

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 21-T1N-R67W

Howard 3N-21HZ

Plan C 0

Plan: Plan C 0 - PERMIT

## Sperry Drilling Services

# Proposal Report

16 May, 2013

Well Coordinates: 1,254,437.59 N, 3,168,140.91 E (40° 01' 48.92" N, 104° 53' 58.40" W)

Ground Level: 5,025.00 ft

Local Coordinate Origin:	Centered on Well Howard 3N-21HZ
Viewing Datum:	RKB=17 @ 5042.00ft (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. 21-T1N-R67W  
 Well: Howard 3N-21HZ  
 Wellbore: Plan C 0  
 Design: Plan C 0 - PERMIT

# Anadarko Petroleum Corp.



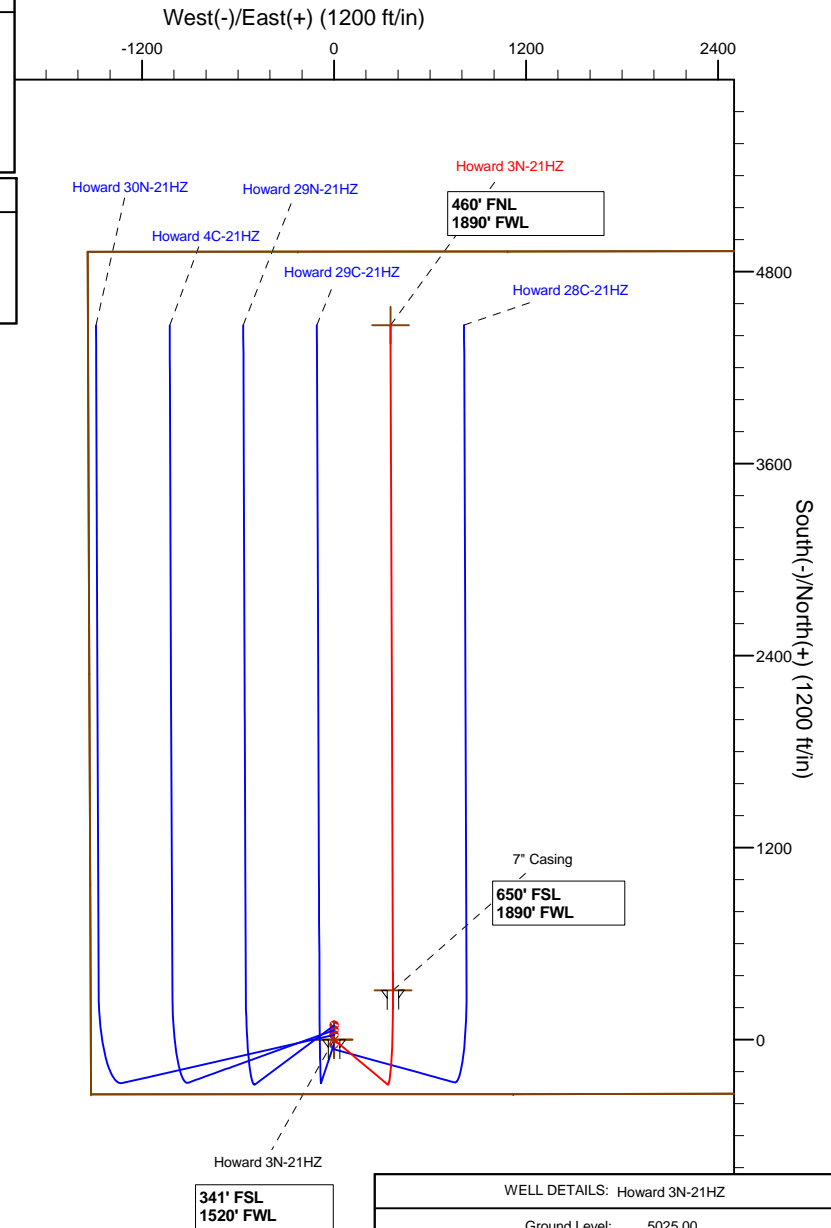
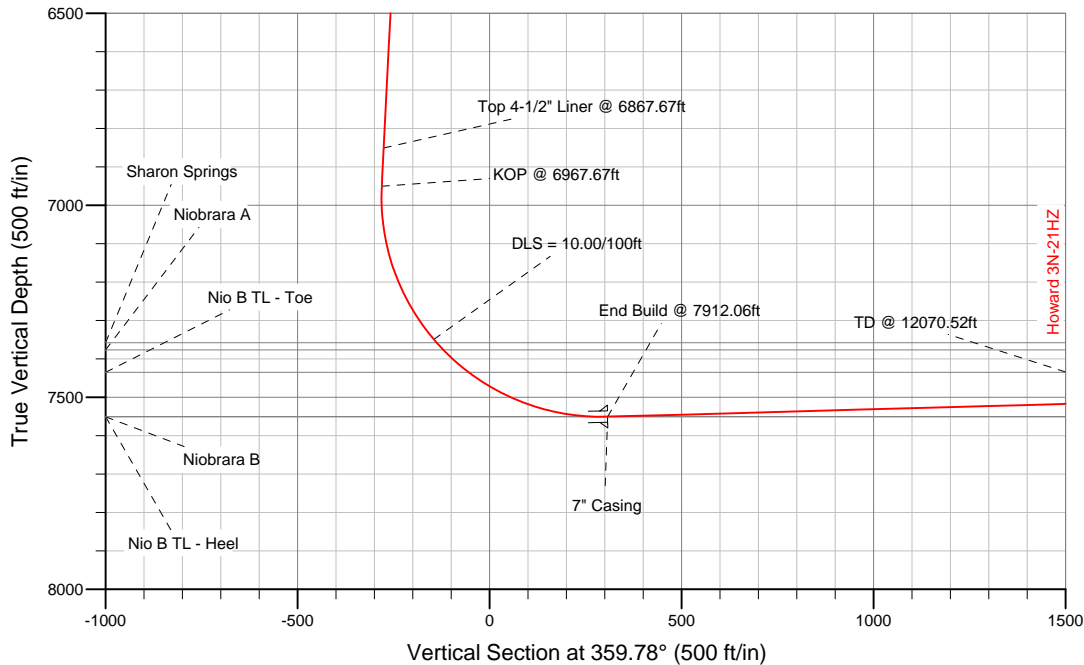
### SECTION DETAILS

