

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 24-T3N-R66W

Miller 29C-24HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

## Sperry Drilling Services

## Proposal Report

21 January, 2013

Well Coordinates: 1,318,293.21 N, 3,214,126.94 E (40° 12' 16.46" N, 104° 44' 00.14" W)

Ground Level: 5,017.00 ft

Local Coordinate Origin:

Centered on Well Miller 29C-24HZ

Viewing Datum:

RKB=16 @ 5033.00ft (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. 24-T3N-R66W  
 Well: Miller 29C-24HZ  
 Wellbore: Plan A Rev 0  
 Design: Plan A Rev 0 Permit

# Anadarko Petroleum Corp.

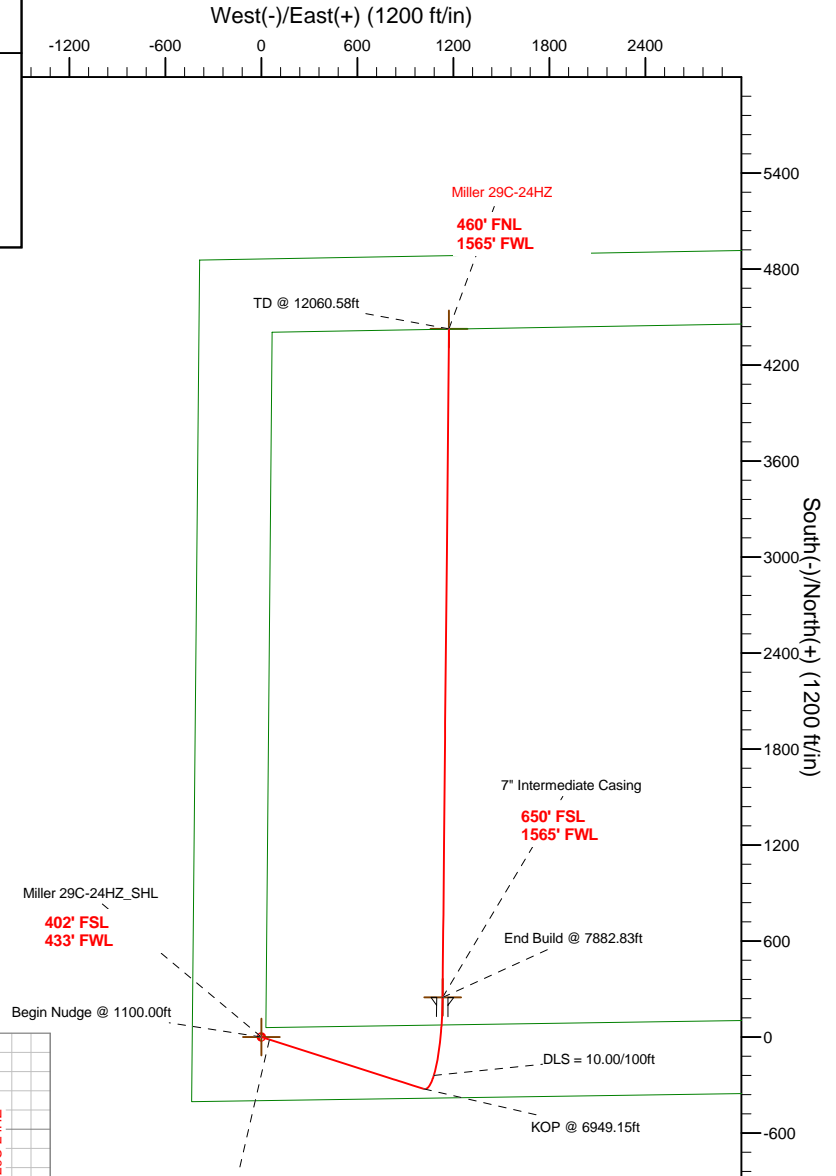
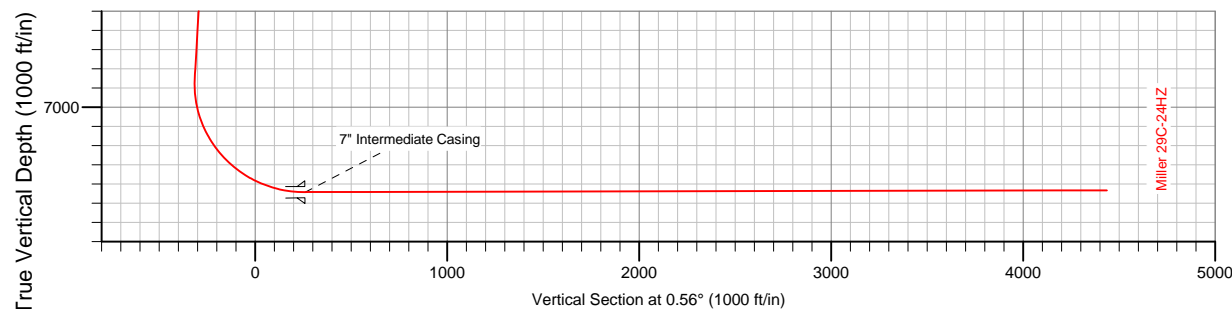
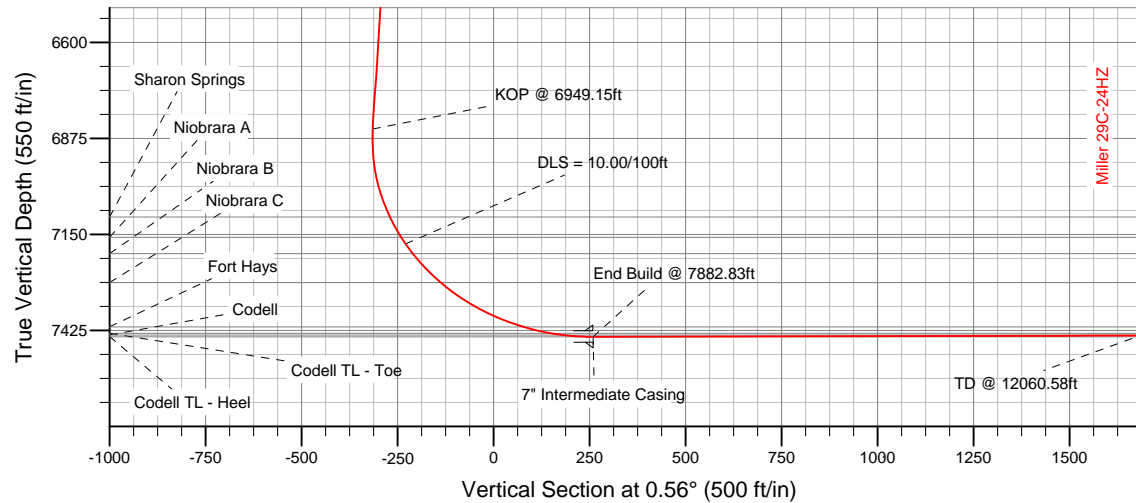
**HALLIBURTON**  
 Sperry Drilling

