	81.80	180.90	7,485.09	-267.25	-868.05	403.04	10.00	9.90	-1.46	-8.35
7,883.03	90.02	179.73	7,491.00	-350.00	-868.50	484.79	10.00	9.90	-1.40	-8.09
<b>End Build @ 7883.03ft - Niobrara B TL - Heel - 7" Intermediate Casing - Howard 2N-33HZ_CP</b>										
7,900.00	90.02	179.73	7,490.99	-366.97	-868.42	501.53	0.00	0.00	0.00	-8.01
8,000.00	90.02	179.73	7,490.95	-466.96	-867.95	600.15	0.00	0.00	0.00	0.00
8,100.00	90.02	179.73	7,490.91	-566.96	-867.48	698.78	0.00	0.00	0.00	0.00
8,200.00	90.02	179.73	7,490.87	-666.96	-867.01	797.41	0.00	0.00	0.00	0.00
8,300.00	90.02	179.73	7,490.83	-766.96	-866.54	896.04	0.00	0.00	0.00	0.00
8,400.00	90.02	179.73	7,490.79	-866.96	-866.06	994.67	0.00	0.00	0.00	0.00
8,500.00	90.02	179.73	7,490.75	-966.96	-865.59	1,093.29	0.00	0.00	0.00	0.00
8,600.00	90.02	179.73	7,490.70	-1,066.96	-865.12	1,191.92	0.00	0.00	0.00	0.00
8,700.00	90.02	179.73	7,490.66	-1,166.96	-864.65	1,290.55	0.00	0.00	0.00	0.00
8,800.00	90.02	179.73	7,490.62	-1,266.96	-864.18	1,389.18	0.00	0.00	0.00	0.00
8,900.00	90.02	179.73	7,490.58	-1,366.95	-863.71	1,487.81	0.00	0.00	0.00	0.00
9,000.00	90.02	179.73	7,490.54	-1,466.95	-863.24	1,586.44	0.00	0.00	0.00	0.00
9,100.00	90.02	179.73	7,490.50	-1,566.95	-862.77	1,685.06	0.00	0.00	0.00	0.00
9,200.00	90.02	179.73	7,490.46	-1,666.95	-862.30	1,783.69	0.00	0.00	0.00	0.00
9,300.00	90.02	179.73	7,490.42	-1,766.95	-861.82	1,882.32	0.00	0.00	0.00	0.00
9,400.00	90.02	179.73	7,490.37	-1,866.95	-861.35	1,980.95	0.00	0.00	0.00	0.00
9,500.00	90.02	179.73	7,490.33	-1,966.95	-860.88	2,079.58	0.00	0.00	0.00	0.00
9,600.00	90.02	179.73	7,490.29	-2,066.95	-860.41	2,178.20	0.00	0.00	0.00	0.00
9,700.00	90.02	179.73	7,490.25	-2,166.95	-859.94	2,276.83	0.00	0.00	0.00	0.00
9,800.00	90.02	179.73	7,490.21	-2,266.94	-859.47	2,375.46	0.00	0.00	0.00	0.00
9,900.00	90.02	179.73	7,490.17	-2,366.94	-859.00	2,474.09	0.00	0.00	0.00	0.00
10,000.00	90.02	179.73	7,490.13	-2,466.94	-858.53	2,572.72	0.00	0.00	0.00	0.00

