

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 8-T1N-R67W

NRC 4N-8HZ

Plan A

Plan: Rev A0 Permit

Sperry Drilling Services

Proposal Report

05 November, 2013

Well Coordinates: 1,264,991.30 N, 3,161,901.77 E (40° 03' 33.63" N, 104° 55' 17.72" W)

Ground Level: 5,049.00 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 NRC 4N-8HZ

RKB = 17' @ 5066.00usft (Drilling Rig)

N

True

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Project: Weld County, CO (NAD 83)
Site: Sec. 8-T1N-R67W
Well: NRC 4N-8HZ
Wellbore: Plan A
Design: Rev A0 Permit

Anadarko Petroleum Corp.

HALLIBURTON
Sperry Drilling

SECTION DETAILS

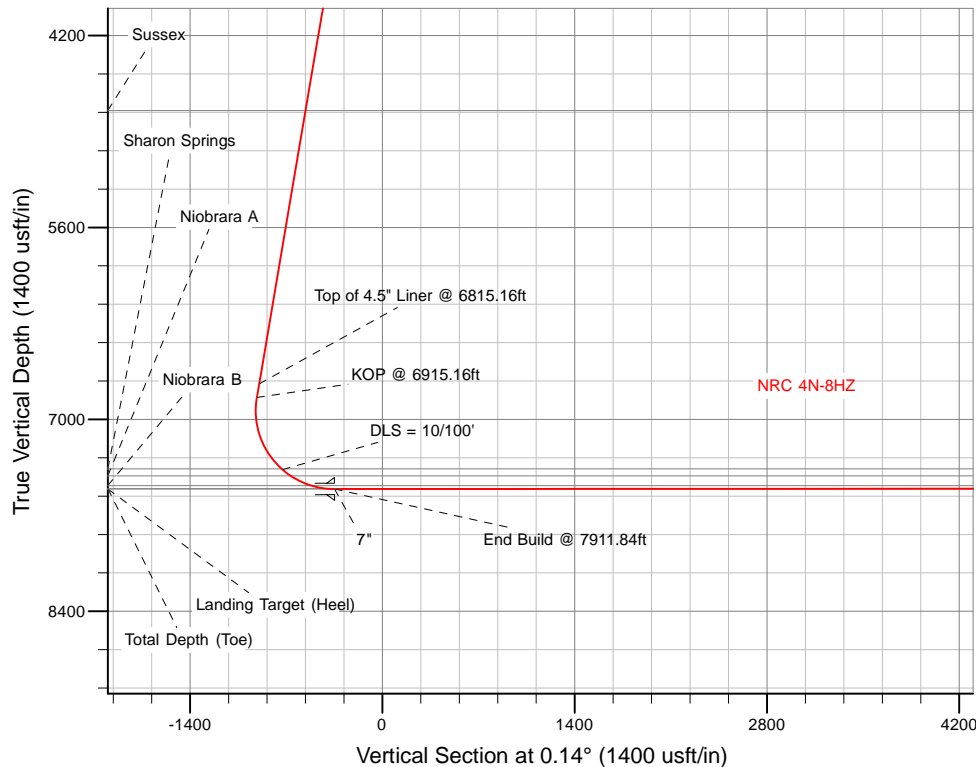
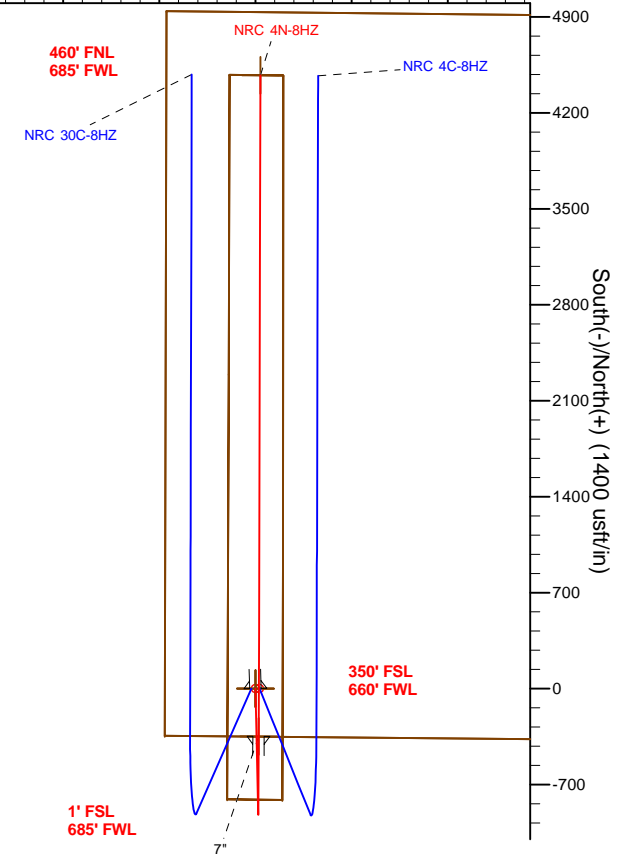
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	
3	1680.72	9.61	178.73	1678.46	-40.23	0.89	2.00	178.73	-40.23	
4	6915.16	9.61	178.73	6839.38	-914.24	20.20	0.00	0.00	-914.19	
5	7911.63	90.04	0.14	7508.00	-348.98	24.35	10.00	-178.57	-348.92	NRC 4N-8HZ_CP
6	12734.84	90.04	0.14	7505.00	4474.22	36.10	0.00	0.00	4474.29	NRC 4N-8HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
NRC 4N-8HZ_LD	0.00	0.00	0.00	40.059341	-104.921589	Polygon
NRC 4N-8HZ_SEC	0.00	0.00	0.00	40.059341	-104.921589	Polygon
NRC 4N-8HZ_SHL	0.00	0.00	0.00	40.059341	-104.921589	Polygon
NRC 4N-8HZ_BHL	7505.00	4474.22	36.10	40.071623	-104.921460	Point
NRC 4N-8HZ_CP	7508.00	-348.98	24.35	40.058383	-104.921502	Point