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	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	
3	1421.00	4.42	129.85	1420.78	-5.46	6.54	2.00	129.85	-5.48	
4	6967.67	4.42	129.85	6950.95	-279.34	334.74	0.00	0.00	-280.63	
5	7912.06	91.60	359.78	7551.00	309.00	369.00	10.00	-129.89	307.58	Howard 3N-21HZ_CP
6	12070.52	91.60	359.78	7435.00	4465.81	353.07	0.00	0.00	4464.42	Howard 3N-21HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

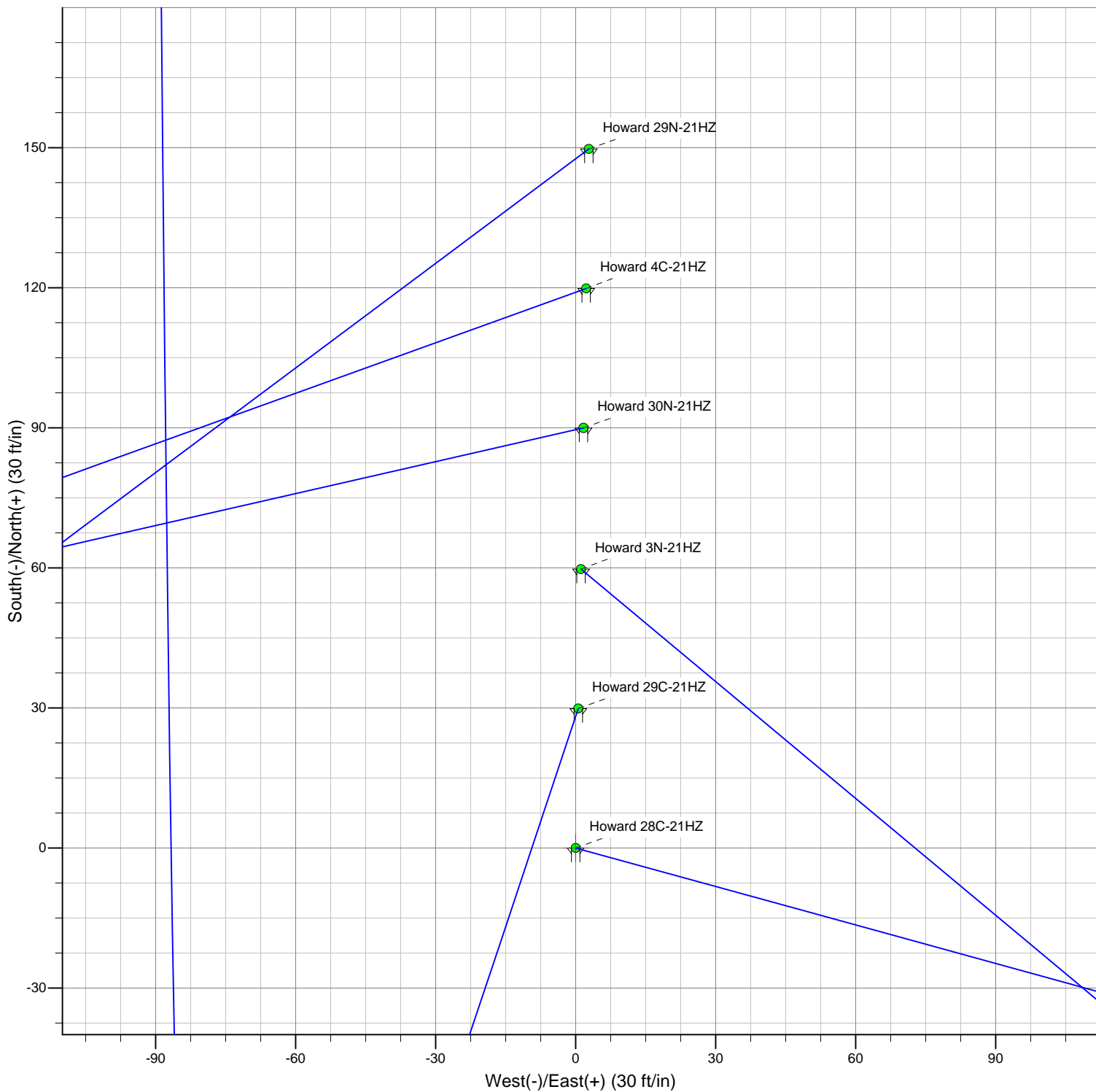
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Howard 3N-21HZ_Sec	0.00	0.00	0.00	40.030256	-104.899555	Polygon
Howard 3N-21HZ_SHL	0.00	0.00	0.00	40.030256	-104.899555	Point
Howard 3N-21HZ_BHL	7435.00	4465.81	353.07	40.042515	-104.898294	Point
Howard 3N-21HZ_CP	7551.00	309.00	369.00	40.031104	-104.898237	Point

MD	TVD	Annotation
6867.67	6851.25	Top 4-1/2" Liner @ 6867.67ft
6967.67	6950.95	KOP @ 6967.67ft



Howard 3N-21HZ  
 341' FSL  
 1520' FWL

WELL DETAILS: Howard 3N-21HZ	
Ground Level:	5025.00
RKB=17 @ 5042.00ft (Drilling Rig)	
Plan: Plan C 0 - PERMIT (Howard 3N-21HZ/Plan C 0)	
Created By: Fred Hartmann	Date: 05/16/2013
Reviewed: _____	Date: _____



Azimuths to True North  
 Magnetic North: 8.70°

Magnetic Field  
 Strength: 52619.5snT  
 Dip Angle: 66.64°  
 Date: 05-16-2013  
 Model: BGGM2012