**Plan Report for Howard 2N-33HZ - 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 (°)
10,100.00	90.02	179.73	7,490.09	-2,566.94	-858.06	2,671.35	0.00	0.00	0.00	0.00
10,200.00	90.02	179.73	7,490.05	-2,666.94	-857.58	2,769.97	0.00	0.00	0.00	0.00
10,300.00	90.02	179.73	7,490.00	-2,766.94	-857.11	2,868.60	0.00	0.00	0.00	0.00
10,400.00	90.02	179.73	7,489.96	-2,866.94	-856.64	2,967.23	0.00	0.00	0.00	0.00
10,500.00	90.02	179.73	7,489.92	-2,966.94	-856.17	3,065.86	0.00	0.00	0.00	0.00
10,600.00	90.02	179.73	7,489.88	-3,066.94	-855.70	3,164.49	0.00	0.00	0.00	0.00
10,700.00	90.02	179.73	7,489.84	-3,166.93	-855.23	3,263.12	0.00	0.00	0.00	0.00
10,800.00	90.02	179.73	7,489.80	-3,266.93	-854.76	3,361.74	0.00	0.00	0.00	0.00
10,900.00	90.02	179.73	7,489.76	-3,366.93	-854.29	3,460.37	0.00	0.00	0.00	0.00
11,000.00	90.02	179.73	7,489.72	-3,466.93	-853.82	3,559.00	0.00	0.00	0.00	0.00
11,100.00	90.02	179.73	7,489.67	-3,566.93	-853.34	3,657.63	0.00	0.00	0.00	0.00
11,200.00	90.02	179.73	7,489.63	-3,666.93	-852.87	3,756.26	0.00	0.00	0.00	0.00
11,300.00	90.02	179.73	7,489.59	-3,766.93	-852.40	3,854.88	0.00	0.00	0.00	0.00
11,400.00	90.02	179.73	7,489.55	-3,866.93	-851.93	3,953.51	0.00	0.00	0.00	0.00
11,500.00	90.02	179.73	7,489.51	-3,966.93	-851.46	4,052.14	0.00	0.00	0.00	0.00
11,600.00	90.02	179.73	7,489.47	-4,066.92	-850.99	4,150.77	0.00	0.00	0.00	0.00
11,700.00	90.02	179.73	7,489.43	-4,166.92	-850.52	4,249.40	0.00	0.00	0.00	0.00
11,800.00	90.02	179.73	7,489.39	-4,266.92	-850.05	4,348.03	0.00	0.00	0.00	0.00
11,900.00	90.02	179.73	7,489.34	-4,366.92	-849.58	4,446.65	0.00	0.00	0.00	0.00
12,000.00	90.02	179.73	7,489.30	-4,466.92	-849.11	4,545.28	0.00	0.00	0.00	0.00
12,100.00	90.02	179.73	7,489.26	-4,566.92	-848.63	4,643.91	0.00	0.00	0.00	0.00
12,200.00	90.02	179.73	7,489.22	-4,666.92	-848.16	4,742.54	0.00	0.00	0.00	0.00
12,300.00	90.02	179.73	7,489.18	-4,766.92	-847.69	4,841.17	0.00	0.00	0.00	0.00
12,400.00	90.02	179.73	7,489.14	-4,866.92	-847.22	4,939.79	0.00	0.00	0.00	0.00
12,500.00	90.02	179.73	7,489.10	-4,966.91	-846.75	5,038.42	0.00	0.00	0.00	0.00
12,600.00	90.02	179.73	7,489.06	-5,066.91	-846.28	5,137.05	0.00	0.00	0.00	0.00
12,700.00	90.02	179.73	7,489.01	-5,166.91	-845.81	5,235.68	0.00	0.00	0.00	0.00
12,736.18	90.02	179.73	7,489.00	-5,203.09	-845.64	5,271.36	0.00	0.00	0.00	0.00
<b>Niobrara B TL - Toe</b>										
12,736.19	90.02	179.73	7,489.00	-5,203.10	-845.64	5,271.37	0.00	0.00	0.00	0.00
<b>Total Depth @ 12736.19ft - Howard 2N-33HZ_BHL</b>										

**Plan Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,100.00	1,100.00	0.00	0.00	Begin Nudge @ 1100.00ft
1,516.64	1,515.17	8.24	-29.10	End Nudge @ 1516.64ft
6,959.80	6,900.87	223.12	-788.11	Begin Build @ 6959.80ft
7,300.00	7,221.94	137.78	-832.90	Build Rate = 10.00/100ft
7,883.03	7,491.00	-350.00	-868.50	End Build @ 7883.03ft
12,736.19	7,489.00	-5,203.10	-845.64	Total Depth @ 12736.19ft

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	Howard 2N-33HZ_BHL	189.23	Slot	0.00	0.00	0.00

**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,736.19	Plan A Rev 0 Permit	MWD

**Plan Report for Howard 2N-33HZ - Plan A Rev 0 Permit****Casing Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,883.03	7,491.00	7" Intermediate Casing	7	8-3/4

**Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,817.31	4,781.00	Sussex		0.00	
7,434.48	7,326.00	Sharon Springs		0.00	
7,457.89	7,342.00	Niobrara A		0.00	
7,719.10	7,468.00	Niobrara B		0.00	
7,883.03	7,491.00	Niobrara B TL - Heel		0.00	
12,736.18	7,489.00	Niobrara B TL - Toe		0.00	

***Targets associated with this wellbore***

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Howard 2N-33HZ_CP	7,491.00	-350.00	-868.50	Point
Howard 2N-33HZ_BHL	7,489.00	-5,203.11	-845.64	Point
Howard 2N-33HZ_SHL	0.00	0.00	0.00	Point

## North Reference Sheet for Sec. 28-T1N-R67W - Howard 2N-33HZ - 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 @ 5001.00ft (Drilling Rig). Northing and Easting are relative to Howard 2N-33HZ  
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: 0.99996432

Grid Coordinates of Well: 1,253,835.51 ft N, 3,170,662.57 ft E  
Geographical Coordinates of Well: 40° 01' 42.80" N, 104° 53' 26.03" W  
Grid Convergence at Surface is: 0.39°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,736.19ft  
the Bottom Hole Displacement is 5,271.37ft in the Direction of 189.23° (True).

Magnetic Convergence at surface is: -8.35° (12 December 2012, , BGGM2012)