West(-)/East(+) (1400 usft/in)

-3500 -2800 -2100 -1400 -700 0 700 1400



TVD MD

6740.79 6815.16 Top of 4.5" Liner @ 6815.16ft
6839.39 6915.16 KOP @ 6915.16ft

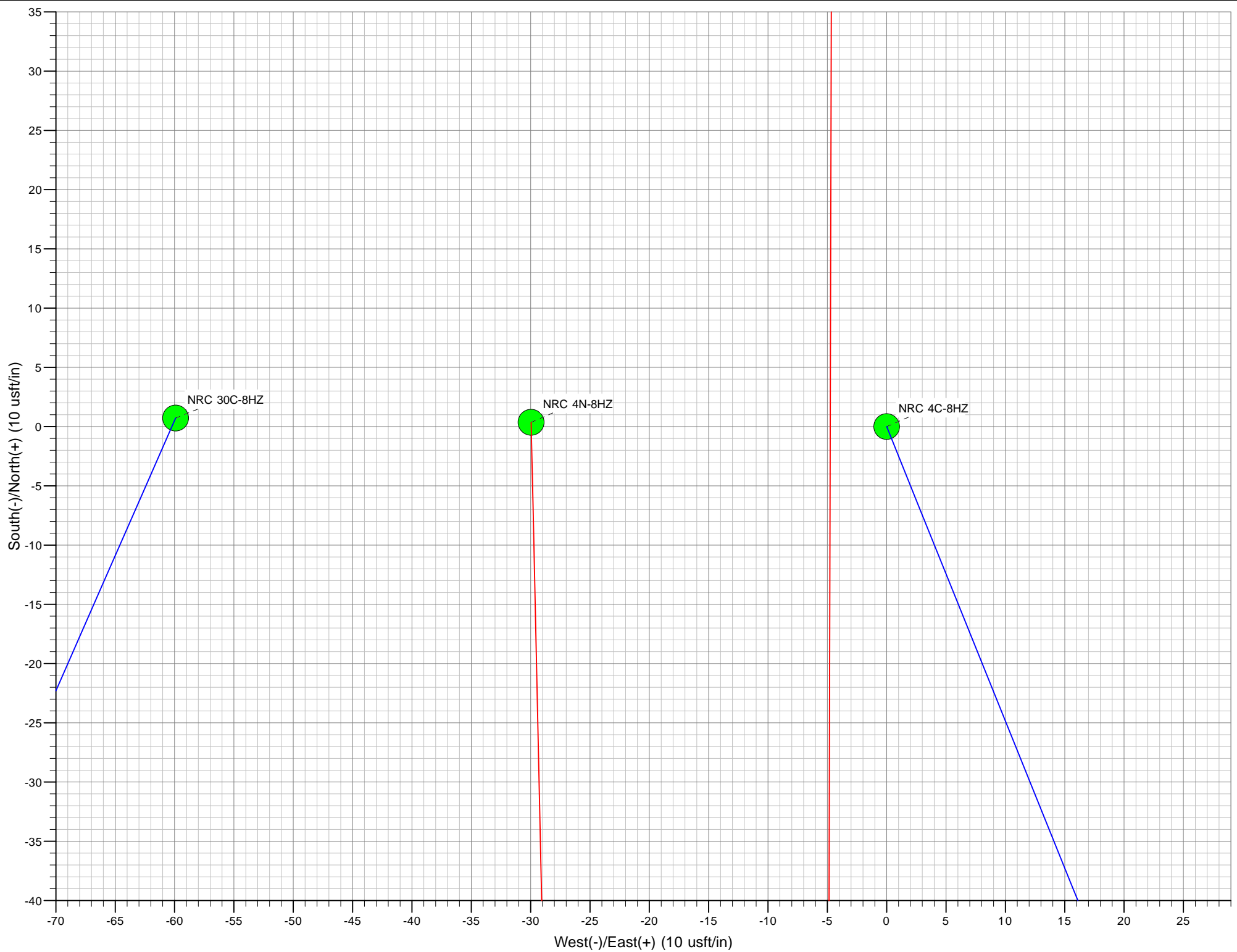
WELL DETAILS: NRC 4N-8HZ

Ground Level: 5049.00

RKB = 17' @ 5066.00usft (Drilling Rig)

Plan: Rev A0 Permit (NRC 4N-8HZ/Plan A)