## 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	1651.19	11.02	107.71	1647.80	-16.08	50.36	2.00	107.71	-15.59	
4	6949.15	11.02	107.71	6848.00	-324.29	1015.40	0.00	0.00	-314.35	
5	7882.83	90.14	0.56	7443.00	248.00	1132.00	10.00	-106.83	259.05	Miller 29C-24HZ_CP
6	12060.58	90.14	0.56	7433.00	4425.54	1172.68	0.00	0.00	4436.79	Miller 29C-24HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Miller 29C-24HZ_SHL	0.00	0.00	0.00	40.204571	-104.733371	Point
Miller 29C-24HZ_BHL	7433.00	4425.54	1172.68	40.216719	-104.729172	Point
Miller 29C-24HZ_CP	7443.00	248.00	1132.00	40.205252	-104.729318	Point



## WELL DETAILS: Miller 29C-24HZ

Ground Level: 5017.00  
 RKB=16 @ 5033.00ft (Drilling Rig)

Plan: Plan A Rev 0 Permit (Miller 29C-24HZ/Plan A Rev 0)

Created By: Fred Hartmann Date: 01/21/2013  
 Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

**Plan Report for Miller 29C-24HZ - 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	107.71	1,199.98	-0.53	1.66	-0.51	2.00	2.00	0.00	107.71
1,300.00	4.00	107.71	1,299.84	-2.12	6.65	-2.06	2.00	2.00	0.00	0.00
1,400.00	6.00	107.71	1,399.45	-4.77	14.95	-4.63	2.00	2.00	0.00	0.00
1,500.00	8.00	107.71	1,498.70	-8.48	26.56	-8.22	2.00	2.00	0.00	0.00
1,600.00	10.00	107.71	1,597.47	-13.24	41.46	-12.84	2.00	2.00	0.00	0.00
1,651.19	11.02	107.71	1,647.80	-16.08	50.36	-15.59	2.00	2.00	0.00	0.00
<b>End Nudge @ 1651.19ft</b>										
1,700.00	11.02	107.71	1,695.70	-18.92	59.25	-18.34	0.00	0.00	0.00	0.00
1,800.00	11.02	107.71	1,793.86	-24.74	77.46	-23.98	0.00	0.00	0.00	0.00
1,900.00	11.02	107.71	1,892.01	-30.56	95.68	-29.62	0.00	0.00	0.00	0.00
2,000.00	11.02	107.71	1,990.17	-36.37	113.89	-35.26	0.00	0.00	0.00	0.00
2,100.00	11.02	107.71	2,088.32	-42.19	132.11	-40.90	0.00	0.00	0.00	0.00
2,200.00	11.02	107.71	2,186.48	-48.01	150.32	-46.54	0.00	0.00	0.00	0.00
2,300.00	11.02	107.71	2,284.63	-53.83	168.54	-52.18	0.00	0.00	0.00	0.00
2,400.00	11.02	107.71	2,382.79	-59.64	186.75	-57.82	0.00	0.00	0.00	0.00
2,500.00	11.02	107.71	2,480.94	-65.46	204.97	-63.45	0.00	0.00	0.00	0.00
2,600.00	11.02	107.71	2,579.10	-71.28	223.18	-69.09	0.00	0.00	0.00	0.00
2,700.00	11.02	107.71	2,677.25	-77.10	241.40	-74.73	0.00	0.00	0.00	0.00
2,800.00	11.02	107.71	2,775.41	-82.91	259.61	-80.37	0.00	0.00	0.00	0.00
2,900.00	11.02	107.71	2,873.56	-88.73	277.83	-86.01	0.00	0.00	0.00	0.00
3,000.00	11.02	107.71	2,971.72	-94.55	296.05	-91.65	0.00	0.00	0.00	0.00
3,100.00	11.02	107.71	3,069.87	-100.37	314.26	-97.29	0.00	0.00	0.00	0.00
3,200.00	11.02	107.71	3,168.03	-106.18	332.48	-102.93	0.00	0.00	0.00	0.00
3,300.00	11.02	107.71	3,266.18	-112.00	350.69	-108.57	0.00	0.00	0.00	0.00
3,400.00	11.02	107.71	3,364.34	-117.82	368.91	-114.21	0.00	0.00	0.00	0.00
3,500.00	11.02	107.71	3,462.49	-123.63	387.12	-119.85	0.00	0.00	0.00	0.00
3,600.00	11.02	107.71	3,560.65	-129.45	405.34	-125.48	0.00	0.00	0.00	0.00
3,700.00	11.02	107.71	3,658.80	-135.27	423.55	-131.12	0.00	0.00	0.00	0.00
3,800.00	11.02	107.71	3,756.96	-141.09	441.77	-136.76	0.00	0.00	0.00	0.00
3,900.00	11.02	107.71	3,855.11	-146.90	459.98	-142.40	0.00	0.00	0.00	0.00
4,000.00	11.02	107.71	3,953.26	-152.72	478.20	-148.04	0.00	0.00	0.00	0.00
4,100.00	11.02	107.71	4,051.42	-158.54	496.41	-153.68	0.00	0.00	0.00	0.00
4,200.00	11.02	107.71	4,149.57	-164.36	514.63	-159.32	0.00	0.00	0.00	0.00
4,300.00	11.02	107.71	4,247.73	-170.17	532.84	-164.96	0.00	0.00	0.00	0.00
4,400.00	11.02	107.71	4,345.88	-175.99	551.06	-170.60	0.00	0.00	0.00	0.00
4,500.00	11.02	107.71	4,444.04	-181.81	569.27	-176.24	0.00	0.00	0.00	0.00
4,571.28	11.02	107.71	4,514.00	-185.96	582.26	-180.26	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,600.00	11.02	107.71	4,542.19	-187.63	587.49	-181.88	0.00	0.00	0.00	0.00
4,700.00	11.02	107.71	4,640.35	-193.44	605.71	-187.51	0.00	0.00	0.00	0.00
4,800.00	11.02	107.71	4,738.50	-199.26	623.92	-193.15	0.00	0.00	0.00	0.00
4,900.00	11.02	107.71	4,836.66	-205.08	642.14	-198.79	0.00	0.00	0.00	0.00
5,000.00	11.02	107.71	4,934.81	-210.90	660.35	-204.43	0.00	0.00	0.00	0.00
5,100.00	11.02	107.71	5,032.97	-216.71	678.57	-210.07	0.00	0.00	0.00	0.00
5,200.00	11.02	107.71	5,131.12	-222.53	696.78	-215.71	0.00	0.00	0.00	0.00