**Plan Report for Howard 3N-21HZ - Plan C 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
803.00	0.00	0.00	803.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8" Casing</b>										
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
<b>Begin Nudge @ 1200.00ft</b>										
1,300.00	2.00	129.85	1,299.98	-1.12	1.34	-1.12	2.00	2.00	0.00	129.85
1,400.00	4.00	129.85	1,399.84	-4.47	5.36	-4.49	2.00	2.00	0.00	0.00
1,421.00	4.42	129.85	1,420.78	-5.46	6.54	-5.48	2.00	2.00	0.00	0.00
<b>End Nudge @ 1421.00ft</b>										
1,500.00	4.42	129.85	1,499.55	-9.36	11.22	-9.40	0.00	0.00	0.00	0.00
1,600.00	4.42	129.85	1,599.25	-14.30	17.13	-14.36	0.00	0.00	0.00	0.00
1,700.00	4.42	129.85	1,698.95	-19.24	23.05	-19.32	0.00	0.00	0.00	0.00
1,800.00	4.42	129.85	1,798.65	-24.17	28.97	-24.28	0.00	0.00	0.00	0.00
1,900.00	4.42	129.85	1,898.36	-29.11	34.88	-29.24	0.00	0.00	0.00	0.00
2,000.00	4.42	129.85	1,998.06	-34.05	40.80	-34.21	0.00	0.00	0.00	0.00
2,100.00	4.42	129.85	2,097.76	-38.99	46.72	-39.17	0.00	0.00	0.00	0.00
2,200.00	4.42	129.85	2,197.46	-43.92	52.63	-44.13	0.00	0.00	0.00	0.00
2,300.00	4.42	129.85	2,297.17	-48.86	58.55	-49.09	0.00	0.00	0.00	0.00
2,400.00	4.42	129.85	2,396.87	-53.80	64.47	-54.05	0.00	0.00	0.00	0.00
2,500.00	4.42	129.85	2,496.57	-58.74	70.39	-59.01	0.00	0.00	0.00	0.00
2,600.00	4.42	129.85	2,596.27	-63.68	76.30	-63.97	0.00	0.00	0.00	0.00
2,700.00	4.42	129.85	2,695.98	-68.61	82.22	-68.93	0.00	0.00	0.00	0.00
2,800.00	4.42	129.85	2,795.68	-73.55	88.14	-73.89	0.00	0.00	0.00	0.00
2,900.00	4.42	129.85	2,895.38	-78.49	94.05	-78.85	0.00	0.00	0.00	0.00
3,000.00	4.42	129.85	2,995.08	-83.43	99.97	-83.81	0.00	0.00	0.00	0.00
3,100.00	4.42	129.85	3,094.79	-88.36	105.89	-88.77	0.00	0.00	0.00	0.00
3,200.00	4.42	129.85	3,194.49	-93.30	111.80	-93.73	0.00	0.00	0.00	0.00
3,300.00	4.42	129.85	3,294.19	-98.24	117.72	-98.69	0.00	0.00	0.00	0.00
3,400.00	4.42	129.85	3,393.90	-103.18	123.64	-103.65	0.00	0.00	0.00	0.00
3,500.00	4.42	129.85	3,493.60	-108.12	129.56	-108.61	0.00	0.00	0.00	0.00
3,600.00	4.42	129.85	3,593.30	-113.05	135.47	-113.57	0.00	0.00	0.00	0.00
3,700.00	4.42	129.85	3,693.00	-117.99	141.39	-118.53	0.00	0.00	0.00	0.00
3,800.00	4.42	129.85	3,792.71	-122.93	147.31	-123.49	0.00	0.00	0.00	0.00
3,900.00	4.42	129.85	3,892.41	-127.87	153.22	-128.45	0.00	0.00	0.00	0.00
4,000.00	4.42	129.85	3,992.11	-132.80	159.14	-133.41	0.00	0.00	0.00	0.00
4,000.89	4.42	129.85	3,993.00	-132.85	159.19	-133.46	0.00	0.00	0.00	0.00
<b>Parkman</b>										
4,100.00	4.42	129.85	4,091.81	-137.74	165.06	-138.38	0.00	0.00	0.00	0.00
4,200.00	4.42	129.85	4,191.52	-142.68	170.97	-143.34	0.00	0.00	0.00	0.00
4,300.00	4.42	129.85	4,291.22	-147.62	176.89	-148.30	0.00	0.00	0.00	0.00
4,400.00	4.42	129.85	4,390.92	-152.56	182.81	-153.26	0.00	0.00	0.00	0.00
4,500.00	4.42	129.85	4,490.62	-157.49	188.73	-158.22	0.00	0.00	0.00	0.00
4,600.00	4.42	129.85	4,590.33	-162.43	194.64	-163.18	0.00	0.00	0.00	0.00
4,700.00	4.42	129.85	4,690.03	-167.37	200.56	-168.14	0.00	0.00	0.00	0.00
4,752.13	4.42	129.85	4,742.00	-169.94	203.64	-170.72	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,800.00	4.42	129.85	4,789.73	-172.31	206.48	-173.10	0.00	0.00	0.00	0.00