Created By: Clint Eshelman Date: 11/04/2013
Reviewed: _____ Date: _____



Plan Report for NRC 4N-8HZ - Rev A0 Permit

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NRC 4N-8HZ_SEC - NRC 4N-8HZ_SHL - NRC 4N-8HZ_LD										
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
567.00	0.00	0.00	567.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base										
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
617.00	0.00	0.00	617.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"										
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
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 1200.00ft										
1,300.00	2.00	178.73	1,299.98	-1.74	0.04	-1.74	2.00	2.00	0.00	178.73
1,400.00	4.00	178.73	1,399.84	-6.98	0.15	-6.98	2.00	2.00	0.00	0.00
1,500.00	6.00	178.73	1,499.45	-15.69	0.35	-15.69	2.00	2.00	0.00	0.00
1,600.00	8.00	178.73	1,598.70	-27.87	0.62	-27.87	2.00	2.00	0.00	0.00
1,680.72	9.61	178.73	1,678.47	-40.23	0.89	-40.23	2.00	2.00	0.00	0.00
End Nudge @ 1680.72ft										
1,700.00	9.61	178.73	1,697.48	-43.45	0.96	-43.45	0.00	0.00	0.00	0.00
1,800.00	9.61	178.73	1,796.07	-60.15	1.33	-60.14	0.00	0.00	0.00	0.00
1,900.00	9.61	178.73	1,894.67	-76.84	1.70	-76.84	0.00	0.00	0.00	0.00
2,000.00	9.61	178.73	1,993.26	-93.54	2.07	-93.53	0.00	0.00	0.00	0.00
2,100.00	9.61	178.73	2,091.86	-110.24	2.44	-110.23	0.00	0.00	0.00	0.00
2,200.00	9.61	178.73	2,190.45	-126.94	2.80	-126.93	0.00	0.00	0.00	0.00
2,300.00	9.61	178.73	2,289.05	-143.63	3.17	-143.62	0.00	0.00	0.00	0.00
2,400.00	9.61	178.73	2,387.64	-160.33	3.54	-160.32	0.00	0.00	0.00	0.00
2,500.00	9.61	178.73	2,486.24	-177.03	3.91	-177.02	0.00	0.00	0.00	0.00
2,600.00	9.61	178.73	2,584.84	-193.72	4.28	-193.71	0.00	0.00	0.00	0.00
2,700.00	9.61	178.73	2,683.43	-210.42	4.65	-210.41	0.00	0.00	0.00	0.00
2,800.00	9.61	178.73	2,782.03	-227.12	5.02	-227.11	0.00	0.00	0.00	0.00
2,900.00	9.61	178.73	2,880.62	-243.82	5.39	-243.80	0.00	0.00	0.00	0.00
3,000.00	9.61	178.73	2,979.22	-260.51	5.76	-260.50	0.00	0.00	0.00	0.00
3,100.00	9.61	178.73	3,077.81	-277.21	6.12	-277.20	0.00	0.00	0.00	0.00
3,200.00	9.61	178.73	3,176.41	-293.91	6.49	-293.89	0.00	0.00	0.00	0.00
3,300.00	9.61	178.73	3,275.00	-310.61	6.86	-310.59	0.00	0.00	0.00	0.00
3,400.00	9.61	178.73	3,373.60	-327.30	7.23	-327.29	0.00	0.00	0.00	0.00
3,500.00	9.61	178.73	3,472.19	-344.00	7.60	-343.98	0.00	0.00	0.00	0.00
3,600.00	9.61	178.73	3,570.79	-360.70	7.97	-360.68	0.00	0.00	0.00	0.00
3,700.00	9.61	178.73	3,669.39	-377.40	8.34	-377.37	0.00	0.00	0.00	0.00
3,800.00	9.61	178.73	3,767.98	-394.09	8.71	-394.07	0.00	0.00	0.00	0.00
3,900.00	9.61	178.73	3,866.58	-410.79	9.08	-410.77	0.00	0.00	0.00	0.00
4,000.00	9.61	178.73	3,965.17	-427.49	9.44	-427.46	0.00	0.00	0.00	0.00
4,100.00	9.61	178.73	4,063.77	-444.19	9.81	-444.16	0.00	0.00	0.00	0.00
4,200.00	9.61	178.73	4,162.36	-460.88	10.18	-460.86	0.00	0.00	0.00	0.00
4,300.00	9.61	178.73	4,260.96	-477.58	10.55	-477.55	0.00	0.00	0.00	0.00
4,400.00	9.61	178.73	4,359.55	-494.28	10.92	-494.25	0.00	0.00	0.00	0.00
4,500.00	9.61	178.73	4,458.15	-510.98	11.29	-510.95	0.00	0.00	0.00	0.00
4,600.00	9.61	178.73	4,556.74	-527.67	11.66	-527.64	0.00	0.00	0.00	0.00
4,700.00	9.61	178.73	4,655.34	-544.37	12.03	-544.34	0.00	0.00	0.00	0.00
4,792.97	9.61	178.73	4,747.00	-559.89	12.37	-559.86	0.00	0.00	0.00	0.00
Sussex										