**Plan Report for Miller 29C-24HZ - 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	11.02	107.71	5,229.28	-228.35	715.00	-221.35	0.00	0.00	0.00	0.00
5,400.00	11.02	107.71	5,327.43	-234.17	733.21	-226.99	0.00	0.00	0.00	0.00
5,500.00	11.02	107.71	5,425.59	-239.98	751.43	-232.63	0.00	0.00	0.00	0.00
5,600.00	11.02	107.71	5,523.74	-245.80	769.64	-238.27	0.00	0.00	0.00	0.00
5,700.00	11.02	107.71	5,621.90	-251.62	787.86	-243.91	0.00	0.00	0.00	0.00
5,800.00	11.02	107.71	5,720.05	-257.43	806.07	-249.54	0.00	0.00	0.00	0.00
5,900.00	11.02	107.71	5,818.21	-263.25	824.29	-255.18	0.00	0.00	0.00	0.00
6,000.00	11.02	107.71	5,916.36	-269.07	842.50	-260.82	0.00	0.00	0.00	0.00
6,100.00	11.02	107.71	6,014.52	-274.89	860.72	-266.46	0.00	0.00	0.00	0.00
6,200.00	11.02	107.71	6,112.67	-280.70	878.93	-272.10	0.00	0.00	0.00	0.00
6,300.00	11.02	107.71	6,210.82	-286.52	897.15	-277.74	0.00	0.00	0.00	0.00
6,400.00	11.02	107.71	6,308.98	-292.34	915.37	-283.38	0.00	0.00	0.00	0.00
6,500.00	11.02	107.71	6,407.13	-298.16	933.58	-289.02	0.00	0.00	0.00	0.00
6,600.00	11.02	107.71	6,505.29	-303.97	951.80	-294.66	0.00	0.00	0.00	0.00
6,700.00	11.02	107.71	6,603.44	-309.79	970.01	-300.30	0.00	0.00	0.00	0.00
6,800.00	11.02	107.71	6,701.60	-315.61	988.23	-305.94	0.00	0.00	0.00	0.00
6,900.00	11.02	107.71	6,799.75	-321.43	1,006.44	-311.57	0.00	0.00	0.00	0.00
6,949.15	11.02	107.71	6,848.00	-324.29	1,015.39	-314.35	0.00	0.00	0.00	0.00
<b>KOP @ 6949.15ft</b>										
7,000.00	10.71	80.54	6,897.97	-324.99	1,024.69	-314.96	10.00	-0.62	-53.43	-106.83
7,100.00	15.82	41.67	6,995.45	-313.25	1,042.96	-303.04	10.00	5.11	-38.88	-80.13
7,200.00	24.15	25.11	7,089.42	-284.47	1,060.75	-274.09	10.00	8.34	-16.56	-42.18
7,211.64	25.20	23.89	7,100.00	-280.05	1,062.76	-269.65	10.00	8.99	-10.50	-26.57
<b>Sharon Springs</b>										
7,277.50	31.27	18.44	7,158.00	-250.98	1,073.86	-240.48	10.00	9.21	-8.28	-25.46
<b>Niobrara A</b>										
7,300.00	33.38	17.00	7,177.02	-239.52	1,077.51	-228.98	10.00	9.40	-6.41	-20.65
<b>DLS = 10.00/100ft</b>										
7,334.17	36.62	15.09	7,205.00	-220.69	1,082.92	-210.09	10.00	9.48	-5.57	-19.43
<b>Niobrara B</b>										
7,400.00	42.93	12.13	7,255.58	-179.77	1,092.75	-169.08	10.00	9.58	-4.50	-17.87
7,445.98	47.37	10.45	7,288.00	-147.81	1,099.11	-137.06	10.00	9.66	-3.65	-15.59
<b>Niobrara C</b>										
7,500.00	52.61	8.76	7,322.72	-107.03	1,105.99	-96.21	10.00	9.71	-3.13	-14.41
7,600.00	62.37	6.18	7,376.40	-23.51	1,116.84	-12.59	10.00	9.76	-2.59	-13.32
7,700.00	72.17	4.02	7,414.99	68.25	1,124.96	79.24	10.00	9.80	-2.16	-11.92
7,700.02	72.17	4.02	7,415.00	68.26	1,124.96	79.26	0.00	0.00	0.00	2.45
<b>Fort Hays</b>										
7,800.00	81.99	2.08	7,437.32	165.46	1,130.10	176.49	10.00	9.82	-1.93	-11.08
7,805.03	82.49	1.99	7,438.00	170.43	1,130.28	181.47	10.00	9.83	-1.86	-10.65
<b>Codell</b>										
7,882.83	90.14	0.56	7,443.00	248.00	1,132.00	259.05	10.00	9.83	-1.84	-10.64
<b>End Build @ 7882.83ft - Codell TL - Heel - 7" Intermediate Casing - Miller 29C-24HZ_CP</b>										
7,900.00	90.14	0.56	7,442.96	265.17	1,132.17	276.22	0.00	0.00	0.00	-10.55
8,000.00	90.14	0.56	7,442.72	365.16	1,133.14	376.22	0.00	0.00	0.00	0.00
8,100.00	90.14	0.56	7,442.48	465.16	1,134.11	476.22	0.00	0.00	0.00	0.00
8,200.00	90.14	0.56	7,442.24	565.15	1,135.09	576.22	0.00	0.00	0.00	0.00
8,300.00	90.14	0.56	7,442.00	665.15	1,136.06	676.22	0.00	0.00	0.00	0.00
8,400.00	90.14	0.56	7,441.76	765.14	1,137.04	776.22	0.00	0.00	0.00	0.00
8,500.00	90.14	0.56	7,441.52	865.14	1,138.01	876.22	0.00	0.00	0.00	0.00
8,600.00	90.14	0.56	7,441.28	965.13	1,138.98	976.22	0.00	0.00	0.00	0.00
8,700.00	90.14	0.56	7,441.04	1,065.13	1,139.96	1,076.22	0.00	0.00	0.00	0.00
8,800.00	90.14	0.56	7,440.80	1,165.12	1,140.93	1,176.22	0.00	0.00	0.00	0.00
8,900.00	90.14	0.56	7,440.57	1,265.12	1,141.90	1,276.22	0.00	0.00	0.00	0.00
9,000.00	90.14	0.56	7,440.33	1,365.11	1,142.88	1,376.22	0.00	0.00	0.00	0.00
9,100.00	90.14	0.56	7,440.09	1,465.11	1,143.85	1,476.22	0.00	0.00	0.00	0.00
9,200.00	90.14	0.56	7,439.85	1,565.10	1,144.82	1,576.22	0.00	0.00	0.00	0.00
9,300.00	90.14	0.56	7,439.61	1,665.10	1,145.80	1,676.22	0.00	0.00	0.00	0.00
9,400.00	90.14	0.56	7,439.37	1,765.09	1,146.77	1,776.21	0.00	0.00	0.00	0.00