**Plan Report for Howard 3N-21HZ - Plan C 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 (°)
4,900.00	4.42	129.85	4,889.43	-177.24	212.39	-178.06	0.00	0.00	0.00	0.00
5,000.00	4.42	129.85	4,989.14	-182.18	218.31	-183.02	0.00	0.00	0.00	0.00
5,100.00	4.42	129.85	5,088.84	-187.12	224.23	-187.98	0.00	0.00	0.00	0.00
5,200.00	4.42	129.85	5,188.54	-192.06	230.14	-192.94	0.00	0.00	0.00	0.00
5,300.00	4.42	129.85	5,288.24	-197.00	236.06	-197.90	0.00	0.00	0.00	0.00
5,400.00	4.42	129.85	5,387.95	-201.93	241.98	-202.86	0.00	0.00	0.00	0.00
5,500.00	4.42	129.85	5,487.65	-206.87	247.90	-207.82	0.00	0.00	0.00	0.00
5,600.00	4.42	129.85	5,587.35	-211.81	253.81	-212.78	0.00	0.00	0.00	0.00
5,700.00	4.42	129.85	5,687.05	-216.75	259.73	-217.74	0.00	0.00	0.00	0.00
5,800.00	4.42	129.85	5,786.76	-221.68	265.65	-222.70	0.00	0.00	0.00	0.00
5,900.00	4.42	129.85	5,886.46	-226.62	271.56	-227.66	0.00	0.00	0.00	0.00
6,000.00	4.42	129.85	5,986.16	-231.56	277.48	-232.62	0.00	0.00	0.00	0.00
6,100.00	4.42	129.85	6,085.87	-236.50	283.40	-237.58	0.00	0.00	0.00	0.00
6,200.00	4.42	129.85	6,185.57	-241.44	289.31	-242.55	0.00	0.00	0.00	0.00
6,300.00	4.42	129.85	6,285.27	-246.37	295.23	-247.51	0.00	0.00	0.00	0.00
6,400.00	4.42	129.85	6,384.97	-251.31	301.15	-252.47	0.00	0.00	0.00	0.00
6,500.00	4.42	129.85	6,484.68	-256.25	307.07	-257.43	0.00	0.00	0.00	0.00
6,600.00	4.42	129.85	6,584.38	-261.19	312.98	-262.39	0.00	0.00	0.00	0.00
6,700.00	4.42	129.85	6,684.08	-266.13	318.90	-267.35	0.00	0.00	0.00	0.00
6,800.00	4.42	129.85	6,783.78	-271.06	324.82	-272.31	0.00	0.00	0.00	0.00
6,867.67	4.42	129.85	6,851.25	-274.40	328.82	-275.66	0.00	0.00	0.00	0.00
<b>Top 4-1/2" Liner @ 6867.67ft</b>										
6,900.00	4.42	129.85	6,883.49	-276.00	330.73	-277.27	0.00	0.00	0.00	0.00
6,967.67	4.42	129.85	6,950.95	-279.34	334.74	-280.63	0.00	0.00	0.00	0.00
<b>KOP @ 6967.67ft</b>										
7,000.00	3.41	83.22	6,983.22	-280.03	336.65	-281.32	10.00	-3.11	-144.23	-129.89
7,100.00	10.93	17.74	7,082.47	-270.62	342.51	-271.94	10.00	7.52	-65.48	-83.35
7,200.00	20.66	8.91	7,178.59	-244.10	348.15	-245.43	10.00	9.73	-8.83	-18.17