Plan Report for NRC 4N-8HZ - Rev A0 Permit

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
4,800.00	9.61	178.73	4,753.93	-561.07	12.39	-561.04	0.00	0.00	0.00	0.00
4,900.00	9.61	178.73	4,852.53	-577.77	12.76	-577.73	0.00	0.00	0.00	0.00
5,000.00	9.61	178.73	4,951.13	-594.46	13.13	-594.43	0.00	0.00	0.00	0.00
5,100.00	9.61	178.73	5,049.72	-611.16	13.50	-611.13	0.00	0.00	0.00	0.00
5,200.00	9.61	178.73	5,148.32	-627.86	13.87	-627.82	0.00	0.00	0.00	0.00
5,300.00	9.61	178.73	5,246.91	-644.55	14.24	-644.52	0.00	0.00	0.00	0.00
5,400.00	9.61	178.73	5,345.51	-661.25	14.61	-661.21	0.00	0.00	0.00	0.00
5,500.00	9.61	178.73	5,444.10	-677.95	14.98	-677.91	0.00	0.00	0.00	0.00
5,600.00	9.61	178.73	5,542.70	-694.65	15.35	-694.61	0.00	0.00	0.00	0.00
5,700.00	9.61	178.73	5,641.29	-711.34	15.71	-711.30	0.00	0.00	0.00	0.00
5,800.00	9.61	178.73	5,739.89	-728.04	16.08	-728.00	0.00	0.00	0.00	0.00
5,900.00	9.61	178.73	5,838.48	-744.74	16.45	-744.70	0.00	0.00	0.00	0.00
6,000.00	9.61	178.73	5,937.08	-761.44	16.82	-761.39	0.00	0.00	0.00	0.00
6,100.00	9.61	178.73	6,035.68	-778.13	17.19	-778.09	0.00	0.00	0.00	0.00
6,200.00	9.61	178.73	6,134.27	-794.83	17.56	-794.79	0.00	0.00	0.00	0.00
6,300.00	9.61	178.73	6,232.87	-811.53	17.93	-811.48	0.00	0.00	0.00	0.00
6,400.00	9.61	178.73	6,331.46	-828.23	18.30	-828.18	0.00	0.00	0.00	0.00
6,500.00	9.61	178.73	6,430.06	-844.92	18.67	-844.88	0.00	0.00	0.00	0.00
6,600.00	9.61	178.73	6,528.65	-861.62	19.03	-861.57	0.00	0.00	0.00	0.00
6,700.00	9.61	178.73	6,627.25	-878.32	19.40	-878.27	0.00	0.00	0.00	0.00
6,800.00	9.61	178.73	6,725.84	-895.02	19.77	-894.96	0.00	0.00	0.00	0.00
6,815.16	9.61	178.73	6,740.79	-897.55	19.83	-897.50	0.00	0.00	0.00	0.00
Top of 4.5" Liner @ 6815.16ft										
6,900.00	9.61	178.73	6,824.44	-911.71	20.14	-911.66	0.00	0.00	0.00	0.00
6,915.16	9.61	178.73	6,839.39	-914.24	20.20	-914.19	0.00	0.00	0.00	0.00
KOP @ 6915.16ft										
7,000.00	1.15	168.22	6,923.78	-922.18	20.53	-922.12	10.00	-9.97	-12.40	-178.57
7,100.00	8.88	1.66	7,023.42	-915.43	20.96	-915.38	10.00	7.72	-166.55	-168.08