**Plan Report for Miller 29C-24HZ - 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 (°)
9,500.00	90.14	0.56	7,439.13	1,865.09	1,147.75	1,876.21	0.00	0.00	0.00	0.00
9,600.00	90.14	0.56	7,438.89	1,965.08	1,148.72	1,976.21	0.00	0.00	0.00	0.00
9,700.00	90.14	0.56	7,438.65	2,065.08	1,149.69	2,076.21	0.00	0.00	0.00	0.00
9,800.00	90.14	0.56	7,438.41	2,165.07	1,150.67	2,176.21	0.00	0.00	0.00	0.00
9,900.00	90.14	0.56	7,438.17	2,265.07	1,151.64	2,276.21	0.00	0.00	0.00	0.00
10,000.00	90.14	0.56	7,437.93	2,365.06	1,152.61	2,376.21	0.00	0.00	0.00	0.00
10,100.00	90.14	0.56	7,437.69	2,465.06	1,153.59	2,476.21	0.00	0.00	0.00	0.00
10,200.00	90.14	0.56	7,437.45	2,565.05	1,154.56	2,576.21	0.00	0.00	0.00	0.00
10,300.00	90.14	0.56	7,437.21	2,665.05	1,155.53	2,676.21	0.00	0.00	0.00	0.00
10,400.00	90.14	0.56	7,436.97	2,765.04	1,156.51	2,776.21	0.00	0.00	0.00	0.00
10,500.00	90.14	0.56	7,436.74	2,865.04	1,157.48	2,876.21	0.00	0.00	0.00	0.00
10,600.00	90.14	0.56	7,436.50	2,965.03	1,158.46	2,976.21	0.00	0.00	0.00	0.00
10,700.00	90.14	0.56	7,436.26	3,065.03	1,159.43	3,076.21	0.00	0.00	0.00	0.00
10,800.00	90.14	0.56	7,436.02	3,165.02	1,160.40	3,176.21	0.00	0.00	0.00	0.00
10,900.00	90.14	0.56	7,435.78	3,265.02	1,161.38	3,276.21	0.00	0.00	0.00	0.00
11,000.00	90.14	0.56	7,435.54	3,365.01	1,162.35	3,376.21	0.00	0.00	0.00	0.00
11,100.00	90.14	0.56	7,435.30	3,465.01	1,163.32	3,476.21	0.00	0.00	0.00	0.00
11,200.00	90.14	0.56	7,435.06	3,565.00	1,164.30	3,576.21	0.00	0.00	0.00	0.00
11,300.00	90.14	0.56	7,434.82	3,665.00	1,165.27	3,676.21	0.00	0.00	0.00	0.00
11,400.00	90.14	0.56	7,434.58	3,764.99	1,166.25	3,776.21	0.00	0.00	0.00	0.00
11,500.00	90.14	0.56	7,434.34	3,864.99	1,167.22	3,876.21	0.00	0.00	0.00	0.00
11,600.00	90.14	0.56	7,434.10	3,964.98	1,168.19	3,976.21	0.00	0.00	0.00	0.00
11,700.00	90.14	0.56	7,433.86	4,064.98	1,169.17	4,076.21	0.00	0.00	0.00	0.00
11,800.00	90.14	0.56	7,433.62	4,164.97	1,170.14	4,176.21	0.00	0.00	0.00	0.00
11,900.00	90.14	0.56	7,433.38	4,264.97	1,171.11	4,276.21	0.00	0.00	0.00	0.00
12,000.00	90.14	0.56	7,433.15	4,364.96	1,172.09	4,376.21	0.00	0.00	0.00	0.00
12,060.57	90.14	0.56	7,433.00	4,425.53	1,172.68	4,436.78	0.00	0.00	0.00	0.00
<b>Codell TL - Toe</b>										
12,060.58	90.14	0.56	7,433.00	4,425.54	1,172.68	4,436.79	0.01	0.00	0.00	0.00
<b>Miller 29C-24HZ_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
1,651.19	1,647.80	-16.08	50.36	End Nudge @ 1651.19ft
6,949.15	6,848.00	-324.29	1,015.39	KOP @ 6949.15ft
7,300.00	7,177.02	-239.52	1,077.51	DLS = 10.00/100ft
7,882.83	7,443.00	248.00	1,132.00	End Build @ 7882.83ft
12,060.58	7,433.00	4,425.54	1,172.68	TD @ 12060.58ft