7,300.00	30.57	5.63	7,268.66	-201.25	353.39	-202.61	10.00	9.90	-3.28	-9.65
7,400.00	40.51	3.85	7,349.93	-143.39	358.08	-144.77	10.00	9.95	-1.78	-6.68
<b>DLS = 10.00/100ft</b>										
7,410.70	41.58	3.70	7,358.00	-136.38	358.54	-137.76	10.00	9.96	-1.37	-5.22
<b>Sharon Springs</b>										
7,436.63	44.16	3.37	7,377.00	-118.78	359.63	-120.16	10.00	9.96	-1.28	-5.11
<b>Niobrara A</b>										
7,500.00	50.48	2.68	7,419.94	-72.28	362.07	-73.67	10.00	9.97	-1.10	-4.87
7,600.00	60.45	1.80	7,476.56	9.93	365.24	8.53	10.00	9.97	-0.88	-4.40
7,700.00	70.43	1.08	7,518.07	100.74	367.50	99.33	10.00	9.98	-0.72	-3.90
7,800.00	80.41	0.45	7,543.21	197.39	368.78	195.98	10.00	9.98	-0.63	-3.60
7,880.03	88.40	359.97	7,551.00	276.98	369.07	275.56	10.00	9.98	-0.60	-3.44
<b>Niobrara B</b>										
7,900.00	90.39	359.85	7,551.21	296.94	369.04	295.53	10.00	9.98	-0.59	-3.39
7,912.06	91.60	359.78	7,551.00	309.00	369.00	307.58	10.00	9.98	-0.59	-3.39
<b>End Build @ 7912.06ft - Nio B TL - Heel - 7" Casing - Howard 3N-21HZ_CP</b>										
8,000.00	91.60	359.78	7,548.55	396.91	368.66	395.49	0.00	0.00	0.00	-3.39
8,100.00	91.60	359.78	7,545.76	496.87	368.28	495.45	0.00	0.00	0.00	0.00
8,200.00	91.60	359.78	7,542.97	596.83	367.90	595.41	0.00	0.00	0.00	0.00
8,300.00	91.60	359.78	7,540.18	696.79	367.51	695.37	0.00	0.00	0.00	0.00
8,400.00	91.60	359.78	7,537.39	796.75	367.13	795.33	0.00	0.00	0.00	0.00
8,500.00	91.60	359.78	7,534.60	896.71	366.75	895.29	0.00	0.00	0.00	0.00
8,600.00	91.60	359.78	7,531.81	996.67	366.36	995.26	0.00	0.00	0.00	0.00
8,700.00	91.60	359.78	7,529.02	1,096.63	365.98	1,095.22	0.00	0.00	0.00	0.00
8,800.00	91.60	359.78	7,526.23	1,196.59	365.60	1,195.18	0.00	0.00	0.00	0.00
8,900.00	91.60	359.78	7,523.44	1,296.55	365.21	1,295.14	0.00	0.00	0.00	0.00
9,000.00	91.60	359.78	7,520.65	1,396.51	364.83	1,395.10	0.00	0.00	0.00	0.00
9,100.00	91.60	359.78	7,517.86	1,496.47	364.45	1,495.06	0.00	0.00	0.00	0.00
9,200.00	91.60	359.78	7,515.07	1,596.43	364.07	1,595.02	0.00	0.00	0.00	0.00
9,300.00	91.60	359.78	7,512.28	1,696.39	363.68	1,694.98	0.00	0.00	0.00	0.00
9,400.00	91.60	359.78	7,509.49	1,796.35	363.30	1,794.94	0.00	0.00	0.00	0.00