7,200.00	18.87	0.84	7,120.38	-891.49	21.42	-891.43	10.00	10.00	-0.83	-1.54
7,300.00	28.87	0.57	7,211.71	-851.07	21.90	-851.01	10.00	10.00	-0.26	-0.74
7,400.00	38.87	0.43	7,294.63	-795.41	22.38	-795.35	10.00	10.00	-0.14	-0.49
7,490.03	47.88	0.35	7,360.00	-733.64	22.80	-733.59	10.00	10.00	-0.09	-0.38
Sharon Springs										
7,500.00	48.87	0.35	7,366.62	-726.19	22.85	-726.13	10.00	10.00	-0.07	-0.32
DLS = 10/100'										
7,572.98	56.17	0.30	7,411.00	-668.31	23.17	-668.25	10.00	10.00	-0.07	-0.32
Niobrara A										
7,600.00	58.87	0.28	7,425.51	-645.52	23.29	-645.46	10.00	10.00	-0.06	-0.29
7,700.00	68.87	0.23	7,469.49	-555.85	23.69	-555.79	10.00	10.00	-0.05	-0.28
7,741.39	73.01	0.21	7,483.00	-516.74	23.84	-516.68	10.00	10.00	-0.05	-0.26
Niobrara B										
7,800.00	78.87	0.19	7,497.23	-459.91	24.04	-459.85	10.00	10.00	-0.04	-0.25
7,900.00	88.87	0.14	7,507.89	-360.61	24.32	-360.55	10.00	10.00	-0.04	-0.24
7,911.63	90.04	0.14	7,508.00	-348.98	24.35	-348.92	10.00	10.00	-0.04	-0.24
End Build @ 7911.84ft - Landing Target (Heel) - 7" - NRC 4N-8HZ_CP										
8,000.00	90.04	0.14	7,507.95	-260.61	24.57	-260.55	0.00	0.00	0.00	-0.24
8,100.00	90.04	0.14	7,507.88	-160.61	24.81	-160.55	0.00	0.00	0.00	0.00
8,200.00	90.04	0.14	7,507.82	-60.61	25.06	-60.55	0.00	0.00	0.00	0.00
8,300.00	90.04	0.14	7,507.76	39.39	25.30	39.45	0.00	0.00	0.00	0.00
8,400.00	90.04	0.14	7,507.70	139.39	25.54	139.45	0.00	0.00	0.00	0.00
8,500.00	90.04	0.14	7,507.63	239.39	25.79	239.45	0.00	0.00	0.00	0.00
8,600.00	90.04	0.14	7,507.57	339.39	26.03	339.45	0.00	0.00	0.00	0.00
8,700.00	90.04	0.14	7,507.51	439.39	26.27	439.45	0.00	0.00	0.00	0.00
8,800.00	90.04	0.14	7,507.45	539.39	26.52	539.45	0.00	0.00	0.00	0.00
8,900.00	90.04	0.14	7,507.39	639.39	26.76	639.45	0.00	0.00	0.00	0.00
9,000.00	90.04	0.14	7,507.32	739.39	27.00	739.45	0.00	0.00	0.00	0.00
9,100.00	90.04	0.14	7,507.26	839.39	27.25	839.45	0.00	0.00	0.00	0.00
9,200.00	90.04	0.14	7,507.20	939.39	27.49	939.45	0.00	0.00	0.00	0.00
9,300.00	90.04	0.14	7,507.14	1,039.39	27.74	1,039.45	0.00	0.00	0.00	0.00