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
User	No Target (Freehand)	0.56	Slot	0.00	0.00	0.00

**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,060.58	Plan A Rev 0 Permit	MWD

**Plan Report for Miller 29C-24HZ - Plan A Rev 0 Permit****Casing Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,882.83	7,443.00	7" Intermediate Casing	7	8-3/4

**Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,571.28	4,514.00	Sussex		0.00	
7,211.64	7,100.00	Sharon Springs		0.00	
7,277.50	7,158.00	Niobrara A		0.00	
7,334.17	7,205.00	Niobrara B		0.00	
7,445.98	7,288.00	Niobrara C		0.00	
7,700.02	7,415.00	Fort Hays		0.00	
7,805.03	7,438.00	Codell		0.00	
7,882.83	7,443.00	Codell TL - Heel		0.00	
12,060.57	7,433.00	Codell TL - Toe		0.00	

***Targets associated with this wellbore***

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Miller 29C-24HZ_SHL	0.00	0.00	0.00	Point
Miller 29C-24HZ_BHL	7,433.00	4,425.54	1,172.68	Point
Miller 29C-24HZ_CP	7,443.00	248.00	1,132.00	Point

## North Reference Sheet for Sec. 24-T3N-R66W - Miller 29C-24HZ - 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=16 @ 5033.00ft (Drilling Rig). Northing and Easting are relative to Miller 29C-24HZ  
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: 0.99995717

Grid Coordinates of Well: 1,318,293.21 ft N, 3,214,126.94 ft E  
Geographical Coordinates of Well: 40° 12' 16.46" N, 104° 44' 00.14" W  
Grid Convergence at Surface is: 0.50°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,060.58ft  
the Bottom Hole Displacement is 4,578.27ft in the Direction of 14.84° (True).

Magnetic Convergence at surface is: -8.17° (21 January 2013, , BGGM2012)