**Plan Report for Howard 3N-21HZ - Plan C 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 (°)
9,500.00	91.60	359.78	7,506.70	1,896.31	362.92	1,894.91	0.00	0.00	0.00	0.00
9,600.00	91.60	359.78	7,503.91	1,996.27	362.53	1,994.87	0.00	0.00	0.00	0.00
9,700.00	91.60	359.78	7,501.13	2,096.23	362.15	2,094.83	0.00	0.00	0.00	0.00
9,800.00	91.60	359.78	7,498.34	2,196.19	361.77	2,194.79	0.00	0.00	0.00	0.00
9,900.00	91.60	359.78	7,495.55	2,296.15	361.38	2,294.75	0.00	0.00	0.00	0.00
10,000.00	91.60	359.78	7,492.76	2,396.11	361.00	2,394.71	0.00	0.00	0.00	0.00
10,100.00	91.60	359.78	7,489.97	2,496.08	360.62	2,494.67	0.00	0.00	0.00	0.00
10,200.00	91.60	359.78	7,487.18	2,596.04	360.23	2,594.63	0.00	0.00	0.00	0.00
10,300.00	91.60	359.78	7,484.39	2,696.00	359.85	2,694.59	0.00	0.00	0.00	0.00
10,400.00	91.60	359.78	7,481.60	2,795.96	359.47	2,794.56	0.00	0.00	0.00	0.00
10,500.00	91.60	359.78	7,478.81	2,895.92	359.08	2,894.52	0.00	0.00	0.00	0.00
10,600.00	91.60	359.78	7,476.02	2,995.88	358.70	2,994.48	0.00	0.00	0.00	0.00
10,700.00	91.60	359.78	7,473.23	3,095.84	358.32	3,094.44	0.00	0.00	0.00	0.00
10,800.00	91.60	359.78	7,470.44	3,195.80	357.93	3,194.40	0.00	0.00	0.00	0.00
10,900.00	91.60	359.78	7,467.65	3,295.76	357.55	3,294.36	0.00	0.00	0.00	0.00
11,000.00	91.60	359.78	7,464.86	3,395.72	357.17	3,394.32	0.00	0.00	0.00	0.00
11,100.00	91.60	359.78	7,462.07	3,495.68	356.78	3,494.28	0.00	0.00	0.00	0.00
11,200.00	91.60	359.78	7,459.28	3,595.64	356.40	3,594.24	0.00	0.00	0.00	0.00
11,300.00	91.60	359.78	7,456.49	3,695.60	356.02	3,694.21	0.00	0.00	0.00	0.00
11,400.00	91.60	359.78	7,453.70	3,795.56	355.64	3,794.17	0.00	0.00	0.00	0.00
11,500.00	91.60	359.78	7,450.91	3,895.52	355.25	3,894.13	0.00	0.00	0.00	0.00
11,600.00	91.60	359.78	7,448.13	3,995.48	354.87	3,994.09	0.00	0.00	0.00	0.00
11,700.00	91.60	359.78	7,445.34	4,095.44	354.49	4,094.05	0.00	0.00	0.00	0.00
11,800.00	91.60	359.78	7,442.55	4,195.40	354.10	4,194.01	0.00	0.00	0.00	0.00
11,900.00	91.60	359.78	7,439.76	4,295.36	353.72	4,293.97	0.00	0.00	0.00	0.00
12,000.00	91.60	359.78	7,436.97	4,395.32	353.34	4,393.93	0.00	0.00	0.00	0.00
12,070.51	91.60	359.78	7,435.00	4,465.80	353.07	4,464.42	0.00	0.00	0.00	0.00
<b>Nio B TL - Toe</b>										
12,070.52	91.60	359.78	7,435.00	4,465.81	353.07	4,464.42	0.00	0.00	0.00	0.00
<b>Howard 3N-21HZ_BHL</b>										