Plan Report for NRC 4N-8HZ - Rev A0 Permit

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
9,400.00	90.04	0.14	7,507.07	1,139.39	27.98	1,139.45	0.00	0.00	0.00	0.00
9,500.00	90.04	0.14	7,507.01	1,239.39	28.22	1,239.45	0.00	0.00	0.00	0.00
9,600.00	90.04	0.14	7,506.95	1,339.39	28.47	1,339.45	0.00	0.00	0.00	0.00
9,700.00	90.04	0.14	7,506.89	1,439.38	28.71	1,439.45	0.00	0.00	0.00	0.00
9,800.00	90.04	0.14	7,506.83	1,539.38	28.95	1,539.45	0.00	0.00	0.00	0.00
9,900.00	90.04	0.14	7,506.76	1,639.38	29.20	1,639.45	0.00	0.00	0.00	0.00
10,000.00	90.04	0.14	7,506.70	1,739.38	29.44	1,739.45	0.00	0.00	0.00	0.00
10,100.00	90.04	0.14	7,506.64	1,839.38	29.68	1,839.45	0.00	0.00	0.00	0.00
10,200.00	90.04	0.14	7,506.58	1,939.38	29.93	1,939.45	0.00	0.00	0.00	0.00
10,300.00	90.04	0.14	7,506.51	2,039.38	30.17	2,039.45	0.00	0.00	0.00	0.00
10,400.00	90.04	0.14	7,506.45	2,139.38	30.42	2,139.45	0.00	0.00	0.00	0.00
10,500.00	90.04	0.14	7,506.39	2,239.38	30.66	2,239.45	0.00	0.00	0.00	0.00
10,600.00	90.04	0.14	7,506.33	2,339.38	30.90	2,339.45	0.00	0.00	0.00	0.00
10,700.00	90.04	0.14	7,506.27	2,439.38	31.15	2,439.45	0.00	0.00	0.00	0.00
10,800.00	90.04	0.14	7,506.20	2,539.38	31.39	2,539.45	0.00	0.00	0.00	0.00
10,900.00	90.04	0.14	7,506.14	2,639.38	31.63	2,639.45	0.00	0.00	0.00	0.00
11,000.00	90.04	0.14	7,506.08	2,739.38	31.88	2,739.45	0.00	0.00	0.00	0.00
11,100.00	90.04	0.14	7,506.02	2,839.38	32.12	2,839.45	0.00	0.00	0.00	0.00
11,200.00	90.04	0.14	7,505.95	2,939.38	32.36	2,939.45	0.00	0.00	0.00	0.00
11,300.00	90.04	0.14	7,505.89	3,039.38	32.61	3,039.45	0.00	0.00	0.00	0.00
11,400.00	90.04	0.14	7,505.83	3,139.38	32.85	3,139.45	0.00	0.00	0.00	0.00
11,500.00	90.04	0.14	7,505.77	3,239.38	33.10	3,239.45	0.00	0.00	0.00	0.00
11,600.00	90.04	0.14	7,505.71	3,339.38	33.34	3,339.45	0.00	0.00	0.00	0.00
11,700.00	90.04	0.14	7,505.64	3,439.38	33.58	3,439.45	0.00	0.00	0.00	0.00
11,800.00	90.04	0.14	7,505.58	3,539.38	33.83	3,539.45	0.00	0.00	0.00	0.00
11,900.00	90.04	0.14	7,505.52	3,639.38	34.07	3,639.45	0.00	0.00	0.00	0.00
12,000.00	90.04	0.14	7,505.46	3,739.38	34.31	3,739.45	0.00	0.00	0.00	0.00
12,100.00	90.04	0.14	7,505.39	3,839.38	34.56	3,839.45	0.00	0.00	0.00	0.00
12,200.00	90.04	0.14	7,505.33	3,939.38	34.80	3,939.45	0.00	0.00	0.00	0.00
12,300.00	90.04	0.14	7,505.27	4,039.38	35.04	4,039.45	0.00	0.00	0.00	0.00
12,400.00	90.04	0.14	7,505.21	4,139.38	35.29	4,139.45	0.00	0.00	0.00	0.00
12,500.00	90.04	0.14	7,505.15	4,239.38	35.53	4,239.45	0.00	0.00	0.00	0.00
12,600.00	90.04	0.14	7,505.08	4,339.38	35.77	4,339.45	0.00	0.00	0.00	0.00
12,700.00	90.04	0.14	7,505.02	4,439.38	36.02	4,439.45	0.00	0.00	0.00	0.00
12,734.84	90.04	0.14	7,505.00	4,474.22	36.10	4,474.29	0.00	0.00	0.00	0.00

TD Well @ 12734.84ft - Total Depth (Toe) - NRC 4N-8HZ_BHL

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,200.00	1,200.00	0.00	0.00	Begin Nudge @ 1200.00ft
1,680.72	1,678.47	-40.23	0.89	End Nudge @ 1680.72ft
6,815.16	6,740.79	-897.55	19.83	Top of 4.5" Liner @ 6815.16ft
6,915.16	6,839.39	-914.24	20.20	KOP @ 6915.16ft
7,500.00	7,366.62	-726.19	22.85	DLS = 10/100'
7,911.63	7,508.00	-348.98	24.35	End Build @ 7911.84ft
12,734.84	7,505.00	4,474.22	36.10	TD Well @ 12734.84ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	0.14	Slot	0.00	0.00	0.00

Plan Report for NRC 4N-8HZ - Rev A0 Permit

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,911.63	Rev A0 Permit	MWD
7,911.63	12,734.84	Rev A0 Permit	MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
617.00	617.00	9 5/8"	9-5/8	13-1/2
7,911.63	7,508.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
567.00	567.00	Fox Hills Base		0.00	
4,792.97	4,747.00	Sussex		0.00	
7,490.03	7,360.00	Sharon Springs		0.00	
7,572.98	7,411.00	Niobrara A		0.00	
7,741.39	7,483.00	Niobrara B		0.00	
7,911.63	7,508.00	Landing Target (Heel)		0.00	
12,734.84	7,505.00	Total Depth (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
NRC 4N-8HZ_SEC	0.00	0.00	0.00	Polygon
NRC 4N-8HZ_SHL	0.00	0.00	0.00	Point
NRC 4N-8HZ_LD	0.00	0.00	0.00	Polygon
NRC 4N-8HZ_BHL	7,505.00	4,474.22	36.10	Point
NRC 4N-8HZ_CP	7,508.00	-348.98	24.35	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.86 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 7,911.63 usft
Net Tortousity applicable to Plans:	0.86 °/100usft	Directional Difficulty Index:	6.249

Audit Info

North Reference Sheet for Sec. 8-T1N-R67W - NRC 4N-8HZ - 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 = 17' @ 5066.00usft (Drilling Rig). Northing and Easting are relative to NRC 4N-8HZ
 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: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996240

Grid Coordinates of Well: 1,264,991.30 usft N, 3,161,901.77 usft E
 Geographical Coordinates of Well: 40° 03' 33.63" N, 104° 55' 17.72" W
 Grid Convergence at Surface is: 0.37°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,734.84usft
 the Bottom Hole Displacement is 4,474.36usft in the Direction of 0.46° (True).
 Magnetic Convergence at surface is: -8.26° (24 October 2013, , BGGM2013)