**Plan Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,200.00	1,200.00	0.00	0.00	Begin Nudge @ 1200.00ft
1,421.00	1,420.78	-5.46	6.54	End Nudge @ 1421.00ft
6,867.67	6,851.25	-274.40	328.82	Top 4-1/2" Liner @ 6867.67ft
6,967.67	6,950.95	-279.34	334.74	KOP @ 6967.67ft
7,400.00	7,349.93	-143.39	358.08	DLS = 10.00/100ft
7,912.06	7,551.00	309.00	369.00	End Build @ 7912.06ft
12,070.52	7,435.00	4,465.81	353.07	TD @ 12070.52ft

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	359.78	Slot	0.00	0.00	0.00

**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,070.52	Plan C 0 - PERMIT	MWD

**Plan Report for Howard 3N-21HZ - Plan C 0 - PERMIT****Casing Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
803.00	803.00	9 5/8" Casing	9-5/8	13-1/2
7,912.06	7,551.00	7" Casing	7	8-3/4

**Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,000.89	3,993.00	Parkman		0.00	
4,752.13	4,742.00	Sussex		0.00	
7,410.70	7,358.00	Sharon Springs		0.00	
7,436.63	7,377.00	Niobrara A		0.00	
7,880.03	7,551.00	Niobrara B		0.00	
7,912.06	7,551.00	Nio B TL - Heel		0.00	
12,070.51	7,435.00	Nio B TL - Toe		0.00	

***Targets associated with this wellbore***

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Howard 3N-21HZ_BHL	7,435.00	4,465.81	353.07	Point
Howard 3N-21HZ_Sec	0.00	0.00	0.00	Polygon
Howard 3N-21HZ_SHL	0.00	0.00	0.00	Point
Howard 3N-21HZ_CP	7,551.00	309.00	369.00	Point

**North Reference Sheet for Sec. 21-T1N-R67W - Howard 3N-21HZ - Plan C 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 @ 5042.00ft (Drilling Rig). Northing and Easting are relative to Howard 3N-21HZ  
 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: 0.99996421

Grid Coordinates of Well: 1,254,437.59 ft N, 3,168,140.91 ft E  
 Geographical Coordinates of Well: 40° 01' 48.92" N, 104° 53' 58.40" W  
 Grid Convergence at Surface is: 0.39°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,070.52ft  
 the Bottom Hole Displacement is 4,479.75ft in the Direction of 4.52° (True).  
 Magnetic Convergence at surface is: -8.31° (16 May 2013, , BGGM2012)

